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Horticulture and Husbandry.

# ENCYCLOPÆDIA LONDINENSIS;

OR,

## UNIVERSAL DICTIONARY

OF

## ARTS, SCIENCES, AND LITERATURE.

COMPREHENDING,

*UNDER ONE GENERAL ALPHABETICAL ARRANGEMENT;*

ALL THE WORDS AND SUBSTANCE OF

EVERY KIND OF DICTIONARY EXTANT IN THE ENGLISH LANGUAGE.

IN WHICH THE IMPROVED DEPARTMENTS OF

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BRANCHES OF POLITE LITERATURE,

ARE SELECTED FROM THE

ACTS, MEMOIRS, AND TRANSACTIONS, OF THE MOST EMINENT LITERARY SOCIETIES,
IN EUROPE, ASIA, AND AMERICA.

FORMING A COMPREHENSIVE VIEW OF THE RISE, PROGRESS, AND PRESENT STATE, OF HUMAN
LEARNING IN EVERY PART OF THE WORLD.

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OF THE ENGLISH, SCOTCH, AND IRISH, NOBILITY; OF THE BARONETS OF THE UNITED KINGDOM;
AND OF NUMEROUS DISTINGUISHED FAMILIES, PATRONS OF THIS WORK.

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COMPILED, DIGESTED, AND ARRANGED,

BY JOHN WILKES, OF MILLAND HOUSE, IN THE COUNTY OF SUSSEX, ESQUIRE;

ASSISTED BY MINENT SCHOLARS OF THE ENGLISH, SCOTCH, AND IRISH, UNIVERSITIES.

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1811.

*Non audiendi sunt homines imperiti, qui humano ingenio majorem, vel inutilem, et rebus gerendis adverſam* πολυμαθειαν *criminantur. Eſt scilicet quædam Scientiarum cognatio et conciliatio; unde et* Εγκυκλοπαιδειαν *vocant Græci; ut in unâ perfectus dici nequeat, qui cæteras non attigerit.*—Morhofi Polyhistor, l. i. c. i. s. i.

Those inexperienced perſons, who make it a charge of accuſation againſt variety and extenſive learning, that it exceeds the compaſs of human ability, or is uſeleſs, or that it is an impediment to tranſacting buſineſs, deſerve no attention. For there is between the Sciences a degree of natural and cloſe connexion; from which the Greeks uſe the term "Encyclopædia;" so that no one can be perfect in any one Science, who has not attained to ſome knowledge of the reſt.

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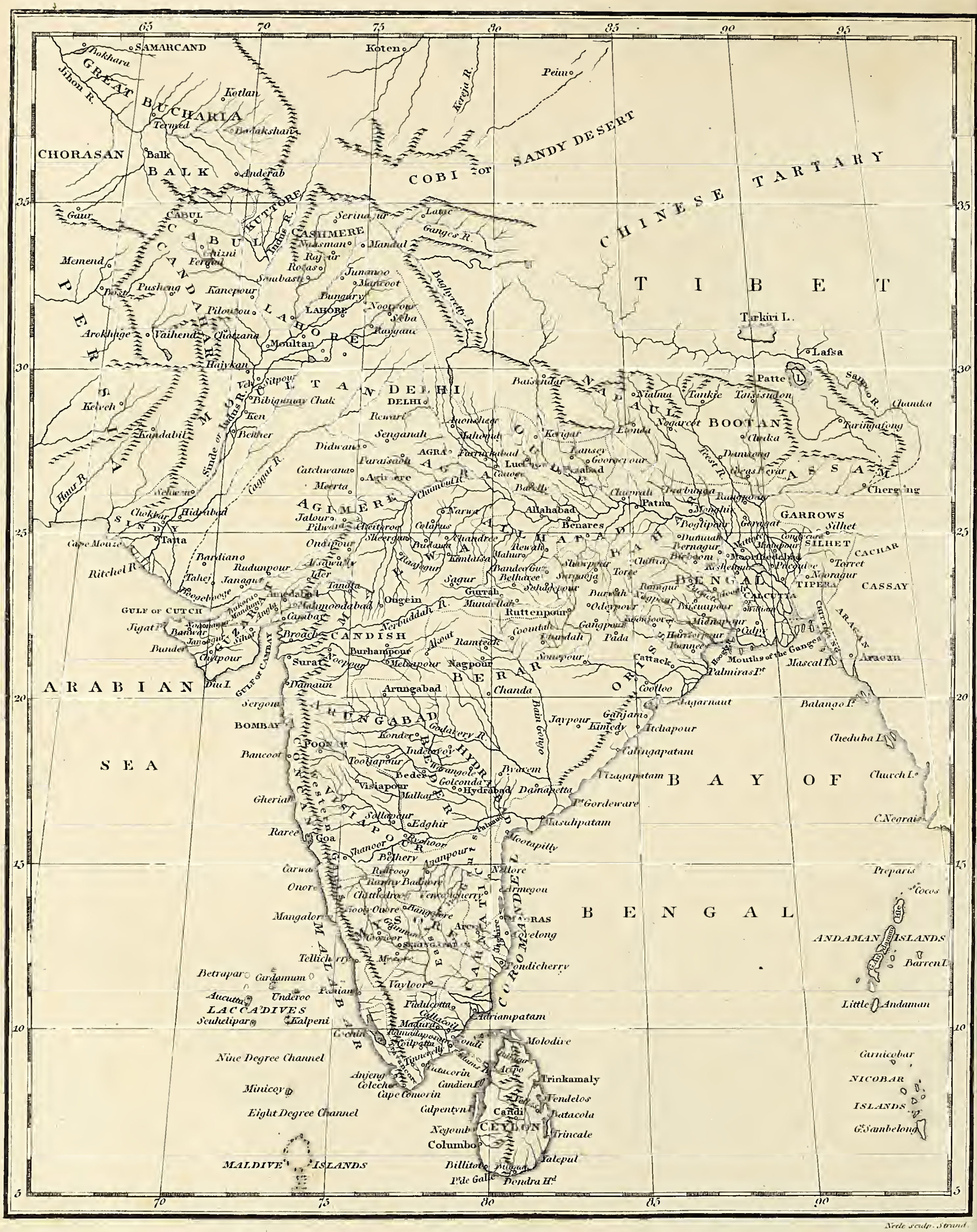
# DESCRIPTION OF THE FRONTISPIECE ILLUSTRATING HORTICULTURE AND HUSBANDRY.

CERES, THE GODDESS OF CORN AND HARVEST, IS REPRESENTED WITH EARS OF WHEAT ENTWINED IN HER HAIR IN THE FORM OF A WREATH, ATTENTIVELY OBSERVING THE PROGRESS OF THE REAPERS IN THE BACK GROUND; AT HER FEET LIES POMONA, WITH A BASKET OF FLOWERS AND SCATTERED FRUITS, AS AN OFFERING TO THE GENERAL PATRONESS OF CULTIVATION, TO WHOM SHE APPEARS LOOKING UP WITH GRATITUDE AND AFFECTION, WHILST HER HUSBAND VERTUMNUS, WITH HIS CORNUCOPIA IN HIS HAND, AND CROWNED WITH FLOWERS, IS SILENTLY ADMIRING THE TWO GODDESSES. UPON THE RIGHT OF CERES IS REPRESENTED A RAM, WHICH WAS USUALLY SACRIFICED TO HER, AND IS AN EMBLEM OF FERTILIZATION TO THE EARTH BY FOLDING THE FLOCK, AND OF CLOTHING TO MANKIND BY ITS WOOL.



## HINDOOSTAN or MODERN INDIA.

*London Pub.d as the Act directs April 1st 1807. by J. Wilkes.*

# ENCYCLOPÆDIA LONDINENSIS;

OR, AN

# UNIVERSAL DICTIONARY

OF

# ARTS, SCIENCES, and LITERATURE.

## HINDOOSTAN.

HINDOOSTAN', a moſt celebrated country of Aſia, famed in all ages of the world for its elegant productions of the loom, and for its abundant ſtores of gold, diamonds, and precious ſtones. In the original language of the country, according to ſir William Jones, (the learned founder and preſident of the Aſiatic Literary Society,) it was called *Medhyama*; but, being long wiſely and benevolently governed by a ſovereign whoſe name was Bharat, the country itſelf, in proceſs of time, came to be called after him, *Bharata*. It was known, for many centuries before the Chriſtian era, by the general denomination of *India*, which was given to it by the Greeks; and in common language amongſt us, it is often diſtinguiſhed by the vague appellation of "the EAST INDIES." Its denomination *Hind* appears to have originated with the Perſians, from whom the Greeks received it; who firſt applied the name of *Hindoo* to the aboriginal inhabitant, and *ſtan* to the diſtrict or region: whence HINDOOSTAN; "the region or country of the Hindoos."

The extenſive territories to which the Greeks gave the name of INDIA, were divided by the river Ganges into two unequal parts, denominated *India within the Ganges*, or *India Proper*, which means the country of Hindooſtan; and *India without the Ganges*, which comprehends all the country lying on the eaſtern ſide of that river, between Hindooſtan and the empire of China; occupying what is called the *Farther Peninſula*. See the article GEOGRAPHY, vol. viii. p. 403. The boundaries of this widely-extended portion of Aſia, is thus defined by ſir William Jones: "India, on its moſt enlarged ſcale, in which the ancients appear to have underſtood it, compriſes an area of near forty degrees on each ſide, including a ſpace almoſt as large as all Europe; being divided on the weſt from Perſia by the Arachoſian mountains; limited on the eaſt by the Chineſe part of the farther peninſula; confined on the north by the wilds of Tartary; and extending to the ſouth as far as the iſles of Java. This trapezium, therefore, comprehends the ſtupendous hills of *Potyid*, or Thibet; the beautiful valley of Cachemire; and all the domains of the old Indo-Scythians, the countries of Nepal and Butant, *Camrup* or Aſam, together with Siam, Ava, Racan, and the bordering kingdoms, as far as the *China* of the Hindoos, or *Sind* of the Arabian geographers; not to mention the whole weſtern peninſula, (now Hindooſtan,) with the celebrated iſland of Ceylon at its ſouthern extremity. By *India*, in ſhort, I mean that whole extent of country, in which the primitive religion and languages of the Hindoos prevail at this day with more or leſs of their ancient purity; and in which the *Nagari* letters are ſtill uſed, with more or leſs deviation from their original form."—See Aſiatic Reſearches, vol. i. Diſcourſe the Third.

Mr. Maurice, in his valuable work on the "Antiquities of Hindooſtan," recently publiſhed, ſtates the ancient boundaries of that country, or the *weſtern peninſula*, thus: "On the weſt it is terminated by the great river Indus; on the north and north-weſt by a chain of mountains, to which the ancients gave the general name of *Caucaſus*; on the eaſt by the Ganges; and on the ſouth by the Indian Ocean. It is to be remarked, however, that Ptolemy does not aſſert the *Indus* to be the weſtern boundary of *India Proper*, or Hindooſtan; ſince he aſſigns for its confines, on that ſide, the territory of the *Paropamiſidæ*, and the provinces of Arachoſia and Gedroſia. The firſt of theſe are the *Afghans* of modern hiſtory; the ſecond, *Sableſtan* or Zabuliſtan; the third and laſt, *Mucran*."

The modern boundaries of Hindooſtan, the ſame ingenious writer ſtates thus: "It is bounded on the north by the mountains of Tartary and Thibet; on the weſt it is ſeparated from Perſia and Uſbeck Tartary by deſerts and mountains; on the ſouth it is confined by the countries of the Deccan; and on the eaſt it has for its limits the kingdoms of Tipra, Aſſam, and Arracan. According to the Ayeen-Akbery, it was parcelled into grand diviſions by the emperor Akbar. Each of theſe diviſions was called a *ſoubah*; and was ſubdivided into *circars*, or counties; and theſe again were divided into *pergunnahs*, or hundreds."—See the article GEOGRAPHY, vol. viii. p. 402–403.

The names and boundaries of this country have ſo often varied, that its deſcription has been in general perplexed and unſatisfactory; we hope, however, that the ſtatements recited above, aided by the improved Map of Hindooſtan hereunto annexed, will cure theſe anomalies, and place both its ancient and modern geography in an obvious point of view. We ſhall therefore only add, in this place, a few particulars of its ancient ſplendour and importance, from the valuable work laſt mentioned, with a view to reconcile ancient with modern names, in reſpect to places on its weſtern boundary; over which the earlieſt inroads were made by foreign invaders, and from whoſe victories the firſt dawn of its hiſtory came to be developed.

The firſt place of conſiderable importance was *Taxila*, which, it is ſuppoſed was ſituated where the caſtle and city of *Attock* now ſtand, on the eaſtern bank of the Indus. This city, according to Strabo, was the capital of a kingdom as large as Egypt. It was here that Alexander the Great made his invaſion of India; and from Taxila he advanced to the banks of the Hydaſpes, called in modern language the *Behat*, or *Chelum*, but, in the Ayeen-Akbery, *Beduſta*; Ptolemy calls it *Bedaſpes*. It takes its riſe in the Indian Caucaſus, and joins the Indus at Moultan; and it ſeems to have conſtituted the boundary between the kingdoms of Taxilus and Porus. This river Alexander paſſed, according to major Rennell, at the place where the fortreſs of *Rotas* now ſtands; and, after defeating Porus, croſſed the ſecond branch of the Indus, called by the ancients *Aceſines*; but by the preſent inhabitants *Jenaub*. There is no town in the map of modern India correſponding with the ſituation of Nicæa, which Alexander built on that ſpot. Impatient to reach the Ganges, he then ruſhed on to the third river, the Hyarotes of Strabo, and Jarawuttee in the Ayeen-Akbery, but called Rhaudis by Ptolemy, and Rauvee by the preſent inhabitants. Major Rennell thinks that Alexander paſſed this river where Lahore now ſtands. The city Sangala, where he was oppoſed by the united forces of the Cathæi, Malli, and Oxydracæ, the moſt warlike nations of India, is ſuppoſed to have been ſomewhere in the province of Guzerat. From Sangala, Alexander, preſſing toward the Ganges, paſſed the fifth branch of the Indus, called by Arrian and Q. Curtius, *Hyphaſis*; by Ptolemy, *Zaradrus*; now, *Suttuluz*. He had yet to paſs a deſert of twelve days' journey, before he could reach the Ganges: but his army would go no farther. Had he purſued his march, he would have arrived at another river, called by Pliny the Jomænes, and in modern language the Jumna, on which the city of Delhi ſtands; which, at the time of this invaſion, was a place of little importance; newly founded, according to Feriſhta, by Delhu, the uſurper of the throne of Hindooſtan, and the uncle of Porus. The imperial reſidence had been, for many centuries, Canouge, or Kinoje: which major Rennell has laboured to prove to be the ſame with the ancient Palibothra: but "later inquiries, (ſays Mr. Maurice,) evince that Palibothra ſtood on or very near the ſite of the preſent Patna; and was known to the natives by the name of Pataliputra."

Returning to the courſe of the Indus; as we deſcend ſouthward, along the eaſtern ſhore, the map of ancient geography leads us through the country of the Brachmans, the Sabracæ, the Sogdii, the Muſicani, the Præſti, the rich empire of Sabus, and the iſland of Pattala, now Tatta. Major Rennell thinks that the preſent Bhakhor anſwers to the poſition of the Muſicani; and Hajacan, a circar of Sindy, to that of the Præſti. Southward of the mouths of the Indus, we find the gulph of Canthus, or Cutch, and the great maritime city Barygaza, which may be the modern Bargaut, on the banks of Nerbuddah, the Nomadus of Ptolemy.

To this emporium, all the riches of the peninſula were anciently brought, through the Balagaut mountains, from the cities of Tagara and Pluthana; now the Deoghir and Pultanah. On the Sinus Barygazenus ſtood Supara, probably Chitpore; and, farther ſouthward, Simylla, correſponding in ſituation to Swallee on the river Tapti, the ancient Binda. To the ſouth of Simylla, among many obſcure cities, we may notice Tyndis, which major Rennell ſuppoſes to have ſtood on the ſite of Goa; Calecaris, the modern Calicut; Balepatna, probably Balipatan; Muziris, the modern Merjee; Nitrias, the preſent Newtya; and Barace, Barcelore. Below the river Baris were ſituated Elancon, and Cottiora; at the extreme ſouthern point, Comar, which anſwers to Cape Comorin; and to the ſouth-eaſt of that cape, the great iſland Tiprobana, or Ceylon.

Having paſſed the Comarian promontory, called by the Indians Gebal-Kamarum, the map of Ptolemy preſents to our view the Sinus Colchicus, ſeparated from the Sinus Argaricus by the promontory of Colis, or Cory; near to which lies the *Inſular Cory*, now called Ramankoil, or the temple of Rama. The ridge of rocks, extending from this iſland to Manar on the iſland of Ceylon, called Adam's bridge, ſir William Jones contends, ſhould be entitled Rama's bridge; and the preſent name of this promontory and iſland ſtrengthens his remark. Madura Regia Pandionis, muſt doubtleſs mean the Madura of modern maps; Nigamma anſwers to Negapatan; Chaberi Oſtia and Chaberi Emporium, point out the river Cavery and the city of Caveripatan; Maliarpha ſeems to be Meliapour; Puduce, Pullicat; and Sobura, Soopour.

Entering the great Sinus Gangeticus, or gulph of Bengal, we find Cottobara, perhaps Cottapatan; Sippora, plainly Narſipour; Meſolia, the diſtrict of Maſulipatan; Cocola, undoubtedly Cicacole. Coſamba, in ſituation, anſwers to Balaſore. Near the mouths of the Ganges were ſeated the Calingæ. A city denominated Calingapatam is marked in major Rennell's map: and it is not impoſſible that the once impregnable fortreſs of Callinger, in the ſoubah of Allahabad, might have owed to them its name and exiſtence.

The *Ganga Regia* of Ptolemy, has been ſuppoſed to be Gour, or Lucknowi; and higher up, on the main ſtream of the river, the two moſt potent nations of India, the Gangarides and the Praſii, had their reſidence. Athenagarum, from its ſituation, major Rennell ſuppoſes to be Oude; the Uxentius mons, the hills of Bundelcund and Bahar; Maliba, Matura; Panaſſa, Panna (the famous diamond-mine); and Palibothra, or Patna.

With reſpect to the nations which inhabited the inland regions of the peninſula, nothing deciſive can be aſcertained concerning them from either Greek or Latin writers. Their ignorance of the Indian language, and their fondneſs for giving a Grecian form to foreign names, have contributed greatly to the confuſion of the hiſtory and the geography of that country; and ſir William Jones has remarked that, beſides Por, or Porus, there is hardly an Aſiatic word which they have not corrupted. In all the oriental dialects, it is a fact well known, that the D and R have been frequently confounded, eſpecially in proper names.

We next approach to Palibothra, the ſuppoſed capital of *ancient* India; and, till lately, thought to be the ſame with the preſent Canouge. Palibothra, according to all the ancient geographers, was the greateſt, the moſt populous, and the richeſt, city of India. It was eighty ſtadia in length, and fifteen in breadth: was ſurrounded with a foſſe forty-five feet deep, and had ſixty-five gates, and five hundred and ſeventy towers. But according to the oriental hiſtorians, Oude, or Oudh, was the firſt imperial city of Hindooſtan, and continued ſo (ſays the Mahabbarit,) during the ſpace of fifteen hundred years; when one of the princes of the dynaſty of Surajas erected, on the banks of the Ganges, the city of Canouge, about one thouſand years before the Chriſtian era. The walls of this city are ſaid to have been one hundred miles in circumference; and its third emperor, Sinkal, could bring into the field four thouſand elephants, one hundred thouſand horſe, and four hundred thouſand foot. About the beginning of the ſixteenth century, we are told, Canouge was become ſo populous, "that there were in it thirty thouſand ſhops in which beetle-nut, uſed by the Indians as we uſe tobacco, was publicly ſold; and ſixty thouſand bands of muſicians, who paid a tax to government."—It is now a heap of ruins of very great extent.

Delhi, another ancient city, was formerly called Inderput. It roſe to renown as the glory of Canouge declined; and it continued the unrivalled metropolis of Hindooſtan till the year 1399. Next to this was Lahore, the capital of a large province to the north-weſt of Delhi, called by the natives *Panjab*, or, diſtrict of the *five rivers*, from *panj*, five, and *ab*, water, or ſtream. It ſtands on the banks of the Rauvee, the ancient Hydraotes, and is of great antiquity. It ſunk to inſignificance by the riſe of Agra, which owed its aggrandiſement to the emperor Akbar. "For the completion of his magnificent palace in Agra, he collected together the moſt ſkilful architects, and the moſt celebrated artiſans in every branch, both of external ornament and domeſtic decoration; and ſome judgment may be formed of the prodigious labour and expence required to perfect the whole undertaking, when the reader is informed that the palace alone took up twelve years in finiſhing; kept conſtantly employed, during that period, above one thouſand labourers, and coſt nearly three millions of rupees."—Yet let it be remembered, that the palace of Solomon required thirteen years in finiſhing; though many thouſands of men were employed in the work. 1 *Kings* vii. 1.

But a communication with the exterior parts of India had been carried on for a prodigious length of time before the invaſion of the Greeks under Alexander the Great. To uſe the authority of Holy Writ, our ſureſt guide on all occaſions, we find that king Solomon eſtabliſhed a regular intercourſe with India; and for that purpoſe founded Hamath in the country of Galilee, and Tadmor in the wilderneſs, or Palmira, with many other "cities of ſtore," or *emporia*, for the rich productions of India, and Tyre, and Sidon, and other ſurrounding nations. See 1 Kings ix. 19. 2 Chron. viii. 4, 6.

## PRIMITIVE HISTORY.

The five principal nations which have in different ages divided among themſelves, as a kind of inheritance, the vaſt continent of Aſia, with the iſlands depending on it, are the Indians, the Chineſe, the Tartars, the Arabians, and the Perſians. Who they ſeverally were, whence they originally came, and at what period of the world they formed or founded theſe ſettlements, are topics on which the pens of many ingenious writers have been exerciſed; yet terminating more or leſs in impenetrable obſcurity or vague conjecture. The deepeſt reſearch that has hitherto been made in this intereſting enquiry, reſults from the pen of the learned preſident of the Aſiatic Society; who has endeavoured to ſhow, that the firſt race of Perſians and Indians ſpoke the ſame language, and profeſſed the ſame popular faith, and conſequently ſprung from one and the ſame ſtock; but the *ſecond* Perſian race, or Parthians, who ſpoke the Syriac tongue, muſt have come from another diſtinct race; that the ſettlers in China and Japan had moſt probably a common origin with the Hindoos; and that the nation of Tartars were primarily of a third ſeparate branch, totally differing from the two former in language, manners, and features. From analyſing the three languages of theſe diſtinct people, and comparing them with the dialects of the neighbouring countries, ſir William Jones concludes thus:

"Although the inhabitants of Aſia are formed into five diſtinct nations, yet have they all ſprung from the three branches above particularized; and thoſe branches from one parent ſtem. From the point where the ark reſted, muſt the migrations of Ham, Shem, and Japhet, have taken place." This point lies almoſt equally on the confines of Perſia and India; Pinkerton ſays, mount Ararat belongs to Perſia; and is ſituated at a very ſmall diſtance from mount Caucaſus, in the centre of an adjoining plain. "Theſe three ſons of the juſt and virtuous Noah, (continues the learned preſident,) travelled as they began to multiply, in *three* large diviſions, variouſly ſubdivided. The children of Japhet ſeem, from the traces of Sclavonian names, to have ſpread themſelves far and wide, and to have produced the race, which, for want of a correct appellation, we call *Tartarian.* The colonies formed by the ſons of Ham and Shem appear to have been nearly ſimultaneous; and, among thoſe of the latter branch, we find ſo many names inconteſtably preſerved at this hour in Arabia, that we cannot heſitate in pronouncing them the ſame people with the *Arabians*; while the former branch, the moſt powerful and adventurous of whom were the progeny of Cuſh, Miſr, and Rama, were, in all probability, the race which I call *Indian*; but to which we may now give any other name that may ſeem more proper and comprehenſive. And from theſe three ſhoots, namely, the Indian, Arabian, and Tartarian, branches, I conceive the whole earth to have been peopled."—See Aſiatic Reſearches, vol. iii. Diſcourſe the Ninth.

It is aſſerted, and probably with the ſtricteſt truth, that this extraordinary people carried with them into India the worſhip of the only true, eternal, and omnipotent, GOD; and, from the ſingular mildneſs and benevolence of their character, they are even now believed, by ſome writers, to pay the adoration of their hearts to the Supreme Being, which they have attempted to perſonify in a *triad*, by the images of *Brahma*, the firſt Cauſe or Creator of all things; *Viſhnu*, the preſerver and upholder of all things thus created; and *Seeva*, the deſtroyer or terminator of all things, and the avenger of thoſe who ſuffer wrong. Indeed ſome writers have gone ſo far, in their admiration of the theology of the Hindoos, as to fancy a ſtriking analogy between this *triad* and the Holy Trinity of the Chriſtian diſpenſation; but with manifeſt abſurdity, if not with *inſult* to the Chriſtian religion; for, howſoever *pure* the worſhip of the Indian nation might originally have been, it is inconteſtably ſhown, by the earlieſt hiſtorians, that from the time of the very firſt intercourſe of foreign nations with the Hindoos, they were found ſunk in the moſt deplorable ſtate of idolatry. Their doctrine then was, what it ſtill is, founded on the errors and obſcenity of the Gymnoſophiſts, and a belief in the metempſychoſis, or tranſmigration of ſouls. Yet this ſame people have in all ages been celebrated for their great ingenuity in the mechanical arts, for their liberal hoſpitality, morality, and love of truth; as well as for their great learning, their knowledge in aſtronomy, and their progreſs in ſcience and architecture, which their magnificent pagodas or temples, palaces, and choultries, abundantly demonſtrate. It is from the number of theſe immenſe fabrics, and their ſimilarity with the Egyptian temples, as well in their ſtructure as in the hieroglyphics which adorn them, that many writers have choſen to differ from ſir William Jones in defining the origin of this people; rather ſuppoſing Hindooſtan to have been peopled from Egypt, than that India gave birth to the learning and wiſdom of the Pharaohs, and ſplendour to the ancient Hierapolis, Tentyra, and Memphis. A very remarkable corroboration of this opinion occurred, when our troops croſſed the Red Sea from India, to ſupport the war in Egypt; which is noticed by captain Burr, in the Eighth Volume of the Aſiatic Reſearches, publiſhed at Calcutta in 1805.—Deſcribing the temple of Tentyra, in Upper Egypt, he concludes thus:

"The dreſſes, the utenſils, canoes, and many of the articles of the domeſtic economy, of the ancient Egyptians, are herein repreſented in the moſt minute and pleaſing manner; and the entire ſtate of theſe figures, not only in ſhape, but colouring, conveys the moſt perfect idea of the habits of the times. A vaſt reſemblance exiſts in the dreſſes with thoſe at preſent worn in India; the *cholie* of the women, the *moond*, and many others, claiming a direct compariſon. It has often ſtruck me, and never more forcibly than in contemplating this temple and its ſculptures, that there muſt have exiſted a much greater affinity in the cuſtoms of, and of courſe a more friendly intercourſe amongſt, the nations of the Eaſt formerly, when they purſued one ſyſtem of worſhip, than ſince the introduction of Chriſtianity and Mahometaniſm. Our Indian followers, who attended us here, beheld the ſcene before them with a degree of admiration bordering one nthuſiaſm; ariſing not only from the affinity they traced in ſeveral of the figures to their own deities, but from their conviction of its being the work of ſome *Râcſhas*, who they conceived had viſited the earth, to tranſmit to an admiring poſterity a teſtimony of ſupernatural talents."—For a deſcription of the temple of Tentyra, and the ſculptures alluded to by captain Burr, ſee the article EGYPT, vol. vi. p. 357, 358, and the correſpondent Engravings.

The firſt *hiſtorical* notices we have of India, are found in Herodotus, who wrote his work above a century before the invaſion of Alexander the Great. His accounts, however, convey but little information; for he appears only to have heard of the weſtern part of the country, and that on account of its being then tributary to Perſia. He ſtates that Darius Hyſtaſpes, about the year 508 before Chriſt, had ſent Scylax, the celebrated geographer of Caria, to explore the courſe of the Indus, and the territory of *Pactya*, which major Rennell ſuppoſes to be the modern Pecheli.

He continued his route eaſtward to the ſea, till, altering his courſe to the weſt, he at length arrived at that place where the Phœnicians had formerly opened their navigation round the continent of Africa. After Scylax had made his report of theſe diſcoveries to the Perſian monarch, we are told that Darius ſubdued the Indians, whom he laid under an annual tribute, and thus became maſter of that ſea. The northern inhabitants of India, he ſays, reſembled the Bactrians in their manners, and were more valiant than the reſt; but thoſe who reſided far to the ſouthward were as dark in their complexion as the Ethiopians, killed no animals, but lived on rice and fruits, and ſlightly clothed themſelves with cotton. By the expedition of Alexander, the Greeks acquired a more competent knowledge of Hindooſtan; an expedition, which, according to ſome writers, was undertaken by the Macedonian hero, after he had conquered Perſia, to enforce the tribute which had been laid on India by Darius, but refuſed to his victorious ſucceſſor. For the particulars of this expedition, the ſubmiſſion of Taxiles, the celebrated victory over Porus the Indian king, and the ſubſequent events to the death of Alexander, we muſt refer the reader to the article GREECE, vol. viii. p. 944–949.

The ingenious Dr. Robertſon, and ſeveral other able writers, are inclined to believe the voyage of Scylax, and the conqueſts of Darius in India, as rather ſuppoſititious; no wonder then they deign not to notice the imaginary invaſion of India by the famous Semiramis, queen of Aſſyria, or by Seſoſtris, king of Egypt, who lived many ages before the ſiege of Troy; or of the eſtabliſhment in India of the ſhepherd-kings, the *Auritæ* of the Delta in Lower Egypt: concerning all which ſee under the names of SEMIRAMIS, and SESOSTRIS; and alſo the article EGYPT, vol. vi. p. 369, 370. Thoſe writers offer many reaſons for conſidering the expedition of Alexander as the *firſt* ſerious invaſion which the aborigines of Hindooſtan ever experienced. Be this as it may, it is pretty certain that the Grecian ſhips conſtituted the firſt hoſtile fleet that ever navigated the Indian ſeas. To maintain, therefore, the ſovereignty of thoſe ſeas, as well as to ſecure the footing he had gained in India, Alexander erected his two cities on the banks of the Hydaſpes, and a third, Nicæa, on the Aceſines; which being both navigable rivers, enabled him to keep open a communication with Hindooſtan, not only by land, but by ſea. With a ſimilar view he ſurveyed in perſon, as already noticed under the article GREECE, the courſe of the Euphrates and Tigris, and gave directions to remove the cataracts or dams, which the ancient kings of Perſia, induced by a peculiar precept of their religion, which enjoined them to guard with the utmoſt care againſt defiling any of the elements, had conſtructed near the mouths of theſe rivers, in order to ſhut out their ſubjects from any acceſs to the ocean. By opening the navigation in this manner, Alexander propoſed, that the valuable commodities of India ſhould be conveyed from the Perſian Gulf into the interior parts of his Aſiatic dominions; while, by the Arabian Gulf, they ſhould be carried to Alexandria, and from thence diſtributed to the reſt of the world. On this early and moſt important commercial plan, and its probable conſequences to civilized ſociety, Dr. Robertſon, in his "Hiſtorical Diſquiſition concerning Ancient India," has the following able and judicious remarks:

" Grand and extenſive as theſe ſchemes were, the precautions employed, and the arrangements made for carrying them into execution, were ſo various and ſo proper, that Alexander had good reaſon to entertain ſanguine hopes of their proving ſucceſsful. At the time when the mutinous ſpirit of his ſoldiers obliged him to relinquiſh his operations in India, he was not quite thirty years of age. At this enterpriſing period of life, a prince of a ſpirit ſo active, perſevering, and indefatigable, muſt have ſoon found means to reſume a favourite meaſure, on which he had been long intent. If he had lived to invade India a ſecond time, he would not, as formerly, have been obliged to force his way through hoſtile and unexplored regions, oppoſed at every ſtep by nations and tribes whoſe names had never reached Greece. All Aſia, from the ſhores of the Ionian ſea to the banks of the Hyphaſis, would then have been ſubject to his dominion; and through that immenſe ſtretch of country he had eſtabliſhed ſuch a chain of cities, or fortified ſtations, that his armies might have continued their march with ſafety, and have found a regular ſucceſſion of magazines provided for their ſubſiſtence. Nor would it have been difficult for him to bring into the field forces ſufficient to have achieved the entire conqueſt of a country ſo populous and extenſive as India. Having armed and diſciplined his ſubjects in the Eaſt like Europeans, they would have been ambitious to imitate and to equal their inſtructors; and Alexander might have drawn recruits, not from his ſcanty domains in Macedonia and Greece, but from the vaſt regions of Aſia, which, in every age, has covered the earth, and aſtoniſhed mankind, with its numerous armies. When at the head of ſuch a formidable power he had reached the confines of India, he might have entered it under circumſtances very different from thoſe in his firſt expedition. He had ſecured a firm footing there, partly by means of the garriſons which he left in the three cities which he had built and fortified, and partly by his alliance with Taxiles and Porus. Theſe two Indian princes, won by Alexander's humanity and beneficence, which, as they were virtues ſeldom diſplayed in the ancient mode of carrying on war, excited of courſe a higher degree of admiration and gratitude, had continued ſteady in their attachment to the Macedonians. Reinforced by their troops, and guided by their information, as well as by the experience which he had acquired in his former campaigns, Alexander muſt have made rapid progreſs in a country, where *every invader*, from his time to the preſent age, *has proved ſucceſsful*.

" But this, and all his other ſplendid ſchemes, were terminated at once by his untimely death. In conſequence of that, however, events took place, which illuſtrate and confirm the juſtneſs of the preceding ſpeculations, by evidence the moſt ſtriking and ſatisfactory. When that great empire, which the ſuperior genius of Alexander had kept united and in ſubjection, no longer felt his ſuperintending controul, it broke into pieces, and its various provinces were ſeized by his principal officers, and parcelled out amongſt themſelves. From ambition, emulation, and perſonal animoſity, they ſoon turned their arms againſt one another; and as ſeveral of the leaders were equally eminent for political abilities and for military ſkill, the conteſt was maintained long, and carried on with ſingular viciſſitudes of fortune."—For theſe intereſting events, ſee the article GREECE, vol. viii. p. 949–954.

Seleucus, to whom the empire of Syria was allotted, and which then extended to the ſhores of the Indus, diſpatched Megaſthenes to Sandrocottus, king of the Praſii, as his ambaſſador. This ancient Greek hiſtorian had accompanied Alexander in his expedition into India, and had reſided for ſeveral years at Palibothra, the capital of the Praſii. To gratify the curioſity of his countrymen, Megaſthenes publiſhed an account of India; from which Diodorus Siculus, Strabo, and Arrian, gleaned their accounts of that country. His geographical deſcriptions are found to be ſingularly accurate; and he raiſes magnificent ideas of the Indian people and power. He relates that he had an audience of Sandrocottus, in a place where he was encamped with four hundred thouſand men. The power and opulence of the Praſii, according to him, was analagous to what might be conjectured to have been the ſtate of the greater kingdoms in modern Hindooſtan, before the eſtabliſhment of the Mohammedan dominion in India.

The Syrians did not long enjoy their poſſeſſions in India under Seleucus; for the Bactrian kings, who were alſo ſucceſſors of Alexander, ſoon recovered poſſeſſion of the diſtrict near the mouth of the Indus, which he had ſubdued. Emboldened by ſucceſs, they penetrated far into the interior of the country; and ſome of them aſſumed the title of *great king*, which had diſtinguiſhed the Perſian monarchs in the days of their higheſt magnificence; and they raiſed their city, the ancient Maracanda, now Samarcand, to conſiderable ſplendour and importance. Their power, however, ſeems not to have been laſting; for if we credit the Chineſe hiſtorians cited by M. de Guignes, a numerous horde of Tartars paſſed the Jaxartes; and, pouring into Bactria, overwhelmed that kingdom, and put an end to the Greek dominion there, and in other more remote parts of the Eaſt, about one hundred and twenty-ſix years before the Chriſtian era. See the article BACTRIA, vol. ii. p. 608. From this period, until the cloſe of the fifteenth century, no *European* nation acquired dominion in any part of India. During this long interval, however, the commerce of the Eaſt was not neglected; and it is remarkable how ſoon and how regularly the trade with India came to be carried on by that very channel in which the ſagacity of Alexander had deſtined it to flow.

But prior to Sandrocottus, to whom Seleucus had diſpatched his ambaſſador, king Nanda is ſaid to have reigned over the Praſii and the Gangarides. The Sanſcrit name of the country is *Prachi*, meaning *the eaſt*; whence the Greek Praſii was formed. It comprehended the whole country from Allahabad, ſituated on the conflux of the Ganges and Jumna, to the moſt eaſtern boundaries of India. It included alſo the fertile province of Bengal, known in Sanſcrit by the appellation of *Gancaradeſa*; whence the Greeks formed *Gangarides*. On the death of Nanda, Sandrocottus, a ſoldier of fortune, and of low extraction, found means to aſſume the ſovereignty. His courage and proweſs, however, were of a ſuperor kind: he ſoon found means to extend his dominions, weſtward to the banks of the Indus; and northward, to the lofty range of mountains which ſeparates Hindooſtan from Tartary. In proportion as Sandrocottus advanced in power and importance, he conceived it practicable to throw off his allegiance to the Grecian conqueror, and to defend his dominions againſt every domeſtic or foreign enemy, who might think fit to diſturb his repoſe. On this occaſion, Seleucus advanced againſt him with a formidable army, and encamped on the banks of the Indus. Here he firſt learnt the true extent of the reſources of Sandrocottus; that he was brave and expert in war; that he followed the Grecian tactics, that his army conſiſted of ſix hundred thouſand men, with a large train of elephants, with which he had ſubjugated the higher India; and was then advancing without heſitation to give battle to Seleucus. On this intelligence, the ardour of the Greek invader was checked; and more particularly, as at this inſtant meſſengers arrived in his camp, informing that his great enemy Antigonus was him vaging the Leſſer Aſia, and had already ſubdued many cities of neglected Greece. Seleucus, on theſe tidings, conſidered the ſubjugation of Sandrocottus as only a ſecondary conſideration; he therefore deemed it more expedient to enter upon negociation, than to engage in battle with ſo warlike and determined a chieftain.

The Indian king, on being informed of the pacific ſentiments of Seleucus, liſtened with readineſs to propoſals for the adjuſtment of their diſputes; and ambaſſadors were mutually diſpatched, to ſettle the preliminaries of a laſting peace. Sandrocottus muſt have had great confidence in his own ſtrength, when he demanded that the barrier of the Indian empire ſhould be reſtored to its ancient limit, the banks of the Arbis, a river of Gedroſia; which was, in truth, requiring the ſurrender of many rich and fertile provinces to the weſt of the Indus, in return for five hundred of his beſt-diſciplined elephants; which on his part, he was ready to deliver to the ſovereign of the Syrian empire. Seleucus, without heſitation, complied; and thus was founded that good underſtanding between them, which placed Megaſthenes for ſo many years in quality of Grecian ambaſſador at the court of Palibothra.

Long as was the reign, and howſoever diſtinguiſhed the legiſlation of Sandrocottus confeſſedly was, as a ſovereign prince in India, yet it is ſingular that the period of his death is wholly unknown. It is certain, however, that he died ſome time previous to Seleucus, ſince Daimachus is recorded to have been ſent ambaſſador from the latter to the court of Allitrochades, his ſon, and to have compoſed ſome intereſting particulars, in part cited by Athenæus, concerning India; but they have long ago periſhed.

Feriſhta ſtates, that Sandrocottus, and his ſon after him, poſſeſſed the empire of India ſeventy years; after which the grandſon of Sandrocottus ſucceeded to the throne; a prince named Jona, who is ſaid to have been endued with many great and amiable qualities. He aſcended the throne of India about two hundred and ſixty years before the commencement of the Chriſtian æra; and, not many years after his acceſſion, Arſaces, poſſeſſing himſelf of the eaſtern provinces of Perſia, expelled the ſucceſſors of Alexander, and founded the Parthian, or *ſecond* Perſian, empire. Arſaces aſſumed the name of king about two hundred and fifty-ſix years before Chriſt, according to the writers of Greece, which perfectly agrees with the accounts of the Brahmins; for he then claimed and eſtabliſhed the right of Perſia to a tribute from the empire of India; and Jona, dreading the fury of his arms, made him a preſent of elephants, and a vaſt quantity of gold and jewels. Jona, after this tranſaction, reigned in great tranquillity at Canouge; and he and his poſterity poſſeſſed the throne, according to Feriſhta, during the ſpace of ninety years.

It was during the time that the dynaſty of Jona ſat on the Indian throne, that Antiochus the Great, after granting an independent crown to Euthydemus, the Bactrian king, was tempted to proceed onwards with his army into Hindooſtan. Polybius records his croſſing the Paropamiſus with his army; having renewed an alliance with the Indian ſovereign, and obtained from him a tribute in money and elephants. After Jona's poſterity became extinct, Callian Chund, a ſanguinary prince, is ſaid to have reigned over Hindooſtan; that is, the eaſtern diſtricts, of which Canouge was then the capital; and, on account of his tyranny, to have been driven from the throne, by a general inſurrection of the rajahs dependent upon his authority. With him the regular ſucceſſion to the empire of India on the Ganges ſeems, for a time at leaſt, to have ceaſed; for after this event many years of diſcord enſued, when each more powerful rajah, oppoſing his competitor, became alternately a candidate for the ſupreme authority.

The next emperor of India mentioned in Feriſhta, and noticed by ſir William Jones, is the celebrated Bickermajeet; who, by a ſeries of bold exertions, arrived at the ſupreme ſovereignty of Hindooſtan in the 56th year before Chriſt. Of him a moſt famous account is given in all the Indian hiſtories. He rapidly ſubdued the kingdoms of Malva and Guzerat, and rendered all the other great feudatories dependent upon his will. He was alſo a munificent patron of literature; and the philoſopher Calidas, who flouriſhed in his reign, was protected by him, and conſidered as the chief of fourteen learned Brahmins, who were denominated the fourteen jewels of his crown. The Hindoos retained ſuch a reſpect for his memory, that many of them, to this day, calculate their civil time from the period of his inauguration. The famous Sapor, king of Perſia, is placed, in the Indian chronology, as cotemporary with this renowned king of Malva; who was ſlain in his old age, about the commencement of the Chriſtian æra, in a battle againſt a confederacy of the princes of the Deccan. The Hindoos have alſo another famous epoch, commencing from the death of a prince, third in ſucceſſion from Bickermajeet, as ſome report; but his immediate ſucceſſor, according to other accounts, was named Salbahan. Concerning his hiſtory, however, we have no particulars; except that he is recorded to have headed the inſurgents of the Deccan who deprived Bickermajeet of his throne and life; and that for a time he transferred the ſeat of the empire in the Deccan from Tagara to Pattan, his proper rajahſhip; though Tagara afterwards recovered its dignity, and became the imperial city of Southern India.

After the death of Bickermajeet and Salbahan, the empire fell into anarchy and confuſion; and the great vaſſals of the crown began to aſſume independence in their reſpective governments; ſo that the name of emperor became, in a great degree, obliterated from the minds of the people. In this ſtate Hindooſtan ſeems to have continued for a very conſiderable period; ſince the next perſon mentioned in the Indian records, who ventured to take upon himſelf the imperial dignity, is Baſdeo; who, after having reduced Bengal and Bahar, is ſaid to have erected a new kingdom at Canouge, in the year 330 of the Chriſtian æra. During his reign, Baharam, a celebrated ſovereign of Perſia, is ſaid to have viſited India in diſguiſe, under the aſſumed character of a merchant. A ſingular accident was the occaſion of his being diſcovered. A wild elephant, in the ſeaſon of procreation, attacking him furiouſly in the neighbourhood of Canouge, he had the courage to pierce the animal's forehead with an arrow, and killed him; which acquired him ſo much reputation, that the emperor Baſdeo ordered the merchant into his preſence, where Baharam was immediately recogniſed by an Indian chief, who had carried the tribute, ſome years before, to Perſia; an evident proof that the feodal dependence of India on the ſovereigns of the former kingdom, ſtill remained. Baſdeo, being confirmed in the truth of this ſtatement, affectionately embraced the royal ſtranger. Baharam, in conſequence, aſſumed the regal character; and while he remained at the Indian court he married the daughter of Baſdeo, and then returned into Perſia. Baſdeo, and the princes of his poſterity, ruled the empire in tranquillity for the ſpace of eighty years.

Ramdeo, a prince of the Mahratta tribe, and general of the Hindoo forces, then aſcended the throne, by the united conſent of the aſſembled nobles; and he is ſaid to have been a wiſe and generous monarch. After a reign of fifty-four years, he yielded to the ſtroke of death; but the actions of his life, ſays Feriſhta, have rendered his name immortal. Notwithſtanding his great power, he thought it adviſeable to continue the payment of the uſual tribute to Feroz, the father of the great Caicobad, king of Perſia.

After the death of Ramdeo, a diſpute aroſe between his ſons concerning the ſucceſſion, which terminated in a civil war. Partab-chund, who was captain-general to the deceaſed emperor, taking advantage of the public confuſion, ſeized upon the vacant throne, and, to ſecure the poſſeſſion of it, extirpated the royal family. Partab was cruel, treacherous, and tyrannical. He drew by ſpecious promiſes the princes of the empire from their reſpective governments, and, by cutting off the moſt formidable, compelled the reſt to be obedient to his commands. An uninterrupted courſe of ſucceſs made Partab too confident of his own power. He neglected to ſend the tribute to Perſia, diſmiſſing the ambaſſadors with empty hands from his court. A Perſian invaſion followed, and convinced Partab that it was beſt to pay up his arrears, to advance the tribute of the enſuing year, and to give hoſtages for his future obedience. Partab aſſumed the ſovereignty about the year 500 of Chriſt; and, though he left the empire in the poſſeſſion of his family, it ſoon declined in their hands. The dependent princes rendered themſelves abſolute in their reſpective governments; and the titular emperor became ſo inſignificant, with regard to power, that he gradually loſt the name of Maha-rajah, Supreme or Great Rajah, and had a title of inferior dignity ſubſtituted in its place.

In a few years after the death of Partab, Annindeo, a chief of the tribe of Bice, ſeized upon the kingdom of Malva; and brought the peninſula of Guzerat, the country of the Mahrattas, and the province of Berar, under his controul. Annindeo was cotemporary with Choſru Parvez, king of Perſia; and he reigned over the dominions he had conquered for ſixteen years. At the ſame time that Annindeo diſmembered the empire, by his uſurpation of the beſt of its provinces, Maldeo, a chief of obſcure origin, raiſed himſelf into power, and took the city of Delhi and its territory from the reigning family. He ſoon after reduced the city of Canouge, and kept poſſeſſion of his conqueſts for the ſpace of forty years; yet he could not tranſmit them to his poſterity. Every petty governor and hereditary chief in Hindooſtan now rendered themſelves independent; and the name of *empire* was loſt, till it came to be re-eſtabliſhed by the Mohammedans, on the confines of India and Perſia.

Many of theſe petty chiefs, however, from making war on one another, and thus enlarging the ſphere of their influence, became rajahs of conſiderable importance, and were able to bring immenſe armies into the field; as was conſtantly experienced by the Mohammedan invaders of that devoted country, whoſe ſanguinary devaſtations and relentleſs cruelties were ſucceſſively to fill up the meaſure of its afflictions. The firſt Mohammedan chief that led his troops to theſe deſtructive ravages, was named Subuctagi, who held a conſiderable poſt in the Moſlem army. He roſe to eminence on the ruins of the ancient Samanian family, which had for ninety years reigned over Sableſtan and Choraſan, partly the ſeat of the Afghan tribes, ſo famous for their robuſt make and unconquerable valour. Subuctagi was by birth a Tartar, and ſerved originally as a private dragoon; but, riſing by his merit till he acquired the chief command of the army, he by dint of the ſword aſſumed the ſovereignty over theſe diſtricts, in the year of the hegira 365, and of the Chriſtian era 977. Being a zealous Muſſulman, he, in the firſt year of his reign, perhaps to give employment to his warlike Afghans, meditated an expedition againſt the peaceful Jeipal, who then reigned in Lahore; a province at that period extending from the mouth of the Indus to Limgan, and from the kingdom of Cachimere to Moultan. This Hindoo prince, appriſed of his danger, determined to carry the war into the invader's territories. The armies met on the confines of India, and prepared for action; but in the night preceding the intended battle, a tremendous ſtorm, imputed by the Hindoos to the effects of magic, ſo terrified the Indian army, that Jeipal was compelled to ſolicit peace, by the proffer of an annual tribute, and a conſiderable preſent in elephants and gold. Subuctagi was not averſe to grant them peace upon the terms propoſed; but Mahmood, his warlike ſon, the future ſcourge of Hindooſtan, uſed his utmoſt efforts to prevent his father's acceptance of them. Terms, however, were at length ſettled; and the army of Jeipal was permitted to return to Lahore, on condition of paying a million of dirms, and a preſent of fifty elephants. Notwithſtanding, however, the delivery of hoſtages as ſecurity for payment, Jeipal refuſed to fulfil his engagement, and even impriſoned the heralds of Subuctagi, who were ſent to take charge of the treaſure. Subuctagi, fired with indignation at the deception played off upon him, marched with all his forces againſt Hindooſtan; where Jeipal, having ſolicited ſuccours from the neighbouring chiefs, had collected an army of a hundred thouſand horſe, and two hundred thouſand foot, headed by the reſpective rajahs of Delhi, Agimere, Callinger, and Canouge. Subuctagi, at the head of ſcarcely a fourth part of ſuch an army, coolly allotted their ſtations to his heroic chiefs, and, boldly advancing to the attack, the whole Indian army was quickly put to the rout, and fled with prepitation towards the banks of the Nilab, or Blue River. Thither it was purſued by the victorious Mohammedans; a conſiderable part of them was cut in pieces; while others periſhed in attempting the paſſage of that deep and rapid ſtream. The whole plunder of the Indian camp, immenſe in value, became the reward of the victor; who returned to Choraſan, covered with wealth and glory. After a reign of twenty years, Subuctagi expired, in the fifty-ſixth year of his age, and of the hegira 387, A. D. 997; having eſtabliſhed his court at Gazna, and made that city the metropolis of his empire. He left behind him two ſons, Mahmood the elder, and Iſmael, who roſe up in arms, and contended for the ſucceſſion; but was ſoon totally defeated. The rightful heir then aſcended the throne of his father; and has been denominated Mahmood-Gazni, or Gaznavi, as being the celebrated founder of

## THE GAZNAVIAN DYNASTY.

The firſt formidable introduction of the Mohammedan power, and faith, into the fertile plains of Hindooſtan, was effected by this Gaznavide prince, Mahmood I. In the year one thouſand of the Chriſtian æra, commenced the earlieſt of thoſe TWELVE dreadful irruptions, in which, as is well obſerved by Mr. Orme, he treated the Indians, "with all the rigour of a conqueror, and with the fury of a Moſlem converter;" in which the ancient ſymbols erected in their temples and palaces, intended to repreſent the various attributes of the deity, were compelled to bow before the creſcent of Mohammed.

Lahore was the firſt object of Mahmood's attack; and this city, lying on the direct road that leads into the heart of Hindooſtan, has ever been haraſſed, both in ancient and modern times, by the armies of contending princes; and has experienced every viciſſitude to which the alternate triumph and defeat of ſovereigns can ſubject a capital. From the time of Alexander to the preſent day, the Panjab has been more deeply ſtained with blood than any other province of the empire; and the frequent battles that have been fought within its territory, have probably continued to keep alive that ardour of fortitude for which its rajahs, and the ſubjects under their government, are ſo eminently diſtinguiſhed. Jeipal, though he had been vanquiſhed by Subuctagi, did not decline the conteſt with his ſon; but collecting an army of twelve thouſand horſe and thirty thouſand foot, ſupported by three hundred elephants, immediately took the field, and advanced to ſtop the progreſs of the invader. Contempt for the youth of Mahmood appears to have put the rajah off his guard, and to have allowed the Hindoo troops to relax in their diſcipline. The conſequence was, that Mahmood took them by ſurpriſe, and after an engagement long and obſtinately maintained by both parties, the Mohammedans were completely victorious, killing five thouſand of Jeipal's troops, and taking the rajah himſelf, with many of his friends and relatives, priſoners. Of the immenſe booty obtained by Mahmood, ſome faint idea may be formed from this circumſtance, that round the neck alone of the captive ſovereign, were found ſuſpended ſixteen ſtrings of jewels, each of which was valued at one hundred and eighty thouſand rupees, or about three hundred and twenty thouſand pounds ſterling! The ſpoil produced by the capture of the others, and the plunder of the Indian camp, muſt have been proportionably great. Jeipal, together with his friends and relatives, were liberated, on paying a large ranſom, and ſubmitting to the obligation of a highly-increaſed tribute. Stung with ſhame, the degraded monarch returned to his capital, and reſigned the throne to his ſon. He then commanded a funeral pile to be prepared and kindled, and, leaping into the midſt of the flames, died, according to Hindoo magnanimity, as heroically as he had lived.

The plunder obtained by Mahmood in his firſt irruption was ſo immenſe, that, in his ſecond Indian expedition, which quickly followed, he ſeems to have had in view rather the ſecuring, than the extending, of his newly-acquired territory, by directing his arms againſt thoſe numerous fortified towns and caſtles on the frontiers of Hindooſtan, that might have been able to check the torrent of his future ambition. But theſe inferior excurſions ſeem only to have been intended as introductory to thoſe more important projects, for the completion of which he now began to make the moſt formidable preparations.

In the year of the hegira 395, A. D. 1004, Mahmood commenced his third Indian expedition, on pretence of recovering the detained tribute, and to revenge the inſolence of an Indian prince named Bachera, whoſe capital was called *Takera*, and formed a part of Sind, though it cannot now be recogniſed. It is repreſented to have been fortified with an exceeding high wall, and ſurrounded with a deep and broad ditch. A chain of poſts guarded the approach to this capital; and the invaded prince is ſaid to have defended himſelf for ſome time with uncommon reſolution, and frequently to have repulſed the aſſailants, till he had driven Mahmood himſelf almoſt to the verge of deſpair. In the end, however, Bachera was compelled to take refuge within the walls of his capital. Mahmood immediately employed his army in the arduous work of filling up the ditch, which, after inceſſant labour, was nearly accompliſhed, when the artful rajah, taking advantage of a dark night, by a private gate led out the greateſt part of his army, and encamped in a wood of difficult acceſs on the banks of the Indus. Mahmood, on receiving this intelligence, divided his forces; and, detaching the one half to attack Bachera, with the other he himſelf began an impetuous aſſault upon the city and caſtle. In that aſſault he was ſucceſsful, and ſoon became maſter of all the wealth in bullion, in ſlaves, and elephants, which the city of Tahera abundantly afforded. And, that he might not run the hazard of a ſecond campaign againſt Tahera, he annexed the city and its territory to the kingdom of Gazna. In the mean time great deſertion took place among the troops of the rajah; and a ſmall determined band alone remained faithful to his declining cauſe. Being ſurrounded by the Gaznavide army, they endeavoured to force a paſſage through the midſt of their foes; but their good fortune was not equal to their bravery; they were moſtly cut to pieces; and Bachera, to avoid the fate of Moſlem ſlavery, plunged his ſword into his own boſom.

Moultan, the capital of Sind, had alſo caught the infection of revolt. Lodi, its former governor, had once paid allegiance to Mahmood, on a prior expedition to theſe parts; but his ſon Daood (David) reſolutely refuſed to acknowledge him as his liege lord; nor had the example of Bachera operated to bend his ſtubborn ſoul to obedience. The prince of Lahore too, deriving no fear from the paſt ſufferings of his family, erected at Peiſhore the ſtandard of defiance. On this occaſion commenced Mahmood's fourth Indian expedition. His march was attended by an army unuſually numerous, and well appointed. He had firſt to contend with Annindpal, who had entered into a confederacy with Daood to oppoſe his progreſs; and then, with forces diminiſhed by battle and fatigue, he had to fight his way into the well-fortified capital of Sind. Both exploits he performed with vigour and celerity. The aſſembled forces of the ſon of Jeipal, greatly ſuperior in point of number, but far inferior in valour and diſcipline, melted away before the ſultan, and Daood was obliged to fly to the Cachimerian mountains for ſhelter; while Mahmood, rapidly urging on his victorious career, repoſed not till the creſcent of Mohammed was ſeen to glitter over the faded image of the Indian Seeva. The plunder obtained at Moultan was in proportion to the magnitude, the wealth, and extenſive commerce, of the place; but no particulars are ſtated either in Mirkhond, Feriſhta, or any of the Arabian hiſtorians of that period. With reſpect to the unfortunate Daood, he retired into the foreſts of Sind, whence he ſolicited the forgiveneſs of the ſultan, promiſing a very large increaſe of annual tribute. Mahmood, rich with plunder, and glutted with the ambition of a conqueror, affected to be pacified, and again returned triumphant to Gazna.

In the year 1008, Annindpal, impatient under the Mohammedan yoke, determined to wreſt Moultan from the controul of the ſultan; which revolt calling forth the reſentment of Mahmood, he prepared again to pour his vengeance on the deſolated Panjab. Annindpal, meanwhile, diſpatched meſſengers to all the principal rajahs of Hindooſtan, entreating them to raiſe their united ſhields againſt the grand enemy, whoſe ſacrilegious fury nothing ſeemed likely to ſatiate, but the entire downfal of their religion, and the utter extirpation of their race. Inſtigated by theſe conſiderations, the rajahs of Ugein, Gwalior, Callinger, Canouge, Delhi, and Agimere, uniting their forces, advanced with an innumerable hoſt towards the ſources of the Indus. India, it is ſaid, had not for centuries ſeen ſo immenſe a concourſe of her ſons in arms. Mahmood was encamped on an extenſive plain near the confines of Peiſhore. Oppoſite to him encamped this body of Hindoos, who daily became more formidable in numbers and ſtrength. The two armies remained thus looking at each other during forty days; a pauſe pregnant with horror at the bloodſhed which was to follow.

Mahmood, whoſe forces were greatly inferior in number, ſtrongly intrenched himſelf in his camp, to avoid the danger of a general aſſault; at length, however, he commanded a thouſand archers to advance in his front, that the Hindoos, galled by their arrows, might be tempted to attack his intrenchments. The project ſucceeded; but, as faſt as the Hindoos approached the camp, they were cut down by whole battalions placed in ambuſcade; and though a large body of the more daring among them forced their way into the trenches, and killed ſeveral thouſand Muſſulmen, yet the loſs of the latter bore no proportion to that of the former. In the midſt of this partial conflict, Mahmood, with a great body of Arab and Afghan horſe, kept in reſerve for the purpoſe, ruſhed out from the intrenchments, and began a terrible attack on the aſtoniſhed Hindoos. An immenſe ſlaughter followed; but, the Hindoos were ſtill incalculably numerous, and unvanquiſhed. Whatever might have been the ultimate ſucceſs of Mahmood, a mere accident turned the fortune of the day in his favour. A ſpecies of fire-arrow ſeems to have been in uſe at that time in the Aſiatic battles; and the ſudden exploſion of one of thoſe inſtruments of deſtruction, cloſe by the elephant on which the prince of Lahore, the generaliſſimo of the army, rode, having terrified the animal, rendered it utterly ungovernable; and, in ſpite of every exertion of the guide, the affrighted animal bore the rajah precipitately from the field, which gave the appearance of a daſtardly flight of the commander of the Indian army. This unexpected event threw the Hindoos into confuſion; who, imagining themſelves deſerted by their leader, betook themſelves to flight in every direction. Mahmood, at the head of his horſe, began a purſuit more fatal and bloody than the preceding battle; and in which twenty thouſand Hindoos were ſlaughtered, in addition to the multitude that periſhed on the field of battle. The plunder obtained on this occaſion was ſufficient to load thirty elephants; while the renown acquired by Mahmood ſurpaſſed every other conſideration, and wafted his triumphant name to the extremities of Aſia.

But this immenſe acquiſition was not ſufficient to ſatiate the ambition and avarice of the ſultan. He had heard, that in the territory of Naugracut, among the mountains that form the northern boundary of Hindooſtan, there had been erected by a celebrated rajah of the name of Bimè, a fort and temple, conſecrated to the idols of the Hindoos, and denominated from himſelf, *Bimè*; the very floors of which, according to Mandelſloe, were covered with plates of gold. The fort too, being intended to protect the diſtrict of Naugracut, was erected on the ſummit of the ſteepeſt mountain; and in vaults beneath the ſanctuary, as in a place of inviolable ſecurity, was depoſited the whole wealth of the neighbouring principalities; ſo that in this fort there was ſuppoſed to be amaſſed by the Brahmins, a greater quantity of gold, ſilver, and precious ſtones, than had ever before been collected together in the royal treaſury of any prince of Aſia. Pretended zeal for the propagation of Iſlamiſm, but in truth an inſatiable deſire of wealth, determined Mahmood to attempt the capture of this important place. The greater part of the garriſon had deſcended to join the army, which had been defeated in the late engagement. Before they could recover from their conſternation, or any freſh troops could be thrown into the fortreſs, Mahmood directed the place to be inveſted on every ſide, ſending at the ſame time detachments to ſcour the ſurrounding country, and lay waſte every thing with fire and ſword. But, notwithſtanding theſe formidable preparations, the Brahmins who preſided in it reſolutely determined, with the remainder of the garriſon, to hold out to the laſt extremity: they thought the place ſufficiently defended by its hitherto unviolated ſanctity, and that the thunderbolt of the avenging Seeva could not poſſibly ſleep, while an alien uſurper was threatening to violate his auguſt temples. Mahmood, however, carried on his works with vigour and effect, and it was not till inevitable deſtruction awaited them, that they ſubmitted to capitulate, and opened their gates to the all-conquering ſultan of Gazna. In the ſanctuary of Bimè, were found ſeven hundred thouſand golden dinars, ſeven hundred maunds of gold and ſilver plate, forty maunds of pure gold in ingots, two thouſand maunds of ſilver bullion, and twenty maunds of various jewels ſet, which had been collecting from the time of Bimè. With this enormous treaſure the king returned to Gazna, where, at a magnificent feſtival, he diſplayed his wealth to the people in golden thrones, and other rich ornaments, on an extenſive plain without the city; and diſtributed a portion of it in preſents to his generals, principal omrahs, and veteran ſoldiers.

In the year 1011, Mahmood commenced his ſixth Indian expedition, being his ſecond into *Hindooſtan Proper*, in which the venerable city of Delhi felt the fury of his arms. The route of Mahmood lay through the territories of Annindpal, with whom, after conquering, he had formed an alliance. The ſultan therefore ſent to require of that rajah neceſſaries for the ſupport of his army. But Annindpal, zealous to preſerve the city of Tannaſar, endeavoured to avert his fury by the proffer of a number of elephants, and jewels to a great amount. Mahmood, however, remained inexorable; and the anſwer returned by the Gaznavian emperor deſerves to be recorded, becauſe it ingenuouſly diſcovers the principles by which both himſelf, Gengis Kahn, Timur Bec, and all the tribe of Mohammedan invaders, were guided in their devaſtations of the fineſt region of the earth. The anſwer of Mahmood was, "That in the Muſſulman religion it was an eſtabliſhed maxim, that the more the glory of the prophet was exalted, and the more his followers exerted themſelves in the ſubverſion of idolatry, the greater would be their reward in heaven; that therefore, it was his firm reſolution, with the aſſiſtance of God and the prophet, to root out the abominable worſhip of idols from the face of the country of Hindooſtan. To ſpare Tannaſar, the grand ſeat of Hindoo ſuperſtition, would be to trample on the moſt ſacred precepts of the Koran." Mahmood, therefore, without delay, marched his invincible army before its walls, and blockaded every avenue into the city. Better calculated for pagan ſuperſtition than formed for military defence, Tannaſar, wholly unſuccoured, was quickly compelled to ſurrender; and in the ſpace of a few hours its lofty palaces and venerable ſhrines were plundered and defaced. A ſtill greater number of jewels, but leſs bullion, was found in this city than in Bimè; and, among the former, a ruby was diſcovered, (according to Feriſhta,) of ſuch magnitude and value as appear almoſt incredible.

The rajah of Delhi, having endeavoured to excite the other powers of Hindooſtan to arm againſt Mahmood, the angry ſultan commenced a haſty march for that capital. The rapidity of his courſe, and the fury of his attack, rendered all oppoſition fruitleſs; one of the ſtrongeſt caſtles and moſt ſumptuous palaces of Hindooſtan, enriched with all that the mines, and looms, and genius, of India could produce, were ſoon in poſſeſſion of the conqueror; who was ſo delighted with the place, that he reluctantly yielded back the ſceptre to the vanquiſhed and ſubmiſſive rajah, upon the uſual terms of an annual tribute; but wiſhed rather to annex that rich city for ever to his own dominions. Finding this impoſſible, Mahmood marched back his army to Gazna, taking with him forty thouſand captives, and articles of wealth which in number and value almoſt defied computation.

The account, in Feriſhta, of the campaign in Cachimere, A. D. 1012, which conſtitutes the ſeventh irruption of Mahmood into the country of Hindooſtan, is very ſummary and unſatisfactory. In the plain, Mahmood could not poſſibly meet with oppoſition; like his predeceſſors, in the beautiful Sogd of Samarcand he let his deſtroying legions looſe, and ſpread ſlaughter and devaſtation through the whole of that rich vale. His efforts to reduce the fortreſſes, erected on the lofty mountains that defend the interior country, were not, in the firſt inſtance, ſucceſsful; but of every thing of value he bereaved the unfortunate city and people of Cachimere, and returned with this additional ſpoil to Gazna.

The inſatiable Mahmood, however, ſtill intent on conqueſt and plunder, collected in 1018 an army of one hundred thouſand horſe, and thirty thouſand foot, which attended him on his eighth Indian expedition, wherein he directed the whole force of his empire againſt Canouge, at that time the principal metropolis of Hindooſtan. The riches and magnificence of Delhi muſt doubtleſs have excited him to this bold and hazardous attempt; for Canouge was diſtant from Gazna not leſs than a three-months march; and ſeven rapid ſtreams, the principal branches that compoſe the Indus, interſected the path that led to this new theatre of plunder and ſpoil. The tract of country thus to be invaded, comprehended many great and wealthy provinces, Oude, Bengal, Bahar, Allahabad, and a conſiderable portion of Agra; in which province, according to the Ayeen-Akbery, Canouge ſtands.

Of Mahmood's toilſome march of three months into Hindooſtan by the mountains of Thibet, over which his route lay, no particulars are recorded; but when, with his immenſe army, he arrived before the walls of Canouge, he is ſaid there to have "beheld a city which raiſed its head to the firmament, and which in ſtrength and ſtructure might juſtly boaſt to have no equal." The then reigning ſovereign, rajah Korra, we are told, maintained a numerous army, and affected in his habits the utmoſt pomp and ſplendour; but from the unexpected route taken by Mahmood, and the celerity of his movements, the rajah was totally unappriſed of the approach of ſo vaſt an army, and of courſe unprepared to oppoſe it in the field. One hundred thouſand of Mahmood's horſe were already ravaging the ſuburbs; while the fierce manners and determined aſpect of the Afghan and Tartar bands, ſtruck terror into the aſtoniſhed citizens; inſomuch that the Hindoo troops that formed the cuſtomary guard, conſiſting chiefly of infantry, fled in every direction for ſafety. The rajah, convinced that all oppoſition would be unavailing, went out, with his family, in a ſuppliant manner, to the camp of Mahmood, to claim his mercy, and ſolicit his protection. Theſe were readily granted; the keys of the city and palace of the great metropolis of Hindooſtan were delivered up; and the ſultan, after ſecuring the ſpoil, is ſaid to have repoſed there himſelf and his army only three nights.

On the ſouthern verge of the dominions of the rajah of Delhi, and thirty-ſix miles above Agra, ſtood the ancient and renowned city of Matura, the Methora of Ptolemy. No idea can be formed, in modern times, of the riches and ſplendour of this great city, which was the metropolis of the Yadu tribe; and on which kings, and prieſts, and Brahmins, had for ages been heaping incalculable treaſures. Ferocious as Mahmood was in war, and delighting in the devaſtation of the temples and idols of Hindooſtan, he is ſaid, by Feriſhta, to have been equally aſtoniſhed and enraptured, when he beheld the admirable beauty and majeſtic grandeur of its lofty temples, whoſe gorgeous ſhrines were loaded with offerings brought from the remoteſt parts of India, ever burning with the pureſt naphtha, and ever fragrant with the coſtlieſt incenſe. The ſoul of the Mohammedan invader was now more than ever intent upon his deſolating progreſs. The enfeebled arm of the rajah of Delhi, to whom its defence was confided, was in vain raiſed for its defence. The Moſlem troops, participating in the ſavage ardour of their leader, forced their way into the centre of the city, which the relentleſs Mahmood at once delivered over to ſpoliation and rapine. The maſs of wealth acquired in Matura was unbounded; for, independently of the plunder of the palaces and private houſes, in the temples were found five great idols of pure gold, with eyes formed of rubies, each of which eyes was worth fifty thouſand dinars. Upon another idol was found a ſapphire, weighing four hundred miſkal; and the image, being melted down, produced ninety-eight thouſand three hundred miſkal of pure gold. Beſides theſe, there were above a hundred idols of ſilver, which loaded a hundred camels with bullion. *Feriſhta*, i. p. 58.

Mahmood is ſaid to have taken up his abode in Matura for twenty days; during which a fire, the effect either of deſign or accident, conſumed a great part of the city, and greatly augmented the ſufferings of the plundered inhabitants. He then ſecured the precious burthen of gems and gold, that weighed down his elephants and camels; and with them ſlowly bent his courſe, by Lahore, to the imperial city of Gazna; where, opening the royal ſtores and baggage, he exhibited to the inhabitants of his capital ſuch an aſtoniſhing diſplay of Indian wealth and magnificence, as at once inſpired them with the higheſt veneration for their heroic prince, and with a fervent hope that he would make the entire conqueſt of a country thus abounding with inexhauſtible treaſures. The officers and even the private ſoldiers of his army were alſo oppreſſed with the multitude of their captives, and the weight of gold and ſilver bullion, in value equalling the enormous acquiſition of the ſultan himſelf; and the rapid circulation of this wealth ſoon exalted Gazna above the proudeſt cities of Aſia. Moſques, baths, palaces, bazars, aqueducts, were conſtructed in every quarter of the city; and to the efforts of individual induſtry to adorn it, were added thoſe of the ſultan himſelf, who expended a portion of the wealth of Hindooſtan in erecting one ſupremely beautiful and magnificent moſque of marble and granite, dedicated to the Prophet of the Moſt High; the interior of which was hung with the richeſt embroidered carpets that the looms of India and Perſia could produce, and adorned with golden chandeliers, and ſuch a profuſion of other ornaments of the moſt coſtly kind, that it became celebrated through Aſia by the name of the "*celeſtial bride*." Nor did Mahmood, who is ſaid to have been a learned man and a poet, wholly neglect the intereſts of ſcience; for, near that moſque, he inſtituted an univerſity, which he ſtored with an infinite variety of books in all languages; and not only with books, but with other rare and curious productions wrought by the different caſts of Hindoos, thoſe early examples of human induſtry and genius. He appointed, alſo, profeſſors in the different departments of ſcience, with ample ſtipends for their ſupport, and for that of the numerous youth who were to become their pupils. Theſe liberal and politic inſtitutions, however, could conſume but an inconſiderable portion of the treaſure he had recently accumulated; ſo that by far the greater part was added to the incalculable maſs of hoarded wealth which every freſh irruption beyond the Indus contributed to augment.

The fame of Mahmood's conqueſts in Hindooſtan, and triumph over Indian idolatry, having reached Bagdad, the reigning caliph made a great feſtival on the occaſion, conferring on him titles of the higheſt honour, and ordering an account of his victories to be publicly read to the admiring populace. Mahmood, in 1021, to manifeſt his gratitude for theſe favours, diſpatched an army to open the roads to Mecca, which had long been obſtructed by the wild Arabs, who were accuſtomed to murder the pilgrims, and plunder the caravans.

His attention, however, was ſoon carried back to India, where ſome of the neighbouring princes, enraged againſt the rajah Korra for forming an alliance with Mahmood, had riſen in arms to exterminate and dethrone him. On receiving this intelligence, Mahmood inſtantly reſumed the long march to Canouge, which conſtituted his ninth irruption into Hindooſtan; but he arrived too late to ſave his vaſſal from the fury of his aſſailants. The rajah of

Callinger, Nunda, had in a pitched battle attacked and defeated him and his principal officers. He then marched with the reſolute intent of giving Mahmood himſelf battle; and the hoſtile armies encamped on the two oppoſite banks of the Jumna. The impetuous valour of ſome of the officers in the army of Mahmood, inducing them without orders, in the dead of the night, to ſwim acroſs the ſtream, and ſtorm the enemy's camp, the Hindoos, ignorant of the force that attacked them, and ſuppoſing they were followed by the whole body of the Gaznavian army, inſtantly betook themſelves to flight. Mahmood, on receiving this intelligence, was highly incenſed, as it was his intention to make the attack himſelf, at the head of his whole army. He however ordered a vigorous purſuit, and, at length overtaking the rajah on the frontiers of his own dominions, both armies halted, and prepared for battle. A force conſiſting of thirty-ſix thouſand horſe, forty-five thouſand foot, and ſix hundred and fifty elephants, with which Nunda oppoſed the army of Mahmood, ſufficiently evinces the power and reſources, at this period, of the rajah of Callinger.

His ſubjects were unqueſtionably the Cellingæ Gangaridæ of Pliny, though he places them nearer the ocean: and in all times, from the ſtrength and elevation of that amazing fortreſs, their prince, though inferior to the ſovereign of Canouge, muſt have been extremely formidable. Nunda, thus making a ſtand on the frontier of his dominions, induced the ſultan to ſuppoſe he meant to give him battle. But the wary rajah, foreboding the event, precipitately and ſilently decamped in the night, leaving behind him his tents, equipage, and baggage. Mahmood did not think proper to purſue him, or proceed to the inveſtment of that impregnable fort on the heights, to which he retired with his forces. He contented himſelf with the plunder of his camp, and with ravaging and firing the country, for many coſs round; after which acts of unworthy revenge, he led back his army to Gazna.

In the year of the hegira 413, correſponding to A.D. 1022, commenced the tenth Indian expedition of this reſtleſs marauder, in which the countries of Kiberat and Nardien, deſcribed as bordering upon the provinces of Hindooſtan, and as infected with the Indian ſuperſtitions, were doomed to feel the ſcourge of his reforming zeal. The prince of Kiberat is repreſented as readily ſubmitting himſelf to the reſiſtleſs potentate, who dictated at once a civil and religious code, entirely new to himſelf and his people; while the diſtrict of Nardien was ſubdued by his general Ali; and, being a frontier province, that commander was ordered to erect in it a fort of great ſtrength, for the purpoſe of overawing the inhabitants in future. Mahmood then continued his march towards Lahore, which he now reſolved to conſolidate with the Gaznavian empire. As Lahore was then the centre of an immenſe commerce, carried on with all the northern provinces and kingdoms of Aſia, even to Tartary and China, the plunder of it was immenſe. Mahmood ſpent the winter at this capital, ſettling the affairs of the province, over which he appointed a viceroy; and over the inferior cities and diſtricts on the Indian frontier, he deputed ſubordinate governors, from among the braveſt omrahs of his court. In the ſpring he returned to Gazna, loaded with treaſures, and with a multitude of captives.

The very next year, A.D. 1023, we find him again in motion, and engaged in his eleventh Indian expedition. Marching by the way of his newly-acquired territory of Lahore, he bent his courſe towards the diſtant Ganges, determined to reduce the prince of Callinger, and other confederated rajahs, who, by their obſtinate reſiſtance, had contrived to narrow the extent of his former conqueſts in that quarter. It certainly required the military ſkill and proweſs of a Mahmood to attack with ſucceſs the hill-forts of this alpine boundary of Hindooſtan, among which, Gwalior and Callinger are not the leaſt conſiderable. In his way, paſſing by the former fort, he immediately began the inveſtment of it; and after a few days he received the rajah's ſubmiſſion, accompanied with magnificent preſents, and thirty-five elephants. His whole force was now at liberty to act againſt the prince of Callinger; who had determined, by a novel and extraordinary experiment, to terrify and break the ranks of the Mohammedan army. Nunda, by certain drugs, contrived to intoxicate elephants. Theſe he let looſe, without riders, and urged them forward, furious and precipitate, into the ſultan's camp; but he, obſerving the wildneſs of their motions, conceived a preſentiment of what had been done, and ordered his beſt and braveſt cavalry to attack and drive the enraged animals into an adjoining foreſt, where they were ſoon maſtered and tamed. The enraged ſultan now gave orders for the immediate extermination of Nunda, and his family; but his timely ſubmiſſion, accompanied with an elegant panegyric, compoſed by the rajah himſelf, in Indian verſe, on the undaunted bravery of troops who dared to confront, and had ſkill to reduce to obedience, a train of intoxicated elephants, at once appeaſed and ſoftened the wrath of Mahmood, who, flattered and gratified by the compliment, not only left Nunda in the quiet poſſeſſion of his own ſtrong fort of Callinger, but added to it fifteen other inferior ones, which he had reduced in the courſe of his expedition.

In his twelfth and laſt Indian irruption, which took place in 1024, Mahmood directed his vengeance againſt the city and hill-fort of Sumnaut, in the province of Guzerat. Its temple is deſcribed to have been the moſt celebrated reſort of idolatrous devotees in the ſouthern part of Hindooſtan; and that no leſs than two thouſand villages, with their territories, were allotted for the ſupport of its eſtabliſhment, and of the prieſts, who it is ſaid amounted to above two thouſand in number. Its lofty roof was ſupported by fifty-ſix maſſive pillars, overlaid with plates of gold, and incruſted at intervals with rubies, emeralds, and other precious ſtones. One immenſe pendant lamp alone illuminated the ſpacious fabric, whoſe light, reflected back from innumerable jewels, ſpread a ſtrong and refulgent luſtre throughout the whole temple. In the midſt ſtood Sumnaut himſelf, an idol which gave name to the city and ſurrounding diſtrict; compoſed of one entire ſtone, fifty cubits in height, forty-ſeven of which were buried in the ground; and, on that choſen ſpot, according to the Brahmins, he had been worſhipped between four and five thouſand years. Around the dome were arranged ſome thouſands of images, in gold and ſilver, of various ſhapes and dimenſions; ſo that on this ſpot, as in a grand pantheon, ſeemed to be aſſembled all the idols of the Hindoo mythology.

Mahmood, informed of theſe riches, left Gazna with an immenſe army; and advancing by the way of Moultan and Agimere, through the vaſt deſerts which lie between it and the Indus, he at length arrived, without oppoſition, before the walls of Sumnaut. On the high battlements of the temple were aſſembled an immenſe multitude in arms; when a herald approaching, denounced the vengeance of the god upon the beſiegers, ſhould they attempt to violate or profane that ſacred place. But Mahmood, in ſpite of all theſe imprecations, commenced an immediate and vigorous aſſault, driving the affrighted natives from the walls, which the beſiegers, by their ſcaling-ladders, inſtantly mounted, killing and deſtroying every thing before them. The Hindoos, who had retreated into the temple, and proſtrated themſelves before their idol, in expectation of ſeeing the enemy at once diſcomfited through his ſignal and inſtantaneous vengeance, finding their expectations vain, made a deſperate effort for the preſervation of the place. Ruſhing in a body on the aſſailants, they repulſed them with great ſlaughter; and, as faſt as freſh forces aſcended the walls, they puſhed them headlong down, or impaled them with their ſpears. This advantage they maintained for two days, fighting like men who had devoted themſelves to that death, which their faith in the metempſychoſis taught them to believe was only a paſſage to felicity and glory. On the third day, a vaſt army of Hindoos coming to the relief of their ſacred city and temple, drew the attention of Mahmood from the ſiege, to his more immediate ſafety. Leaving, therefore, a body of troops to keep the beſieged in awe, he took a ſtrong poſition, and prepared to engage the advancing enemy. Theſe were led to battle by rajah Byram Deo, from whoſe family the city and territory of Deogur received their name; and other conſiderable rajahs, who, it is ſaid, determined to die in defence of the temple and its gods, or deſtroy the preſumptuous invader. Accordingly, they fought with a heroiſm proportionate to their ſuperſtition; and, before victory declared for Mahmood, five thouſand Hindoos lay ſlaughtered on the field. The garriſon of Sumnaut, after this defeat, giving up all for loſt, iſſued out of a gate that looked towards the ocean, and, embarking in boats to the number of four or five thouſand, intended to proceed to the iſland of Serandib, now Ceylon; but, information of their flight having been given to the ſultan, he ſeized the boats which were left in the harbour, and, rowing after them with a ſelect body of his beſt troops, they captured ſome, and ſunk others, permitting but few of the miſerable fugitives to eſcape.

After placing a large body of guards at the gates, Mahmood now entered the city; and, approaching the temple, was ſtruck with the majeſtic grandeur and magnitude of the ſtructure; but when he entered, and ſaw the ineſtimable riches it contained, he was filled with aſtoniſhment and delight. In the fury of Mohammedan zeal, he ſmote off the noſe of the idol, and ordered the image to be pounded to pieces. At this inſtant a crowd of Brahmins, frantic at the profanation of their temple, offered the conqueror an immenſe ſum to ſpare the image of their god; but Mahmood replied, that he would never be branded with the baſe character of a ſeller of idols. The ſoldiers therefore proceeded in their work; and broke in pieces the body of the idol, when out tumbled an infinite variety of diamonds, rubies, and pearls, ſo pure, and of a magnitude ſo uncommon, that the beholders were filled with ſurpriſe and admiration. This unexpected treaſure, with all the ſpoil taken in the temple and city of Sumnaut, were immediately ſecured and carried off; while fragments of the demoliſhed idol were diſtributed to the ſeveral moſques of Mecca, Medina, and Gazna, to be thrown at the threſhold of their gates, and trampled under foot by zealous Muſſulmen.

Mahmood, after an abſence of two years and ſix months, ſet off with this immenſe plunder, on his return to Gazna. But, as he had the deſerts to repaſs, the army miſtook its way, and was expoſed to the moſt incredible hardſhips. While his troops were expiring with their tongues hanging out for want of water, and the horſes, camels, and elephants, periſhing at every ſtep, the guide, being ſuſpected, was put to the torture; when he confeſſed that he was one of the prieſts of Sumnaut, and thought it his duty thus to revenge the inſults offered to his god. He was inſtantly impaled, and Mahmood, with his army, thus miraculouſly preſerved.

Not long after his return to Gazna, the health of Mahmood began viſibly to decline; but the indiſpoſition of his body by no means damped the ardour of his mind. In the decline of life, he added the extenſive province of Perſian Irak to his domain. And now, finding his end approach, this brave but rapacious conqueror commanded that all the ſacks of gold, and caſkets of precious ſtones, which his treaſury contained, ſhould be brought before him; and, having gazed long and attentively upon them, he remained for ſome time ſilent, and then burſt into tears. He ordered, the following day, a review of his numerous army, his elephants, camels, horſes, and chariots; with which having for ſome time feaſted his eyes from a lofty travelling throne, he again ſhed a plentiful flood of tears, and retired in anguiſh and deſpair to his palace. His diſorder, which aroſe from an ulcer of the lungs, daily gaining ground, he by a ſolemn deed appointed his youngeſt ſon, Mohammed, to ſucceed him in the ſovereignty of all his newly-acquired dominions, except that of the Perſian Irak, which he had given to Maſſud, his eldeſt ſon; and ſhortly after he yielded up the ghoſt, at the palace of Gazna, in the ſixty-third year of his age, and the thirty-fifth of his reign, in the 421ſt year of the Hegira, and 1030 of the Chriſtian æra.

Mohammed, who ſucceeded to Gazna, and the conquered parts of Hindooſtan, enjoyed the imperial dignity but for a ſhort time. Maſſud, his elder, though only by a few hours, (for they were twins,) firſt took poſſeſſion of the Perſian Irak, agreeably to his father's will, and then marched an army againſt his brother, to diſpute his claim to an empire which he deemed his birth-right. Mohammed, on the other hand, prepared to ſupport his juſt pretenſions to that ſovereignty, which had been delegated to him by the dying words and will of his father. With this view he opened the royal treaſury, and prepared to decide the matter by force of arms; but, in his march he was deſerted by his ableſt generals; and himſelf, ſhortly after, by the perfidy of ſome of his confidants, betrayed into the hands of his brother Maſſud, who for ever barred all his future hopes, by cruelly putting out his eyes. In the year of the hegira 419, or A. D. 1028, exactly five months after the death of Mahmood, his elder ſon Maſſud was inveſted with the royal dignity. During the confuſions that aroſe from the contention of the rival brothers, many cities of Hindooſtan, which had been reduced by ſultan Mahmood, revolted. Maſſud, therefore, determined to lead an army in perſon to ſecure the laurels ſo glorioully won by his father. With more zeal than prudence, the new Gaznavide monarch urged on his courſe towards Hindooſtan by the route of Cachimere; and arriving before the fort of Surſutti, or Sarſabi, which commanded the paſſes, he inveſted it with his whole force. The inhabitants would willingly have averted his vengeance by propoſals of capitulation; but the cries of ſome Muſſulmen captives reaching his ear, determined him to ſtorm the fort. The deep ſurrounding foſs was immediately filled up with felled trees, and ſugar-canes, which grew ſpontaneouſly in that neighbourhood. The ſcaling ladders were then applied to the walls; the garriſon, without diſtinction of age or ſex, were barbarouſly put to the ſword; and the place was given up to the plunder of the ſoldiers; when a part of the ſpoil ſoothed the ſufferings of the impriſoned Muſſulmen.

In the year 1035, Maſſud again bent his progreſs towards Hindooſtan, and attacked the ſtrong fort and city of Haſſi, the capital of Sewalic, a country near the then ſuppoſed ſources of the Ganges, and reckoned impregnable. In the temples and palace of that city he found immenſe treaſures, which having carefully ſecured, he marched on without delay to the fort of Sunput, forty miles from Delhi, on the road to Lahore. At the conqueror's approach, Deipal, the Hindoo governor, evacuated the fort, and fled into the woods; but his treaſure, which he had not time to carry off, became the property of Maſſud. He then ordered all the temples of the captured places to be laid in ruins, and their idols to be broken down. Deipal, driven from his government, appeared in arms to regain, if poſſible, his plundered treaſures, but was ſurpriſed by the ſultan, his army taken priſoners, and himſelf compelled to eſcape in the habit of a ſlave. In a letter which Maſſud now wrote to his omrahs at Gazna, he informed them of his having, during this expedition, ſacrificed to the religion of Mohammed fifty thouſand infidels, taken ſeventy thouſand priſoners, and acquired a booty amounting to a million of dinars!

The progreſs, however, of the deſolating hand of Maſſud was faſt drawing to an end. The province of Gazna was now invaded by the Seljukian Turks, who compelled him to withdraw into Hindooſtan, till he could, by one grand and deciſive effort, retrieve his perplexed affairs With this view he collected his immenſe wealth from the different ſtrong holds of Gazna, and, laying it upon a number of camels, bent his courſe towards Lahore. He likewiſe took his brother Mohammed, and compelled him to accompany his army. The ſlaves and numerous attendants of the royal houſehold, when the camels arrived on the banks of the Gelum, confederated with thoſe who guarded the camels to plunder the ſultan's treaſures. The troops, ſenſible of the declining ſtate of the imperial authority, and willing to ſhare in the wealth they had aſſiſted to acquire, immediately joined in the pillage, and in a moment all was uproar, rapine, and confuſion. For, from plundering the king's treaſures, they ſoon began to make depredations on one another; and as each was ſuperior to his neighbour in bodily ſtrength, or miſſile weapons, a larger proportion of the ſpoil became his property. Imagination cannot conceive any thing more truly terrific, than a whole army thus combating each other, and yet engaged in boundleſs ſpoliation. A number of lives were inhumanly ſacrificed during the conteſt; and, when the ſultan approached to puniſh the offenders, not an arm was found to execute the vengeance he denounced. All were equally guilty; and from their dread of puniſhment, they had combined to depoſe Maſſud, and to reſtore the blind Mohammed once more to the throne. Maſſud, on this extraordinary occaſion, conducted himſelf with dignity and firmneſs; and ſolicited to paſs the remainder of his life in the caſtle of Kurri. But ſo reduced were now the circumſtances of the degraded ſultan, that he was compelled to apply to the generoſity of his brother for money to pay the ſalaries of his menial attendants. It was then that Maſſud in the anguiſh of his heart exclaimed; "Oh! cruel reverſe of fortune! yeſterday I was a mighty prince; three thouſand camels bending under the weight of my treaſures. To-day I am forced to beg, and receive but the mere mockery of my wants."

Mohammed, not long after his ſecond acceſſion, perceiving that the loſs of ſight rendered him incapable of buſineſs, reſigned the ſceptre to his ſon Ahmed; who, not thinking himſelf ſecure while Maſſud lived, went in perſon to the caſtle where he was confined, and, with the aſſiſtance of two hired ruffians, aſſaſſinated that unfortunate prince. Modud, the ſon of Maſſud, no ſooner heard of the tragical end of his father, than he was filled with rage; and, at the head of a well-diſciplined army, advancing to Gazna, he was there received with the loudeſt acclamations of joy. Impatient to engage the ſanguinary uſurper, he haſtened to meet the enemy, who were marching from Moultan; and, the two armies coming to an action, the forces of Ahmed were completely routed, and both himſelf, Mohammed, and the two murderers, were taken priſoners, and immediately ordered for execution. In commemoration of this great victory, Modud erected a city upon the ſpot where he obtained it, and called it Fatteabad, which ſignifies the "City of Victory." He returned with his victorious troops to Gazna, whither he carried the remains of his father to be interred; and without farther oppoſition aſcended the vacant throne, in the year of the hegira 433, A.D. 1041.

Amidſt theſe domeſtic quarrels of the Gaznavian princes, the rajahs of the northern provinces of Hindooſtan combined together to expel that race from all its boundaries. At the head of this combination was the rajah of Delhi, who left that city with a numerous army, which, in its progreſs, multiplied itſelf in ſuch a degree, as to ſweep all before it. Tannaſar, long defiled by the unhallowed footſteps of Muſſulmen, gladly opened her gates to theſe worſhippers of her numerous, but degraded, divinities. The fort of Naugracut was the next object of aſſault; but, being a more important poſt, was both more ſtrongly fortified and more vigorouſly defended. For four months the reſolute garriſon, expecting ſuccours from Lahore, reſiſted with firmneſs every hoſtile attack. But theſe ſupplies never arrived; and the garriſon of Naugracut, wearied out, and famiſhing for want of food, were at length compelled to ſurrender. Animated by theſe ſucceſſes, the Hindoo army immediately advanced to Lahore, and reſolutely inveſted that ancient city. The Mohammedans vigorouſly defended themſelves during the ſpace of ſeven months; at the end of which, finding they muſt be rooted out by this defenſive mode of war, unleſs they had ſpeedy ſuccours from Gazna, they bound themſelves by a ſolemn oath, to devote their lives to victory or martyrdom; and, ſuddenly ſallying out of the city, preſented themſelves in battle array before the enemy's camp. The Hindoos, aſtoniſhed at their appearance and intimidated by their fierce aſpect, betook themſelves to flight, and were purſued with great ſlaughter by the triumphant Muſſulmen. Modud, elated at this favourable turn in his affairs, began to meditate the entire conqueſt of Hindooſtan; but a mortification of the bowels ſuddenly carried him off, in the year of the hegira 441, A.D. 1049, after a chequered reign of nine years.

Maſſud II. the younger ſon of Modud, then an infant of the age of four years, was placed on the throne by Abi, one of the generals of Modud; while Hajib, another general, to whom a great part of the army was devoted, propoſed, on the other hand, Abul Haſſen, another ſon of Modud, who, being older, ſeemed to poſſeſs a better title to the ſupreme authority. Expectation did not long wait in ſuſpenſe. The morning that was to decide the fate of the empire by a pitched battle between theſe two generals rapidly advanced; and, victory declaring in favour of Hajib, the unfortunate Maſſud was, after a reign of ſix days, depoſed, and Abul Haſſen, his elder brother, exalted to the throne.

This new ſultan ſeems to have reigned over the provinces of Southern Hindooſtan without any moleſtation, until the beginning of the enſuing reign of Abdul Reſhid, or Abdalraſhid, as it is commonly written; who was the ſon of ſultan Mahmood, and had been, by the order of Modud, long impriſoned in one of the hill-forts. When, previouſly to that prince's ſudden death, his vizier, Abdol Ryſac, marched to repel the Turkiſh Seljuks from Sejeſtan, intelligence was brought him, during the expedition, that the maſter he ſerved was no more. That faithful vizier was therefore deſirous of placing the crown where priority of birth ſeemed to determine its diſpoſal; and, actuated by theſe ſentiments, he releaſed Abdalraſhid from his confinement. The conſequence was, that Abdalraſhid, having approached Gazna at the head of a formidable army, gained a complete victory over Abul Haſſen, and immediately aſcended the throne. The unfortunate ſultan was ſhortly after ſeized, and doomed in his turn to confinement in the hill-fort of Didi.

Abdalraſhid, the ſeventh king of Gazna and India, began his reign about the year 1052 of the Chriſtian æra; and he marched an army againſt the fort of Naugracut, which was once more taken by aſſault, after a cloſe and vigorous inveſtment. After this ſucceſs, the ſultan ſent his general Togrol into the province of Seiſtan, inveſted with powers beyond any former governor, and armed with authority that in the end proved fatal to himſelf. After regulating the affairs of that province, and having an army at his command, Togrol conceived the dark deſign of marching to Gazna, and dethroning the monarch who had heaped ſuch favours upon him, and aſcending himſelf the throne of the depoſed monarch. The treacherous plan was no ſooner formed than executed. Gazna was inveſted, and the unhappy ſultan, with the reſt of the royal family, obliged to retire into the citadel for ſecurity. The imperial army being abſent, there were but few troops in the city, and thoſe by no means equal to its defence againſt the numerous forces that aſſailed it. Togrol, having made himſelf maſter of the town, vigorouſly attacked the citadel, which he carried by aſſault; when a ſcene of blood and horror took place, at which humanity ſhudders. The ſultan, and nine of the blood royal, were inſtantly put to death, with all thoſe who attempted to defend them. Two only eſcaped the general maſſacre, Ferokhzad and Anca, a ſon and daughter of Maſſud. The former found means to make his eſcape; but the latter was compelled to wed the inhuman murderer of her race; who now ſeized the royal diadem, aſſumed the title of ſultan, and ſummoned the diſtant governors to acknowledge his authority, and repair to Gazna to render him homage, as their lawful ſovereign. But, while the tyrant ſat on his throne to receive the compliments which were to uſher in the firſt year of his reign, ſome virtuous adherents to the imperial family, feigning to pay him fealty, at one and the ſame inſtant drew their ſcymetars, and plunged them in his heart.

Soon after this ſacrifice to offended juſtice, Hajib, the principal general of the murdered Abdalraſhid, arrived at Gazna with the army; and, calling a council of ſtate, inquired whether any yet remained of the race of Subuctagi. He was informed, that in a certain fort there yet remained impriſoned, Feroch Zaad, Ibrahim, and Suja. Theſe he ordered to be brought from their confinement; and, it being agreed that fortune ſhould decide by lot which of them ſhould aſcend the throne, the lot fell upon Feroch Zaad, who accordingly received the allegiance of the court. The reign of Abdalraſhid comprehended only one year: he was not a prince of great capacity, but certainly deſerved a better fate.

Feroch Zaad, or Ferokhzad, on aſcending the throne, gave the reins of government into the hands of Hajib; who not only approved himſelf worthy of ſuch a truſt, but in two pitched battles defeated the Turkiſh Seljuks, who had long attempted the conqueſt of the Gaznavian empire. No remarkable occurrences in Hindooſtan diſtinguiſhed this reign, which was but of ſix years duration, as the ſultan died A. D. 1058, and was ſucceeded by Ibrahim, the ninth king of Gazna and India. He was a prince remarkable for morality and devotion, having in the flower of his youth, amidſt every temptation to pleaſure, conquered his ſenſual appetites, and added two months more to the Mohammedan feaſt of Ramazan, which he kept with unprecedented ſeverity. He, at the ſame time, gave ſtrict attention to the affairs of his government, and to the due adminiſtration of juſtice. This prince, we are told, excelled in the art of fine writing; and in the libraries of Mecca and Medina there are two copies of the Koran, written with his own hand, which were ſent as preſents to the caliph. In the firſt year of his reign, having received intelligence that Malec Shah, king of the Seljukian Turks, had collected a great army, with an intention to invade Gazna, Ibrahim, conſcious of his own inferiority in the field, by a well-contrived artifice diverted his hoſtile intentions. Not long after, he concluded a treaty of peace with thoſe diſturbers of the national tranquillity, ceding to them all the country they had conquered, upon condition that they ſhould never invade the reſt of his dominions. To ſtrengthen this alliance, he married his ſon Maſſud to the daughter of Malec Shah; and this politic meaſure ſeems to have ſecured the repoſe of his realm, from that quarter, during the remainder of his reign.

Zealous, however, for the propagation of the Mohammedan faith, and anxious to retain the important conqueſts in Hindooſtan, he ſent a conſiderable army into that country, and took poſſeſſion of many places which had never been before ſubdued by the Moſlem arms. In 1079, he marched thither in perſon, and extended his conqueſts to the fort of Adjodin. This place being taken, he turned to another fort, called Rupal, which was built upon the ſummit of a ſteep hill. A river incloſed it on three ſides, and a ſmall peninſula joined it to the other hills, which were entirely covered with an impervious wood, much infeſted by venomous ſerpents. This circumſtance, however, did not diſcourage the ſultan from the attempt. He ordered ſeveral thouſand hatchet-men to clear away the wood, which they effected in ſpite of all oppoſition, and, the rock being ſoft, the miners forced their way in a ſhort time under the walls, which were brought down in ruins. The place was immediately taken, and the garriſon made priſoners. Several other ſtrong holds were alſo taken and deſtroyed, many temples plundered, the idols demoliſhed, and, with a profuſion of riches and magnificent ſpoils, one hundred thouſand unfortunate Hindoo priſoners were carried bound to Gazna. Some time after, the king meeting one of thoſe unhappy men carrying a huge ſtone, with great difficulty and labour, to a royal palace which was then building, it awakened the humanity of Ibrahim: he commanded the captive to throw it down, and gave him his liberty, ordering that it ſhould not be removed from the highway where it was depoſited, but remain there, "as a memorial of the misfortunes of war, and the compaſſion of the conqueror."

Ibrahim's victories in Hindooſtan were ſo numerous and important, that they obtained him the names of Al Modhaffer, and Al Manſur; that is, the conqueror, and the triumphant. Notwithſtanding, however, his frequent wars, he bore the character of a charitable and humane prince; and, during the intervals of peace, he was continually employed in building moſques, oratories, hoſpitals, and other edifices of national ornament and utility. After a reign of forty-two years, he died in 1088, leaving, according to *Feriſhta*, thirty-ſix ſons and forty-daughters, the latter of whom he gave in marriage to learned and religious men who frequented his court.

Maſſud III. the ſon of Ibrahim, and tenth king of Gazna and India, mounted the throne upon the deceaſe of his father; and was not leſs renowned for his juſtice and mercy, than for the wiſdom of the political maxims by which he governed. He reviſed the ancient laws and regulations of the ſtate; and, abrogating ſuch as were unreaſonable, ſubſtituted others in their place, founded upon more enlarged and generous principles. He took the daughter of Sinjar, ſucceſſor of Malec Shah, king of the Seljuks, in marriage, which cemented between them a firm and laſting friendſhip.

Unlike that of his predeceſſor, his reign was the reign of peace in the weſtern diſtricts of his empire, and afforded ample leiſure to his generals to extend their arms eaſtward in Hindooſtan, even beyond the fartheſt boundaries of the conqueſts of the great Mahmood himſelf. They croſſed the river Ganges, and, having plundered many rich cities and temples, returned in triumph to Lahore; which, being more remote from the Seljukian dominions, was now become the favoured reſidence of the Gaznavian kings. After a reign of ſixteen years, Maſſud died in the year of the hegira 508, or A. D. 1114; and Arſilla, his ſon, having imbrued his hands in the blood of Shire, the rightful heir, aſſumed the ſceptre and the diadem. His ſanguinary mind now exerted itſelf in acts of tyranny towards his other brethren. They were all cruelly and cloſely confined. One of them, however, Byram, evaded the vigilance of his keepers, and fled for protection to his uncle Sinjar, who, on the part of his brother Mohammed, king of Perſia, then ruled the province of Choraſan. Sinjar inſtantly demanded the releaſe of his nephews; and on the refuſal of Arſilla to liberate them, he advanced, with Byram, towards Gazna, to enforce what the uſurper had denied.

Sinjar marched from Buſt, in Choraſan, with thirty thouſand horſe and fifty thouſand foot; and without oppoſition advanced within one pharſang of Gazna, where the army of Arſilla was drawn out in order of battle. The line of Sinjar was immediately formed, the horſe were divided into ſquadrons, with battalions of ſpearmen in the intervals, and the elephants brought up the rear. Encouraging his troops, he advanced reſolutely towards the enemy, who ſtood firm to receive the charge. "The ſhock was ſo violent on both ſides, that order and command yielded to rage and confuſion. The gleam of arms that illuminated the field was ſoon quenched in blood, and darkened by clouds of duſt, that took away all diſtinction." At length the troops of Gazna were put to flight; and Arſilla, unable to renew the combat, fled with precipitation towards Hindooſtan. The victorious Sinjar entered Gazna in triumph; and, after having eſtabliſhed Byram on the throne, returned to his own country. Arſilla,

ſilla, on hearing of his departure, collected all the troops in the Gaznavide provinces of Hindooſtan, and haſtened back at their head, to recover his capital. Succeſs for a time crowned his expedition; but Sinjar, again marching to Gazna, drove him once more from its walls; upon which, his omrahs, conſpiring againſt him, in order to ſcreen themſelves from the vengeance of Sinjar, ſeized on the wretched Arſilla, and delivered him bound and captive to that prince; who, acting on the *lex talionis* of blood for blood, ordered him to be put to death, after a turbulent reign of only three years.

Byram, the twelfth king of Gazna and India, who now peacefully aſcended the throne, was in every reſpect the counterpart of the blood-thirſty Arſilla. He was the friend of literature, and a liberal encourager of the uſeful arts. Though naturally inclined to peace, he was twice obliged to march into Hindooſtan to chaſtiſe his refractory ſubjects, and ſupport the collectors of the imperial revenue. The firſt time he marched to reduce Balin, who held poſſeſſion of Lahore in right of his brother Arſilla, the former emperor. Him he defeated and took; but having pardoned him, upon ſwearing allegiance, he was again reinſtated in his government, and the king returned to Gazna. In the mean time, Balin built the ſtrong fort of Nigore, whither he conveyed all his wealth, family, and effects; and then, raiſing an army, compoſed of Arabs, Perſians, Afghans, and Chilligies, he committed great devaſtations upon the Indian independent princes; which mightily inflaming his ambition, he aſpired at length to the empire. Byram, appriſed of the intentions of Balin, collected an army, and marched a ſecond time towards Hindooſtan. Balin, with his ten ſons, who had each the command of a province, advanced to meet the king, as far as Moultan. A dreadful battle now enſued; but the curſe of ingratitude was poured upon the head of the perfidious rebel; who, in his flight, with his ten ſons and attendants, were driven headlong into a deep moraſs, where they periſhed miſerably.

Byram, after this victory, ſettled the affairs of his Indian provinces, and appointed Huſſein to the government; returning himſelf to Gazna. He ſoon after cauſed to be publicly executed, Mohammed, prince of Gaur, ſon-in-law to the rebel Balin; an unjuſt and impolitic meaſure, which involved him in freſh warfare; for Seif ul Dien, prince of Gaur, brother to the deceaſed, raiſed a great army to revenge his death. He marched directly to Gazna; which Byram, unable to defend, immediately evacuated, and fled to the ſtrong hold of Kirma, which had been built by the Afghans, to guard a paſs in the mountains. The prince of Gaur, without oppoſition, entered the capital, where he eſtabliſhed himſelf by the conſent of the people; ſending Alla, his brother, to govern his native principality of Gaur. Notwithſtanding, however, every effort to render himſelf popular, the people, from long attachment to the Gaznavian family, began to diſlike his government, and ſecretly wiſhed the re-eſtabliſhment of their former king. Some of the omrahs, taking advantage of this favourable diſpoſition, informed Byram of their readineſs for an inſurrection. It was now the depth of winter, and moſt of the followers of the prince of Gaur had returned, upon leave, to their families; when Byram unexpectedly appeared before Gazna, with a great army. Seif ul Dien, being in no condition to reſiſt him, was preparing to retreat to Gaur, when the Gaznians entreated him to engage Byram, aſſuring him they would exert themſelves to the utmoſt in his ſervice; but this was only a feint to deceive him. As the unfortunate prince, therefore, was advancing to engage Byram, he was ſurrounded by the people of Gazna, and taken. The unhappy captive was inhumanly put to the torture, and his head ſent to Sinjar, king of Perſia; while his vizier, Seid Mujud, was impaled alive.

When this news reached his brother Alla, his ſoul burned with rage and indignation. Determined to take a deep revenge, he inſtantly, with all his united powers, invaded Gazna. Byram, informed of his approach, intrepidly advanced to give him battle. At firſt the troops of Gazna, by their ſuperior numbers, bore down thoſe of Gaur; till Alla, ſeeing his ſituation becoming deſperate, called out to two gigantic brothers, of the name of Chirmil, whom he ſaw in the front, like two rocks, ſtemming the torrent of the battle. He forced on his elephant towards Byram, theſe two heroes clearing the way before him. Byram, obſerving him, ſtood aghaſt; but his ſon Dowlat, accepting the challenge, advanced to oppoſe him. The elder of the valiant Chirmils, ruſhing forward, ripped up the belly of Dowlat's elephant; but was himſelf killed by its fall. Alla, in the mean time, engaged the brave prince, and with his ſpear fixed him to the ground. The younger Chirmil furiouſly attacked the elephant of Byram; and after inflicting many deſperate wounds, brought the enormous animal down: but with it he alſo fell; and Byram eſcaped with his life, and, mounting a horſe, joined in the flight of his army, which was diſcomfited on all ſides. Byram, with the ſcattered remains of his army, found an aſylum in Hindooſtan; but he was overwhelmed with miſfortunes, and ſunk under the hand of death, in 1152, after a reign of thirty-five years. Choſro I. the ſon of Byram, and the thirteenth king of Gazna and India, upon the death of his father, was inveſted with the ſovereignty at Lahore, leaving the city of Gazna to the ſavage-minded Alla, who gave it up to the accumulated horrors of ſlaughter, rapine, and devaſtation. The maſſacre continued for ſeven days; after which, it is ſaid, this inhuman monſter carried a number of the moſt venerable prieſts and aged citizens in chains to Gaur, to adorn his triumph. There, horrible to relate! he ordered their throats to be cut, tempering the earth with their blood, as mortar to cement the walls of his city!

Soon after the return of Alla to Gaur, Choſro, in the hope of recovering Gazna, and depending upon the aſſiſtance of Sinjar, king of Perſia, collected all his forces, and marched from Lahore. But, when he had arrived upon the borders of that province, he received intelligence that Sinjar had been defeated and taken priſoner by the Seljukian Turks, who were then marching down with a great army to Gazna. This obliged him to retreat again to Lahore; where he died A. H. 555, A. D. 1159, having reigned but ſeven years.

Choſro II. the fourteenth and laſt king of the Gaznavide dynaſty, on the death of his father, aſcended the throne at Lahore, which he adorned with equal benevolence and juſtice; extending his dominions over moſt of the provinces formerly poſſeſſed by the emperors Ibrahim and Byram. But Mohammed, brother to the prince of Gaur, with an inſatiable rage, attacked and ravaged the kingdom of Gazna, which he wholly reduced; after which he marched an army into India, over-running the provinces of Peiſhore, Afghaniſtan, Moultan, and the Panjab. He then advanced to Lahore; and, in the year of the hegira 576, beſieged the emperor Choſro in that capital; but, finding it impoſſible to take the city, he entered into a treaty with the beſieged prince. Mohammed in conſequence evacuated the country, carrying away Choſro, the ſon of the emperor, a child of four years of age, as an hoſtage for the performance of the treaty. But the terms of that treaty not being fulfilled by Choſro, Mohammed determined to put an end to the dynaſty of Gaznavide ſultans. For this purpoſe he had recourſe to treachery. While he was preparing for the expedition, he gave out that it was only intended againſt the Seljuks; at the ſame time informing Choſro, by letter, that he was deſirous of accommodating all their differences by a laſting and friendly peace. To convince him of the ſincerity of his intentions, he now ſent back his ſon Choſro, with a ſplendid retinue; but he ordered that retinue to linger by the way, and make very ſhort marches; ſo that the emperor, his father, impatient to ſee him, advanced a part of the way, unguardedly, to meet him. In the mean time, Mohammed, with twenty thouſand horſe, galloped round the mountains, and cut off Choſro from Lahore, by ſurrounding his little camp in the night. The emperor, awakening in the morning, and being informed of this diabolical ſnare, ſaw no poſſibility of eſcape; and therefore threw himſelf upon the mercy of his adverſary. The ſultan peremptorily demanded poſſeſſion of the capital, as the price of the king's life. Accordingly the gates of that noble city were thrown open to receive him; and thus, without a blow, did this vaſt empire paſs for ever from the celebrated and illuſtrious houſe of Gazna.

### THE GAURIDE DYNASTY.

Mohammed, becoming thus poſſeſſed of the city of Lahore, aſſumed to himſelf the ſovereign authority; and after beſtowing the government of that province on Ali, viceroy of Moultan, he returned to his brother, the emperor, at Gazna. In the year of the hegira 587, or A. D. 1191, he is ſaid to have marched an army into Hindooſtan; and proceeding to Agimere, to have taken the capital of Miberhind; where he left Malleck Zea, with a thouſand choſen horſe, and ſome foot, to garriſon the place. He was haſtening upon his return to Gazna, when he heard that Pittu Rai, the rajah of Agimere, with his brother Candi Rai, king of Delhi, and ſome other Indian princes, were marching to recover Tiberhind, with two hundred thouſand horſe, and three thouſand elephants. Mohammed inſtantly returned to the relief of the garriſon. He met the enemy at the village of Sirauri, fourteen miles from Tannaſar, and eighty from Delhi, where he gave them battle. Upon the firſt onſet his right and left wings were turned, being outflanked by the enemy; till, joining in the rear, his army was gradually formed into a circle. Mohammed, who was in the centre of the line, was told that his right and left wings were defeated, and adviſed to provide for his own immediate ſafety. Enraged at this counſel, he ſmote the adviſer, and ruſhed on towards the enemy; among whom he commenced, with a few followers, a moſt dreadful ſlaughter. The eyes of Candi Rai, king of Delhi, perceiving him, he drove the elephant, upon which he was mounted, directly againſt him. Mohammed, riſing from his horſe, threw his lance with ſuch force at the elephant, that he drove out ſome of his teeth. In the mean time the king of Delhi pierced the ſultan through the right arm, and had almoſt thrown him to the ground; when ſome of his chiefs, advancing to his reſcue, bore him from the field of battle, which by this time was deſerted almoſt by his whole army; and the Hindoos purſued them near forty miles.

Upon the retreat of Mohammed, the allied rajahs continued their march to Tiberhind, which they beſieged for thirteen months, and at laſt obliged it to capitulate. Mohammed, in the mean while, recovering from his wounds, raiſed a freſh army, conſiſting of a hundred thouſand choſen horſe, Turks, Perſians, and Afghans, many of whom had their helmets ornamented with jewels, and their armour inlaid with ſilver and gold. With theſe he marched in martial ſplendour to Moultan, where he conferred titles and employments upon all who he had reaſon to expect would be firm to his intereſt. He then proceeded to Lahore, from whence he diſpatched an ambaſſador to Agimere, with a declaration of war, ſhould the Hindoos continue to reject the Mohammedan faith. Pittu Rai, king of Agimere, returned an inſulting anſwer to the embaſſy; and immediately wrote for ſuccours to all the neighbouring princes. Nor did his allies delay their march; and therefore he ſoon advanced to meet Mohammed, with an army ſaid to conſiſt of three hundred thouſand horſe, beſides three thouſand elephants, and a great body of infantry. The Hindoos again waited to receive Mohammed upon the former field of battle. The two armies at length encamped in ſight of each other, with the river Surſutti between them. The Indian princes, of whom there are ſaid to have been no leſs than one hundred and fifty in this great armament, being lulled into ſecurity by an artful propoſal of a truce from the invader, the Hindoos ſpent the night in riot and revelry, while Mohammed was preparing to take them by ſurpriſe. He accordingly forded the river a little before the morning dawn, and had entered part of the Indian camp before the treachery was diſcovered. Notwithſtanding the confuſion that enſued among the Hindoos, their camp was of ſuch an amazing extent, that the greater part had ſufficient time to form, and to cover the rout; ſo that they ſoon advanced with great reſolution in four powerful diviſions. Mohammed, upon ſeeing this, ordered his troops to halt; and his army, which had been alſo divided into four columns, were commanded to renew the attack by turns, wheeling off to the rear after they had diſcharged their bows a certain number of times, and then to give ground gradually as they advanced with their elephants. In this manner he retreated and fought, till the ſun was nearly ſet; when thinking he had ſufficiently wearied the enemy, and deluded them with a confidence of victory, he put himſelf at the head of a reſerve of twelve thouſand horſe, whoſe riders were covered with ſteel; and, giving orders to his omrahs to ſecond him, he made a reſolute charge, and carried death and confuſion among the Hindoo ranks. The diſorder became general; the Muſſulman troops made ſuch a dreadful ſlaughter, that this prodigious army was completely routed, and fled in every direction.

Candi, king of Delhi, and many other princes, were ſlain in the field; while Pittu Rai, king of Agimere, was taken in the purſuit, and put to death. The ſpoil of the camp, which was immenſely rich, fell into the hands of the conquerors; and the forts of Surſutti, Samana, Koram, and Haſſi, ſurrendered after the victory. Mohammed marched to Agimere, and took poſſeſſion of it; but, upon the promiſe of a large annual tribute, he gave up the country to Gola, the ſon of Pittu Rai. He then turned his arms towards Delhi; but was prevailed upon by the new king, with the weight of preſents, to abandon that enterpriſe. He left his faithful ſlave Cuttub, whom he had advanced to a general, in the town of Koram, with a conſiderable detachment; and marched himſelf towards the mountains of Sewalic, which lie to the north of India; deſtroying and plundering all the country in his way. His general Cuttub, by the ſultan's orders, raiſed an army, and took the fort of Merat, and the city of Delhi, from the family of Candi Rai. He alſo, in the year of the hegira 589, or A. D. 1193, took the fort of Kole; and, making Delhi the ſeat of his government, he there eſtabliſhed himſelf in ſecurity, obliging all the diſtricts round to acknowledge the Mohammedan religion. It was from this circumſtance proverbially ſaid, "that the great city of Delhi was founded by a SLAVE."

Mohammed, in the mean time, marched towards Canouge, and engaged Rai Joi, who was rajah of Canouge and Benares, and poſſeſſed a numerous army of horſe, beſides four hundred elephants. This prince led his forces into the field between Chundwar and Atava, where he was attacked in his rear by Cuttub, and all his baggage and elephants were taken. Mohammed then marched to the fort of Aſſi, where Rai Joi kept his treaſures, which in a few days he took; and found there, gold, ſilver, and precious ſtones, to an incalculable amount. He marched from thence to Benares, and is ſaid to have broken down the idols in above one thouſand temples, which he purified and conſecrated to the true God. He returned then to the fort of Kole, where he again confirmed Cuttub in the viceroyſhip of that part of India; and from thence, laden with treaſure, he took the route to Gazna.

In the year of the hegira 592, Mohammed reſolved upon another campaign in Hindooſtan, and directed his arms againſt Biana. He took that rich province, and conferred the government upon Togrol; who reduced the almoſt-impregnable fort of Gwalior, after a long ſiege. Mohammed was in the mean time engaged in an expedition towards the frontiers of Perſia. News was there brought to him of the death of his brother Yeas ul Dien, who had long poſſeſſed nothing of the empire but the name. Mohammed,

hammed, upon receiving this intelligence, haſtened to Gazna, where he was crowned in form, and mounted the imperial throne.

Being now informed of the death of Zireck, prince of Murve, Mohammed marched to the conqueſt of that country, advancing by the way of Charazm, where Tacaſh, its governor, not able to oppoſe him in the field, ſhut himſelf up in the city. The king immediately beſieged the place, but in a few days loſt many brave men. In the mean time news arrived that Aibeck, a general of the king of Tartary, and Oſman, king of Samarcand, were advancing with formidable armies to the relief of Charazm. Mohammed was ſo unwilling to abandon his hopes of taking the city, that he lingered in its ſuburbs till the allied armies arrived, when he was obliged to give them battle, in which he was totally defeated, loſing all his elephants and treaſure. He now retreated to the ſtrong fort of Hindohood, where he was cloſely beſieged by the enemy; but upon paying a great ranſom to Oſman king of Samarcand, and ſurrendering up the place, he was permitted to return in ſafety to his own dominions.

Mohammed having retrieved his affairs, and recruited his army, determined to make repriſals upon the Charazmian Tartars and Turks, and thus remove the diſgrace of his former defeat. He conferred the government of Bamia upon his relation Baka ul Dien; with orders, that, when he himſelf ſhould move towards Turkeſtan, Dien ſhould march at an appointed time, with all the forces of thoſe parts, and encamp on the banks of the Amu, where he would receive further orders; and at the ſame time to throw a bridge over the river. The emperor, upon the ſecond of Shabaan, having reached the banks of the Nilab, one of the five branches of the Indus, there formed his camp; when twenty mountaineers, of the tribe called Gickers, who had loſt ſome of their relations in their wars with Mohammed, entered into a conſpiracy againſt his life, and ſought an opportunity to put their infamous purpoſe in execution. The weather being ſultry, the king had ordered the ſcreens which ſurrounded the royal tents, to be ſtruck, to give admiſſion to the air. This afforded the aſſaſſins an opportunity of aſcertaining the king's ſleeping-tent. They cut their way through the ſcreens in the night, and hid themſelves in a corner, while one of them advanced to the door; but being ſtopt by one of the guards, who was going to ſeize him, he plunged his dagger in his breaſt. The groans of the dying man, being heard within, alarmed the guards in the outer tent; who running haſtily to learn the cauſe of the diſturbance, the other aſſaſſins took that opportunity of cutting their way through the hinder part of the king's tent. They found him aſleep, with two ſlaves fanning him; who ſtood petrified with horror, when they beheld the aſſaſſins advancing towards the emperor with drawn daggers in their hands, which they inſtantly plunged in his body. Thus prematurely fell the great Mohammed Gauri, in the year of the hegira 602, or A.D. 1205, after a reign of thirty-two years from the commencement of his government over Gazna, and three from his acceſſion to the whole empire, the honours and titles of which he nobly permitted his elder brother to enjoy during his life. The treaſure he amaſſed is almoſt incredible; he is ſaid to have poſſeſſed, in diamonds alone, five hundred maunds; he had made nine expeditions into Hindooſtan; returning almoſt every time laden with immenſe wealth.

Mahmud, the ſecond Gauride king of Gazna and India, was the nephew of Mohammed Gauri; but, being of a timid and indolent diſpoſition, he choſe to reſide at his former capital of Gaur, and continue Eldoze, or *Tagedin-Ildiz*, as ſome call him, who had been one of the favourite ſlaves of his uncle, in the government of Gazna, to which he had been before appointed by Mohammed. He alſo continued the other much-favoured ſlave of his uncle, Cuttub, in his viceroyſhip of Delhi; content with receiving from them, as well as from Naſſereddin, governor of Sind and Moultan, a large annual tribute, towards the ſupport of that luxury and voluptuouſneſs to which he was ſo imprudently addicted. No legiſlative improvement, or military exploit, is recorded of him; all we know of his fate is, that having, contrary to his general conduct, engaged in a diſpute with Mohammed, ſultan of Charazm, that puiſſant monarch marched an army into his territories, and made himſelf maſter of both Gaur and Gazna; that afterwards, like his uncle, he periſhed by the hands of aſſaſſins, who had privately entered his palace, and murdered him in his bed; thus putting an untimely end to the ſhort dynaſty of the houſe of Gaur, A.D. 1212. His remains were interred in the great moſque of Herat, which his father had begun, and which he himſelf had juſt lived long enough to complete, as the only public monument to his memory.

## THE CHARAZMIAN DYNASTY.

The chiefs of this dynaſty owed the origin of their power and ſplendour to the fall of the Seljukian Turks, or kings of the Perſian Irak, whoſe viceroys they were for Tranſoxiana. By a ſeries of perfidious acts, aggravated by the blackeſt ingratitude to their benefactors, they had exalted themſelves to their honours and their throne. Tacaſh was the ſixth of the Charazmian family, who roſe to a point of power and authority unrivalled at that time by any of the neighbouring princes of Aſia; and dying, A.D. 1212, his ſon, ſurnamed MOHAMMED the GREAT, became the firſt joint king of Charazm and weſtern India, by ſeizing on the empire of the weak and puſillanimous Mahmud.

Mohammed, on the deceaſe of his father Tacaſh, had commenced the conqueſt of *Iran*, or Perſia at large; for they poſſeſſed before only that part called the *Irak.* He then ſucceſſively ſeized on Choraſan, Bactriana, Gazna, Gaur, and Lahore; and afterwards added to his immenſe domain, the whole region of Tranſoxiana; ſo that himſelf, and Gengis Khan, emperor of the Moguls, now divided almoſt the whole continent of Aſia between them. Mohammed, in his military concerns, is ſaid to have taken Alexander for his model; and aſpired, like him, to be maſter of the world. In the pomp and magnificence of his court he ſurpaſſed all other ſovereigns; a remarkable inſtance of which is given by Niſavi, who records, that every morning and evening, at the gates of his palace, the drums of ſtate were beaten by twenty-ſeven khans, or ſubjected ſovereign princes, with drum-ſticks of gold, richly inlaid with precious ſtones.

His dominions to the north and eaſt were bounded by thoſe of Gengis Khan; who, in the courſe of a no very extended period, had already ſubjugated the innumerable tribes of Tartars diffuſed over northern Aſia, from the Volga to its moſt eaſtern extremities; and he was now ſuppoſed to menace ſouthern Aſia, which conſtituted the dominions of Mohammed. See the articles MOGULSTAN, and PERSIA.

Between two ſuch mighty potentates as Mohammed the Great, and Gengis Khan, whoſe dominions for ſo conſiderable an extent abutted on each other, we cannot wonder that jealouſies and mutual enmities ſhould ariſe. That this was the caſe, is moſt certain: but what the real ſource of that implacable rupture was, which deluged the country with blood, and ſpread death and deſolation over weſtern Hindooſtan, is not ſatisfactorily aſcertained. The following, however, is the aggravating cauſe, as given by the hiſtorians of Gengis: Both of theſe invincible monarchs had alike triumphed over their enemies; both had ceaſed from the perils and the toils of war; and both were enjoying the bleſſings of peace; when the emperor of the Moguls, deſirous to cultivate a good underſtanding with the Charazmian prince, ſent ambaſſadors to announce theſe friendly ſentiments to him, accompanied with preſents of the richeſt kind. The ſtern ſuſpicious nature of the ſultan led him to conſider theſe preſents as ſnares, and the ambaſſadors as ſpies. His haughty ſoul brooked not a rival, eſpecially an infidel rival; and he ſecretly meditated that dreadful blow, which was to convulſe all Aſia, and plunge myriads of human beings into eternity. He impriſoned the merchants who bore the preſents, and ſtruck off the heads of the three ambaſſadors. Gengis, on receiving this intelligence, in the anguiſh of his heart, is ſaid to have ſeparated himſelf for three days and three nights from his family; and during that ſpace, to have concerted meaſures for taking inſtant and ample vengeance on the perpetrator of this foul deed. Every ſoldier in his army is ſaid to have caught the enthuſiaſtic flame of reſentment, and impatiently urged to be led forth to that bloody and deſolating campaign, which, in the Hindoo annals, is called the

## INVASION of GENGIS KHAN, the GREAT MOGUL.

The ſpirit that incited Gengis to arms, directed that his meaſures ſhould be prompt and deciſive. His orders were, that every man ſhould fight in his ſtation, till he conquered, or fell; the flight of individuals, or of *ſingle* ſquadrons, was to be puniſhed with inſtant death by their neareſt comrades. But it was ordained, that if *ten* commanders, at the head of their combined ſquadrons, (the whole army being divided into bodies regulated by that number,) ſhould think it neceſſary to *retreat*, they were at liberty to do ſo; but ſmaller parties, by a retrograde movement, would ruſh only on inevitable death. Under this diſcipline, the army of Gengis, commanded by himſelf and his four valiant ſons, marched to battle; and on a review previous to the engagement, it was ſaid to conſiſt of no leſs than ſeven hundred thouſand men.

Mohammed, undiſmayed, heard from his ſcouts the details of this formidable preparation. He conſidered, or affected to conſider, theſe hordes as deſtitute of all military ſcience, and as unable to ſtand before the diſciplined conquerors of Perſia, who had triumphed over the braveſt nations, and who themſelves amounted to four hundred thouſand fighting men, the flower of the warlike regions of Iran, of Tranſoxiana, of Choraſan, and all the hardy race on the weſtern frontier of India. The terrible concuſſion of two ſuch armies can be better conceived than deſcribed. It took place, according to Le Croix, at Karaku, near Otrar, to the north of the river Jaxartes, in the year of the hegira 615, or A. D. 1218. With ſuch equal reſolution did this dreadful conflict begin, and with ſuch ſtedfaſt bravery did the battle laſt, that the darkneſs of the night alone ſeparated the contending armies. The enſuing morning diſcovered a ſight ſhocking to humanity; one hundred and ſixty thouſand Charazmians, and a ſtill more numerous body of Moguls, lay weltering in their blood. A ſolemn pauſe enſued; the Charazmian army retired within its lines, where for ſome days it remained ſtrongly intrenched; when at length a retreat was reſolved upon, and effected.

By a different mode of warfare, the ſultan Mohammed now thought of wearying, or retarding the further progreſs of, the Great Mogul; namely, by beſieging ſeveral of his cities at once, while he kept his main troops at bay, by deſolating the country before him with one army, while he harraſſed his rear with another. Of one of theſe armies he took the principal command himſelf, and gave the other to his heroic ſon, Gelaleddin, who had nobly diſtinguiſhed himſelf in the late engagement. But Gengis was not to be outdone in policy, nor outſtript in meaſures of activity and prudence He had alſo ſons: four lion-like heroes, unſhaken in courage, who were placed at the head of armies deſtined to unhinge the gates of all the Charazmian cities. Otrar, though ſtrengthened with a body of ſixty thouſand Mohammedan troops, after a deſperate reſiſtance of five months, fell beneath the vigorous aſſaults of the young Moguls Octai and Zagathai; while the ſubjugation of the other great cities lying on the Jaxartes, particularly the well-fortified city of Cogende, was committed to the eldeſt ſon Tuſhi, who butchered, in cold blood, without diſtinction of age or ſex, its miſerable inhabitants.

Gengis meanwhile, aſſiſted by his youngeſt ſon, Tuli, was preſſing forward at the head of two hundred thouſand men, to the reduction of Bokhara, and Samarcand; two of the fineſt cities in the ſultan's dominions; particularly Bokhara, where, to obviate the dread of famine, the provident ſultan had conveyed very ample ſupplies, and planted a very ſtrong garriſon to defend them. Early in the ſpring of 1220, the ſiege of this important city was commenced by the Mogul Tartars. The outer fortifications were quickly carried, and the beautiful ſuburbs deſtroyed by the trampling of their cavalry. The whole garriſon, ſhortly after, conſiſting of twenty thouſand men, made, in the night, a deſperate ſally; but being repulſed with inconceivable ſlaughter, and deſpairing, by any future efforts, to defend the city againſt ſuch formidable aſſailants, they re-entered the city by one gate, and eſcaped out of it by the oppoſite gate; truſting that their precipitate flight would be concealed by the darkneſs of the night. The diſcriminating eye of the Mogul emperor, however, quickly noticed their flight, and diſpatched after them a body of thirty thouſand horſe, who attacked them with ſuch impetuous valour, that they were a ſecond time defeated, and nearly all put to the ſword.

Diſtracted at ſeeing themſelves thus abandoned, the citizens of Bokhara reſigned themſelves to the wildeſt deſpair. Some were for laying the keys of their city at the feet of the Great Mogul, and throwing themſelves upon his mercy; others, dreading his vindictive cruelty, were for ſetting fire to all quarters of the town, and periſhing in the flames; while a dauntleſs band of young citizens, headed by the governor, flew to the caſtle, a fortreſs of great ſtrength, where they determined to defend themſelves to the laſt extremity. Gengis, aware of their diſtracted ſituation, was advancing to ſtorm the ramparts, when the gates were ſuddenly thrown open, and diſcovered a melancholy proceſſion advancing towards the emperor, earneſtly imploring for their lives. This he readily granted, on condition of their never affording ſhelter to the baſe ſultan of Charazm, who had violated the ſacred character of his ambaſſadors; nor concealing in their houſes any of the officers or ſoldiers of his army. This injunction they bound themſelves by a ſolemn oath to obey; and Gengis, with his youngeſt ſon, Tuli Khan, entered Bokhara in triumph. As they rode through the ſpacious ſtreets, the attention of Gengis was arreſted by the almoſt unparalleled magnificence of the Mohammedan moſque. He pauſed, and inquired if that were the palace of their ſultan? They anſwered, *It was the houſe of their God.* He then, without ceremony, rode into the midſt of the moſque, and, alighting, gave his horſe to an attendant, while he aſcended the gallery, and, contemptuouſly taking up the Koran, threw the volume to be trampled under the feet of his horſes. And, while the aſſembly was ſeized with horror at the profanation, his ſoldiers began to eat and drink in that venerable ſanctuary, as if it had been a common tavern. Gengis then ordered the rich citizens to bring forth all their hidden treaſures; paſſing a decree, that all who withheld them, or that gave ſhelter to any one of the ſoldiers of the ſultan, ſhould ſurely die. The gold, ſilver, precious ſtones, and gold and ſilver ſtuffs, which were now brought forth, was immenſe both in quantity and value; one moiety was ſet apart for the royal treaſury, and the other was divided among the officers; while the common ſoldiers amply enriched themſelves by the plunder of the city.

The ſad cataſtrophe, however, was yet to follow. Some of the unthinking inhabitants, overcome by the tender ties of friendſhip or conſanguinity, had violated the emperor's decree, by ſecreting in their houſes ſome of the officers of the ſultan's army. On this diſcovery, Gengis gave inſtant orders for the deſtruction of the place. Every part of the vaſt capital of Bokhara, except the palace, the citadel, and ſome other public buildings, were conſtructed of wood; and, fire being ſet at once to its ſeveral quarters, the whole city was preſently in a blaze. The public edifices juſt mentioned, being of brick, alone reſiſted the dreadful conflagration. So rapid were the flames, and ſo ſudden the deſtruction, that the ſame ſun, whoſe morning beams had illumined with glory the gilded ſpires and domes of one of the proudeſt cities of Aſia, diffuſed its evening ſplendours over its immenſe heap of ruins!

Amidſt this frightful ſcene of devaſtation, the heroes who had poſſeſſed themſelves of the caſtle, ſtill reſolutely refuſed to ſurrender. The ſtrenuous efforts of the whole army, together with thoſe of many of the inhabitants, compelled by Gengis to act againſt their fellow-citizens, were now employed to deſtroy the fort. Pots of burning *naphtha*, and other combuſtibles, uſed in ancient warfare, (of the nature of Greek Fire, for which ſee vol. viii. p. 972.) were, without intermiſſion, thrown in upon them on every ſide; till at length the gates, being in flames, ſeparated from their faſtenings to admit the conqueror, who glutted his vengeance by the maſſacre of all the officers and ſoldiers in the ſervice of the ſultan; but ſpared thoſe who had not entered into the army. And now, irritated by the noble reſiſtance of the garriſon, and determined to leave no ſtrong hold in his rear, he ordered the fort to be demoliſhed, and razed its maſſive walls to the ground.

The next object of the mighty Gengis, was to beſiege and plunder the magnificent city of Samarcand, where the ſultan Mohammed had retired, with a hundred and twenty thouſand men. As the circuit of attack was of prodigious extent, it required the united co-operation of the whole Mogul army, in order completely to inveſt the place.

The extent of the fortifications of this renowned city can ſcarcely be imagined. The exterior wall, or outer incloſure, had twelve iron gates, a league diſtant from each other; and at every two leagues there was a ſtrong fort, capable of containing a large body of troops: the walls were likewiſe fenced with battlements and towers, and ſurrounded with a deep and broad ditch; at the bottom of which an aqueduct was laid, conveying thither the waters of the river Sogd, by which the foſſe could be filled, and the water carried thence into the city, by which means every great ſtreet was furniſhed with a canal, and every houſe, as well as garden, with a fountain. The inner incloſure had four gates, but the walls were defenceleſs; within it ſtood the great moſque of the Mohammedan worſhip, and the ſuperb palace where the prince reſided. On the approach of Gengis, he ordered the whole of the external wall to be completely inveſted by his army; but his hopes were defeated; the ſultan Mohammed, foreſeeing the impoſſibility of holding out againſt the accumulated numbers and ſtrength of the Mogul army, had fled acroſs the Oxus, or Jihon, and taken ſhelter in Choraſan. Gengis, however, reſolved to reduce the city; and, as the line of defence and attack was ſo prodigious, numerous actions at one and the ſame time took place; which, from the number of perſons engaged, and the obſtinacy with which both parties fought, might be denominated battles, rather than partial ſkirmiſhes. A ſucceſſion of theſe conflicts contributed to diminiſh the troops, without forwarding the hopes of the beſiegers. Inſurrection, however, effected for them even what Mogul valour would have found difficult, if not impoſſible, to achieve. Among the multitude of various languages, nations, and ſentiments, that had taken refuge within the walls of Samarcand, a large party, actuated by fear, declared their reſolution to ſurrender up its keys to an enemy whom they deemed invincible. Another party, headed by Alab Khan, the governor, confiding in their loyalty and valour, determined to hold out to the laſt extremity. Thus divided in ſentiment, each party prepared to conſummate its own plans. Thoſe who were bent on reſiſtance, fortified themſelves in the caſtle, and ſeized on all the poſts moſt advantageous for defending themſelves, or annoying the enemy. Thoſe inclined to capitulate, by a deſperate effort, ſeized one of the principal gates of the city, and thus obtained an avenue, through which, whenſoever they pleaſed, they could open a communication with the beſiegers. It was not long before they determined to make thoſe humble ſubmiſſions, which they knew could alone prevail with the haughty Mogul. They were received with benignity; and orders were given that all thoſe who were ſolicitous for peace and protection, ſhould march from the city into the adjoining plain, where, on being muſtered, they were found to amount to fifty thouſand perſons. A ſtrong detachment of Tartar troops was then ſent to take poſſeſſion of the gate; and the moſt vigorous aſſault, by the united army of Gengis, was immediately commenced againſt the remaining garriſon. The brave and loyal Mohammedans were now driven from one ſtrong hold to another, till, after a continued action of four ſucceſſive days, the fifth morning beheld the brave governor, with the remnant of his faithful followers who fought by his ſide, driven into their laſt intrenchment; where, ſeeing themſelves ſurrounded on every ſide, they unanimouſly reſolved to cut their way through the ranks of the Tartar army, which they ſucceſsfully accompliſhed, hewing down every Mogul who attempted to ſtop their progreſs. About thirty thouſand of the garriſon, leſs reſolute than themſelves, ſtill remained in different parts of the extenſive lines; who, as the Moguls ruſhed in like a torrent upon them, were inſtantly put to the ſword. The whole city was then given up to uncontrouled ſpoliation; the men, women, and children, were doomed to ſlavery, and divided among the victors; while thoſe even who had experienced the khan's benignity, were compelled to pay a ranſom of two hundred thouſand gold dinars. It is computed, that in the ſiege and ſtorm of Samarcand, there could not have fallen leſs than one hundred thouſand victims to Tartar fury; and a circumference of twelve leagues, full of ſplendid temples and palaces, and rich in cultivated gardens, was on this occaſion utterly deſtroyed.

But Samarcand, and the whole diſtrict of Tranſoxiana, however large and beautiful, was only a province of the vaſt empire of the ſultan of Charazm; and, as the ſultan had fled to that city, inſtant meaſures were taken to beſiege it; and in this ſervice Gengis diſpatched his three elder ſons, at the head of half his army. The ſiege was commenced with the moſt active vigour; but its fortifications were immenſe, and the garriſon numerous and brave. The ſtruggles on both ſides were manly and animated; every foot of ground was obſtinately diſputed; and, as the engines of attack ſucceſſively approached the walls, they were overthrown, or ſet on fire; the flight of arrows from the ramparts was inceſſant; and the atmoſphere appeared in one continued blaze, from the number of fire-darts and combuſtible arrows which were hurled to and from the beſiegers and beſieged. It was not under ſeven months, in which prodigies of valour were performed on both ſides, that Charazm was taken, plundered, and burnt; and it is recorded, that the ſack of this city was marked with every ſpecies of ſavage brutality, and ſcarcely a ſpot could be found that was not ſtained with human blood. No leſs than two hundred thouſand perſons are ſuppoſed to have periſhed by the ſword, or in the flames: yet Mohammed, with a choſen few, had found means to elude the threatened graſp of Gengis. From the capital, the torrent of deſtruction overwhelmed the inferior cities and towns; Cath, Faraber, Dargan, and Corcange, places now ſcarcely known, bowed their towering heads before the victorious ſons of the Great Mogul.

Still, however, in the ſullen contemplation of the inflexible Gengis Khan, the manes of his murdered ambaſſadors were but half appeaſed. Their innocent blood, he contended, could never be expiated, but by that of him who had wantonly cauſed it to be ſpilt. His determination was therefore to ſeize the bloody-minded Mohammed, even though he chaſed him through the wilds of Perſia to the extremities of Derbend, or to the barrier at the foot of

Mount Caucaſus. On this ſervice he again ſent forth his ſons, with numerous ſquadrons of his fleeteſt horſemen. "Wherever he lies hid, (ſaid the implacable Mogul,) ſeize him, and bring him in chains to my camp; in your progreſs, if any prince or people dare to protect him, or arm in his cauſe, root out their country, and give them no quarter in battle. Moleſt not thoſe who ſubmit, or court our alliance. Trample down every obſtacle that may riſe to impede your march, even to the ſhores of the Caſpian Sea; make the circuit of its unknown borders; conquer the ſavage tribes that inhabit them, and join my army on your return, at Kapſhak, in my Tartarian dominions." See Mr. Maurice's nervous deſcription of theſe intereſting events; and Life of Gengis Khan, p. 230.

Arduous and hazardous as this enterpriſe appears, it was nevertheleſs purſued with aſtoniſhing vigour and perſeverance. Separating in three diſtinct diviſions, each prince at the head of ten thouſand men, they firſt ſpread themſelves over Choraſan, and the countries bordering on the Indus, in ſearch of the fallen Mohammed; who, unable to make any effectual ſtand, continually fled before them; and in that flight traverſed the whole extent of the Perſian Irak, truſting that, finally, he might weary out or elude their purſuit. But his purſuers were neither to be wearied nor eluded; and in their rapid courſe they ſometimes preſſed ſo cloſe upon his heels, that, while he was eſcaping by one gate of a city, the van of the Mogul army was entering it by another. The imperious orders of the khan were rigidly executed on thoſe who afforded him the leaſt ſuccour, or raiſed an arm in his defence; and as Perſia contained many loyal princes and governors, acting according to the predominant ſentiments of pity or valour, the greateſt part of their route was marked with bloodſhed and deſolation.

The fugitive ſultan, after eſcaping from one ſtrong hold to another, at length took refuge in a ſmall town on the coaſt of the Caſpian Sea, where he paſſed ſome time in diſguiſe. His retreat, however, being diſcovered, the town was ſurrounded by the Moguls, and the wretched monarch had juſt time to elude their fury, by hurrying on-board a veſſel, which the prudent caution of his friends had provided in caſe of ſuch an emergency. Scarcely was it launched from the ſhore, when the Mogul cavalry reached the ſpot; and in the impatience of rage, ſome of them plunged into the ſea to ſtop its courſe, while others as fruitleſsly diſcharged volleys of arrows at the receding bark. Conceiving that the ſultan's intention was to take ſhelter in ſome port of his own kingdom, the weſtern boundary of which was waſhed by the Caſpian, the purſuers diſpatched their ſwifteſt cavalry to line that ſhore, and ſearch every hiding-place in its vicinity. But a different fate awaited the unhappy ſultan; who, exhauſted equally by fatigue of body and diſtraction of mind, was ſeized with a violent pleuriſy, which compelled him to land at Abiſcon, a ſmall uninhabited iſland in the Caſpian Sea; where humbled grandeur felt thoſe bitter pangs, which, it might be hoped, expiated the crime of inordinate ambition. "Alas!" exclaimed the dying ſultan, "of all my immenſe empire, are only a few cubits left, for the interment of my lifeleſs body? How uncertain an abode is this tranſient world; how fleeting is life; how darkened by misfortune are its brighteſt proſpects!" In this afflicting ſituation the diſtreſſed monarch lingered for ſome days; during which his eldeſt ſon, the prince Gelaleddin, accompanied by two of his brothers, having obtained intelligence of the place of his retreat, came ſecretly to cloſe the eyes of their dying parent. In the year of the hegira 617, A.D. 1220, terminated the life and ſufferings of Mohammed the Great; a prince unrivalled in military fame amongſt all the ſovereigns of Aſia, Gengis Khan alone excepted. On that ſmall iſland his corpſe long continued to moulder, until, ſome years after, his ſon Gelaleddin cauſed it to be taken up, and buried with great pomp in the fort of Ardahan.

Immediately after the death of his father, his magnanimous ſon Gelaleddin haſtened to Niſhapour, the capital of Choraſan, where he aſſumed the title of ſultan, and put on the imperial regalia. He ſoon raiſed a conſiderable army, and was ſhortly after engaged in two actions with the Moguls; in the former of which he was victorious, but in the latter defeated, with the additional misfortune of having two of his brothers ſlain, and moſt of his men cut to pieces. Undaunted amidſt this new calamity, he repaired to Boſt, a city of Sejeſtan, where he ſucceeded in raiſing a new army of 20,000 men. But Gengis, with full 300,000, was hovering round to enſnare and trap him. Gelaleddin, therefore, ſecretly withdrew to Gazna, where the inhabitants gladly enrolled themſelves under his banner. And, beſides this important addition to his forces, he was joined by a Perſian nobleman, named Amin Malek, with ten thouſand Turkiſh cavalry; whereupon he took the field, and haſtened to raiſe the ſiege of Candahar, at that time inveſted by an army of Moguls. To effect this meaſure with the greater certainty, the two commanders reſolved to fall upon the beſiegers in the dead of the night. With ſucceſsful ſilence and intrepidity the Charazmian troops arrived before the Tartar camp, and penetrated their lines undiſcovered. They ruſhed upon the enemy with reſiſtleſs fury; and the garriſon, at the ſame time, pouring down upon them from above, a terrible ſlaughter enſued; for the Moguls ſtruck with diſmay, and taken by ſurpriſe, ſcarcely lifted up a weapon in their own defence, but were cut down by whole battalions. Scarcely a man of them eſcaped; and the booty which they had accumulated in their march thither, now fell to the lot of the victors, and rewarded their toil and their valour. The city and fortreſs of Candahar were ordered to be repaired by Gelaleddin; and he returned with Amin Malek to Gazna, which they entered in triumph; that nobleman engaging never to ſeparate himſelf or his troops from the fortunes of the young and valiant ſultan.

Gengis receiving intelligence of this unexpected check, while carrying on the ſiege of Bamian, a ſtrong city of Sableſtan, was extremely exaſperated; and his fury was increaſed by the obſtinate reſiſtance of the city, by which ſo many of his troops were retarded from more active operations. To add to his chagrin, he was informed that Gelaleddin had been reinforced by thirty thouſand freſh troops, ſent by the Turkiſh princes, who were becoming jealous of the inſatiable ambition and formidable ſtrides of the Great Mogul. As it was deemed unſafe, on the ſcore of ſecuring the wealth of the place, for Gengis himſelf to quit the ſiege of Bamian, he immediately diſpatched Kutuku, one of his ableſt generals, at the head of eighty thouſand men, to inveſt the Mohammedan capital of Gazna. Gelaleddin, however, hearing that the Mogul army had reached Birwan, within one day's march of Gazna, boldly reſolved to intercept its progreſs, and give them battle. His army was eager for action, and glowed with the ſame ardour as their general. The prudent Kutuku was by no means anxious to engage troops fluſhed with recent victory, but wiſhed to allow time for their ardour to cool. He therefore began to throw up intrenchments at Birwan, and hoped to delay the action till the arrival of the khan in perſon. But Gelaleddin was too politic not to penetrate his deſigns; and, marching up directly to the enemy, prepared to force their intrenchments. The ſpirit of the Tartar ſoldier ſuffered him not to brook the inſult: he marched out of his intrenchments, and led his troops to battle.

The van of the Charazmian army, led on by the Perſian Amin Malek, ruſhed to action with ſuch reſiſtleſs fury as to overthrow the foremoſt ſquadrons of the Mogul cavalry which were oppoſed to him; but, Kutuku ſupporting them at this inſtant with freſh troops, they renewed the attack, and, in their turn, routed that of the enemy. Gelaleddin now cauſed his main body to advance; and, placing himſelf at its head, made an impetuous aſſault on the enemy's centre, in which Kutuku fought with the fury of a tiger. Prodigies of valour were performed on both ſides, and for many hours the event was doubtful and wholly indeciſive. At length, however, victory declared for the ſultan; the Moguls were every-where diſcomfited, and flew to the mountains for ſhelter.

The mortifying intelligence of a ſecond defeat could ſcarcely be ſupported by Gengis; who, in conſequence, renewed the ſiege with tenfold fury; when, in the violence of this freſh aſſault, an heroic youth, the ſon of Octai, being ſhot by an arrow, fell dead at his feet. Gengis, ſhocked for the moment at ſeeing all the fair proſpects of his grandſon thus prematurely cut off, repreſſed his own feelings to ſoothe thoſe of the boy's mother. But his ſavage boſom burned with revenge. With promiſes of a high reward, ſeconded by an immediate diſtribution of gold and ſilver, he animated the ſoldiers night and day to continue their operations, till the walls fell before him; when he entered like a hungry lion to devour his prey. He gave up the city to the wife of Octai, who had loſt her beloved ſon in the aſſault; in retaliation for which ſhe gave orders, and attended in perſon to ſee them executed, that every man, woman, and child, and every living animal within its boundaries, ſhould be inſtantly maſſacred; and ſo rigidly were theſe orders put in force, that the bellies of pregnant women were ript open, and their infants deſtroyed, that there might not eſcape a remnant of this unfortunate race. Then followed the utter demolition of the whole place; ſo that ever after, Bamian bore the name of Manbalig, which means, "the unfortunate abode."

Gengis, impatient to check the ſucceſsful progreſs of the arms of Gelaleddin, immediately commenced his march for Gazna; and ſo rapid were his movements, that he ſcarcely allowed his ſoldiers time for refreſhment or repoſe. When by forced marches he arrived before Gazna, he found that the Charazmian army had left the place, and had marched to the diſtricts of the Panjab. Gengis alſo learnt, that the Turkiſh auxiliaries had taken a different route, and were ſeparated entirely from the ſultan's army. He was therefore determined to prevent their junction, by detaching ſixty thouſand horſe to ſecure the only paſſages of the mountains by which it could be effected. It now remained for Gelaleddin, with only thirty thouſand men, to wage an unequal conteſt with three hundred thouſand Moguls, under the immediate direction of ſuch a general as Gengis Khan.

His conduct, however, proved him equal to all that could be effected by deſperate valour on ſo trying an occaſion. He choſe for his ſtation, on the banks of the Indus, a place where the nature of the country, mountainous and rocky, would prevent the enemy, conſiſting chiefly of cavalry, from bringing his force into action; and, that no hope for ſafety in flight might be indulged by the leſs valiant among his own troops, he contrived to fix upon a ſpot where the ſtream was rapid and impaſſable. After theſe arrangements, hearing that the vanguard of the enemy had taken poſt at a place not far from his camp, called Hardar, he reſolutely mounted on horſeback, and, ſelecting ſome of the braveſt of his army, in the dead of night he marched to attack them; which he did with his accuſtomed vigour, and cut them nearly all in pieces, without the loſs of a man, and returned in ſafety to his camp. But, ſoon as the morning dawn approached, Gengis drew up his army in order of battle, ſaying to his generals that they ſhould make tenfold repriſals. He gave to his ſon Zagathai the command of his right wing; to Octai, that of his left; and reſerved the centre to himſelf, ſurrounded with ſix thouſand of his body-guard, all picked men, invincible in courage. On the other ſide, Gelaleddin, reſerving alſo the centre for his own command, conferred that of the right on Amin Malek; and to his vizier he conſigned the left, drawn up under the ſhelter of a mountain, which prevented the enemy's right wing from charging in a body.

The action commenced with a furious attack by the noble Perſian, Amin Malek, on the left wing of the Moguls, which he forced to give way. The right wing alſo of Gengis, from its ſituation before deſcribed, being pent up and unable to extend its front, afforded an opportunity to Gelaleddin to employ detachments of his left wing with aſtoniſhing ſucceſs. At this inſtant Gengis Khan gave a ſingular proof of his conſummate generalſhip. Obſerving the diſadvantage into which his left wing was thrown by the policy of Gelaleddin, he ordered a choſen detachment of his cavalry to haſten round the mountain which ſerved his enemies for a bulwark, and thus fall upon their rear. His commands were executed with promptneſs. Between rugged rocks and dreadful precipices the Tartar cavalry made its way; and fell impetuouſly on the ſultan's rear, while Gengis aſſailed him in front. Gelaleddin, however, who with only thirty thouſand men had now been engaged for ten hours in unequal combat with an army of three hundred thouſand of his enemies, diſdained to give over the conflict. Though ſurrounded by Gengis, he had yet ſeven thouſand valiant men fighting by his ſide; and which they continued to do, dealing death around them, until they were hemmed in upon the banks of the Indus; the Moguls now cloſing round them in the form of a bow, of which the ſultan's remaining line formed the ſtring. Gengis, determined if poſſible to take Gelaleddin alive, forbade his ſoldiers to aim any deſtructive weapon at him. But the heroic prince, throwing off his heavier armour, and mounting a freſh horſe, reſolutely ſpurred him into the Indus; where urging him on, the noble animal ſafely ſwam acroſs with his maſter. Gengis, informed of this intrepid meaſure, hurried down to the riverſide, where great indeed was his aſtoniſhment, when, regardleſs of his own ſafety, he ſaw him turn his horſe in the midſt of the waves to inſult him, and diſcharge at him his whole quiver of arrows. Several indignant Mogul captains offered to plunge after him; but Gengis would not permit them, expreſſing the higheſt admiration of his conduct and valour; ſaying "*happy would be the ſon who could boaſt of ſuch a father!*"

When ſafe arrived on the oppoſite ſhore, Gelaleddin was joined by many of his officers and ſoldiers, who had forded the river higher up; and, their numbers continually increaſing, he found himſelf again at the head of a formidable body of men, firmly attached to his intereſts, and ready to brave every danger in his ſervice. With theſe he is ſaid to have eſtabliſhed himſelf at Moultan, and to have remained there till the year 1224; when the rajahs of the country, jealous of his increaſing power, marched againſt him with their united ſtrength, and compelled him to recroſs the Indus. He afterwards recovered a conſiderable part of his patrimonial dominions, and beat the Mogul armies in the field; but was at length infamouſly betrayed and murdered, A. D. 1231, in the province of Curdiſtan. With him the line of Charazmian ſovereigns became extinct. The Perſian and hereditary domains of that dynaſty continued in the poſſeſſion of the ſucceſſors of Gengis, and thoſe of India in the family of Cuttub.

Gengis Khan, though he beheld with admiration the undaunted courage of Gelaleddin, was yet baſe enough to put to death, in cold blood, all the males of the family of that unfortunate prince. He wintered his army on the frontiers of India; and was on the point of extending his conqueſts through that region, when the unwelcome news reached his camp, that, in conſequence of his long abſence, the Chineſe were on the point of throwing off his ſupremacy; and that the khan of Tangut had actually done ſo. In the ſpring, therefore, of 1222, he marched back to Candahar, which fortreſs he retook with little trouble; and thence very large detachments were diſpatched into Iraq, to take vengeance on Gazna and the other cities that had favoured the cauſe of Gelaleddin. In 1223, he iſſued orders for an aſſembly of all the princes and generals of his vaſt empire, to be held at Toncat, a city of Turkeſtan; where, on an adjoining plain, he diſplayed all the ſpoils of his wars, with the utmoſt pomp of ſplendid magnificence. And now, after recovering Tangut, and awing China to peace by the terror of his frown, this great and invincible warrior, being ſeized with a fever, in conſequence, as it is ſaid, of extreme grief for the loſs of his youngeſt ſon, Tuſhi Khan, he expired on his march into the latter country, in the year of the hegira 623, or A.D. 1226, in the ſeventy-third year of his age, and twenty-fifth of his reign. See the article Gengis Khan, vol. viii. p. 320; and Mogulstan.

## THE FIRST DYNASTY OF MOHAMMEDAN KINGS IN DELHI.

We have already noticed, that Cuttub, a favourite ſlave, and afterwards a general, of Mohammed the firſt king of the Gauride dynaſty, was, by that monarch, made viceroy of the city and province of Delhi. Having executed the high office confided to him with ability and fidelity, and approved himſelf a conſummate general, and a true believer in the Mohammedan faith, he was, by Mahmud, the nephew of Mohammed, and ſecond king of the Gauride dynaſty, inveſted with the enſigns of royalty, and proclaimed king of Delhi. Cuttub received thoſe dignities at Lahore, where he met the ſultan, in the year of the hegira 602; from whence he returned to Delhi, to put in force his new dignity; which he effected by keeping the neighbouring rajahs in awe, and compelling the Hindoos to throw aſide their idols of metal, wood, and ſtone, and acknowledge the one only true and almighty God. In the mean time, Eldoze, the other favourite ſlave of Mohammed Gauri, taking advantage of the ſupineneſs of Mahmud, marched from Gazna, of which he had become the king, with an intention to ſeize Lahore; and which he effected by the treachery of the governor. Cuttub, as ſoon as he received intelligence of the tranſaction, marched with a well-choſen army, at the deſire of Mahmud, to recover the place. The year 603 of the hegira was conſumed on both ſides in a ſeries of deſperate conteſts for the maſterſhip; till at length victory declared for Cuttub. Eldoze was driven haſtily out of the city, and obliged to fly for Kirman. Cuttub purſued him as far as Gazna, in which city he cauſed himſelf to be crowned, adding that kingdom to his other poſſeſſions. But, after theſe ſucceſſes, the king of Delhi moſt unaccountably gave himſelf up to wine and women, till the citizens of Gazna, diſguſted with his voluptuouſneſs, ſent privately to Eldoze, entreating him to return. Eldoze, after recruiting his army with ſecrecy and expedition, advanced towards Gazna, and ſurpriſed Cuttub, who had no intelligence of his deſign till the day before his arrival. It was then too late to put himſelf in a poſture of defence, and he was obliged to give up the kingdom, and retire to Lahore. He there became ſenſible of his folly, repented of his paſt weakneſs, and exerciſed himſelf in the practice of juſtice, temperance, and morality. He ever after regulated his government by precepts of policy and wiſdom, to the day of his death, in the year of the hegira 607, A.D. 1210. His death was occaſioned by a fall from his horſe in a match at ball, which the adverſe parties endeavoured to carry off on the point of their ſpears; an achievement which was then conſidered as a high proof of dexterity in war.

Eldoze ſucceeded Cuttub in Lahore, which he again added to the ſovereignty of Gazna. Elated with that proſperity, which his weakneſs knew not how to regulate, he formed viſionary ideas of ſubduing the idolatrous Hindoos, and marched with a view to conquer the interior of India. But, after reducing ſome of the northern provinces, he was defeated near Delhi, by the emperor Altumſh; and, being taken, died in confinement, after a reign of nine years.

Aram, the ſon of Cuttub, meanwhile mounted the throne of Delhi; but was in no degree qualified for the government of ſo important an empire. Naſir, another favourite ſlave and general of Mohammed Gauri, marched with his army towards Sind, which he conquered; as alſo Moultan, Outch, Shinoran, and ſeveral other places. Another dignified ſlave, Mohammed of Chilligi, poſſeſſed himſelf of the kingdom of Bengal, and there aſſerted his own independence. At theſe ſelf-created authorities, the great omrahs of the court of Delhi, becoming extremely diſcontented, ſent to invite Altumſh, a ſon-in-law, or adopted ſon, of Cuttub, to aſcend the throne. Altumſh accordingly marched with his army to Delhi; and, by the cooperation of this faction, eaſily reduced it. Aram, incapable of truſting himſelf in his capital, had previouſly withdrawn, and collected a formidable army, with which he advanced to give Altumſh battle. A very obſtinate engagement enſued in ſight of the city; in which Aram loſt both the victory, and his empire, which he had only enjoyed for one year.

Altumſh, his ſucceſſor, had married the daughter of Cuttub; whence he derived his pretenſions to the throne. In the year of the hegira 622, he led his army towards Behar and Bengal, where he obliged Yeas ul Dien, of Chilligi, then prince of Bengal, to pay him tribute, and ſwear allegiance. He ſtruck the currency in his own name; and, appointing his ſon Naſir to the government of Bengal, he left Yeas ul Dien in the government of Behar, and then returned to Delhi. He then marched his army towards Malava, and took the city of Ugein, where he deſtroyed the magnificent temple of Makal, formed upon the ſame plan with that of Sumnat, which had been building three hundred years, and was ſurrounded by a wall one hundred cubits in height. The image of Bickermajeet, as alſo that of Makal, both of ſtone, with many other idols in braſs, he ordered to be carried to Delhi, and broken at the door of the Mohammedan moſque. After his return from this expedition, he led his army again towards Moultan; but, falling ſick on his march, he was obliged to return to Delhi, where he died, in the year of the hegira 633, or A.D. 1235, after a reign of twenty-ſix years. He was an enterpriſing, able, and virtuous, prince.

His ſon, Feroſe I. immediately aſcended the throne. The omrahs made their offerings, and ſwore allegiance; but he had no ſooner acquired the imperial dignity, than he gave himſelf up to the baneful influence of voluptuouſneſs, and withdrew his hand from the conduct of the ſtate. He expended his father's treaſures upon dancing-girls, comedians, and ſtrolling muſicians, and left the affairs of government to the management of his mother; who had been a Turkiſh ſlave, and now became a monſter of cruelty, ordering all the women of Altumſh's haram to be murdered, to gratify her hatred to them. The minds of the people began to be filled with diſguſt; and, entering into a confederacy, they advanced ſultana Rizia, the eldeſt daughter of Altmuſh, to the throne, and impriſoned the ſultan and his mother. Feroſe died in confinement, after reigning only ſix months and twenty-eight days.

Sultana Rizia poſſeſſed all thoſe valuable accompliſhments which were abſent in her brother. Upon her acceſſion, ſhe changed her apparel, and put on the imperial robes. Every day ſhe gave public audience from the throne, reviſing and confirming the ſalutary laws of her father, and diſtributing juſtice with an equal and impartial hand. Yet could not her wiſe and politic conduct cruſh the hydra rebellion. Altunia, the governor of Tiberhind, raiſed the hoſtile ſtandard againſt the ſultana, on account of her partiality to a favourite Abyſſinian. The ſultana, upon this intelligence, marched with her army towards Tiberhind; but, about half-way, the Turkiſh chiefs in her army mutinied, and a tumultuous conflict enſued, in which her Abyſſinian favourite was killed, and ſhe herſelf ſeized and ſent to the fort of Tiberhind. The army then returned to Delhi, where the Turkiſh omrahs ſet up her brother Byram, a younger ſon of the ſultan Altumſh.

Byram II. aſcended the throne of Delhi in the year of the hegira 637, A.D. 1239; but he was neither qualified with abilities to govern, nor with magnanimity ſufficient to keep his omrahs in awe. Rebellion become the inevitable conſequence of diſſenſions in the ſtate; and this weak ſultan was thrown into priſon, where he was poiſoned, after a reign of only two years, A. D. 1242.

No ſooner had Byram drunk the fatal cup, than the elder Balin raiſed a faction, and, forcing his way into the palace, placed himſelf upon the throne. But the princes and nobility, diſſatisfied with his ſelf-advancement, liberated Maſſud, the ſon of Feroſe, from confinement, and placed him upon the throne the ſame day in which Balin had ſeized it. Maſſud, however, had no reliſh but for wine and women; and exerciſed various acts of cruelty, injuſtice, and oppreſſion. The princes and omrahs determined upon hoſtile meaſures, and ſent for Mahmud, the king's uncle, from Barage; after which they threw Maſſud again into priſon, where he remained for life, having reigned only four years.

Mahmud II. was of a different nature from his predeceſſors; being renowned for bravery, wiſdom, and learning; hence he became the patron of literature, the protector of his people, and the friend of the oppreſſed. The office of vizier was now conferred upon Balin the younger; and all the executive power was put into his hands, and executed with promptneſs and fidelity. The fame of Mahmud extended into all regions. An ambaſſador, with tenders of honourable friendſhip, arrived at Delhi from Hallaku, the grandſon of Gengis, and king of Perſia. The viſier went out to meet the embaſſy with fifty thouſand foreign horſe, two hundred thouſand infantry, two thouſand chain-elephants of war, and three thouſand carriages of fireworks. He drew them up in order of battle, formed in columns of twenty deep, with the artillery and cavalry tactically diſpoſed. Having then exhibited a number of military evolutions in a ſham fight, and fully diſplayed the pomp of the ſultan his maſter to the ambaſſador, he conducted him to the royal palace. There the court was very ſplendid, every thing being ſet out in the moſt gorgeous and magnificent manner. All the omrahs, officers of ſtate, judges, prieſts, and great men of the city, were preſent, with five princes of Perſian Irak and Choraſan, beſides many Indian princes, ſubject to the empire, who ſtood next the throne.—But every earthly poſſeſſor of a throne is ſubject to mortality: Mahmud, in the height of his magnificence, died, in the year of the hegira 664, A. D. 1265, much lamented by his people.

Mahmud having no male iſſue, his courteous and able vizier, Balin, of the ſame family, was, by the univerſal approbation of the nobles, placed upon the throne of Delhi. He was a warm advocate for the precepts of the Koran; and a ſevere ſcourge to the idolatry of the Hindoos. He alſo became ſo famous for his juſtice and able government, that his alliance was courted by all the kings of Perſia and Tartary. But his taſte for ſplendour and magnificence has been no leſs admired than condemned. Such was the pomp and grandeur of the royal preſence in his time, that none could approach the throne without being ſtruck with awe. The ceremonies of introduction were conducted with profound ſolemnity, and every thing diſpoſed ſo as to excite reverence and aſtoniſhment in the beholders. Nor was Balin leſs magnificent in his public proceſſions. His ſtate-elephants were capariſoned in purple and gold. His horſe-guards, conſiſting of a thouſand noble Tartars in ſplendid armour, were mounted upon the fineſt Perſian ſteeds, with bridles of ſilver, and ſaddles of rich embroidery. Five hundred choſen men in rich liveries, with their drawn ſabres, ran before him, proclaiming his approach, and clearing the way. All the omrahs followed according to their rank, with their various equipages and attendants. The monarch, in ſhort, ſeldom went out with leſs than one hundred thouſand men; which, he uſed to ſay, was not to gratify any vanity in himſelf, but to exalt the Koran in the eyes of the idolatrous people of Hindooſtan.

In the fourth year of the reign of Balin, died Shere, the nephew of the late emperor, who had, from the time of Mahmud, governed the provinces upon the banks of the Panjab, or five branches of the Indus. He was eſteemed a man of great genius, and an intrepid warrior; having conſtantly defended his country from the devaſtating incurſions of the Moguls. Balin, upon the death of Shere, appointed his eldeſt ſon Mohammed, at that time bearing the title of the noble Malleck, viceroy of all thoſe frontier-provinces. Mohammed was immediately diſpatched to his government with a fine army, and ſome of the beſt generals in the empire. The prince himſelf was bleſt with a bright genius, and took delight in learning, and in learned men. He is ſaid to have made a choice collection of Arabian poetry, ſelected from the beſt writers in that language. The work conſiſted of twenty thouſand couplets, and was eſteemed the criterion of poetical taſte. Among the literati of thoſe times, the noble Choſro and Haſſen bore the firſt rank in genius; and accompanied him to his government of Lahore

Every thing was now in perfect peace and ſecurity throughout the Mohammedan empire in Hindooſtan, when Togril, who was entruſted with the government of Bengal, began to appear in arms. In the year of the hegira 678, A. D. 1279, this enterpriſing viceroy aſſumed the red umbrella, with the royal dignities, and declared himſelf king of Bengal. Balin wrote him an order to return inſtantly to his allegiance; which producing no effect, he ſent an army from Delhi to reduce him to obedience. This army, however, failing in its object, the ſultan diſpatched a ſecond armament, more numerous than the firſt; but it was attended with no better ſucceſs: Togril, with ſcarcely half their number, totally defeated them both. The ſultan Balin, on receiving intelligence of theſe diſaſters, prepared to take the field in perſon. He gave orders to build a large fleet of boats, for the purpoſe of carrying his baggage down the river. He croſſed the Ganges without waiting for the dry ſeaſon, and proceeded to Bengal by forced marches. Togril, hearing of his approach, collected his army, and with all his elephants, treaſure, and effects, took the route of Jainagur, with intention to remain there till the king ſhould return to Delhi. The ſultan, having arrived in Bengal, remained there only a few days; when he proceeded with his army towards Jainagur; ordering his generals, Malleck, and his brother Mohammed Shir, governor of Kole, with ſeven thouſand choſen horſe, to advance in front of the army, and gain intelligence of the rebels. At the diſtance of about twenty miles, they came in ſight of the rebel camp, which extended over a great plain, with every thing in apparent reſt and ſecurity. Mohammed, having fixed his eye upon Togril's tent, which was pitched in the centre, and diſtinguiſhed by its ſuperior magnitude and elegance, he determined to execute one of the boldeſt enterpriſes perhaps ever effected. He advanced full ſpeed, with forty attendants, towards the camp, which he was permitted to enter, being taken for one of their own parties. He continued his courſe to the point of action; when, ordering his men to draw, they ruſhed into the tent of audience, which was crowded with the principal officers, whom Mohammed put to the ſword, crying, "Victory to the ſultan Balin!" Togril, perceiving his danger, and ſuppoſing his army to have betrayed him, cut his way through the tent behind; and, mounting his horſe, fled towards the river, intending to croſs it, that he might eſcape to Jainagur. But Malleck, the brother of Mohammed, perceiving the rebel as he fled, purſued him to the river, and ſhot him with an arrow as he was croſſing. Togril fell from his horſe in the river, and Malleck, plunging in, dragged him out by the hair, and cut off his head, which was forthwith diſpatched to Balin, while they took poſſeſſion of the camp; the inſurgents having fled in every direction. Balin, the next day, ſent for the two gallant brothers, and commanded them to relate the particulars of this extraordinary exploit. He heard it with great calmneſs; but inſtead of praiſing them, as they expected, he told them, that the raſhneſs of their conduct was inconſiſtent with their duty, and might have led to incalculable miſchief. Thus, for the preſent, he diſmiſſed them in diſgrace; but in a few days he ſent for them again, and conferred great and merited honours upon them.

Balin, returning to Bengal, put every one of the rebel's family, and principal adherents, to death. He did not even ſpare his innocent women and children; and he carried his cruelty ſo far, as to maſſacre a hundred fakiers, for having been in favour with the rebel, who had given them a preſent of three maunds of gold to ſupport their ſociety. Balin now appointed his ſon Kera to be king of Bengal; and marched back his army towards Delhi, from whence he had been abſent three years. Upon his arrival, he ordered ſpits to be erected in the market-place, on which he intended to impale all the priſoners taken in the late expedition, as a laſting memorial againſt the crime of rebellion; and it was with the utmoſt difficulty that the mufties, and venerable omrahs of the city, petitioning in a body for their pardon, at laſt ſoftened Balin, and obtained for the wretched victims his entire forgiveneſs.

During theſe tranſactions, the Mogul prince Timour, deſcended from the great Gengis Khan, was acquiring renown in arms throughout the vaſt empire of Mogulſtan, or Weſtern Tartary. Having determined to invade Hindooſtan, he ravaged all the country about Lahore, and then marched towards Moultan. The prince Mohammed, eldeſt ſon of Balin, who then governed Moultan, haſtened to the banks of the river of Lahore, and prepared to oppoſe him. Both armies drew up in order of battle, and engaged with great fury for the ſpace of three hours, when the Moguls were put to flight, and were purſued with imprudent diſorder. Mohammed, with five hundred attendants, halting to refreſh on the banks of a beautiful lake, was attacked by an ambuſcade of two thouſand Tartar horſe, who, from a neighbouring wood, ruſhed out, and took them by ſurpriſe. The prince, collecting his ſmall party, made dreadful havoc among his aſſailants; but, being at length overpowered, he received a wound in the breaſt, and died on the ſpot. When the fatal news reached Balin, he was for a time inconſolable; but at length he appointed his grandſon Kei Choſro, the ſon of the deceaſed Mohammed, to ſupply the place of his father in the government of Moultan; and, diſpatching conſiderable reinforcements, drove the Moguls, with prodigious ſlaughter, from all thoſe provinces of the empire.

When the aged ſultan found grief and infirmities gradually wearing him down, he ſent for his ſon Kera from Bengal, and appointed him his ſucceſſor; at the ſame time directing that he ſhould continue with him at Delhi, and appoint a deputy for his government of Bengal. To this Kera conſented; but he ſhortly after ſet out for Bengal, without acquainting his father of his departure. This undutiful conduct deeply afflicted the ſultan, juſt as the hand of death was upon him. He therefore ſent for his grandſon Kei Choſro from Moultan, and altered the ſucceſſion in favour of this young prince. Balin in a few days expired, in the year of the hegira 685, or A. D. 1286, after a reign of twenty-two years. Immediately on the death of the emperor, the brave Malleck ul Omrah, or principal miniſter of ſtate, having aſſembled the nobles, harangued them upon the preſent poſture of affairs. He aſſured them, that Choſro was a young man of a violent and untractable diſpoſition, and therefore, in his opinion, unfit to reign; beſides, that the power of the prince Kera, the rightful heir, was ſo great in the empire, that a civil war was to be feared, if the ſucceſſion ſhould not be continued in his family. That therefore, as his father choſe to reſide in the kingdom of Bengal, it would be moſt prudent for them to elect his ſon Kei Kobad, who was a prince of a mild diſpoſition, and then at Delhi. So great was the influence of the miniſter, that he procured the throne for Kei Kobad; and Choſro returned to his former government of Lahore and Moultan.

Kei Kobad, though of a mild diſpoſition, and diſpoſed to govern by the rules of equity and juſtice, yet, in a ſhort time, gave himſelf up entirely to effeminacy and debauch. He fitted up a palace upon the banks of the Jumna, and retired thither to enjoy his pleaſures undiſturbed; admitting no company but ſingers, players, muſicians, and dancing girls. Nizam, who was nephew and ſon-in-law to the chief magiſtrate of Delhi, obſerving that the king was thus ſwallowed up in his pleaſures, began to form ſchemes of advancing himſelf to the throne. His firſt object was to deſtroy all thoſe who, by conſanguinity or loyalty, might poſſibly ſtand in his way. He began with Choſro, grandſon of the late ſultan, whom he hired aſſaſſins to murder, as the unfortunate prince was on his way to Delhi. The villanies of Nizam did not ſtop here; he privately aſſaſſinated all the old ſervants of Balin; inſomuch that a general conſternation was ſpread through the city, though none as yet ſuſpected Nizam to be the cauſe. The next ſtep the traitor took, was to inſpire the king with jealouſy of his Mogul troops, who, as ſoldiers of fortune, had become Muſſulmen, and enliſted in great numbers in his ſervice. He pretended that he had detected many of them in treachery; and the weak prince, liſtening to his villainous intimations, ordered all thoſe to whom Nizam bore the leaſt enmity to be ſet upon by his guards and maſſacred.

Kera, the emperor's father, having heard how infamouſly affairs were conducted at the court of Delhi, penetrated into the deſigns of the miniſter, and wrote a letter to his ſon, forewarning him of his danger, and adviſing him to diſpatch the miſcreant. But, his advice being of no weight, he determined to march with his army to Delhi, to put a ſtop to theſe ſhameful diſorders. When Kei Kobad heard that his father had advanced as far as Bahar, he drew out his forces, by the advice of Nizam, to cut the throat of his aged ſire. Kera, meanwhile, encamped upon the Sirve; and both armies remained ſome days in hourly expectation of an action. In this interval, Kera ſent a letter to his ſon, written in the moſt affectionate terms, begging he might ſee him before matters were carried to extremities. This letter awakened the feelings of nature in Kei Kobad's breaſt; and he gave orders to prepare his retinue, that he might viſit his father. Nizam, however, with a view to get Kera into his power, prevailed upon his ſon to inſiſt, as ſultan of Delhi, upon having the firſt viſit. Kera accordingly conſented to come to his ſon's camp, and ſent notice of his pacific intentions. The young monarch, by the miniſter's directions, aſcended his throne, and arrogantly gave orders that, when his father approached, he ſhould three times kiſs the ground. Kera was ſo ſhocked at this indignity, that he burſt into tears; which being felt by the ſon, he could no longer ſupport his unnatural inſolence; but, leaping from the throne, fell on his face at his father's feet, imploring his forgiveneſs. The good old ſultan melted into compaſſion, and, raiſing him in his arms, embraced him, and hung upon his neck. The ſcene was ſo affecting, that the whole court was in tears. The young king now led his father to the throne, and took his place on his right hand, ordering a charger full of golden ſuns to be waved three times over his head, and afterwards to be given among the people. All the omrahs in like manner preſented him with coſtly gifts. The ſchemes of Nizam now reverted upon his own head. The omrahs ordered him to be diſpatched by poiſon; and Kera returned, after ſolemnly beſtowing his bleſſing on his ſon, to his favourite palace at Bengal.

Kei Kobad, however, was not to be reſtrained from his habits of voluptuouſneſs; ſo that every omrah of popularity or power began to intrigue for the empire; which obliged the friends of the royal family to take Keiomourſe, a child of three years, ſon to the reigning ſultan, out of the haram, and to ſet him upon the throne. The army upon this occaſion ſplit into two factions, who encamped on oppoſite ſides of the city. The Mogul or Tartar legion eſpouſed the cauſe of the young king; and the Chilligies, or Afghans, joined Feroſe, who had uſurped the throne.

Upon the firſt diſturbance, thoſe Tartars who had ſet up the young prince, jealous of the power of the Chilligies, aſſembled themſelves, and proſcribed all the principal Chilligian officers. Chigen had been deputed by the Tartar party to invite Feroſe to a conference, in which a plot was formed for his aſſaſſination. Feroſe, penetrating his deſign, drew upon the traitor, and killed him at the door of his tent. The ſons of Feroſe, who were renowned for their valour, immediately put themſelves at the head of five hundred choſen horſe, and, making an aſſault upon the Tartars, cut their way to the royal tent, which was pitched in the centre of the camp; and, ſeizing the infant king, carried him, and the ſon of Malleck ul Omrah, off, in ſpite of all oppoſition. Feroſe, in the mean time, ſent a ruffian to aſſaſſinate the ſultan Kei Kobad, who lay ſick at his palace on the banks of the Jumna. The villain found this unfortunate prince ſick in his bed, deſerted by all his attendants. He beat out the poor remains of life with a club; then, rolling him up in the bed-clothes, threw him out of the window into the river. This aſſaſſin was a Tartar, whoſe father had been cruelly put to death by Kei Kobad; and he now glutted his revenge:—"The ways of Providence are founded in juſtice and in wiſdom."

## DYNASTY OF THE CHILLIGIES, OR AFGHANS.

Feroſe II. now aſcended the throne, and aſſumed the title of Jellal ul Dien; having put an end to the dynaſty of Gaur, by killing the infant king, whom his party had taken from the Tartar legion. Chidju, nephew of the ſultan Balin, and the laſt remaining heir of the empire, was appointed viceroy of Kurrah, and ſent off to his government. Feroſe then entered the palace, and was proclaimed ſultan, in the year of the hegira 687, A. D. 1289.

During the reign of the magnificent Balin, and his wretched grandſon Kei Kobad, Cublai, the grandſon of Gengis, ſat on the Mogul throne, and completed the conqueſt of China. Hallaku, and after him his ſon Ilkan, reigned over the empire of Perſia and Syria, in ſubordination to Cublai. Kagathai, the ſon of Gengis, and his poſterity, were in poſſeſſion of Tranſoxiana, and the provinces to the north-weſt of the Indus, which, in the reign of the invincible Mahmood, had firſt formed the empire of Gazna.

Feroſe, who had long been commander of the Afghan troops, the hardy natives of the mountains of Gaur and Ghirgiſtan, ſituate between Perſia and Hindooſtan, as heretofore noticed, was ſeventy years of age when he aſcended the throne. By way of plainneſs, he changed the royal umbrella from *red* to *white*; laid entirely aſide his cruelty after the murder of the young prince, and became remarkable for humanity and benevolence. He had no great confidence in the loyalty of the people of Delhi, and therefore reſided always at Kilogurry, which he ſtrengthened with works, and adorned with fine gardens by the ſide of the river. The omrahs, following the emperor's example, built palaces around; ſo that Kilogurry became known by the name of the *New City*.

In the ſecond year of Feroſe, Chidju, the nephew of Balin and the rightful heir, in alliance with Halim, nabob of Oude, aſſumed alſo the enſigns of royalty, and ſtruck the currency of the country in his own name, which he changed to that of Moghiz ul Dien. He brought over to his party all the rajahs and jaghiredars of thoſe parts; and, raiſing a great army, advanced towards Delhi. Feroſe, appriſed of his movement, collected his forces, and marched out to meet him. He ſent the Chilligian or Afghan cavalry, who excelled at the bow, a few miles in his front, under the command of Arkilli, his own ſon. Arkilli, encountering the enemy about twenty-five miles from the city, after an obſtinate engagement defeated them. He took ſeveral omrahs, whom he mounted upon camels, with branches hung round their necks; and in that humbled condition ſent them to his father. When Feroſe ſaw their diſtreſs, he immediately ordered them to be unbound, to have a change of fine linen, and an elegant entertainment to be provided. He called them before him, and ſaid, "Evil for evil may eaſily be returned; but he only is great who returns *good* for evil." Chidju, ſome days after, was taken by the zemindars, and ſent in chains to Feroſe. Inſtead of condemning him to death, as was expected, he gave him a free pardon, and ſent him to Moultan, where he had a handſome appointment for life, as a priſoner on parole.

In the year of the hegira 692, A. D. 1291, a kinſman of Hallaku, king of Perſia, invaded Hindooſtan with one hundred thouſand Moguls. Feroſe, having received advice of the approach of the enemy, collected his army, and moved forward to oppoſe him. Both armies encamped for the ſpace of five days in ſight of each other; and on the ſixth morning they drew up in order of battle. The Moguls, after an obſtinate conteſt, were overthrown, many of their chiefs killed, and about a thouſand of them taken priſoners. Among the latter were two omrahs, and ſeveral officers of rank. The emperor, after the victory, offered them peace; and, in conſequence of his great clemency, mutual preſents were exchanged between them; upon which Hallaku joined Feroſe with three thouſand men, who all became Muſſulmen; and their chief was honoured with one of the daughters of Feroſe in marriage.

In the year of the hegira 692, Alla-ul-Dien, the king's nephew, who ſucceeded Chidju as viceroy of Kurrah, a country bordering on the Deccan, requeſted to be permitted to march againſt the Hindoos of Belſa, who infeſted his province. Having obtained leave, he marched the ſame year to Belſa, which he took; and, having pillaged the country, returned with much ſpoil, part of which was ſent as a preſent to the emperor; and among other things, there was a large brazen idol, which was thrown down by the Budaoon gate. Feroſe, pleaſed with the ſucceſs and behaviour of his nephew, rewarded him, by adding the ſoubadary of Oude to his former government of Kurrah.

Alla, upon this preferment, acquainted Feroſe that there were ſome princes of great wealth towards Chinderi, whom, if his majeſty ſhould give him permiſſion, he would reduce to his obedience, and ſend their ſpoils to the royal treaſury. The ſultan conſented, and Alla ſet forward on his expedition. Arriving upon the frontiers of the Deccan, he preſſed forward againſt Deogur, the capital of Ramdeo's dominions. Intelligence of this unexpected invaſion being ſent to the prince, who, with his ſon, was abſent in a diſtant part of his dominions, he returned with great expedition, and, throwing himſelf between Alla and the city, engaged him with conſummate bravery; but was defeated with great loſs. Ramdeo, fearful of the bad conſequences that might enſue from oppoſing the Muſſulman invader in the field, offered him conſiderable preſents if he would retire without committing farther depredations. Alla was glad to accept the offer; and having received fifty maunds of gold, a quantity of jewels, fifty elephants, and ſeveral thouſand horſes, he releaſed his priſoners, and promiſed to march out of Deogur on the fifteenth day from his firſt entrance.

Ramdeo's eldeſt ſon, who, on the approach of Alla, had fled with his mother to the neighbouring rajahs to implore their aſſiſtance, returning at this juncture at the head of a numerous army, wrote to Alla in theſe terms: "If you deſire life and ſafety, extricate yourſelf from this horrible abyſs into which you have fallen. Whatever you have plundered and received, you muſt return, and take your way homeward, rejoicing in your permitted eſcape." Alla, upon reading this letter, blackened the face of the meſſenger, and hooted him out of the city. He left Malleck to inveſt Ramdeo in the citadel with a thouſand horſe, and marched himſelf, with the reſt of the army, to attack the rajah's ſon, who by no means declined the battle. He drew forth his numerous ſquadrons, and the conflict commenced with ſuch invincible courage and perſeverance, that even the ſtout heart of Alla trembled for the victory. His troops began to fall back on all ſides. In the mean time, Malleck, having learnt the ſituation of affairs, left the citadel, and, galloping up to the field of battle with his thouſand horſe, gave a new turn to the fortune of the day. The Hindoos were completely routed, and fled in terror from the field of battle. A ſcene of ſhocking cruelty and horror now commenced. The Mohammedans, enraged at the breach of the treaty, began to ſpread fire and ſlaughter throughout the city; and from which nothing could reſtrain them. Several of the rajah's neareſt kindred, who had been taken priſoners, were hurled headlong from the walls. Ramdeo, in this unſpeakable diſtreſs, haſtened to negociate a freſh treaty with Alla, upon the following incredible terms: that Alla ſhould receive, upon conſideration of evacuating the country, ſix hundred maunds of gold, ſeven maunds of pearl, two maunds of diamonds, rubies, emeralds, and ſapphires, one thouſand maunds of ſilver, four thouſand pieces of ſilk, and a long liſt of other precious commodities, that ſurpaſs all belief. This ranſom was not only required, but alſo the ceſſion of Elichpour and its dependencies, where Alla might leave a garriſon, which ſhould remain unmoleſted, to collect the revenues.—Thus terminated, what hiſtorians record, as the FIRST MOHAMMEDAN INVASION OF THE DECCAN; from whence Alla triumphantly returned to his viceroyalty in the city of Kurrah.

Feroſe, who had heard with pleaſure and delight the tidings of his nephew's victories, and the more important news of the riches he had obtained, diſpatched a meſſenger to him with his royal congratulations; at the ſame time demanding his ſhare of the ſpoil. An addreſs from Alla was brought to him, ſetting forth, that "he was the king's ſlave, and that all his wealth was conſecrated to him; that, being wearied with a tedious march, he begged for ſome repoſe at Kurrah. That he intended to kiſs the footſtool of the throne; but that, knowing he had enemies at court, who might have, in his abſence, defamed him, and deprived him of his majeſty's favour; he, and the chiefs who accompanied him in the expedition, in which he was ſenſible he had exceeded his orders, were apprehenſive that ſome puniſhment might be inflicted upon them. That he therefore requeſted to have a letter of grace, to aſſure him and his followers of perfect ſafety under the royal protection." The ſultan, upon receiving this addreſs, expreſſed great joy, and laid aſide all ſuſpicions of Alla. He ordered a letter full of kindneſs, and the moſt ſolemn aſſurances of protection, to be written to him, and diſpatched by the hands of two meſſengers of diſtinction. But Alla was in the mean time preparing a dark and diabolical ſcheme. He ſent a meſſage to the ſultan, "That it was now become public at Kurrah, that the king intended certainly to take his life, for proceeding to Deogur contrary to his orders: that he repented the occaſion, and had taken his majeſty's diſpleaſure ſo much to heart, that he was afraid exceſs of ſorrow would put an end to his melancholy life." He therefore requeſted, that he might either be permitted to take poiſon, or look out for a place of ſecurity."—To diſpel, as he thought, theſe fears of Alla, the ſultan Feroſe, attended only by a body-guard, went to viſit him in his camp. On his arrival, the arch-hypocrite fell down proſtrate before him. The ſultan, immediately embracing him, ſaid, "I have brought you up from your infancy, and cheriſhed you with a fatherly affection, holding you dearer in my ſight, if poſſible, than my own offſpring; how then could you imagine I ſhould entertain a thought to your prejudice, much leſs meditate a plan for your deſtruction?" Then, taking him by the hand, he was leading him along, when the obdurate villain made the ſignal to his aſſaſſins, who ſtood behind. Mahmud, the ſon of Salim, ruſhed forward, and wounded the ſultan in the ſhoulder. The unfortunate monarch cried out, "Ah! villain, what doſt thou?" but another of the aſſaſſins at that inſtant ſeized him, and, throwing him on the ground, with more than brutal inhumanity cut off his head, and murdered his attendants. Alla, in conſequence, laid aſide his expedition to Bengal; and, ordering the current money to be ſtruck in his own name, made a triumphant entry into Delhi, in the year of the hegira 695, A. D. 1295, and immediately aſcended the throne of the unfortunate prince, whom he had thus, with premeditated infamy, contrived to murder. To gild over the enormity of his crime, he exhibited magnificent ſhows, made grand feſtivals, and encouraged every ſpecies of voluptuouſneſs; which ſo pleaſed the unthinking rabble, that they ſoon loſt all memory of their former king, and the execrable villainy of the reigning ſultan.

In the year of the hegira 697, Jildoo, a Mogul chief, with his brother, made a ſudden irruption, and took the fort of Scoſtan. Ziffer, a conſummate general of the Mohammedan army, marched againſt him, and ſoon retook it. Jildoo, and about two thouſand Moguls, were taken priſoners, and ſent in chains to Delhi. But Ziffer had ſo much diſtinguiſhed himſelf in this expedition, that his fame awakened the jealouſy of Alla, and he formed a deſign againſt his life; which was however prevented by a freſh invaſion of the Moguls, amounting to upwards of two hundred thouſand horſe, intended for the entire conqueſt of Hindooſtan. Cuttulich, their commander, after taking poſſeſſion of all the countries beyond the Indus, croſſed that river, and proceeded to Delhi; Ziffer, with his army, retreating before him. The whole country, in terror of the Moguls, haſtened into the city; and the crowd became ſo great, that the ſtreets were rendered impaſſable, and all buſineſs was at an end. In the ſpace of a few days, the conſumption being great, and no ſupplies arriving, a dreadful famine began to rage.

Alla on this preſſing occaſion, called a council of his omrahs; and, having regulated his plan of action, put himſelf at the head of three hundred thouſand horſe, and two thouſand ſeven hundred elephants, beſides foot in great numbers. He drew up in order of battle on the plains beyond the ſuburbs, where the enemy were already formed to receive him. From the time that Gengis Khan attacked Mohammed the Great, two ſuch mighty armies had not looked one another in the face. Alla gave the command of his right wing to Ziffer; the left was entruſted to his brother Elich, and to Akit his brother-in-law. The king placed himſelf in the centre, and ſupported his rear with a choſen body of cavalry, under the vizier. Ziffer began the action with ſuch impetuoſity, that he put their left wing to flight, before the action was well begun in the centre. Alla, preſſing forward at this critical juncture with his whole force, ſoon rendered the victory complete, and ordered his brother Elich, who commanded on the left, to advance and purſue the enemy; but the perfidious omrah, jealous of the glory of Ziffer, halted at a ſmall diſtance, while Ziffer continued the ſlaughter for upwards of thirty miles. One of the Mogul chiefs, ſeeing he was not ſupported, rallied with ten thouſand horſe; and, ſending advice to Cuttulich, he alſo made a circuit with ten thouſand more, and attacked Ziffer in the rear. The brave general ſaw his error, but it was too late. After a dreadful carnage, he was completely ſurrounded by the Tartar cavalry; and the Mogul prince ordered a party to take him alive; but Ziffer refuſed to ſubmit, and was cut in pieces with a few veteran adherents who fought by his ſide. The ungenerous Alla, it is ſaid, from the dread he had of Ziffer, conſidered his death as equal to a ſecond victory, and could not help expreſſing his ſatisfaction upon the occaſion; thus diſplaying the baſeſt ingratitude for that brave life which had been ſo heroically ſpent in his ſervice.

In the year of the hegira 699, Alla ſent a great army againſt the Indian prince of Rantampore. They ſoon took the fort of Jain, and afterwards inveſted the capital. But the rajah, unexpectedly ſallying forth with forty thouſand men, drove Elich back to Jain with conſiderable loſs. Alla, informed of his defeat, immediately took the field himſelf. Upon his march he halted at a place called Jilput, and went on a hunting-party. Having wandered far from his camp during the chaſe, he remained with his attendants all night in the foreſt. In the morning, at ſunriſe, he placed himſelf upon a riſing ground, where he ſat down with two or three attendants, and commanded the reſt to hunt in his view. Akit, his brother-in-law, obſerving this, thought it was now in his power to cut off the king, in the ſame manner as the king had cut off his predeceſſor. Akit imparted his reſolution to a few choſen companions, who applauded the treaſon. They immediately rode up to the king, and attacked him with a flight of arrows, two of which entered his body, ſo that he lay for dead on the ground. Akit then drew his ſword, and ran to cut off his head; when he was told by one of the ſultan's attendants, that he was quite dead; that therefore to cut off his head would be worſe than ſavage cruelty. Akit therefore deſiſted; but ſet out for the camp with all expedition, mounted the throne, and proclaimed himſelf the reigning ſultan. The great men aſſembled to pay their court, and the cuſtomary ſervice was read from the Koran; the chutba was proclaimed aloud, and the ſingers ordered to extol his praiſe. Akit then roſe from the throne, and proceeded towards the harem; but Dinar, the chief eunuch, ſtopped him at the door, ſwearing that, till he ſhowed him Alla's head, or put him to death, he ſhould not enter. Alla, in the mean time, recovered his ſenſes, and, having his wounds bound up, haſtened with all poſſible ſpeed to the camp, where thouſands crowded around him, to ſee the deceaſed ſultan again come to life. The court of the uſurper was immediately broke up; and Akit, mounting his horſe, fled towards Binour. Alla ordered him to be purſued by a party of horſe, who ſoon came up with him, and brought back his head. Alla, after his recovery, employed himſelf in ſettling and improving the internal government of his empire, in augmenting his army, and in regulating the prices of corn and merchandize throughout his whole dominions. In the mean time, Ramdeo, rajah of Deogur in the Deccan, having neglected to ſend the revenues, a great army was ordered again to invade that rich diſtrict.

Cafoor, the favourite general of Alla, to whom the expedition was confided, marched with the Mohammedan forces, in the year of the hegira 706, and encamped upon the borders of the Deccan. He then proceeded to the ſiege of Deogur, now known by the name of Dowlatabad. Ramdeo, being in no condition to oppoſe him, prudently left his ſon Singeldeo in the fort, and advanced with preſents to the general, as a means to procure peace, which was accordingly ſettled between them. Cafoor, upon this, diſpatched a writing to the king; and ſome time after conducted Ramdeo, with rich preſents and ſeventeen elephants, to pay his allegiance to the ſultan at Delhi, where he himſelf was received with every mark of favour and diſtinction. Ramdeo had royal dignities conferred upon him, with the title of Rai Raian, *prince of princes*; and had not only the government of his own dominions reſtored to him, but others were alſo added; for all which he did homage, and paid tribute to the ſultan.

During this expedition into the Deccan, the ſultan employed himſelf in taking a ſtrong fort to the ſouthward of Delhi, called Sewanah, which had often been attempted in vain. When the rajah of this place found he could hold out no longer, he ſent his own image, which had been caſt in pure gold, to Alla, with a chain round its neck, in token of obedience. This preſent was accompanied with a hundred elephants, and other valuable effects, in hopes of procuring peace. Alla received the preſents, but returned for anſwer, that unleſs he came and made his ſubmiſſion in perſon, he could hope but little from his dumb repreſentative. The rajah, finding the emperor inexorable, threw himſelf upon his mercy, and delivered up the place; but, as was his cuſtom, he reſtored it to him again.

Cafoor, in the mean while, advanced from Deogur to the frontiers of Tillingana, and laid ſiege to Arinkil, which was a place of great ſtrength. Lidderdeo, the rajah of the place, having no means of extricating himſelf from the miſchiefs which threatened him, bought his peace with three hundred elephants, ſeven thouſand horſes, and money and jewels to an incalculable amount; agreeing, at the ſame time, to pay an annual tribute. Cafoor, after this advantageous peace, returned with his army to Delhi; where, upon his approach to the city, the ſultan himſelf went out and met him at the Budaoon gate, and there the conqueror laid all the ſpoils at his feet. Such was the reſult of what is uſually called *the ſecond Mohammedan invaſion of the Deccan.*

In the year of the hegira 710, the ſultan ſent Cafoor and Chaja, with a great army, to reduce Dhoor, Summund, and Maber, alſo in the Deccan, where he had heard there were many idol-temples very rich in gold and jewels. When they had proceeded to Deogur, they found that Ramdeo was dead, and that the young prince, Singeldeo, was not ſo well affected to their intereſt. They however ſecured a ſtrong poſt upon the Ganges, and continued their march to the territories of Bellal Deo, ſovereign of the Carnatic, whom they took priſoner, and ravaged his whole country. They found in the temples a prodigious ſpoil in golden idols adorned with precious ſtones; and other rich utenſils, conſecrated to their worſhip. Here Cafoor built a moſque, and ordered divine ſervice to be read according to the Mohammedan faith, and the chutba to be pronounced in the ſultan's name. Scarcely were theſe ſpoils ſecured, before ſome perſons in the camp overheard a diſpute between ſome Brahmins, who had taken refuge amongſt them, concerning the diviſion of ſome hidden treaſure; upon which they were ſeized, and carried before Cafoor to be examined. They were at firſt very obſtinate; but, their lives being threatened, an ample diſcovery was made. Seven different places were pointed out near the camp, where immenſe treaſures were concealed. Theſe being dug up and placed upon elephants, Cafoor, without proceeding further on his expedition, returned to Delhi. He preſented the ſultan with three hundred and twelve elephants, twenty-thouſand horſes, ninety-ſix thouſand maunds of gold, (about one hundred millions of our money,) ſeveral cheſts of jewels and pearls, and other precious things. Alla, upon ſeeing this treaſure, opened the doors of his bounty to all. He gave to each of the principal omrahs ten maunds, and to the inferior five. The learned men of his court received one maund; and thus in proportion he diſtributed wealth to all his houſehold, according to their rank and quality. The remainder was melted down, coined, and lodged in the treaſury. It is ſaid, that during this expedition to the Carnatic, the ſoldiers threw the ſilver they found away, as too cumberſome, where gold was found in ſuch plenty. No perſon wore bracelets, chains, or rings, of any other metal than gold; while all the plate in the houſes of the great, and in the temples, was of beaten gold; neither was ſilver money at all current in that country, according to the reports of thoſe conquerors. The ſultan, elevated by this good fortune, ſet on foot many noble works; and magnificence raiſed her head in the land. Palaces, moſques, univerſities, baths, forts, and all kinds of public buildings, ſeemed to riſe as by the power of enchantment; neither did there in any age appear ſuch a concourſe of learned men. Forty-five, ſkilled in the ſciences, were profeſſors in the univerſities. In poetry, Choſro and Delavi held the firſt rank. In philoſophy and phyſic, Molana of Damaſcus. In divinity, Shatabi. In aſtrology, Nizam Awlia acquired much fame. Others diſtinguiſhed themſelves in muſic, morality, languages, and in all the fine arts then flouriſhing in the Eaſtern World. Such was the conſequence of *the third Mohammedan invaſion of the Deccan.*

Cafoor, after he had thus glutted the ſultan with gold, began to think of providing for himſelf; and to this end begged to make *a fourth* expedition into the Deccan; promiſing, that he would not only collect the revenues which had fallen due, but bring the rajah of Deogur, and others, who had withheld their allegiance and tribute, under proper ſubjection. Alla conſented to Cafoor's propoſal, and he accordingly proceeded to the Deccan with an immenſe army. He firſt ſeized the rajah of Deogur, and inhumanly put him to death; then ravaging the countries of Mahrat, Connir, Dabul, Giwil, Raijore, and Mudkil, accumulated an immenſe wealth. In the mean while, Alla became extremely indiſpoſed; and ſent meſſengers for the army to return. Cafoor, who had before aſpired to the empire, now began to form ſchemes for the extirpation of the royal line. He, for this purpoſe, inſinuated to the king, that Chizer, his eldeſt ſon, the queen, and his general Alip, had conſpired againſt his life. Alla could not give credit to theſe inſinuations; but, ſending for Chizer into his preſence, embraced him, to try his affection; and, ſeeing him weep, he was convinced of his filial attachment and regard. Cafoor, at length, however, by a thouſand wiles and ſtratagems, accompliſhed his purpoſe, and prevailed upon the king to impriſon his two elder ſons, Chizer and Shadi, in the fort of Gwalior, and their mother in the old citadel. He at the ſame time procured an order to ſeize Alip, who was unjuſtly put to death. Theſe infamous tranſactions ſtirred up a general inſurrection; and Alla, weakened by his diſorder, and rent with diſtraction and deſpair, yielded up the ghoſt, in the year of the hegira 716, A. D. 1316, after reigning twenty years and four months.

Immediately after his death, Cafoor aſſembled the omrahs, and produced a ſpurious will of the deceaſed ſultan, in which he had appointed Omar, his youngeſt ſon, his ſucceſſor, and Cafoor himſelf regent; ſetting aſide the inheritance of Chizer and the other princes. Omar, then only in the ſeventh year of his age, was placed on the throne, and Cafoor began his adminiſtration. The firſt ſtep which the traitor took, was to ſend to Gwalior, to put out the eyes of the elder princes Chizer and Shadi. His orders were rigorouſly executed; and the ſultana, their mother, was put into cloſer confinement, and all her wealth ſeized. Mubarick, the third ſon of Alla, was alſo taken into cuſtody, with an intention to have his eyes put out, like his unhappy brothers. Cafoor, though an eunuch, married the mother of Omar, the late ſultan's third wife. But the mother of Mubarick, Alla's ſecond wife, having heard that the regent intended to put out the eyes of her ſon, acquainted the omrah Nizam of her intelligence, and it was prevented. Cafoor, however, ſent ſome aſſaſſins to cut off the prince Mubarick; but, when they entered his apartment, he conjured them to remember his father, whoſe ſervants they had been; and, untying a ſtring of jewels from his neck, he gave it them. They in conſequence abandoned their purpoſe; but, quarrelling about the diviſion of the jewels, it was propoſed to carry them to the chief of the guards, and acquaint him of what the prince had ſaid, and of their inſtructions from Cafoor. The commander of the guards, who owed every thing to the favour of the deceaſed ſultan, was ſhocked at the infamy of Cafoor; and, finding his people of the ſame ſentiments, they haſtened to the regent's apartment, and aſſaſſinated him, as a monſter too wicked to exiſt among mankind. Mubarick then depoſed his brother, and, claiming his right of primogeniture, ſucceded to the imperial dignity. But, according to the barbarous policy of thoſe days, he deprived Omar of his eyes, and confined him for life in the fort of Gwalior.

Mubarick aſcended the throne in the year of the hegira 717, or A. D. 1317; when, in remembrance of his late critical ſituation, he ordered all the priſons to be opened, by which means ſeventeen thouſand wretched captives were bleſſed with the light of day; and all the exiles were by proclamation recalled. He then commanded to be given to the army a preſent of ſix months pay, and conferred many private favours and benefits. In the ſecond year of his reign, he raiſed a great army, and marched towards the Deccan, to chaſtiſe Hirpaldeo, the ſon-in-law of Ramdeo, who, by the aſſiſtance of the other princes of the Deccan, had recovered his country When he arrived near Deogur, Hirpaldeo and the other princes, who were then beſieging the place, fled; but ſome omrahs being ordered to purſue Hirpaldeo, he was brought back priſoner, flayed alive, and beheaded; upon which the province returned to its allegiance.

The victorious ſultan, now finding himſelf in peaceful poſſeſſion of all his kingdoms, gave a looſe to revelry and luſt, and confided the management of the army to his favourite general Choſro; who deſired leave to make an expedition to the coaſt of Malabar; where, as uſual, the Mohammedans were victorious. He plundered the country of about one hundred and twenty elephants, a diamond of the weight of one hundred and ſixty-eight ruttys, with other jewels, and gold to a prodigious amount. His ambition was increaſed by his wealth; and he alſo began to aſpire to the throne. He returned to the court of Delhi, where engaging a gang of aſſaſſins, and enticing over a number of the omrahs to his intereſt by the lucre of gold, he ſeized the favourable opportunity; and, as Mubarick was entering the harem, Choſro ruſhed forward, and, ſeizing him by the hair in the gallery, ſtruggled with him for ſome time. Mubarick, being the ſtronger, threw Choſro on the ground; but, as he had twiſted his hand in his hair, he could by no means diſengage himſelf; ſo that the other conſpirators had time to come up, and with a ſtroke of a ſabre cut off his head. The conſpirators then ſhut the gates, and maſſacred all who had not the good fortune to eſcape; particularly the younger children of the emperor. Then, breaking into the harem, they committed all manner of violence upon the women. Thus the vengeance of heaven at length overtook and exterminated the race of Alla, for his ingratitude to his uncle Feroſe, and the ſtreams of innocent blood which had flowed by his hands. This event took place in the year of the hegira 721, or A. D. 1321. Choſro, ſurrounded by his creatures, mounted the throne, and aſſumed the title of the Sultan of the Moſt High. He then ordered all the domeſtics of Mubarick to be maſſacred, and their wives and children to be ſold for ſlaves; but he was himſelf, very ſoon after, put to death in a general inſurrection of the omrahs, whom his tyranny had driven from Delhi, and by whoſe united voice was exalted to the throne, Tuglick, a prince of Patan deſcent, who had been made governor of Lahore and Moultan.

Tuglick began his reign by regulating the affairs of his government, and clearing his palace of the paraſites and harpies with which it had been too long infeſted. He repaired the palaces and fortifications, founded others, and encouraged induſtry and commerce. Men of genius and learning were called about him; and the higher appointments of the ſtate were filled with omrahs of real merit and worth. But the reign of this meritorious ſultan was of ſhort duration. Returning from an expedition into the country of Bengal, and being met by his eldeſt ſon Jonah, with all the nobles of Delhi, to offer their reſpectful congratulations; he was led into a wooden houſe or ſhed, that had been erected by Jonah, for the purpoſe of giving his father ſome elegant refreſhments. The entertainment being over, the king was preparing to mount, and every body haſtened out to be ready to accompany him; when the roof of the building fell ſuddenly in, and killed the ſultan on the ſpot, with five of his attendants. The death of Tuglick happened in the year of the hegira 725, or A. D. 1325, after a reign of about four years.

Jonah, his eldeſt ſon, then aſcended the throne by the title of Mohammed III. on which occaſion the ſtreets of Delhi were ſtrewed with flowers, the houſes adorned, and every demonſtration of joy exhibited. The new emperor ordered ſome elephants, loaded with gold and ſilver, before and behind him, which was ſcattered among the populace; and thus his generoſity, like his wealth, appeared to be without bounds.

The ſultan, called by war to viſit his ſouthern dominions, became ſo pleaſed with the ſituation and ſtrength of Deogur, in the Deccan, that, conſidering it more centrical than Delhi, he determined to make it his capital. He therefore gave orders that the city of Delhi, which was then the envy of the eaſtern world, ſhould be rendered deſolate; and that men, women, and children, with all their effects and cattle, ſhould make a grand migration to Deogur. To add magnificence to this remove, he commanded trees to be torn up by the roots, and planted in regular rows along the road, to yield the emigrants a convenient ſhade; and that all who had not money to defray their charges, ſhould be maintained at the public expence. He ordered that for the future Deogur ſhould be called *Dowlatabad*, or the Fortunate City; in which he raiſed noble buildings, and dug a deep foſſe round the walls, which he repaired and beautified.

But this whimſical fancy by no means realized the high expectations formed of it by the ſultan; on the contrary, it was pregnant with miſchief to his private affairs, as well as to the ſtate. Mohammed firſt began to experience theſe evils, in conſequence of ſending an expreſs mandate to Ibah, viceroy of Moultan, for him forthwith to diſpatch all the principal families and artiſans within his viceroyalty, to enlarge the new metropolis of Dowlatabad; but no attention whatever was paid to this requiſition; and Ibah, knowing the vengeful diſpoſition of Mohammed, was reſolved to ſeek his ſafety in arms, in which he was ſupported by the people. The armies met; and, after a great ſlaughter, Ibah fled to the mountains. Mohammed immediately gave orders for a general maſſacre of the inhabitants of Moultan; but Shech Rukun interceded for them, and prevented the effects of this cruel ſentence. Ibah was purſued and taken, and his head brought to the king, who returned towards Delhi. At ſight of their native city, all thoſe in his army who had been forced away to Dowlatabad began to deſert, and diſperſed themſelves in the woods. The emperor, to ſtop the miſchief of deſertion, again took up his abode in the city of Delhi, for the ſpace of two years. But at the end of that period he carried off the whole inhabitants a ſecond time to the Deccan; leaving the noble metropolis of Delhi a habitation for the wild beaſts of the foreſt. Mohammed at length ſaw the folly of this capricious whim, which had thrown all his loyal ſubjects into a ſtate of the utmoſt diſcontent; and all the diſaffected ones into open rebellion. But conviction came too late. The mortifying ſituation of his affairs threw him into an ardent fever, and he died in the year of the hegira 752, A. D. 1351, after having reigned twenty-ſeven years.

Upon Mohammed's death, Feroſe III. firſt couſin to Mohammed, and on whom he had fixed the ſucceſſion, aſcended the throne. Feroſe, having gained over the majority of the omrahs to his intereſt, ſucceeded, after much difficulty, in reſtoring order and diſcipline to the army. He then endeavoured to renew the former ſplendour of Delhi, where he kept his court. In the year of the hegira 755, he built the city of Feroſabad, named after himſelf, ſituated on a moſt enchanting ſpot, three miles diſtant from Delhi. In the following year he made a canal at Debalpour, 100 miles in length, uniting the Suttuluz with the Jidger. And between the hills of Mendouli and Sirmore, he cut a channel from the Jumna, which he divided into ſeven ſtreams; one of which he brought to Haſſi, and from thence to Beraiſen, where he built a ſtrong caſtle, calling it by his own name. He alſo formed a navigation from the Cagar, paſſing by the walls of Sirſutti, and joined it to the rivulet of Kera, upon which he built a city, named alſo after himſelf Feroſabad. This city he watered with another canal from the Jumna. Theſe works were of the utmoſt advantage to the neighbouring diſtricts, by ſupplying them with water to irrigate their lands, beſides the benefit of water-carriage from place to place.

Feroſe, inſtead of plundering his fellow men, evidently ſought to enrich his empire by works of the higheſt utility, tending to increaſe the commerce and induſtry of his people. Being informed, that near Hirdar, in the province of Sirhind, there was a mountain, from which iſſued a great ſtream of water, which fell into the Suttuluz; and that beyond that place there was a ſmall rivulet called Selima, divided only by a riſing ground from the large ſtream; the emperor conſidered, that, by making a cut through this high ground, the great ſtream might be carried into the rivulet, and ſo form a river to water the countries of Sirhind and Munſurpour, from whence it might be carried to Sunnam, and thus, by the advantage of irrigation, render a prodigious tract of land fertile. He therefore ordered fifty thouſand labourers to be collected together, to cut the paſſage, which having effected, he built a fort on the ſpot, which he called Feroſepour. To give ſecurity to the diſtrict, he inveſted the neighbouring Hindoo fort of Naugracut, where he reduced the rajah, but confirmed him again in his dominions; changing the name of Naugracut, to that of the City of Mohammed, in honour of the former ſultan. Feroſe was told here, that the goddeſs, whom the Hindoos worſhipped in the temple, was the image of Noſhaba, the wife of the great Secunder, which that conqueror had left with them. In the temple there was alſo a fine library of the books of the Brahmins, conſiſting of thirteen hundred volumes. Feroſe ordered one of the books, which treated of philoſophy, aſtrology, and divination, to be tranſlated into the Perſian language, and called it "The Arguments of Feroſe."

After many years ſpent in acts of beneficence and juſtice, age and infirmity began to preſs upon Feroſe; ſo that he was induced to reſign the reins of the government into the hands of his ſon Mohammed. The prince aſcended the throne in the year of the hegira 789; and ordered the chutba to be read jointly in his own and his father's name. He ſettled the offices of ſtate, and diſtributed preſents among the omrahs. Mohammed, however, inſtead of regulating his government by the excellent example of his father, gave himſelf wholly up to the enervating enjoyments of the harem. The emperor's nephew, Baha, reſolved to ruſh upon him in the midſt of his dream of pleaſure. He, for this purpoſe, conſpired with ſome of the omrahs, and arming one hundred thouſand ſlaves, ſoon erected the ſtandard of rebellion. The ſlaves, upon the third day, brought out the aged ſultan in his palanquin, and ſet him down in the ſtreet, between the combatants. When the troops ſaw their former king, their affection returned; and, imagining that this was a voluntary deed of his, they at once deſerted all other parties, and crowded with ſhouts of joy to Feroſe. Mohammed fled, with a ſmall retinue, to the mountains of Sirmore. But Feroſe, unable to govern on account of the infirmities of age, placed, by advice of the omrahs, Tuglick, the ſon of his eldeſt ſon, the deceaſed prince Fatte, upon the throne. Feroſe, having now arrived at the age of ninety, died in the year of the hegira 790, A. D. 1388. He reigned thirty-eight years and nine months, and left many laſting memorials of his fame in Hindooſtan. He built fifty great ſluices, or aqueducts, for the purpoſes of irrigation; forty moſques for the Mohammedan religion; thirty ſchools for the advancement of ſcience and literature; twenty caravanſeras for the accommodation of merchants and traders; a hundred palaces for himſelf and different branches of his family and friends; five hoſpitals for caſualties of every deſcription; a hundred mauſoleums or tombs for departed relatives; ten baths for the encouragement of cleanlineſs; one hundred public bridges; and ſunk one hundred and fifty tanks or wells, for the refreſhment of cattle, and the comfort of weary travellers.

Tuglick II. mounted the throne in the new palace of Feroſabad, at a ſmall diſtance from Delhi; but giving the reins to his youthful paſſions, and neglecting the important affairs of the ſtate, vice, luxury, and oppreſſion, began to predominate on every ſide. He confined, and cruelly treated, his brother Sallar and his couſin; Abu Becker, dreading a ſimilar treatment, fled the court, and ſtirred up rebellion. The conſpirators ruſhed into the divan, and aſſaſſinated Tuglick, in the year of the hegira 791, A. D. 1389, after a reign of only five months and a few days.

The conſpirators, after aſſaſſinating the king, raiſed Abu Becker, the grandſon of the ſultan Feroſe, to the empire. But in the mean time, the Mogul chiefs of the army, and many of the omrahs, determined to recall Mohammed to the throne. Mohammed accordingly, having collected his friends, advanced by the way of Jallendar to Samana; and, proclaiming himſelf ſultan at that place, advanced with a great army towards Delhi. An obſtinate battle enſued, in which Abu Becker was killed, in the year of the hegira 792, A. D. 1390, after reigning one year and ſix months.

Mohammed IV. entered Delhi in triumph, and immediately aſcended the throne. He gave the office of vizier to Iſlam, to whom he principally owed his advancement. Intelligence was brought to him, that the prince Narſingh, chief of the Mahrattas, and other chiefs of the Hindoos, with the zemindars of Attava, had riſen in arms, and ravaged the adjacent diſtricts. Mohammed marched againſt them in perſon, and chaſtiſed them. The fort of Attava was levelled with the ground; and the ſultan took the route of Canouge and Tillaſar; in the laſt of which cities he built a fort, which, from his own name, he called Mohammedabad. After this victory, Mohammed ſent his ſon Humaioon to cruſh the prince of the Gickers, who had deſcended from the mountains, and poſſeſſed himſelf of Lahore. But, before the prince had left Delhi, news was brought to him of his father's deceaſe, A. D. 1392. He reigned ſix years and ſeven months; when his ſon, Humaioon, aſcended the throne, by the name of Secunder; but, being in a few days taken with a violent dyſentery, he died after a reign of only forty-five days.

The omrahs now ſent for Mahmud, a young ſon of the ſultan Mohammed, whom they placed upon the throne, by the title of Mahmud III. But the apparent debility of the empire, ariſing from the king's minority, added to the diſſenſions of the omrahs, encouraged all the Hindoos in the conquered provinces to kindle the flames of rebellion; while various of the deſigning and ambitious miniſters and viceroys, taking advantage of the confuſion of the times, and the diſaffection of the people to the government, were confederating to ſeize the ſupreme authority, and parcel out the empire into ſeparate kingdoms for themſelves. But at this awful juncture a fate hung over the Mohammedan empire in Hindooſtan, which was to ſhake its very foundations, and purple its luxuriant fields with more blood and ſlaughter, with more brutal ſpoliation and ſavage inhumanity, than had followed even from the devaſtating hand of Gengis Khan himſelf: it was the memorable

## INVASION OF TIMUR BEC, SURNAMED TAMERLANE THE GREAT.

Timour, or Timur Bec, the emperor or king of the Mogul Tartars, had aſcended the throne of Samarcand, and extended his victorious arms over the vaſt tracts of Perſia, from the Oxus to the Tigris, and given laws to Eaſtern Tartary, before he thought of treading the footſteps of Alexander, and aſcending mount Caucaſus, to outſtrip the Macedonian hero in conquering the eaſtern world. When, however, Timour propoſed to his princes and emirs the invaſion of Hindooſtan, to recover the provinces which had formerly been won by his great anceſtor Gengis Khan, he was anſwered by a ſullen murmur of diſcontent: "The deep unfordable rivers! the inacceſſible mountains! the dry and dreary deſerts! the ſoldiers clad in armour of ſteel! above all, the furious elephants, deſtroyers of men!" But the frown of Timour was more dreadful than all theſe united terrors; and his ſuperior reaſon was convinced that the enterpriſe, though of ſuch tremendous aſpect, was ſafe and eaſy in the execution. He had been ſufficiently informed of the weakneſs and anarchy of the Indian metropolis; that the ſoubahs of the provinces had erected the ſtandard of rebellion; and that the imbecility of ſultan Mahmud was deſpiſed even in the harem. The fiat had paſſed, and the word of command was given. The Mogul army began to move in three great diviſions; and between the Jihon and the Indus they paſſed over what the Arabian geographers call "the ſtony girdle of the earth," nearly in the track of the ancient Greek invaders. On the 7th of October 1398, according to the account of Sherefeddin, Timour arrived on the banks of the Indus, at the very ſpot where, two centuries before, the intrepid Gelaleddin, king of Charazm, had ſwam his horſe acroſs the river, to elude the purſuit of Gengis Khan. In two days a bridge of boats was formed; and on the 11th his whole army croſſed, without the ſmalleſt oppoſition, near Attock. The army traverſed the diſtricts of the Panjab in the ſame direction which the renowned Alexander had done. From Attock to Delhi, the ſtraight road meaſures no more than ſix hundred miles; but the two conquerors choſe to deviate to the ſouth-eaſt; and the motive of Timour was to join his grandſon Pir Mohammed, who had been charged with the reduction of Moultan. On the eaſtern bank of the Hyphaſis, where the Macedonian hero wept becauſe his troops would proceed no further, the enterpriſing Moguls penetrated the deſert, reduced the fortreſs of Batnir, and reſolved to advance to the very gates of Delhi, that renowned city, which had flouriſhed during three centuries under the dominion of the Mohammedan kings, who had, in that long period, ſucceſſively conquered and enſlaved the idolatrous Hindoos. But thoſe kings had now as much to dread from their brethren in Iſlamiſm, as the affrighted Indians had in the firſt inſtance from the irruption of the Garnavide Mohammedans. After the death of Gengis Khan, the whole region of Mogulſtan, or Weſtern Tartary, gradually received the precepts and doctrine of the Koran; but neither theſe precepts, nor this doctrine, could reſtrain the rapacious Timour from waging war with his brethren the Moſlems, whenever he thought they ſtood in the way of his advancement or ambition.

On this ground, for there appears to have been no other, Timour advanced into the beautiful diſtrict of the admired capital of Hindooſtan, awed at firſt by the numerous gilded domes and minarets which the faithful had erected to the memory of that prophet, on whom he himſelf affected moſt devoutly to call, to proſper and ſuſtain the progreſs of his arms. Timour had previouſly been joined by his grandſon, Pir Mohammed, after the reduction of Lahore and Moultan; and they had now ſo cloſely blockaded Delhi, that no ſuccours could enter the gates of the city, whoſe walls were defended by about fifty thouſand regular troops, of which ten thouſand were cavalry. Yet with this comparatively unequal force, aided only by a rabble of new-raiſed recruits, ſelected from the fugitives who had, from all the plundered towns, fled thither for ſhelter, were the weak Mahmud, and his vizier Mellou Khan, determined to hazard all in one ſingle battle with the hardy conquerors of Aſia. Their principal dependence lay in the numerous train of royal elephants, of which the Moguls at that time ſtood in the utmoſt awe, and which conſiſted of no leſs than one hundred and twenty in number, all regularly trained to war, and of uncommon fierceneſs. They are deſcribed by Sherefeddin, as having been armed with vaſt cuiraſſes for their defence, as bearing between their huge tuſks ſharp poiſoned daggers, and on their backs great wooden towers, filled with croſs-bowmen and archers, intended to pour deſtruction upon the ranks of the preſumptuous enemy. Beſides this terrific phalanx, a band of veterans attended the Indian army, whoſe operations were of an appalling nature, and peculiarly dangerous to cavalry. Their buſineſs was to hurl what is termed the Greek fire, and burning bitumen, amongſt the enemy; and to diſcharge a kind of rockets armed at the end with ſharpened iron, which rebounding repeatedly as they fell, made dreadful havoc, and threw the ranks of the beſt diſciplined army into diſorder. Mahmud himſelf, aſſiſted by his vizier as lieutenant-general, appeared at the head of the main body of his troops, while the right and left wings were commanded by princes of approved ſkill and courage. And now only a ſmall ſpace ſeparated the two armies; Timour, with his uſual ardour, rode from rank to rank, encouraging both officers and men to do their duty, and offering to their view the greateſt of all incentives to warfare, the rich ſpoil and dazzling wealth which victory would inſure. He pointed to the towers of Delhi with a kind of triumph predictive of victory; and with a ſcornful air towards the comparative handful of men, who were to defend againſt ſuch ſuperior ſkill and force that immenſe magazine of the riches of India.

Timour confided to Pir Mohammed the command of the right wing; to the mirzas, ſultan Huſſayn, and Khalil, he gave the direction of the left; reſerving to himſelf the command of the centre of his army. But, notwithſtanding theſe judicious arrangements, there was an unuſual gloom that evidently ſaddened the aſpect of his ſoldiers, whoſe zeal for engaging was damped by the ſight of the formidable elephants, whom they had never but once before, and then only in a ſmall number, ſeen oppoſed to them in war. To remove this conſternation, Timour inſtantly gave orders to ſink a deep foſſe in the front of his army, ſkreened by a rampart of bucklers; he then ordered a number of buffaloes to be tied with leathern thongs cloſe to each other, with brambles placed on their heads and between each, to be ſet fire to, when the ſignal ſhould be given. He alſo cauſed iron hooks, with three prongs, and wooden ſtakes with the ſharpened points upwards, to be planted in the ground; and combuſtibles of various kinds were ordered to be kindled at the approach of the elephants, their great abhorrence of fire being well known to Timour.

The ſignal for battle being given, both armies ruſhed on each other with a dreadful ſhock. Mohammed, the grandſon and chief general of Timour, firſt fell upon the Indian left wing, which he routed with great ſlaughter, and drove beyond the baſon of Haviſkas, that furniſhes Delhi with water. With almoſt equal rapidity Huſſayn and Khalil attacked and defeated the right wing of the Indians, driving it back to the very gate of Delhi. Theſe appeared as but eaſy conqueſts; but when the centre of the Indian army, ſuſtained by the elephants, and led on by the intrepid Mellou Khan, advanced to meet the main body of the Tartars, the ſcene was ſanguinary beyond conception, and the carnage on both ſides dreadful. "Never (ſays Sherefeddin) was a conteſt between unequal forces for a time ſo deſperately maintained; never were ſuch prodigies of bravery performed. So loud and terrific a clangour of warlike inſtruments, of various nations, and diſcordant notes, formed of the mingled ſounds of cymbals, drums, and trumpets, reſponſive to thoſe of the great brazen kettle-drums beaten on the backs of the elephants, the bells which the Indians rang, and the ſhouts of the ſoldiers, was never before heard on any field, nor on any occaſion." The valour and fortune of Timour, however, at length prevailed: the elephants, thrown into utter confuſion by the ſtratagem above recited, were driven back on their own army, and trampled whole ranks to death. The Indians being thus completely routed, ſultan Mahmud, with his body guard, retreated into the city, whither he was ſome time after followed by his general Mellou Khan, who had performed feats of valour that aſtoniſhed his enemies. Dreading, however, the vindictive ſpirit and ſavage cruelty of the conqueror, they took advantage of the approaching night, and fled into the deſerts. Timour, elated with his victory, ſpurred on his horſe to the gate of Delhi, which he entered in triumph; and, having carefully examined the fortifications, returned to receive the congratulations of his camp. No defence was attempted by the inhabitants; for with Mahmud and his gallant vizier were fled every hope of preſerving the empire, and every effort for defending it. The next morning, January the 4th, 1399, the Mogul banners were beheld ſtreaming on the walls of Delhi; and the Tartarian conqueror, having entered with his mirzas and emirs by the principal gate of the city, was ſoon ſeated on the auguſt throne of its ancient monarchs. This principal gate was ſituated in the quarter of Gehanpenah, directly oppoſite the baſon of Haviſkas, where the Mogul army was now encamped; here a ſtately tent and lofty tribunal were erected, to give magnificence and ſolemnity to the new ſovereign of Hindooſtan; before whom the great lords of the kingdom, the miniſters of juſtice, and the principal inhabitants of the city and diſtrict, flocked in multitudes at his command, proſtrated themſelves at his feet, and humbly implored his mercy, on paying an adequate ranſom for their lives. After having thus given audience to the wretched ſuppliants of the human race, he commanded to his preſence the more favoured animals of ſultan Mahmud's ſtables. The royal rhinoceros, and the train of ſtate-elephants, adorned with rich trappings of gold and ſilver, and ſparkling with precious ſtones, were brought to the foot of the throne; where, inſtructed by their keepers, thoſe docile animals fell proſtrate, and uttered, as Sherefeddin expreſſes it, "a doleful cry, as if demanding quarter." Theſe one hundred and twenty elephants, on Timour's return, were taken to Samarcand, in order to augment the glory of his triumph.

Thoſe brave generals and captains who had ſhared in the toils of battle, were now to be rewarded by the pleaſures of the banquet, and the ſpoils of the capital of India. This entertainment, unequalled in ſplendour and magnificence, in the coſtlineſs and variety of the viands ſerved up in diſhes of maſſive gold, and the wines ſparkling in cups of cryſtal, enriched with the diamonds of Golconda, is ſaid to have laſted many days: but the feſtival was polluted and diſgraced by the murder of one hundred thouſand of the poor miſerable idolatrous Hindoos, whom the victor had collected together in the progreſs of his march, and who were now to be maſſacred, as a leſſon to the country not to oppoſe *the mild doctrines of the Koran.*

Yet a ſcene of outrage and violence was to follow, in which theſe pious Muſſulmen, with equal indifference, and with more ſavage ferocity, cut the throats of thoſe alſo who profeſſed the ſame religion. The ſecretaries of the divan, who were ſtationed at the gate of Delhi, being ſtrenuous in collecting the ranſom-money, and the ſoldiers attending to enforce the demand treating the inhabitants of the ſuburbs with inſolence, a great tumult was excited in that quarter, and blood mutually ſhed. Timour, on receiving intelligence of this tumult, ſent orders to the omrahs to curb the fury of the ſoldiery, and allow the Moſlem inhabitants to pay in peace and ſecurity the allotted tribute; but unfortunately all the efforts of their commanders to reſtrain their outrages proved ineffectual. The embers of ſedition, thus kindled, ſoon broke forth into an ungovernable flame, and an opportunity preſently offered for that flame to ſpread in a degree at once the moſt fatal and extenſive. Impatient to ſee ſo celebrated a metropolis and the curioſities which it contained, particularly its lofty palace ſtanding on a thouſand columns, the *ſultanas*, who attended the army, obtained permiſſion from Timour to enter the city. On this occaſion, the great gate being thrown open, a body of fifteen thouſand ſoldiers contrived to enter with them, who, joining a much larger body which had already found means to get within the walls, began to commit the moſt dreadful outrages on the affrighted inhabitants. Provoked to vengeance, and urged by deſpair, they attacked the military, and ſome of the more daring aggreſſors fell the victims of their own raſhneſs. To prevent any farther increaſe of the tumult by the entrance of more ſoldiers, the omrahs ordered all the gates of the city to be ſhut; but, inflamed with the deſire of giving their comrades a ſhare of the plunder, the ſoldiers within roſe upon their officers, burſt open the gates, and, by the morning of the 13th, the whole army had gained admiſſion. A ſcene ſhocking to humanity now took place: a general maſſacre and devaſtation reigned at once in every quarter. The houſes of the citizens were firſt pillaged, and then burnt. The public edifices were defaced, the temples deſtroyed, and this noble city was in a ſhort time reduced to a heap of ruins. Many thouſands of the native Muſſulmen, who had fled for an aſylum to the great moſque of Delhi, were without diſtinction cut off, and of their heads pyramids were formed; a laſting monument of the indiſcriminating diſpoſition of the Moguls between their own ſect and that of idolaters, where plunder was the object. Their god was Mammon. Indeed the booty they obtained in this univerſal ſpoliation was beyond imagination great; and the ſpecies of it were as various as the wealth itſelf was infinite. The moſt conſiderable article was the gold and ſilver plate, which was found in vaſt abundance; beſides an immenſe quantity of pearls and precious ſtones, in chains, bracelets, and other ornaments, with which the women were decked even to profuſion. Loaded with theſe treaſures, and with ſelected female captives, the rapacious ſoldiery were at length glutted, and order and diſcipline were then again reſtored. The artiſans and handicraftſmen were partly diſtributed among the chief princes and commanders; but the maſons were wholly reſerved for the emperor's own uſe, to complete thoſe ſtupendous ſtructures at Samarcand, by which he meant to emulate the grand moſque of Delhi, and other venerable fabrics, which his devaſtating army had endeavoured to deſtroy.

After ſeveral days thus ſpent in the ruined capital of Delhi, Timour determined to penetrate the remoteſt regions of Hindooſtan, and plant his victorious ſtandard beyond the banks of the Ganges. The ſtrongly-fortified city of Merat, in the Duab, ſituated ſixty miles to the north-eaſt of Delhi, and which is ſaid by Sherefeddin to have reſiſted, in the year 1240, the whole force of Turmecherin Khan, a deſcendant of Gengis, and one of the greateſt warriors of his time, after a ſhort ſiege ſubmitted to the ſuperior ſkill and courage of Tamerlane. Here too was practiſed a repetition of the ſame cruelties that were committed at Delhi. The idolatrous inhabitants, for attempting to defend themſelves, were flayed alive, and their children reduced to perpetual ſlavery; the city was conſigned to the flames, and the walls and baſtions razed from their foundations.

On the 28th of January 1399, Timour arrived at Toglocpour, on the banks of the Ganges; on the oppoſite ſide of which a numerous army was aſſembled to diſpute his paſſage; while a more reſolute body, advancing in great flat-bottomed boats, bade defiance to his attempt, and diſcharged a ſhower of arrows into the very heart of his camp. Rouſed at this inſult, Tamerlane, with a thouſand officers ſelected for the occaſion, ſet forward to repulſe them, which they accompliſhed with great ſlaughter; ſpurring their horſes into the water, and cutting the enemy in pieces as they entered their boats. Immediately the whole army croſſed the river; and, a ſudden terror having ſeized the Hindoos, they were quickly routed, and fled precipitately into the deep foreſts that line the ſtraits of Coupele. Through theſe ſtraits, formerly imagined to have been the ſources of the Ganges, that celebrated river diſembogues itſelf into Hindooſtan. Aſſembled here, in devout adoration of the ſacred ſtream, whoſe waters they regard with reverential awe, and fired with the ſight of that ſingular rock, (the rock of *Coupele*,) from under which it guſhes, and which, to the bigotted fancy of Indians, appeared to bear the image of the Cow, eſteemed almoſt as a divinity among them; a great body of the Hindoos had here united themſelves, in a fixed determination to aſſert their invaded rights, and exact a ſevere revenge for their ſlaughtered countrymen. But no ſooner had Timour, at the head of his advanced guard, begun to attack them, than the Indian army, becoming panic-ſtruck, betook themſelves to flight, and were purſued with ardour into the neighbouring woods and faſtneſſes. It was in the heat of this purſuit, that the life of Timour, who in all engagements was ever foremoſt to brave danger, fell into extreme peril. The chiefs who had attended him, reſolved to puſh to the utmoſt the advantage they had obtained, had left Timour with only about one hundred of his guard behind. An Indian warrior, named Malek Sheyka, who lay in ambuſh, ſuddenly ruſhed from the thicket, and fell upon the Mogul emperor with great impetuoſity. A perſonal combat enſued, when Timour, diſcharging an arrow, ſhot the raſh aſſailant in the belly, and then, cleaving his head with one ſtroke of his ſabre, laid him breathleſs at his feet.

New hopes, however, ſeemed to animate the breaſts of the Indians; for, freſh native forces arriving from every quarter, they attempted to make a ſecond ſtand in the defile of the mountains. And now Timour, though wearied by inceſſant action, and almoſt exhauſted by want of neceſſary repoſe, determined, by the moſt deciſive exertions, to put a period to the conteſt. He therefore ſummoned the moſt valiant of his army; and, being joined by Pir Mohammed with his battalions, inſtantly conducted them through the almoſt-inacceſſible winding paths of thoſe mountains to the camp of the enemy, where he charged them with unparalleled fury, and gave them a final and complete overthrow.

By this victory, the boundary of his conqueſts was decided. All was Timour's, from the moſt weſterly branch of the Indus to the preſumed ſource of the Ganges. The victor himſelf, ſatisfied with having marched to the eaſtern borders of that empire in one campaign, and having it proclaimed, "that he had penetrated to the region of perpetual day-light, which authoriſed his Mohammedan doctors to diſpenſe with the obligation of evening prayer," he propoſed to repaſs this great river, and return, crowned with laurels, to the capital of his own dominions. Sherefeddin bears teſtimony of this extraordinary phenomenon, by ſaying, "that the rays of the ſetting, and thoſe of the riſing, ſun, were ſcarcely ſeparated by any interval." But in returning through the dreary and immenſe regions of mount Caucaſus, along the foot of which, in a north-weſt direction, he now commenced his march homeward, many fierce and warlike nations remained yet unſubdued. Theſe enemies, more fierce than any he had yet encountered, prepared to diſpute with obſtinacy his paſſage; and both by ambuſcade and open aſſault retarded his progreſs, and thinned the ranks of his army. Renewed oppoſition ſerved only to ſtimulate the perſeverance of Timour; and his valour ſeemed to glow with more ſplendour, like the meridian ſun, amidſt the ſnows of Caucaſus. On the other hand, the hardy race of mountaineers was not leſs reſolute than himſelf. They hovered perpetually upon his rear; poſted themſelves in the narrow ſtraits, lay in ambuſh amidſt the impenetrable foreſts, and every-where haraſſed and impeded his march. So furious were theſe aſſaults, ſo often repeated, and ſo vigorouſly maintained, that in the ſpace of thirty days, the period of his progreſs through that alpine region, near twenty battles were fought; ſometimes with deſperate fury, at all times with determined reſolution. Succeſs, however, generally attended the Tartar-army, whoſe exertions were conſtantly directed againſt the ſtrongeſt holds of their enemy. Caſtles that were deemed impregnable, and fortreſſes of the moſt difficult acceſs, built on the higheſt ridge of the Sewalic mountains, a part of the Caucaſus neareſt to India, daily ſurrendered; and the treaſures and plunder taken in them ſo loaded the Mogul army, that it was unable to proceed more than four miles a-day.

The inhoſpitable regions of the Caucaſus being thus ſucceſsfully overcome, the mighty Timour, impatient to reach his capital of Samarcand, proceeded to diſband the greater part of his army, oppreſſed with the number of their captives, and bending beneath the weight of their ſpoils. The omrahs and chiefs of both wings, with their ſubordinate officers, were therefore ſummoned into the royal preſence; and, having received magnificent preſents in proportion to their rank and valour, were ordered to return home by the different routes marked out for them. The government of Moultan he conferred upon Chizer

Khan; and he inveſted, with great ſolemnity, his grandſon Pir Mohammed with the nominal ſovereignty of the whole of his conqueſts in Hindooſtan.

Eager to become the meſſenger of his own glory, Timour ſet forward before his army, and with accelerated ſpeed reached the metropolis of his own dominions, on the 9th of May 1399; having in little more than ten months finiſhed a campaign, which, for its vaſt extent, and the magnitude of the acquiſition, would ſeem to have required at leaſt as many years for its accompliſhment. As a laſting monument of his triumphs, as well as to atone, perhaps, for the ſavage perſecution of his brethren the Moſlems in India, he cauſed to be erected, by the artificers whom he had brought from Delhi, a moſt ſumptuous and ſtately moſque, of ſuch vaſt magnitude as to contain with eaſe the whole aſſembled body of the faithful in that great and populous city. His Indian conqueſts remained in nominal ſubjection to the authority of the viceroys he had appointed, till his death, which happened five years after, at Otrar, on the 1ſt of April 1405, and year of the hegira 807, in the ſeventy-firſt year of his age, and the thirty-ſixth of his reign.—For the hiſtory of his life, his other great victories, and triumph over Bajazet, emperor of the Turks, ſee the article MOGULSTAN.

The city of Delhi remained in anarchy for the ſpace of two months after the departure of Timour, when it was taken poſſeſſion of by Nuſerit, a grandſon of the ſultan Feroſe, who attempted to aſſume the imperial authority, with only two thouſand horſe from Merat. Two chiefs, Shab and Almaſs, with their troops and ten elephants, joined him ſoon after from the ſame place. Nuſerit ſent immediately Shab, with his battalion, towards Biren, againſt Eckbal, an omrah of Mahmud, who had there taken up his reſidence. But Shab was attacked in the night, upon his march, by the zemindars in the intereſt of Eckbal, and ſlain; Eckbal, purſuing this advantage, took all the baggage of Shab's army. This ſucceſs raiſing the expectations of Eckbal, he, in a few days, thought himſelf in a condition to make an attempt upon the capital, which he did with ſucceſs; for Nuſerit, upon his approach, marched back to Merat; and Eckbal aſſumed the adminiſtration of affairs in the ruined city. The inhabitants who eſcaped the maſſacre, and had fled to different places, retaining ſtill a natural regard for their old abode, began to re-aſſemble; and the place, in a ſhort time, again put on the appearance of populouſneſs.

While Chizer Khan, whom Timour had appointed his viceroy, aſſumed the ſovereignty of Moultan, Lahore, and Debalpour, the whole eaſt and ſouth of Hindooſtan was convulſed with the efforts of rival competitors, each ſtriving to ſeize that throne which the weak Mahmud, though ſtill in exiſtence, was not able firmly to maintain. Theſe competitors in their reſpective diſtricts aſſumed the title and exerciſed the authority of kings; but two of them pre-eminently ſo; Jehan, who ſtyled himſelf *King of the Eaſt*, meaning the provinces ſtretching on each ſide of the Ganges; and the other, Azim, *King of the Weſt*, who had ſeized on the province of Guzerat; and theſe aſſumed titles continued to be enjoyed for a long period by their poſterity. Thus, we are told by Feriſhta, that Eckbal recovered Delhi, and the country between the two rivers, for ſultan Mahmud, which, with a ſmall diſtrict round the city, was all that remained to him. Guzerat was ruled by Azim; Malva by Delawir; Cannouge, Oude, Kurrah, and Gehanpour, by Jehan; Lahore, Debalpour, and Moultan, by Chizer; Samana by Ghabil; and, in like manner, the other provinces were ſeized by the great omrahs, through the whole extent of the empire. Mahmud retained the nominal title of emperor, and for a conſiderable time was permitted to wield the ſceptre; but at length he was beſieged in Delhi by Chizer, who aſpired to and finally aſcended the throne. Mahmud died in the year of the hegira 816, A. D. 1413, after a moſt diſaſtrous reign of twenty years and two months. With him became extinct the dynaſty of Afghan princes, deſcended from Feroſe, of the tribe of Chilligi.

### DYNASTY OF THE SEYDS.

Chizer, being of the race of the prophet, conſtituted what the Mohammedans call a SEYD. Chizer, therefore, and his three ſucceſſors, are diſtinguiſhed as the dynaſty of the Seyds. His father, Soliman, being a perſon of diſtinction, became the adopted ſon of Dowlat, governor of Moultan in the reign of Feroſe. Dowlat was, upon his death, ſucceeded in his government by his ſon Malleck; and he dying, Soliman was appointed to that viceroyſhip, which deſcended to Chizer from his father. Chizer, after the reduction of Moultan by the Moguls, having been taken into the ſuite of Tamerlane, was, after the conqueſt of Delhi, reinſtated in his former government, with the addition of all the countries watered by the five rivers, commonly called Panjab, and Dibalpour. This great acceſſion of ſtrength paved his way to the empire. When he aſcended the throne, he diſtributed favours and dignities among the great omrahs; but would not aſſume the imperial title wholly to himſelf, declaring that he held the ſupreme authority for Timour; and ordered the currency to be ſtruck in his name. This was the height of good policy in Chizer; for he found that he could govern the proud omrahs with leſs envy, and keep the multitude in greater awe, by ſubſtituting the name of the Tartar prince, than if he had aſſumed the name of king himſelf, to which he knew he had no claim but what the ſword had given him.

It does not appear that the imperial authority aſſumed by Chizer, was by any means eſtabliſhed on that permanent foundation on which it reſted in the time of the great Feroſe, and other ſovereigns of the preceding dynaſty. Though the moſt ſplendid ſucceſs, on many occaſions, crowned his arms in his repeated conflicts with the rival omrahs; yet, as the hydra was many-headed, the flame of inſurrection was no ſooner quenched in one province, than it broke out with double fury in another. At the ſame time, though vigour and ability marked his councils, yet the country, ſhaken to its centre by the irruption of Timour, continued in a very diſtracted ſtate during the whole of his reign.

In the year of the hegira 824, Chizer, after having narrowly eſcaped aſſaſſination, and conquered ſeveral of the revolted provinces, marched his army towards Mewat, taking in his way the fort of Kotillah. The ſultan turned thence towards Gwalior, where he raiſed heavy contributions; and then haſtened to Attava, levying tribute on the ſon of Rai Sibber, who poſſeſſed that country. His object was to viſit all the refractory rajahs, who had held of Timour, and had revolted; but, falling ſick during his progreſs, he returned to Delhi, where he expired, after a reign of ſeven years and a few months. His death was much lamented by the people, becauſe, after the hardſhips they had endured, they were the more ſenſible of the bleſſings they had lately enjoyed, by finding in Chizer a juſt, generous, and benevolent, prince.

After his death, his eldeſt ſon, Mubarick II. aſcended the vacant throne. The early years of his reign were greatly diſturbed by the incurſions of the mountaineers called Gickers; and alſo by an invaſion of a numerous army of Moguls, commanded by Ali, governor of Cabul; but the good fortune of Mubarick prevailed againſt them, and his country was reſtored to peace; when his ambitious vizier aſpired to the throne, and watched an opportunity to aſſaſſinate the ſultan. About this time, Mubarick had ordered a city to be founded upon the banks of the Jumna, calling it "the city of Mubarick;" and made an excurſion towards Tibberhind, with intent to take the diverſion of hunting. Having, on the way, received intelligence that Tibberhind was taken, he turned back to his new city. He there received advices that war was carrying on between Ibrahim, king of the eaſtern provinces, and

Hoſhung of Malavi; which intelligence was extremely agreeable to him, as he ſought an opportunity to expel Ibrahim from his dominions. He therefore gave orders to muſter his army; and, pitching his tent without the city, ſpent a few days in collecting his forces; during which interval he went to worſhip at a moſque that he had recently conſtructed in the new city, with only a few attendants. The conſpirators ruſhed upon him with drawn ſwords, and baſely aſſaſſinated him in the midſt of his prayers. But the vizier, finding himſelf not likely to be ſupported by the omrahs, ſettled matters with Mohammed, one of the grandſons of the emperor Chizer, and raiſed that prince to the throne, in the year of the hegira 837; Mubarick having reigned thirteen years, three months, and ſixteen days.

Mohammed, exalted to the throne by a guilty miſcreant, found that he had only put on a crown of thorns. In an inſurrection of the indignant omrahs, the king being beſieged in his palace, and perceiving that his own affairs would be ruined if he ſhould adhere to the vizier, endeavoured to conciliate matters with the omrahs, and, at the ſame time, ſought an opportunity of cutting off the vizier. The vizier, diſcovering this plot, reſolved to be beforehand with the king; accordingly, one night, with the ſons of Miran Sidder, and ſome of his own adherents, he broke into the king's apartment. But the ſultan, having ſuſpected him of theſe intentions, had a guard at hand, who, on a ſignal given, ruſhed out, and cut the vizier in pieces. Mohammed, after this narrow eſcape, inſtead of conciliating the regard of his omrahs, devoted himſelf entirely to pleaſure, and neglected all the concerns of government. The exceſs of his indolence ſoon affected the health of the ſtate. Diſorder and diſſatisfaction began to appear firſt in Moultan, where a tribe of Patans roſe up in rebellion. At the ſame time, Beloli Lodi, who was afterwards emperor, but at this time the governor of Sirhind, had poſſeſſed himſelf of the city and diſtricts of Lahore and Debalpour, with all the country quite to Pannipût. The ſultan, receiving intelligence of this revolt, deigned to ſend his army againſt him, while he quietly repoſed himſelf in the harem. The omrahs accordingly advanced againſt the inſurgents, and defeated them. But, from the ſultan's ſupineneſs and voluptuous habits of life, his power ſoon became weakened, and his health began to decay. He died in the year of the hegira 850, A. D. 1446, after a reign of twelve years, leaving behind him the character of a weak, diſſolute, and puſillanimous prince.

Alla II. the ſon of Mohammed, mounting the throne upon the death of his father, all the omrahs, except Beloli Lodi, who had ſeized Biana, and ſecretly aſpired to the empire, came and ſwore allegiance to him. This contempt of Beloli, the new ſultan was then in no condition to chaſtiſe; but, having collected an army in the beginning of the year 1447, he marched with an intention to recover Biana. But, while he was upon the way, a rumour was propagated, that the king of the Eaſt was advancing towards Delhi, which immediately brought back Alla to his capital, where, for a time, things remained in peace. The ſultan, in the following year, removed to Budaoon, where he employed himſelf in laying out gardens, building pleaſure-houſes, and making ſumptuous entertainments. He next ordered preparations to be made for removing his court to Budaoon; from which not all the remonſtrances of his friends could reſtrain him; accordingly, in the year of the hegira 852, A. D. 1447, Alla ſet out for Budaoon, leaving his vizier Hiſſam in the government of Delhi. When the ſultan had fixed himſelf in his new capital, Beloli marched a numerous army againſt Delhi, and amuſed the ſultan, by writing him word that he was going there to chaſtiſe the vizier; he however took poſſeſſion of the city, and aſſumed the title of Sultan Beloli. He then committed Delhi to the charge of his ſon, Chaja Baezid; and, marching in perſon to Debalpour, collected together a great army of Afghans. He wrote word, at the ſame time, to Alla, that, upon his account, he had expelled the vizier out of the city; and he received for anſwer from the weak prince, "that, as his father had adopted Beloli for his ſon, he would eſteem him as his brother;" he moreover promiſed to cede to him the empire, upon condition that he would permit him to live undiſturbed for the remainder of his life in the poſſeſſion of Budaoon. Beloli then threw the name of Alla out of the public prayers, and ſpread the regal umbrella over his own head. Alla remained at Budaoon till his death, which did not happen till the year of the hegira 883, A. D. 1478; his reign in Delhi being ſeven years, and his government of Budaoon near twenty-eight. A weak prince, but a virtuous man.

Beloli was an Afghan, of the tribe of Lodi. In the time of the emperor Feroſe, Ibrahim, the grandfather of Beloli, being poſſeſſed of wealth, made his way to the court of Delhi, and raiſed himſelf to the government of Moultan. He managed his affairs ſo well, that the government of Sirhind was conferred upon him, and, with other diſtricts near it, were confirmed to him in jaghire. Theſe dignities paved his way to the throne.

In the year of the hegira 855, being the firſt after his advancement to the imperial dignity, he determined to vindicate the invaded rights of his empire, and compel the payment of the accuſtomed tribute from all the dependent rajahs. This, however, led him into a variety of conteſts; and brought on a deſultory war with Mahmud, king of the Eaſt, whoſe capital was Jionpour, then a flouriſhing city, ſituate about forty miles to the north-weſt of Benares; but is now a place of little note. Several partial actions had from time to time taken place, when Mahmud approached with an army of thirty thouſand horſe, thirty elephants, and numerous infantry, intending to ſeize Delhi, and diſpoſſeſs Beloli of the empire. Beloli, however, with equal bravery, drew out his army, and was marching to meet the invader, when he received advice that Mahmud had juſt expired, and that the omrahs had ſet up his ſon Mohammed; and, by the mediation of the young king's mother, a peace was immediately concluded. But it was not long before the omrahs conſpired againſt Mohammed, and, having aſſaſſinated him, raiſed his brother Haſſen to the throne of the eaſtern kingdom. Haſſen, with one hundred thouſand horſe, and a thouſand elephants, was determined to renew the war, and marched from Attava towards Delhi; and Beloli, far from being intimidated, reſolutely marched out to meet him. The two armies, having advanced to Battevara, encamped for ſome time in ſight of each other, and, after ſome ſkirmiſhes, they again concluded a peace; but this peace was by no means laſting; for the two rival monarchs ſoon renewed the war, which laſted for ſeveral years, with various ſucceſs, until Haſſen was finally conquered, and his capital of Jionpour taken, by the ſultan of Delhi, who placed Barbec, one of his own ſons, upon the throne of the Eaſtern provinces. He then advanced to Calpie, which he took, and gave to his grandſon, Azim Humaioon, the ſon of his eldeſt ſon Baezid. He directed then his march to Dolipore, raiſing a tribute upon the rajah of that place, who was glad to rank himſelf among Beloli's ſubjects.

The ſultan being now extremely old, and infirmities increaſing upon him, he divided his extenſive dominions among his ſons and nephews, and died in the year of the hegira 894, A. D. 1488, after a reign of thirty-eight years and eight months. Beloli was eſteemed a virtuous and mild prince, a friend to literature, and a patron of the arts. He was never fond of war, although he gave many proofs of perſonal courage. In the field he was cautious to exceſs; and, not delighting in the waſte of human blood, he conſtantly endeavoured to heal all diſputes by negociation.

The omrahs, upon the death of Beloli, formed themſelves into a council, in which ſome appeared to be attached to the intereſt of Humaioon; ſome to Barbec, eldeſt ſurviving ſon of the ſultan; and ſome to Nizam, who had aſſumed the name of Secunder, and was appointed to the ſucceſſion by his father's will. While they were debating, the mother of Secunder entered the tent, and made a ſpeech to the omrahs in favour of her ſon. Upon which, after ſome contention, Secunder was advanced to the throne. His firſt care was to reconcile the jarring intereſts of his omrahs, and ſecure a good underſtanding with Barbec, his brother, king of the Eaſt. The royal brothers at firſt prepared for war, and each entered the field at the head of their reſpective armies; when Secunder propoſed an interview, and the two kings embraced each other with fraternal affection. They then proceeded in peace to Jionpour; but Haſſen, the expelled king of the Eaſt, having become a powerful prince over the territory of Behar, thought ſtill to ſow the ſeeds of diſcord between Barbec and his brother, hoping, in the event, to recover his eaſtern dominions. With this view Haſſen raiſed a powerful army, and advanced towards Delhi. Secunder, in the mean while, hearing of his intentions, croſſed the Ganges to meet him, which he did thirty-ſix miles from Benares; when an obſtinate battle was fought, in which Haſſen was defeated, and fled to Battea. Secunder purſued the fugitives for three days; and, hearing that Haſſen was gone to Behar, he marched with his whole army towards that place; but upon his approach, Haſſen fled to Alla, king of Bengal, who protected him there during the remainder of his days; and thus with Haſſen the royal line of Jionpour was extinguiſhed.

Secunder, having refreſhed his troops, marched towards Bengal; but when he had reached Cuttliſhpour, Alla, king of Bengal, ſent a formidable army to oppoſe him. Secunder detached one of his generals to acquaint him that he had no intention to invade his country; but as, by the conqueſt of Behar, their dominions now abutted upon each other, it became neceſſary to know upon what footing he muſt conſider Alla, before he quitted that country. The king of Bengal gladly acceded to a peace; wherein it was ſtipulated, that neither monarch ſhould permit any of their governors to invade each other's rights; and that neither of them ſhould give protection to the other's enemies.

Secunder, in the year of the hegira 907, recovered the revolted province of Biana; and marching to Agra, its capital, he then, for the firſt time, made that city imperial, by fixing his reſidence there, and abandoning the city of Delhi. Here he remained till the year of the hegira 910, when he marched towards Munderael, which he took, and deſtroyed the Hindoo temples, ordering moſques to be built in their ſtead. In this interval there happened a violent earthquake at Agra, ſo that the mountains ſhook, and every lofty building was levelled to the ground, ſome thouſands of the inhabitants being buried in the ruins. Secunder, eyeing from his march, with a ſorrowful countenance, the ruins of his favourite city of Agra, he turned from it, and bent his courſe towards Narvar, a ſtrong fort and city in the diſtrict of Malva, then in the poſſeſſion of the Hindoo rajahs. Here he continued for the ſpace of ſix months, breaking down the idol-temples, and building ſtately moſques. He there alſo eſtabliſhed a kind of monaſtery, which he filled with prieſts and devotees of the Mohammedan religion.

Secunder now returned to Agra, where he conſtructed many ſuperb edifices, adorned with ſpacious gardens, intending ſtill to make it the future capital of the Indian empire. To this city he ſummoned all the diſtant omrahs, ordering them to collect a ſufficient army for the purpoſe of reducing Gwalior. But in the midſt of theſe preparations he was cut off by death, in the year of the hegira 922, A. D. 1516, after having reigned, with reputation and ability, twenty-eight years and five months. It was during this reign that the Portugueſe, then ſo famous for their commerce, firſt eſtabliſhed themſelves in the Indian ſeas, where they ſeized the iſlands of Diu, Goa, and Ceylon, and eſtabliſhed factories which ſupplied Europe with all the elegancies of the eaſtern world.

Secunder dying at Agra, his ſon, Ibrahim II. immediately ſucceeded to the throne. This prince, contrary to the maxims and policy of his father and grandfather, conducted himſelf with inſupportable pride and arrogance to his friends and family. He was the promulgator of this arbitrary maxim, "that kings had no relations; for all men ought to be the ſlaves of royalty." The omrahs of the tribe of Lodi, who had been hitherto honoured with a ſeat in the ſultan's preſence, were now to ſtand by the throne, with their hands croſſed before them. They were ſo much diſguſted with this inſolence, that they raiſed a conſpiracy to place the prince Jellal, his brother, upon the throne of Jionpour. But Ibrahim found means to have Jellal aſſaſſinated; and he put his other brothers under ſtrict confinement in the hill-forts. Nor was Ibrahim ſatisfied with the death of Jellal, but he imbrued his hands in the blood of ſeveral omrahs of great diſtinction. The ſultan now ſucceeded in the reduction of the ſtrong citadel of Gwalior, which had been for a hundred years in the hands of the Hindoos. This acquiſition flattered his vanity, and heightened the rancour of his implacable diſpoſition; it gave him leiſure to employ all his forces in quelling thoſe rebellions, to which his cruelty, revenge, and arrogance, had given birth.

Ibrahim now giving full ſcope to his reſentment againſt the omrahs of Secunder, many of them were barbarouſly put to death. Azim Humaioon Sirwani, Miah Boah, and others, who were in confinement, were privately aſſaſſinated; and miſtruſt and terror took poſſeſſion of every heart. Theſe cruelties and aſſaſſinations gave riſe to freſh rebellions, which diſtracted his tyrannical reign, and were eventually the means of extirpating the dynaſty. Dirai, of the tribe of Lodi, ſoubah of Berar, dying about this time, his ſon, of the ſame name, aſſumed the title of emperor, under the name of Mohammed; and, being joined by the perſecuted omrahs, ſoon found himſelf at the head of a hundred thouſand horſe, with which he took poſſeſſion of all the countries as far as Simbol, defeating the ſultan's troops in repeated engagements. Ghazi haſtened down with the imperial army from Lahore, by the ſultan's orders; but, having heard of his tyrannies by the way, he was apprehenſive of danger to himſelf, and returned to his father Dowlat, at Lahore. Dowlat, ſeeing no ſafety but in extremity, revolted from the ſultan, and ſolicited the aid of Baber, the Mogul, a deſcendant of Tamerlane, who then reigned in Cabul. Baber was the ſon of Omar, fourth ſon of Abuſaid, grandſon of Miran Shah, third ſon of Timour; and, on the death of Ahmed, had ſucceeded to the Tartar throne of Samarcand. But that empire had for ſome time been gradually drawing to its cloſe. The deſcendants of Tamerlane had relaxed in their diſcipline and magnanimity; and vaſt hordes of the Uſbeck tribes having inceſſantly overpowered them, taken poſſeſſion of Samarcand, and driven out the unfortunate Baber, he firſt took refuge in Gazna, and then in Cabul. Yet Baber, as he afterwards proved, wanted neither ſpirit nor perſeverance in any cauſe he undertook; but he ſoon ſaw that his paternal empire, from the weakneſs of his predeceſſor, was irretrievably ruined, and his return to Samarcand utterly impoſſible. See the article MOGULSTAN. Inſtead, therefore, of engaging in ineffectual conteſts for a throne now irrecoverably loſt, he determined to plant his ſtandard on a ſoil where no laurels had been lately reaped, and immortalize his name by becoming the founder of a new empire. He turned his eye eaſtward, and ſeemed to behold the glory of the future ſovereigns of Hindooſtan, who were to deſcend from his loins.

The plan which he had thus boldly formed, he prepared with vigour to execute. With an army, ſmall in number, but terrible in battle, and warmly attached to their leader, he ſet out on this hazardous expedition. Having arrived within two ſtages of Shawabad, Baber received intelligence that Ibrahim had marched out of Delhi to oppoſe him, with an army which conſiſted of one hundred thouſand horſe, and a thouſand elephants; while that of Baher amounted to thirteen thouſand only. When Ibrahim had advanced ſufficiently near, Baber ordered five thouſand horſe to attack the Indian camp in the night; but, finding the enemy upon their guard, this detachment returned without effecting any thing. But their retreat haſtened Ibrahim to action; and he marched next morning to Panniput. Baber, at the ſame time, advanced within twelve miles of Ibrahim's new encampment. Upon the day after, which was the firſt of May, 1525, the two armies came in ſight of each other, and immediately engaged. Baber divided his troops into two lines, and four grand diviſions, with a body of reſerve in the rear of each, and a few light-horſe to ſkirmiſh in front; where he alſo placed his artillery, ordering chains to be fixed ſo as to link the carriages of his guns together, to prevent the enemy's horſe from advancing between them. The firſt diviſion on the right was commanded by Baber's ſon, prince Humaioon. The firſt on the left was under the orders of his couſin Mohammed. The ſecond on the right, towards the centre, was commanded by a general named Timur. The ſecond to the left, towards the centre, by the chief Chalifa. There was a reſerve in the rear of both lines; that on the right being commanded by Caſim, and that on the left by Ali. Baber himſelf took his poſt in the centre of the firſt line, after having perſonally harangued his officers and men.

The ſultan Ibrahim obſerved no judicious order of battle, but drew up his forces in one great line of unequal depth, and ordered them to charge the Mogul army, vainly imagining that he could bear them down with his ſuperior numbers. But he found himſelf fatally deceived. So formidable were the Moguls to the Patans, from their known courage and ſteady order, that the emperor's unwieldly column began to break before they came up to the charge, which was chiefly directed againſt the ſultan of the Mogul army, for the purpoſe of ſeizing Baber. Thoſe who advanced were either killed or repulſed; and, when they ſought to retreat, they found themſelves ſurrounded; for the two bodies of reſerve, in the rear of the Mogul line, had wheeled round their flanks, cut them off, and, meeting in the centre, fell upon the rear of thoſe who had fled from the charge, by which means the Patans were almoſt entirely deſtroyed. The reſerve, after performing this ſervice, retired to their ſtation in the rear; and the Mogul lines, advancing, ſuſtained many and various charges from the Indian army, which they finally repulſed with great ſlaughter. Ibrahim now, rouſed with ſhame and indignation, rallied the retreating troops; and, having in reſerve the flower of his army, he gave ſuch a violent ſhock to the Mogul line, as threw it into great diſorder. Nothing but perſonal bravery was left to decide the day; this, and the compact wedge in which the Mogul forces was formed, gave them at length the ſuperiority over the Indians. Five thouſand fell, with Ibrahim himſelf, in one ſmall ſpot of ground. The Patan army, when the ſultan was ſlain, fled towards the banks of the Jumna, dying the river with blood; for ſo far did Baber continue his deſtructive purſuit; till, being wearied with ſlaughter, he gave hope to fear, and reſpite to death. According to the moſt moderate accounts, there were ſixteen thouſand Patans killed in this action, though ſome ſay fifty thouſand. Of the loſs of Baber we have no information; conquerors think it policy to conceal the number of their ſlain. Ibrahim, though he fell in the action, yet nobly fell: he performed wonderful exploits with his own ſingle arm, and ſet a notable example of courage and valour to his troops; but it was unfortunately too late—the victory was gone. He had reigned twenty years, and was not only brave, but poſſeſſed of great talents; whence it was his practice to reſpect and promote men of genius and ability. Molana Gheaus ul Dien, a celebrated Moſlem divine, much reſpected for his purity of life, was aſked by Ibrahim, Which was the beſt of all the various ſects of Iſlam? He replied, Suppoſe a great monarch to be ſeated in a palace, with many gates leading to it, and through whichever you enter you ſee the ſultan, and can obtain admiſſion to his preſence. Your buſineſs is with the prince, *not with thoſe at his gate.*—The ſultan again aſked him, Which, in his opinion, was the beſt of all faiths? He replied, That the *beſt man* of *every faith*, in his idea, followed *the beſt faith.* Theſe ingenious obſervations pleaſed Ibrahim; and he conferred upon Molana many princely gifts. This ſultan was ſlain in the year of the hegira 932, A. D. 1525.

## DYNASTY OF MOGUL SOVEREIGNS IN HINDOOSTAN.

Baber, immediately after the battle, detached his ſon Humaioon and three of his principal omrahs to Agra, before they could have time to recover from their conſternation, or remove their effects. He alſo ſent his couſin Mohammed and three other chiefs to Delhi, to take poſſeſſion of that capital; while he himſelf covered their rear, and brought forward the weak and wounded troops, who had ſuffered ſo ſeverely in the late bloody action. On the twelfth of Rigib he entered the city, where he aſcended the throne, and ordered the chutba to be read in his name. Thus was a remote but lineal deſcendant of the great Timour, a fugitive from his own country, and deſerted by the principal part of the Tartar army, placed upon the throne of Delhi, near a hundred and thirty years after the acquiſition of it by that famous conqueror! After having ſurveyed the city, and viſited the tombs of the ſaints and heroes, he ſet out for Agra, where he arrived the twenty-fifth of the ſame month, and immediately inveſted the fort, which was in poſſeſſion of the former government, garriſoned by the troops of the rajah of Gwalior, who had been killed in the action. But ſo much had the terror of the Mogul arms now taken poſſeſſion of every mind, that they immediately deſired to capitulate, and ſent to the new ſultan, by way of ranſom, a diamond weighing two hundred and twenty-four ruttys, (196 carats,) which was formerly the property of the emperor Alla.

Upon the twentieth of Rigib, Baber went into the treaſury, which was very rich. He reſerved not a ſingle dinar for himſelf, but divided the whole among his omrahs and troops; the ſhare of the former amounting to two lacks of rupees each; and thoſe of others were proportionable to their rank and ſtations. A part was ſent to Cabul, to be divided among Baber's ſubjects in that city; beſides preſents, which he ſent to Samarcand, Choraſan, Mecca, Medina, and other holy places, in charity. This generoſity, which bordered upon prodigality, fixed upon Baber the name of *Collinder*, "one whoſe cuſtom it is to keep nothing for to-morrow."

Baber had yet to ſtruggle with the Patan and Afghan tribes, who had ever a great antipathy to the Mogul government. Even Mai, an Afghan chief, who had joined Baber, now deſerted him, with all his adherents; while the inhabitants of the country round Agra cut off his foraging parties, and rendered it very difficult for him to ſupport his cavalry, or ſupply his troops with proviſions. In this ſituation, Baber received an addreſs from his chiefs, requeſting him to return to Cabul; to which he replied, That a kingdom which had coſt him ſo much hazard in acquiring, was not to be wreſted from him but by death alone. He at the ſame time iſſued a proclamation, that he was determined to abide his fate in India; but if any perſon was deſirous of returning to Cabul, preferring ſafety to glory, and ignoble eaſe to the manly toils and dangers of war, they might retire in peace, and leave him only thoſe whoſe valour would reflect honour on themſelves, and glory on their country. The omrahs, thus ſhamed by their prince, ſtriking their breaſts, ſwore never to forſake him. And, when it was known that Baber had determined not to leave Hindooſtan, as his anceſtor Timour had done, many omrahs, who were willing to be firſt in favour, began to come over to him, which allured others to do the ſame.

But, while Baber was thus receiving the ſubmiſſion of his new ſubjects in the capital, he was mortified with the intelligence that the Patan chiefs, with Mahmud, the ſon of the emperor Secunder, and many other rajahs in alliance, whoſe force exceeded one hundred thouſand horſe, were marching with rapidity to attack him. Baber, having no dependence on thoſe who had lately joined him, detached them to defend different provinces, and with his own Moguls he haſtened towards the enemy. His van-guard falling in with theirs, upon the frontiers of Biana, after a ſharp conflict were repulſed with great loſs, which ſtruck unuſual terror into the king's ſmall army. His ally Neazi had fled to Simbol; Haſſen joined the enemy; and every day brought diſagreeable intelligence from all quarters. The ſultan, perceiving this panic, immediately called a council of war. The greateſt part of the officers gave it as their opinion, that, as the ſuperiority of the enemy was evident, it was adviſable to leave a ſtrong garriſon in Agra, and to retreat, with the bulk of the army, to the Panjab. Baber, with a ſullen frown, aſked the chiefs, What would the world ſay of a monarch whom the fear of death ſhould oblige to abandon ſuch a kingdom? "The voice of glory," ſaid he, "is loud in my ear, and forbids me to diſgrace my name, by giving up what my arms have with ſo much difficulty acquired. And, as death is at laſt inevitable, let us rather meet him face to face, than ſhrink back to gain a few years of ignominious exiſtence; for what can we inherit but *fame* beyond the limits of the grave!" The whole aſſembly, inſpired as if with one ſoul, cried out at once, "War! War!" The king, having been formerly much addicted to wine, made a vow never to drink any more, ſhould he, upon this occaſion, prove victorious.

Upon the ninth of the ſecond Jimmad of the year of the hegira 933, Baber formed his line, with his guns and rockets in front; and in that order he moved towards the enemy, whom he perceived advancing towards him. His order of battle was as follows: the line, which was ſingle, conſiſted of ſix brigades, excluſive of the king's life-guard in the centre, where Baber poſted himſelf. Before each of the brigades, a few paces in front, the ſultan placed a ſquadron of light horſe. In front of the whole, the artillery and rocket-waggons were drawn up in three diviſions, the right, left, and centre. The guns were chained together, ſo as to form a kind of fortification againſt the enemy's cavalry. About ten o'clock the action was commenced by the artillery. The left of the enemy, charging the right of the Moguls, ſoon cloſed hand to hand, and compelled them to give way. But Baber, now directing his right wing to wheel round, took them in flank, and, falling upon the aſſailants with great fury, put them to flight, the light horſe purſuing them with great ſlaughter quite through their own line. The enemy, in the mean time, being ſo numerous, extended their flanks far beyond the wings of the ſultan, and came down upon him in full force. Baber now ordered his right and left wing to fall back, by which means his army was condenſed into a circle. In this poſition he reſiſted the repeated aſſaults of the Patan army till three o'clock, his artillery all the while making great ſlaughter among them. Finding the enemy greatly fatigued by their repeated aſſaults, he cloſed upon them in turn; and, after great and uncommon exertions both of body and mind, Baber obtained the victory; and, as a monument to perpetuate the memory of the battle, he ordered a pyramid to be built upon an eminence near the field; which, according to the ſavage cuſtom of his age and nation, was ſtuck round with the heads of the ſlain.

The ſultan now began to feel ſomewhat of the bleſſings of peace; and he wiſely employed that interval in regulating the affairs of government, and in repairing the breaches of war. But, being at length attacked by an ardent fever, he ſent in haſte for his ſon, the prince Humaioon, who was then beſieging the fort of Callinger, and appointed him his ſucceſſor; and on Monday the fifth of the firſt of Jemmad, in the year of the hegira 937, A. D. 1530, he reſigned his breath; and, agreeably to the direction of his will, his body was carried to Cabul, and interred in the royal ſepulchre. He was an early proficient in the arts of poetry, writing, and muſic. He wrote his own commentaries in the Mogul language, with elegance and impartiality; and they were tranſlated in the reign of Akbar, by Chan Chanon, into the Perſian language. He is with ſtrict propriety called, "the firſt founder of the Mogul race of kings in Hindooſtan;" becauſe, though Gengis Khan, and Timur Bec, had before conquered this part of India, they never planted any of their own race upon the throne, but were content with appointing viceroys, and marching back to their own country with their plunder and ſpoil.

The Mogul prince Humaioon, immediately after the death of his father, mounted the throne of Agra. According to the accurate Mr. Maurice, he was devoted to the ſtudy of aſtronomy, and took great delight in judicial aſtrology. He is ſaid to have fitted up ſeven houſes of entertainment, and named them after the ſeven planets. In each he gave public audience, according to the ruling planet of the day, ordering all the furniture, paintings, and alſo the dreſſes of his attendants, to bear ſome emblem of the ruling ſtar of that peculiar houſe or manſion of the heavens in which they were reſpectively to attend. In the houſe of the Moon, met foreign ambaſſadors, travellers, and poets; military men attended him in the houſe of Briſput, or Mars; and judges, lawgivers, and ſecretaries, had audience in that of the "Recorder of Heaven," or Mercury. Theſe innocent fancies, however, ſoon gave way to the more important concerns of his empire. In the firſt year of his reign, he led an army againſt the ſtrong fortreſs of Callinger; but, while he carried on the ſiege, Mahmud, the ſon of Secunder Lodi, at the head of an army of Afghans, took poſſeſſion of Jionpour, and carried the war into the eaſtern provinces. Humaioon, on receiving intelligence of theſe commotions, raiſed the ſiege of Callinger, and marching to Jionpour, in a pitched battle overthrew the Afghans, and reinſtated his own viceroy in his former government of that province.

The ſultan, after this victory, returned to Agra, and beſtowed honorary dreſſes upon above twelve thouſand of his courtiers. He, in the mean time, diſpatched a herald to Shere Khan, and demanded poſſeſſion of the fortreſs of Chunâr, in the province of Oude, which Shere had held as governor under ſultan Ibrahim; but, the moment he heard that his ſovereign was ſlain, he aſſumed an independent authority over the fortreſs and province; and now bade defiance to the meſſenger of Humaioon. The ſultan, therefore, marched againſt Chunâr, and reduced that ſtrong fortreſs after a ſiege of ſix months. Having then gained the paſſes, he entered Bengal. Shere, in the mean time, carried away the treaſure of the princes of Gour and Bengal, whom he had reduced, and fled to the mountains of Jarcund. The king continued his march to Gour, then the capital of Bengal, and took it; but receiving intelligence of the rebellion of his own brother, the prince Hindal, at Agra, he haſtened back by forced marches towards that city.

Hindal had been ſent to ſuppreſs an inſurrection of Mohammed Mirza, who had eſcaped to Canouge; but, inſtead of performing that ſervice, as ſoon as he ſaw himſelf at the head of an army, and his brother, the ſultan, in a diſtant province, he began to aſpire to the throne. He accordingly put thoſe to death who rejected his authority in Agra; and, throwing off every diſguiſe, he ordered the chutba to be read in his own name, and then marched to Delhi, and beſieged it. The ſultan left Jehangire and Ibrahim to command in Bengal, and haſtened to quell this rebellion. But, to add ſtill more to Humaioon's misfortunes, his other brother, Camiran, inſtead of aſſiſting him, aſpired alſo to the throne, and marched with ten thouſand horſe to ſeize upon the ſupreme authority. When he arrived at Delhi, prince Hindal prevailed upon him to join his forces with his own; and they agreed, that one of them ſhould reign at Agra, and the other in Delhi; after which they both commenced the ſiege. Ali, who defended the city, acquainted Camiran, that he could never think of betraying his truſt, and, rather than be ſo ungrateful to his prince, he was determined to ſhed the laſt drop of his blood; but that, if he would firſt poſſeſs himſelf of Agra, he would then, and not till then, give up the city of Delhi. When Camiran and his brother found the governor thus reſolute, and that the ſiege would coſt them much blood and time, they ſet out together for Agra. When they had reached the environs of that city, the jealouſy which the brothers entertained of each other broke out into open war. Hindal, being deſerted by many of his party, fled to Alwir with five thouſand horſe and three hundred elephants; and Camiran, entering Agra, aſſumed the imperial dignity.

At this juncture, Shere, the Afghan chief, ſent a meſſenger to Humaioon, to treat about a peace; which the ſultan, thus beſet by his two brothers, accepted with gladneſs, upon the following conditions: that Shere ſhould reign in Bengal and Behar, which he ſhould hold of Humaioon, paying a ſmall acknowledgment. But theſe conditions were no ſooner ſigned and ratified, and a free intercourſe permitted between the two armies, than the perfidious Shere, the very next morning, ſurpriſed the emperor's camp before day-break, and totally defeated him. As the bridge of boats which the king had been preparing, was not finiſhed, there was no way of eſcape but by plunging into the river; all the boats being ſeized by the enemy, who had turned the rear of the ſultan's army. Humaioon, his nobles, and a great part of his army, were forced into the ſtream, where eight thouſand Moguls were drowned, among whom was the prince Mohammed Zeman. This terrible overthrow happened to Humaioon in the year of the hegira 946, A. D. 1539. The ſultan, with the few who had ſurvived, fled to Agra. Prince Camiran, hearing of this defeat, haſtened from Agra to Alwir, to conſult with his brother Hindal. Finding that the Afghans under Shere were likely to prevail, they were aſhamed of their behaviour to their brother; and, when it was too late, thought proper to ſupport him. In the mean time the Mogul omrahs, who were diſperſed in the provinces, ſeeing the general danger, thought it neceſſary to unite their ſtrength. They accordingly haſtened from all quarters to Agra; Jehangire and Ibrahim having left Bengal, and even Mohammed Mirza, who had rebelled in Canouge, now united in the general cauſe againſt the Afghans.

Shere, in the mean time, advanced to the banks of the Ganges; and, detaching his ſon Cuttub over the river, poſſeſſed himſelf of the adjacent provinces. Humaioon, having received intelligence of theſe motions, ordered Huſſein, the Uſbeck chief, againſt him, with a great army. They met the enemy near Calpie, where an obſtinate engagement enſued; in which, victory declaring for the Moguls, Cuttub, with a great part of his army, was cut off, and his head ſent to Agra. The generals at the ſame time, invited the ſultan to come and have the honour of conquering Shere in perſon. Humaioon accordingly marched with a hundred thouſand horſe, and, croſſing the Ganges near Canouge, was attacked by Shere, on the tenth of Mohirrim, in the year of the hegira 947, and again defeated with great ſlaughter. Having unfortunately, as in the former action, the river cloſe to his rear, the flight turned that way, and thouſands, to avoid the ſwords of the enemy, choſe a watery grave. Thoſe who eſcaped, again fled with the king to Agra, to which city he was immediately purſued by Shere. The embarraſſed ſultan was now forced to retreat to Lahore, where he was joined by the greateſt part of his Mogul omrahs, who had been diſperſed in the action. Shere, to make the beſt of his victory, continued the purſuit, and croſſed the Jullanpour; upon which the king was compelled to paſs the river of Lahore, and retreat towards Tatta and Bicker, upon the Indus. Camiran, now ſenſible of his ungenerous behaviour, was himſelf obliged to fly towards Cabul; and ſaw an empire wreſted from his family by the effects of that baſe envy, which could not behold even a brother's proſperity without pain.

Humaioon, having croſſed the Indus on his way to Bicker, halted at Lori, and ſent an ambaſſador with a horſe and dreſs to his couſin Huſſein, governor of Tatta, to requeſt his aid, that he might be able to poſſeſs himſelf of Guzerat. Huſſein, under ſpecious pretences, amuſed the ſultan for upwards of five months, without affording him the leaſt aſſiſtance, by which the ſmall army he had become diſtreſſed for want of pay, and daily diminiſhed in numbers. The prince Hindal, his brother, in the mean time deſerted him, and went to Candahar, uniting himſelf againſt the ſultan with the governor of that province. Humaioon, however, with his little army laid ſiege to Sewan, which he wiſhed to obtain as a place of ſecurity; when the treacherous Huſſein, deſirous of getting the place into his own hands, advanced with great force from Tatta, and, ſurrounding both the fort and the beſiegers, prevented ſupplies from being carried to either. Humaioon's army was ſoon greatly diſtreſſed; and the ſultan, in this extremity, requeſted Edgar, to whom he had recently given the government of Bicker, to join him with what forces he could raiſe; but this ungrateful omrah choſe rather to join Huſſein, who promiſed to give him his daughter, and ſecure him in his government. Thus deſerted and betrayed, Humaioon with great difficulty effected his eſcape; nor could he even obtain, in that place, a few boats from his own perfidious ſubjects, to carry his army acroſs the river. After wandering along the banks for ſome days, he diſcovered ſome boats that had been ſunk, and, raiſing them, tranſported his troops to the other ſide. But on neither ſide was there ſafety for Humaioon: deſerted by his unnatural brothers, and abandoned by the omrahs of his court, to add completely to his affliction, a rebellion broke out in his little army; and the governor of the province, Maldeo, to whoſe frontier he was now flying for ſuccour, formed a deſign to ſeize him, and deliver him up to the uſurper Shere, who, with his ſwifteſt cavalry, ſtill hung upon his rear.

The diſtreſſed ſultan, informed of the intended treachery of this old domeſtic, mounted his horſe at midnight, and attended by a few faithful troops, his ſultana, and ſuite, fled towards Amercot, which is about one hundred coſs from Tatta. His horſe falling down dead with fatigue, and the ſoldiers of Maldeo urging cloſe behind, he was compelled to purſue his journey on the back of a camel. The country through which he fled being an arid deſert, the troops ſoon began to feel the utmoſt diſtreſs for water. Miſtaking for ſome days their way to a rivulet, and the ſeaſon being extremely hot, the wretched fugitives had not at laſt the power to complain, but dropt ſilently and ſucceſſively, with their parched tongues protruded, motionleſs and lifeleſs, on the burning ſands. Even the camels fainted and died under the ſeverity of the drought; and but a few, with the ſultan, lived to reach the fort of Amercot. The rajah, being a humane prince, took compaſſion on their misfortunes; and ſpared nothing that could alleviate their miſeries, or expreſs his fidelity to the ſultan.

At Amercot, upon Sunday the fifth of Rigib, in the year of the hegira 949, or A. D. 1541, the famous Akbar was born, who became ſo illuſtrious on the throne of Hindooſtan. The ſultan, by the aid of the rajah, marched againſt Bicker; but in this enterpriſe he loſt the gallant Ali, one of his principal adherents, and was himſelf defeated. He then fled towards Candahar; and on his way was joined by his faithful Mogul chief, Byram Khan, from Guzerat. The prince Camiran, his brother, had at that time taken the fortreſs of Candahar from his brother Hindal; and Aſhkari governed there by his appointment. On the approach of Humaioon, Aſhkari, inſtead of affording him an aſylum, attacked the ſultan, obliging him to leave behind him his infant ſon Akbar, and fly himſelf, with the ſultana Mariam, and only twenty-two of his domeſtics, to Choraſan. Aſhkari expreſſed great ſorrow at the king's eſcape; and, plundering his effects which he had ſeized, carried the young prince to Candahar.

The ſultan, deſerted on all ſides, and become a fugitive in deſpair, fled to Seiſtan, where he was received by Shamlu, who governed there on the part of Tahmaſp, king of Perſia. He treated Humaioon with the greateſt reſpect, and preſented him with money for the ſupport of the ſultana and her ſlaves. He from thence ſet out for Herat, and was met in that city by the prince Mohammed, the king of Perſia's eldeſt ſon. This prince forgot nothing of that generoſity and politeneſs which ſo remarkably diſtinguiſhed his character; and immediately provided the unfortunate exiles with all neceſſaries for their journey to the Perſian court. When he arrived at Kizvi, he diſpatched his faithful omrah Byram to the Perſian king at Iſpahan; from whoſe princely bounty he received every comfort that could alleviate his diſtreſs, or calm his wounded feelings.

Upon the flight of Humaioon, Shere, in the year of the hegira 950, A. D. 1542, ſet up for ſultan at Agra. His original name was Ferid. His father was Huſſein, of the tribe of Afghans of Roh, a mountainous diſtrict on the confines of India. When Beloli aſcended the throne, Ibrahim, the grandfather of Shere, went to Delhi in queſt of military preferment; and, when the empire fell to Secunder, the chief Jemmal being appointed ſoubah of Jionpour, he took Huſſein, the ſon of Ibrahim, in his retinue. Huſſein had eight ſons; Ferid and Nizam of one mother, of a Patan family; the other ſix were born of ſlaves. Ferid, being inſulted by one of his ſtep-mothers, abandoned his father's houſe, and enliſted himſelf a ſoldier in the army of Jemmal, the governor of Jionpour. After three or four years had elapſed, Huſſein went to Jionpour, and, by the mediation of friends, the father and ſon were reconciled. Huſſein then gave Ferid the charge over his eſtate and diſtrict of Saſſaram; while he himſelf choſe to remain at Jionpour. In this new appointment the reputation of Ferid grew apace; and all his actions diſcovered uncommon genius and reſolution.

Amidſt the diſtractions which followed from the invaſion of Baber, Ferid joined the ſtandard of Pir Khan, the ſon of Dirio Lohani, who had ſubdued Behar, and aſſumed the royal dignity, under the name of Mahmud. As that prince was one day on a hunting-party, he rouſed a royal tiger, which Ferid immediately attacked, and diſabled with one blow of his ſabre. For this intrepid action, which happened in Mahmud's preſence, he was ſurnamed Shere Khan, or *lion-lord*: ſhere ſignifying a lion.

After the death of Mahmud, Shere fixed his eyes upon his dominions, the provinces of Behar and Bengal; and, to obtain the ſovereignty, made war upon Jellal, the young ſon of Mahmud. It was at this criſis that Humaioon marched to Bengal, to quiet theſe inſurrections; but, the unnatural rebellion of his brothers taking place at that time, he was glad to reſign thoſe two provinces entirely to Shere; who, as we have ſeen above, pretended to be ſatisfied with them; and then, under the ſemblance of pacific meaſures, treacherouſly availed himſelf of the unguarded ſtate of Humaioon's army, to cut it to pieces. But an act of ſavage ferocity and treachery, infinitely beyond this, is recorded in the long catalogue of the atrocities of Shere. Doubtful, when he began to wage war for the empire, what might be the uncertain iſſue, he wiſhed to ſecure an impregnable fortreſs, to which he might at any time retreat, in caſe of diſcomfiture, or danger of being taken; and where he might, in the mean while, lodge his family, and depoſit his wealth, in ſafety. He ſoon fixed his choice on the hill-fort of Rhotas. But to take Rhotas by open force was impoſſible. It was therefore neceſſary to deviſe ſome ſtratagem to entrap the rajah. Shere, for this purpoſe, ſent a meſſage to Berkis, who was in poſſeſſion of this impregnable fortreſs, informing him, "That, as he was going with a large army into Bengal, he hoped, from their former friendſhip, that he would permit him to ſend his family and treaſure into that place, with a few attendants." Berkis at firſt excuſed himſelf from affording this friendly accommodation; but Shere ſent an artful meſſenger to him, a ſecond time, with a handſome preſent, acquainting him, "That it was only for his women and treaſure he requeſted his protection: that, ſhould he be fortunate enough to conquer Bengal, he would make proper acknowledgments for the favour on his return; but, if he ſhould loſe his life in the conteſt, he rather choſe that his family and wealth ſhould fall into the hands of Berkis, than into thoſe of the Moguls, his inveterate enemies." Berkis, ſuffering himſelf to be thus deluded, conſented to Shere's requeſt. The Afghan, having provided covered chairs, filled them all, except the firſt two or three, with armed men and arms. He, at the ſame time, filled five hundred money-bags with leaden bullets, and appointed ſome of his beſt ſoldiers to carry them, in the diſguiſe of ſlaves, who were deſtined in appearance to aſſiſt in bearing the treaſure up the mountain. The men, who carried the cloſe chairs, were diſguiſed in the ſame manner. This train accordingly ſet out; and the firſt and ſecond chair being examined at the gate, and found to contain only ſome old women, all further examination was neglected. The rajah was in the mean time buſy in counting the bags, which he now began to reckon as part of his own fortune. When the chairs had reached the great hall which the rajah had appointed, the ſoldiers ruſhed out, and began a terrible ſlaughter on the rajah's unſuſpecting domeſtics. The diſguiſed troops ſupplied themſelves with arms from the chairs, and eaſily ſubdued the garriſon, and threw open the gates to Shere, who was only at a ſmall diſtance. The rajah Berkis, with a few of his followers, found means to eſcape into the woods, by a private paſſage behind the fort. Thus the moſt impregnable fortreſs in India fell into the hands of Shere, together with a vaſt treaſure, which had been there accumulating for ages.

Having at length, by ſuch practices, overcome all difficulties, and obtained the object in view, namely the ſovereignty over Hindooſtan, Shere continued undiſturbed in Agra for a whole year, employing his time in ſettling the internal police of that great metropolis, and in regulating the diſcipline of his army. In the meanwhile Maldeo, who had chaſed the unfortunate Humaioon through the deſert, had aſſumed the ſovereign authority over Nagor and Todnour, which were ſo extenſive, that Maldeo was eſteemed the moſt powerful Hindoo prince in India. To quell this inſurrection, Shere ſet off with no very formidable army, as looking upon the inſurgents with an eye of contempt. But they oppoſed to him fifty thouſand rajahputs, or native Hindoo ſoldiers; and both armies lay for thirty days in ſight of each other without offering to come to battle. Shere would have been glad to retreat quietly, but the danger was too great; at the ſame time the enemy was ſo advantageouſly poſted, that they conſidered marching out to begin the attack as too hazardous. In this dilemma, a ſucceſsful ſtratagem ſuggeſted itſelf to the fertile mind of Shere. He forged a letter in the Hindoo language, in the name of the rajahput chiefs, addreſſed to himſelf, ſtating, "that, having been conquered by the rajah, they only ſerved him through fear; but, if Shere would reinſtate them in their former poſſeſſions, they would turn their ſpears in his favour." On this letter Shere ſuperſcribed, as uſual, in Perſian, "that, if they would deſert to him, all their deſires ſhould be fully complied with." This letter was purpoſely dropt in the way of Maldeo; who, being always jealous of his chiefs, readily ſwallowed the bait. He therefore declined the battle, and marched away with his own vaſſals; while Shere fell upon the aſtoniſhed rajahputs, and cut them in pieces.

Shere, finding himſelf in poſſeſſion of a victory which nothing but perfidy had ſecured, exclaimed, "that, for a handful of barley, he had almoſt given the empire of India to the wind;" thus congratulating himſelf upon the ſucceſs of his treachery; which, however, was ſoon to have an end. He followed up his victory, by inveſting the ſtrong fort of Callinger; which Paran Mull, the then rajah, reſolved to defend to the laſt extremity. Shere, having drawn a line of circumvallation, began to carry on his approaches; when a ſhell, unexpectedly burſting by his ſide, wounded him in a dreadful manner, ſo that he lay in the greateſt agonies till the evening, when the news was brought him of the reduction of the place; upon which he cried out, "Thanks to the Almighty!" and expired, in the year of the hegira 952, A.D. 1545. He exhauſted fifteen years in a ſtate of ſavage warfare before he ſeized the throne; upon which he ſat for five years, as emperor of Hindooſtan.

Shere, though a moſt unprincipled wretch, yet left many monuments of magnificence and utility behind him. From Bengal to the Nilâb, which is fifteen hundred coſs, he built caravanſeras at every ſtage, and dug a well at the end of every coſs; he alſo raiſed many ſuperb moſques by the ſides of the highways, wherein he appointed readers of the Koran, and prieſts. He ordered, that at every ſtage, all travellers, without diſtinction of country or religion, ſhould be entertained, according to their quality, at the public expence. He at the ſame time planted rows of choice fruit-trees along the roads, to preſerve travellers from the ſcorching heat of the ſun, as well as to gratify their taſte. Couriers were placed at proper diſtances, as well for forwarding quick intelligence to the diſtant governors, as for the advantage of trade and commerce. And ſuch was the public ſecurity during his reign, that travellers and merchants, throwing down their goods, went without fear to ſleep on the highway. He was buried at Saſſaram, his original eſtate, in a magnificent marble mauſoleum, which he had built in the middle of a large canal of water. This mauſoleum ſtill remains entire; and the artificial lake which ſurrounds it is near a mile in length.

Before his death, Shere had directed that his eldeſt ſon Adil ſhould aſſume the imperial dignity; but he being at Rantimpour, and his younger ſon Jellal on the ſpot, the omrahs preferred Jellal to his brother, then at ſo great a diſtance; urging the neceſſity of filling the throne as ſoon as poſſible. Jellal, therefore, mounted the throne in the fortreſs of Callinger, aſſuming the title of Iſlam Shah, which, by falſe pronunciation, was turned to that of Selim, by which name he is moſt generally known. He loſt no time in repairing to Agra, to take poſſeſſion of his father's treaſures. He found himſelf ſurrounded by enemies, and was often in danger of aſſaſſination; from which he had ſeveral hair-breadth eſcapes. He was alſo oppreſſed by a moſt formidable rebellion, which broke out in the provinces of Lahore and Moultan. To cruſh his adverſaries, he raiſed a great army, marched to Delhi, and thence to Lahore; where, after an obſtinate engagement, he proved victorious, and the inſurgents retreated to Cachimere, and took refuge in the mountains. But while he was reſtoring order in theſe parts, violent inſurrections broke out in others; ſo that the peace he ſo much coveted he was never able to ſecure. Thus was he doomed to endure the toils and perils of warfare, till, perſuaded that he could never have peace till he had extirpated the rebellious chiefs, he marched in perſon towards the Indus, and for the ſpace of two years carried on a war with the Gickers, who ſupported them. He was ſeized with a fiſtula in ano, by which, in the year of the hegira 960, A.D. 1552, he bled to death, after having reigned nine years.

When Selim died, his ſon Feroſe was at twelve years of age raiſed to the throne at the fort of Gwalior; but he had not reigned three days, before Mubarick, the ſon of Nizam Sour, nephew to Shere, brother of Selim's wife, and uncle to Feroſe, aſſaſſinated him. Mubarick then aſſumed the name of Mohammed Adil, or the *juſt*; and under this unmerited title uſurped the empire. He perpetrated this horrid murder with his own hand. The execrable villain's ſiſter defended, for ſome time, her ſon from his aſſault, preſenting her own body to the dagger. In vain did ſhe weep and implore for his life; the monſter's heart was hardened againſt pity. He tore the youthful prince from a mother's embrace; and, in her preſence, ſevered his head from his body!

The infamous Mohammed, having always given himſelf up to debauch, had neglected even the common accompliſhments of reading and writing. He hated men of learning, and aſſociated with people of low birth; one of whom was Himu, a perſon of gigantic body, but of a depraved mind, and deſperate undaunted ſpirit, who became entruſted with all the weight of the adminiſtration. Mohammed himſelf delighted in nothing but pleaſurable amuſements; and, when he rode abroad, he uſed to head arrows with gold, and ſhoot them among the multitude. This unheard-of extravagance begat him the nickname of *Adili*, which in the Indian language ſignifies literally *the blind*, and metaphorically *the fooliſh*.

When Himu became inveſted with the whole executive power of the empire, his pride and inſolence exceeded all bounds. This naturally made all the Patan chiefs his enemies, and brought on inſurrections of various kinds; until Secunder, ſon of Fermalli, governor of Canouge, being irritated, attempted to deſtroy both him and Mohammed; in which rencounter he was killed by Ibrahim, the ſultan's brother-in-law and couſin.

The ungrateful Mohammed, now becoming jealous of the popularity of his deliverer Ibrahim, gave private orders to aſſaſſinate him; but his wife, the king's ſiſter, knowing his deſign, informed her huſband of it. He fled from Chunar to his father, Ghazi, governor of Biana, and was purſued by Iſah Neazi, who coming up with him, an engagement enſued, in which Iſah was defeated. Ibrahim now raiſed a great army, and poſſeſſed himſelf of Delhi, where he mounted the throne, aſſumed the enſigns of royalty, marched to Agra, and reduced the circumjacent provinces. Mohammed marched from Chunar to ſuppreſs this uſurpation; but on the way he received an embaſſy from Ibrahim, promiſing that if he would ſend Huſſein and other chiefs, with aſſurances of forgiveneſs, he would ſubmit. The king was weak enough to comply with his requeſt. The omrahs went; and Ibrahim, by preſents, promiſes, and courteous behaviour, ſoon drew them over to his own intereſt. Mohammed, finding himſelf in no condition to oppoſe ſo ſtrong a confederacy, fled to Jionpour, and contented himſelf with the eaſtern provinces. Ibrahim immediately aſſumed the title of ſultan, in the year of the hegira 961, A.D. 1552.

Ibrahim, however, had no ſooner mounted the throne, than another competitor ſtarted up in the province of the Panjâb. This was Ahmed, a nephew of Shere, and brother-in-law to Mohammed, the expelled king. Ahmed, having attached to his intereſt Hybut and other chiefs, aſſumed the title of Secunder Shah; and, marching with twelve thouſand horſe towards Agra, encamped within four miles of that city. Ibrahim, with ſeventy thouſand horſe, came out to give him battle. At this fight the heart of Secunder melted within him; and he made overtures of peace. The only condition he aſked was the government of the Panjâb. But Ibrahim, in the pride of ſuperiority, would grant him no terms; and therefore both armies drew up and engaged. Secunder himſelf, to prevent all ſuſpicion, committed the enſigns and trappings of royalty to one of his omrahs; and with a choice body of horſe he took poſt in a wood, where he could not be diſcovered. Ibrahim, upon the firſt charge, broke through the lines of Secunder; his troops quitted their ranks, and, elated with victory, were intent upon nothing but plunder, when Secunder, ruſhing out ſuddenly upon them, ſtruck a panic into the whole army; they immediately took to flight, and were purſued by thoſe whom they had before ſo eaſily diſcomfited. Ibrahim, terrified and alarmed for his own ſafety, abandoned his capital, and retreated to Simbol. Secunder took poſſeſſion both of Agra and Delhi; but he had no ſooner ſeized the throne, than he received intelligence that the rightful heir, ſultan Humaioon, was advancing with a numerous army to puniſh the uſurpers of his throne and dominions.

Humaioon had been treated at the court of the king of Perſia, as became the dignity of an emperor and king;

and, when the ſeaſon appeared ripe for attempting with ſucceſs the recovery of his empire, Tahmaſp gave him the aſſiſtance of ten thouſand horſe, with which he commenced his march back to Hindooſtan; but this number was infinitely increaſed when he reached the frontiers of his own dominions.

When the alarming news arrived of the return of the Mogul emperor at the head of ſo formidable an army, Secunder exacted an oath of fidelity from his omrahs, and marched with eighty thouſand horſe, a great train of artillery, and a number of elephants, towards the Indus, to decide in one ſignal action the fate of the empire. Upon the laſt day of Rigib, in the year of the hegira 962, Secunder, with great judgment and military ſkill, drew up the Patan forces, and offered battle. Humaioon, far from declining the challenge, drew out the Mogul army. He gave the command of the right wing to his faithful omrah Byram; and of the left to another chief of equal valour and fidelity. He took his own ſtation in the centre, with his valiant ſon Akbar by his ſide; and advanced with a firm but ſlow ſtep towards the enemy, who waited for the attack. The action was moſt obſtinately diſputed, and continued doubtful for ſome time. Humaioon, and his gallant general Byram, diſplayed equal bravery and preſence of mind; while the young prince Akbar diſtinguiſhed himſelf by many acts of great perſonal valour. The enemy at laſt were driven off the field with great ſlaughter, and Secunder fled with precipitation to the mountains of Sewalic for ſhelter and ſafety.

After this deciſive victory, the Mogul army entered Delhi in triumph. But the end of the reign of Humaioon now rapidly approached. In the evening of the ſeventh of the firſt Ribbi, Humaioon walked out upon the terrace of the palace in Delhi, and ſat down for ſome time to enjoy the freſh air. But, as he was deſcending the ſteps of the ſtaircaſe from the terrace, he was ſeized with an apoplectic fit, and fell. He was taken up inſenſible, and laid upon his bed; he ſome time afterwards recovered his ſpeech; but on the eleventh of the ſame month he died. He was buried in the new city, by the ſide of the river; and a noble mauſoleum was erected over him, ſome years after, by his ſon Akbar. Humaioon died at the age of fifty-one, after a perplexed and chequered reign of twenty-five years in Cabul and India, in the year of the hegira 963, A. D. 1555.

## RESTORATION OF THE MOGUL DYNASTY IN THE PERSON OF THE RENOWNED AKBAR.

On the death of Humaioon, Akbar, though then at a great diſtance from the capital, was proclaimed emperor by the omrahs and generals of the imperial army. On his arrival at Delhi, all the efforts of his power and mind were called into action, for the eſtabliſhment of order in his capital, and vigour in his army. For ſome time he had entruſted the reins of the government to Byram; but that able chief had become arrogant in conſequence of his high authority, and had involved the omrahs in diſaffection and rebellion. Akbar, therefore, taking the ſupreme authority, and the command of the army, into his own hands, ſoon found himſelf obliged to uſe his utmoſt force againſt the impregnable fortreſs of Chitore, ſituated in the province of Malva, on the ſummit of a lofty mountain, twelve miles in compaſs, and only acceſſible by one narrow path cut out of the ſolid rock. This fortreſs had reſiſted for ages the arms of the kings of Delhi; and had never known a conqueror, except in the renowned Alla ul Dien. It was now governed by Jamel, a dauntleſs rajah, who had invaded the Mogul provinces, and bade defiance to their authority. Akbar thought, with propriety, that the capture of it would ſtrike terror into the neighbouring rajahs, and give ſplendour to his riſing fame. He therefore ſurrounded the hill with a vaſt army, and laid cloſe ſiege to the fortreſs, battering its walls inceſſantly with his cannon for ſeveral months. Little ſucceſs, however, crowned his efforts. His troops became wearied by the tediouſneſs of the ſiege, and diminiſhed by the frequent and vigorous ſallies of the beſieged. A mine at length being ſprung, the beſiegers, boldly ruſhing in at the breach, made a great ſlaughter of the garriſon. Jamel determined neither to be ſubdued nor taken; but threw himſelf, ſabre in hand, amidſt the thickeſt of the enemy, and there heroically periſhed. Akbar, in commemoration of this ſignal exploit, as well as in veneration of that valour which he knew how to prize even in an enemy, cauſed the ſtatues of Jamel, and Polta, his brother and principal commander, mounted on elephants, to be erected on each ſide of the gate of his palace at Delhi.

In the year 1570, intelligence reached Akbar, that his brother Mohammed Hakim, whom he had appointed his viceroy in Cabul, had thrown off his allegiance, and was ravaging Lahore at the head of thirty thouſand horſe. The ſultan immediately ſet forward to oppoſe him; and with incredible ſpeed arrived at Sirhind, where the invading enemy, being taken by ſurpriſe, were at once panic-ſtruck, and fled to the mountains in great diſorder. From this ſhort ſcene of action, Akbar was called into the province of Bengal, where Ziman Khan and Bahadur Khan had aſſumed the ſovereign authority, and were beſieging Lucknow. With unheard-of rapidity Akbar arrived on the banks of the Jumna; where falling ſuddenly on the revolters, he drove them from their encampment, purſued their flying battalions with prodigious ſlaughter; and the rebellious chieftains, being overtaken in their flight, ſuffered the puniſhment due to their perfidy; the former being trampled to death, and the latter ſtrangled on the ſpot.

An interval of peace now ſucceeding, Akbar removed his court from Delhi to Agra, which he determined to make his principal reſidence. The old town being much decayed, and the palace were the Patan kings had reſided very incommodious, he reſolved to rebuild them both; and that in a manner becoming the auguſt monarch of ſo mighty an empire. Under this impreſſion the ſultan raiſed Agra to an eminence in ſplendour, beauty, and renown, which no city in India, not even Delhi itſelf, had ever before enjoyed. Indeed all the projects of Akbar were vaſt and comprehenſive, like the enlarged mind that formed them; hence his palace, as noticed at the beginning of this article, emulated even that of king Solomon. It was built in the form of a creſcent, along the banks of the Jumna, which becomes at this place a very conſiderable river. Its lofty walls were compoſed of ſtones of an enormous ſize, hard as marble, and of a reddiſh colour, reſembling jaſper, which at a diſtance, in the rays of the ſun, gave it a radiated and beautiful appearance. It was four miles in extent, and conſiſted of three courts, adorned with many ſtately porticoes, galleries, and turrets, all richly painted and gilded, and ſome even overlaid with plates of gold. The firſt court, built round with arches that gave a perpetual ſhade, ſo deſirable amidſt the heats of a burning climate, was intended for the imperial guard; the ſecond for the great omrahs and miniſters of ſtate, who had their ſeveral apartments for the tranſaction of the public buſineſs; and the third court, within which was contained the ſeraglio, conſiſted entirely of the ſtate-apartments of the ſultan himſelf, hung round with the richeſt ſilks of Perſia, and glittering with a profuſion of Indian wealth. Behind theſe were the royal gardens, laid out in the moſt exquiſite taſte, and decorated with all that could feaſt the eye, or gratify the appetite: ſhades of the deepeſt verdure; grottos of refreſhing coolneſs; fruits of exquiſite flavour; fountains that never ceaſed to flow; muſic that ſoothed the rugged ſoul to reſt. In the front of the palace, towards the river, a large area was conſtructed for the exerciſe of the elephants, and the battles of wild beaſts, in which the ſultans took great delight; and in a park of vaſt extent, that ſeparated the palace from the city, a numerous army conſtantly encamped, whoſe ſhining armour and gorgeous enſigns diffuſed a grandeur round them, that added greatly to the magnificence of the ſcene.

But the external appearance of this ſtupendous fabric bore no compariſon with the beauty and richneſs of its interior. Mandeſlo, who viſited Agra in 1638, and ſaw that city in the meridian of its glory, after informing us that the palace was altogether the grandeſt object he had ever beheld, ſays, "that at the farther end of the third court you ſaw a row of ſilver pillars under a piazza, and beyond this court was the preſence-chamber; that this more ſpacious apartment was adorned with a row of golden pillars of a ſmaller ſize, and within the baluſtrade was the royal throne of maſſive gold, incruſted over with diamonds, pearls, and other precious ſtones; that above this throne was a gallery, where the Mogul appeared every day, at a certain hour, to hear and redreſs the complaints of his ſubjects; and that no perſons whatſoever, beſides the king's ſons, were admitted within the area of thoſe golden pillars." He mentions likewiſe an apartment remarkable for its tower, which was covered with maſſive gold, and, for the treaſure which it contained, having eight large vaults filled with gold, ſilver, and precious ſtones, the value of which was ineſtimable.

Tavernier, who viſited Agra in the decline of its glory, about the end of the ſeventeenth century, ſurveyed the inſide of this ſplendid palace; and, among other proofs of its magnificence, makes particular mention of a lattice-work of emeralds and rubies, intended to repreſent to the life "grapes when they are green, and when they begin to grow red. But this deſign, which made ſuch a noiſe in the world, and required more riches than all the world could afford to perfect, ſtill remains unfiniſhed, there being only three ſtocks of a vine in gold, with their leaves, as the reſt ought to have been, enamelled according to their natural colours, with emeralds, rubies, and other precious ſtones, wrought into the faſhion of grapes." But this ſplendid idea was not without parallel amidſt the magnificence of eaſtern courts; for we find in Curtius, lib. viii. c. 9, amidſt his luxuriant deſcription of the ſtate and pageantry of an Indian monarch, mention made of the golden vines that twined round thoſe ornamented columns of the ſame metal, which ſupported his palace; amidſt whoſe branches artificial birds of ſilver, in imitation of thoſe moſt eſteemed in India, were diſpoſed with the niceſt art, and the trueſt imitation of nature, by the curious deſigner.

Determined alſo to make the city of Agra at once the wonder and envy of the Eaſt, and to bury both its former name and obſcurity in equal oblivion, the ſultan gave his own name to the riſing capital, and called it Akbarabad. That its extenſive accommodations might be adapted to every purpoſe, Akbar erected in it many ſumptuous caravanſeras, ſpacious bazars, and ſtately moſques. He likewiſe invited foreigners from all nations to come and ſettle there; built them factories, permitted them the free uſe of their religion, and indulged them in various immunities. In particular, eſtimating the great importance of the Portugueſe nation at that period in enlarging the commerce of India, he endeavoured to eſtabliſh a firm connection with that enterpriſing people; ſolicited the court of Portugal to ſend miſſioners to inſtruct his ſubjects in the principles of Chriſtianity; and permitted the Jeſuits to erect a church, and found a college, in his new city, which he himſelf endowed with a penſion from the royal treaſury. By theſe liberal and politic exertions, Agra, or Akbarabad, from being a town of ſmall note, ſoon became the moſt flouriſhing city of Hindooſtan.

Beſides this vaſt undertaking, other princely deſigns occupied the attention of Akbar. His mauſolea, intended to be the ſepulchres of his family, at Secundri, but which he did not live to complete, have no rivals of their kind in Aſia; and the immenſe caſtle at Allahabad, the point of confluence of the Ganges and Jumna, deſerves particular notice, as being conſtructed of vaſt maſſes of hewn ſtone, brought from quarries at a great diſtance; and at a vaſt expence of human induſtry and labour. It contained within its area a magnificent palace, whither the ſultan occaſionally reſorted in the ſcorching heats of ſummer, to breathe the cooler air of the Ganges, and make excurſions on its ſurface. Nor was pleaſure alone conſulted in its erection; it was deſigned for a grand *dépôt* of arms, to overawe the adjoining country; being one of a vaſt chain of fortreſſes that extended nearly in a line from Lahore to Chunar Gur, on the Ganges; all of which were raiſed by Akbar, as a ſecurity to the empire, from the confines of Perſia to the borders of Bengal.

But theſe princely occupations, directed to the various purpoſes of public utility, were unfortunately to give way to the renewed deſolations of war. In the year 1572, a dangerous rebellion broke out in Guzerat, under the incitement of Ibrahim and Mohammed Huſſein, who made a deſperate effort to ſhake off the Mogul yoke. Akbar, having procured dromedaries of great ſwiftneſs, and ſelected the moſt reſolute chieftains, and choiceſt of his veteran bands, travelled four hundred coſs in ſeven days, and fixed his tents under the walls of Ahmedabad. The enemy, already in poſſeſſion of the whole coaſt, were in full march to beſiege that capital. But the unexpected arrival of Akbar, who was now joined by Azim Khan, ſtruck them with ſuch conſternation, that they retreated before his army in great diſorder. The ſultan, preſſing cloſely at their heels, brought them to an engagement; in which the rebel commander Ibrahim being ſlain, the rout became univerſal, and the carnage terrible. Akbar fortified Ahmedabad in the ſtrongeſt manner againſt any future aſſaults, rebuilt the caſtle upon an extenſive ſcale, and ſurrounded both that and the city with a wall of great thickneſs and extent. In this expedition he was attended by his eldeſt ſon Shah Selim, who greatly ſignalized himſelf in the engagement, and to whom ſome hiſtorians attribute the glory of the conqueſt of Guzerat.

Bengal likewiſe, under the Patan chiefs, once more ſtruggled for independence. At the head of fifty thouſand horſe, and ſix hundred elephants, Akbar paſſed the Ganges, in 1576, and laid ſiege to Patna; within whoſe walls Shah Daood, a ſenſual and puſillanimous prince, had ſhut himſelf up; nor could the emperor, though for ſix months his army lay before the city, by any efforts bring him to an engagement. On the ſeventh it was taken by ſtorm, when numbers of the unfortunate inhabitants were put to the ſword. After the reduction of Patna, and many other conſiderable places, Akbar marched to Priag, now Allahabad, which was the principal bulwark of the Patan kingdom. Having inveſted and taken it, he next turned his arms againſt the declining power of the rajahs, and took ſucceſſively the fortreſſes of Rantimpore, in the province of Malva; Rhotas, in Behar; and Jalour, in the deſert of Bando, in Agimere. Theſe rajahs, finding that all oppoſition to ſo invincible an enemy was ineffectual, made the beſt terms they were able with him, and were won with his clemency, and pleaſed with his generoſity; for he left them in full poſſeſſion of their hereditary domains; requiring only an annual tribute, moderately proportioned to their own revenues, to be remitted to his court, and a ſtipulated body of forces to be maintained by each, for the protection of the empire.

But the grandeſt project formed by the warlike genius of ſultan Akbar, was that which had for its object the conqueſt of thoſe extenſive territories included in the Deccan, or *ſouthern* peninſula, which that word denotes. Theſe, according to the accurate Mr. Maurice, conſiſted of the kingdoms of Belagate, Viſiapour, Golconda, and the Carnatic, or Biſnagur. The ſultan, to put in force this project, diſpatched four heralds to the courts of the four kings reigning in Deccan, propoſing terms of an alliance with them. But thoſe ſovereigns were by no means blind to the covert views of Akbar; and, rejecting therefore his proffers of alliance, diſmiſſed his heralds with contempt. As this was preciſely what Akbar expected, he prepared for direct hoſtilities; and the death of Nizam Shah, king of the Deccan Proper, happening about this period, afforded a favourable opportunity for commencing them. The ſultan diſpatched on this expedition the brave Khan Khanna, at the head of an army more formidable for its ſkill than its numbers, intending very ſhortly to follow himſelf, with the whole force of his empire. On their arrival at Burhampour, the capital of Candeiſh, they were joined by the forces of Ali Khan, the governor; yet, though thus conſiderably reinforced, the wary general was not in haſte to precipitate his troops into action. The death of Nizam had not involved his kingdom in that confuſion which had been expected; and the kings of Viſiapour and Golconda, conſidering it as a common cauſe, had contributed their proportion of troops; and at the head of their united forces, amounting to forty thouſand horſe, their valiant general Soheil advanced to give battle to the invading Moguls, who ſcarcely amounted to half that number. This great diſparity by no means diſmayed Khan Khanna, who charged the enemy with inconceivable fury, and maintained the bloody conflict for four-and-twenty hours; when, after the ſlaughter of their general and half his army, the reſt fled from the field of battle. This ſignal ſucceſs did not however ſecure the conqueſt of the ſouthern provinces. Armies after armies were ſent into the field on both ſides, each of which had alternately the victory. In one of theſe expeditions, ſultan Morad, the ſecond ſon of Akbar, indulging in licentiouſneſs and intoxication, fell a prey to thoſe unpardonable vices, to the great grief of his father, who had diſpatched the valiant and learned Abul Fazil, author of the Akbar Nama, the prince's former tutor, to reclaim and regulate the diſorders in his army. On his deceaſe, Abul Fazil ſucceeded to the ſupreme command, and acted with vigour againſt the enemy.

At length Akbar himſelf, in 1598, departed from his capital, and led an innumerable army into the Deccan. A few miles north of Burhampour lay Haſſera, the ſtrongeſt fortreſs in that part of India. The ſultan, who was now joined by Abul Fazil with the troops under his command, in vain inveſted that fortreſs with an army of two hundred thouſand men, and pointed againſt it the whole force of his ordnance. Bahadur, the rajah who governed it, defied their utmoſt efforts; but what would not yield to the arms, was ſoon conquered by the gold, of Akbar; he ſent ſuch preſents, accompanied with ſuch flattering offers of preferment, that the rajah was induced not only to ſurrender the fortreſs, but to enter with all his dependents into the ſervice of Akbar. He had no ſooner, however, accompliſhed the object which delighted his heart, than a dark cloud overwhelmed the proſpect that appeared ſo ſplendid, and involved the declining life of this great prince in the deepeſt gloom of domeſtic affliction. Previous to his departure from Agra, his ſon Selim had been ſent into the province of Agimere, to curb the inſolence of rajah Ranna; but the young prince, finding himſelf at the head of a potent army, took advantage of the abſence of his father, marched back to Agra, ſeized the treaſures, and declared himſelf ſultan. The caſtle of Agra was too ſtrong, and the governor too faithful, to ſubmit; but in a ſhort ſpace many cities leſs ſtrongly fortified, and many governors leſs faithful, yielded to his authority. The news of this foul revolt overwhelmed the unhappy monarch with the moſt poignant anguiſh; but he was ſenſible that not a moment ſhould be loſt; and therefore, leaving his third ſon, Shah Daniel, to proſecute the conqueſt of the Deccan, aided by Abul Fazil and Khan Khanna, he ſet off without delay for the capital. Willing, if poſſible, to reclaim his rebellious ſon by gentle methods, on his arrival at Agra he ſent letters full of kindneſs, and fraught with promiſes of forgiveneſs, if he would lay down his arms; but Selim, fluſhed with ſucceſs, and poſſeſſed of the ſtrong fortreſs of Allahabad, bade defiance to the meſſenger. Indignant at this groſs diſobedience of the refractory prince, Akbar directed his venerable and brave chief, Abul Fazil, to go and bring his rebellious ſon to reaſon. But that faithful miniſter, on the road to Agra, was waylaid and ſlain by order of Selim. The intelligence of his death filled Akbar with the deepeſt affliction, having long experienced the wiſdom and fidelity of Abul Fazil in the adminiſtration of his government; beſides that this learned omrah was editing the events of his life and reign.

In the mean while, Shah Daniel and Khan Khanna advanced to Ahmednagur, the capital of the Deccan Proper; which, after a long and heroic reſiſtance made by the Hindoos, the Moguls had the good fortune to ſubdue. Conſiderable treaſures were the reward of the victors; and no ſooner had they triumphantly returned to Burhampour, than ambaſſadors arrived from the kings of Viſiapour and Golconda, with preſents of great magnificence, and letters of ſubmiſſion couched in the moſt humble and reſpectful terms. Thus was the ſcheme of Akbar for the reduction of the Deccan in part completed; and, however doubtful might be the ſincerity of the propoſed ſubmiſſions of the kings of Viſiapour and Golconda, ſtill a moſt extenſive territory was added to his empire, and a vaſt annual tribute to its revenue.

Happy in the contemplation of this and other ſplendid events which marked his reign, Akbar wanted nothing to ſubſtantiate his felicity, but the return of his eldeſt ſon to a ſenſe of his duty. Convinced that nothing but force could reclaim him, and determined to exert that force, he was on the point of ſetting out on an expedition for that purpoſe, when he received the melancholy tidings of his third ſon Shah Daniel's death, at Burhampour, who, involved in the ſame deſtructive habits that had proved fatal to his brother, alſo fell a victim of intemperance. By this afflicting wound, which ſunk deep in the breaſt of Akbar, the reſentment of a father was at once diſarmed; and he again ſent letters, which, though couched in terms of ſevere rebuke, yet held forth the paternal bleſſing to an only-ſurviving ſon, the prop of his houſe, and the heir of his empire. The warm remonſtrances of a wife and aged omrah, who accompanied the embaſſy, at length wrought upon the rugged ſoul of Selim; and he haſtened to Agra, and threw himſelf at the feet of the injured parent. Akbar at firſt, overcome with rage on the reflection of his paſt baſeneſs, not only loaded him with bitter invective, but ſtruck him with great violence; when the repentant youth, drawing his ſword, offered to plunge it into his own boſom, contaminated by filial ingratitude and foul rebellion. This undiſguiſed contrition and perturbation of mind melted into tears the relenting king; he forgave him, he embraced him, and reſtored him to favour. But the cloſe of the reign of the mighty Akbar was rapidly approaching; and in a way which, though ſhocking to reflect upon, nevertheleſs evinces the juſt retribution of offended heaven. The ſultan having covertly invited a diſtinguiſhed and powerful omrah of his court, who had given him offence, to partake of a ſumptuous entertainment, he there propoſed to take him off by poiſon. But, as Providence would have it, the poiſon was adminiſtered to the king, and the omrah eſcaped with his life. The violence of the poiſon reſiſted all the powers of medicine; and the ſultan expired on the 13th of October, 1605, in the ſixty-third year of his age, and the fiftieth of his reign. By ſome writers a veil is drawn over this enormity, which eclipſes and obſcures his nobler actions; but we fear the truth lies in the ſtatement above given.

Akbar may certainly be ranked in fame with the greateſt legiſlators and heroes of antiquity. His perſonal valour and preſence of mind were on all trying occaſions particularly manifeſt. When hunting near Narvar, a great royal tigreſs, with five whelps, took the road before him. Akbar advanced upon the animal, while his retinue ſtood trembling with fear and aſtoniſhment for the event. The ſultan, meditating his blow, ſpurred on his horſe towards the tigreſs, whoſe eyes darted fire; and with one ſtroke of his ſabre cut her acroſs the loins, and ſtretched her dead at his feet. Feriſhta, vol. i. p. 221. With the ſame vigorous arm he repelled the barbarians of the north; and reduced the ſavage mountaineers of the ſouth. The Khan of Uſbeck Tartary trembled at the name of Akbar; the determined race of Rajapouts, the moſt unconquerable claſs of Hindoo ſoldiers, bowed before him; and the ſovereigns of Viſiapour and Golconda exhauſted their treaſures to purchaſe his forbearance and protection. His generoſity and clemency were unbounded. To him may be attributed the glory of eſtabliſhing on a firm baſis that mighty empire, of which Baber laid the foundation in Hindooſtan; which Humaioon had nearly loſt; but which was left to be reſtored and perfected by the vigour and enterpriſe of the reſiſtleſs Akbar.

We muſt not, in this place, withhold from the public eye, (an expreſſion which may be warranted to us, after having ſupplied a demand for this Encyclopædia to upwards of EIGHT THOUSAND SUBSCRIBERS,) the highly-finiſhed character of Akbar, which the Rev. Mr. Maurice has given of that renowned ſovereign, in his Modern Hiſtory of Hindooſtan;—a work which we ardently recommend to all who are ſolicitous for authentic records, and genuine information, whether ancient or modern, relative to the moſt important affairs of the Eaſtern World. This noble character Mr. Maurice expreſſes in the following words:

"In civil and domeſtic concerns he was a bright exemplar to all the potentates of the earth. The Ayeen Akbery contains the nobleſt inſtitutes ever promulged for the government of an Aſiatic empire, and at the ſame time abounds with the moſt enlarged and liberal ſentiments in religion and morals, at a period, and in a country, in which the former was polluted by the baſeſt ſuperſtition, and the latter had become almoſt an empty name. The profeſſor of Mohammediſm, while he ſhuddered at the conſequence of an omitted ablution, ſcrupled not to commit acts of the moſt ſanguinary atrocity, and wallowed in all the turpitude of inceſtuous and unnatural luſt. Inſtead of exterminating, with the remorſeleſs fury of his bigotted predeceſſors, the race of patient and timid Hindoos, trampling to the earth their beloved idols, the ſymbols of the attributes of God, and plundering and burning their auguſt and venerable ſhrines, Akbar nobly and wiſely extended to them the tolerating ſyſtem of their own benevolent creed; gave inviolable ſecurity to their perſons, and unſhaken ſtability to their property. He was alſo, in a high degree, the friend and patron of letters and genius, of which Abul Fazil and many other learned men, careſſed and penſioned at his court, are illuſtrious proofs. He ardently encouraged commerce, both domeſtic and foreign; and, if we may believe the Portugueſe hiſtorians, he not only allowed the merchants of their nation, ſettled at Agra, moſt extenſive immunities, but built them a church in that city. In Fraſer's more authentic publication may be ſeen the tranſlation of a very curious letter from this monarch to the king of Portugal, dated A. H. 990, or A. D. 1582, in which he requeſts of him to ſend him an Arabic or Perſian tranſlation of the Scriptures, and with it proper perſons to explain its genuine principles. That this letter, as Fraſer hints, never went farther than Goa, is a circumſtance, on many accounts, greatly to be lamented. In ſhort, the hiſtory of Aſia ſcarcely exhibits a parallel to Akbar, either in extent and grandeur of his deſigns, the vigour and wiſdom of his counſels, his moderation in peace, or his ſucceſs and glory in war. The verdure of the double laurel which he obtained in the field of ſcience and arms ſtill blooms with unfading luſtre; a luſtre that illumines, though it can no longer animate, the fallen deſcendants of the great Timur."

It was in this reign that our renowned queen Elizabeth firſt granted a charter for the purpoſe of erecting a commercial eſtabliſhment in the Eaſt-Indies; which judicious plan was followed up by her immediate ſucceſſor James I.

Upon the death of Akbar, his ſon, Selim Shah, who now aſcended the throne of Hindooſtan, aſſumed the ſurname of Jehanguir, or "Conqueror of the World." He was born at Fettipore, Auguſt, 1569, and was crowned on the 21ſt of October, 1605, in the thirty-ſixth year of his age. He had not reigned above ſix months, when his eldeſt ſon Khoſro, roſe up in rebellion againſt him. In this extraordinary event, the hand of Providence ſeemed to exert itſelf, in order that he, whoſe unprovoked rebellion had embittered the laſt days of an affectionate father, ſhould in his turn feel the bitter pangs which are inflicted by the unnatural revolt of a beloved ſon.

This foul meaſure was upheld by two principal omrahs, Haſſan Beg and Abdulrahim; and the ſcene of uſurpation was in the diſtant province of Lahore. To cruſh theſe inſurgents, Jehanguir began his march at the head of an army too powerful to be contended with by troops ſo inferior both in number and diſcipline. The very dread of the ſultan's approach unnerved the ſinews of their raſh leaders; and on the firſt attack the rebels gave way on every ſide, and the rout became univerſal. Not only the two generals, but the prince himſelf, in his flight towards Lahore, was taken by his purſuers; and, being placed on an elephant, was conducted to the royal camp. Early in the morning, Khoſro was brought before his father, with a chain of gold faſtened from his left hand to the left foot, according to the laws of Gengis Khan. On the right hand of the prince ſtood Haſſan Beg, and on his left Abdulrahim. Khoſro trembled and wept. He was ordered into confinement; but Haſſan Beg was ſewed up in the raw hide of an ox, and Abdulrahim in that of an aſs, and both were led about the town on aſſes, with their faces towards the tail. The ox's hide became ſo dry and contracted under the rays of the ſcorching ſun, that before the evening Haſſan Beg was ſuffocated; but the aſs's hide being kept moiſtened with water by the friends of Abdulrahim, he ſurvived, and afterwards obtained the ſultan's pardon. From the garden of Kamran to the city of Lahore, two rows of ſharp ſtakes were fixed deep in the ground, upon which many of the rebels were impaled alive; and the unhappy Khoſro, chained to an elephant, was led, during the execution, through the ranks of theſe wretched ſufferers. At the ſhocking ſight of three hundred of his principal adherents, whom he had been the inſtrument of cauſing thus to be writhing on ſtakes, the ill-fated prince declared to his father that he alone deſerved death, and that his life might be made the atonement for thoſe brave men, whom his folly and wickedneſs had beguiled from their duty. Theſe ſentiments of contrition appear to have had but little weight with the ſultan; for he not only ordered his ſon into confinement, but ſentenced him to the loſs of his eyes.

The inexorable diſpoſition of Jehanguir towards offending criminals ſeems to have manifeſted itſelf at an early period of his reign; for, according to the hiſtorian Gladwin, the firſt public order which he iſſued, after his acceſſion to the throne, was for the conſtruction of the "golden chain of juſtice." It was made of pure gold, and meaſured thirty yards, conſiſting of ſixty links, weighing four maunds of Hindooſtan. One end of the chain was ſuſpended from the royal baſtion of the fortreſs of Agra, and the other faſtened in the ground near the ſide of the river. The intention of this extraordinary invention was, that if the officers of the courts of law were partial in their deciſions, or dilatory in the adminiſtration of juſtice, the injured parties might come themſelves to this chain, and making a noiſe, by ſhaking the links of it, give notice that they were waiting to repreſent their grievances to the ſultan in perſon. It was in this reign that the firſt ambaſſador, ſir Thomas Roe, ſent from the Engliſh nation, had an audience at the imperial court of Hindooſtan. Jehanguir, after being ſatiated with immolating his rebellious ſubjects, and tired of the noiſe and tumult of war, eagerly returned to his luxuriant palace in Agra, to ſolace himſelf in the ſofter toils of the harem. Inflamed with the irreſiſtible charms of the fair Nourmahal, wife of Shere Afkun, a gallant officer, whom the ſultan had baſely ſacrificed to obtain poſſeſſion of her, this infatuated monarch reſigned into her hands, during the greateſt part of his remaining life, both the ſceptre of the government and the dominion over his own faculties. This celebrated ſultana was the daughter of the aſs-ſkin-covered traitor above-mentioned. To gratify her ambition, Jehanguir not only pardoned and exalted her father, but promoted all her kindred to poſts of the higheſt honour, to the great diſguſt of the hereditary omrahs, who beheld with rage and envy the aggrandizement of this foreign family of low deſcent. Nor did Nourmahal herſelf endeavour to conciliate the regard of the omrahs by condeſcending manners ; but carried herſelf with a haughty exterior towards the courtiers, and made the authority ſhe had uſurped ſolely ſubſervient to her ſelfiſh purpoſes. Her father poſſeſſed the moſt diſtinguiſhed poſt for honour and profit in the ſtate ; her brother, Aſoph Khan, being vizier, was abſolute at court, no ſtep, however trifling or important, being taken without his concurrence ; Haſſem Khan, who had married her ſiſter, was governor of Agra ; while the numerous tribe of her relatives monopolized all the ſubordinate places in the government. Surrounded thus by her creatures, ſhe conducted every thing by her own deſpotic will ; and the emperor became a cipher in the midſt of his ſubjects. Yet on the ſolar anniverſary of the ſultan's birth-day, in the year 1610, when he entered into the forty-ſecond year of his age, he aſſumed the utmoſt conſequence in pageantry and ſhow, and was weighed in the royal ſaloon eleven times : the firſt time againſt gold, and the other ten againſt ſilver and other metals, perfumes, exhilarating drugs, &c. This ceremony of weighing the Mogul emperor of Hindooſtan, is performed twice in every year, on the ſolar, and on the lunar, anniverſary of his birth ; and the gold and other articles weighed againſt him are beſtowed in various benevolences among the people.

At the ceremony of weighing the ſultan Jehanguir, the Engliſh ambaſſador, ſir Thomas Roe, was preſent ; and he has deſcribed the ſplendour of it in the following words : "The ſecond of September was the king's birth-day, and kept with great ſolemnity. On this day the king is weighed againſt jewels, gold, ſilver, ſtuffs of gold, ſilver, and many other rich and rare articles, of every ſort a little, which is all given to the Brahmins. He was ſo ſplendid in jewels, that I own in my life I never ſaw ſuch ineſtimable wealth together. The time was ſpent in bringing his greateſt elephants before him ; ſome of which, being lord-elephants, had their chains, bells, and furniture, of gold and ſilver, with many gilt banners and flags, carried about them, and eight or ten elephants waiting on each of them, clothed in gold, ſilk, and ſilver. In this manner about twelve companies paſſed by, moſt richly adorned, the firſt having all the plates on his head and breaſt ſet with rubies and emeralds, being a beaſt of wonderful bulk and beauty. They all bowed down before the king, making their reverence very handſomely ; this was the fineſt ſhow of beaſts I ever ſaw. The Mogul himſelf was ſitting croſs-legged on a little throne, all covered with diamonds, pearls, and rubies. Before him a table of gold, and on it about fifty pieces of gold plate, all ſet with jewels, ſome very great and extremely rich, ſome of them of leſs value, but all of them almoſt covered with ſmall ſtones. His nobility about him in their beſt equipage, whom he commanded to drink merrily ſeveral ſorts of wine ſtanding by in great flaggons. On a ſudden the king roſe ; we retired to the Durbar, and ſat on the carpets, attending his coming out. Not long after he came, and ſat about half an hour, till his ladies at their door had mounted their elephants, which were about fifty, all of them richly adorned, but chiefly three with turrets on their backs, all encloſed with grates of gold wire to look through, and canopies over of cloth of ſilver. Then the king came down ſtairs, with ſuch an acclamation of Health to the king ! as would have out-roared cannon. At the foot of the ſtairs, where I met him, and ſhuffled to be next, one brought a mighty carp ; another a diſh of white ſtuff like ſtarch, into which he put his finger, and touched the fiſh, and ſo rubbed it on his forehead ; a ceremony uſed preſaging good fortune. Then another came, and girt on his ſword, and hung on his buckler, ſet all over with diamonds and rubies, the belts of gold ſuitable. Another hung on his quiver with thirty arrows, and his bow in a caſe, being the ſame that was preſented by the Perſian ambaſſador. On his head he wore a rich turban with a plume of herons' feathers, not many, but long. On one ſide hung a ruby unſet, as big as a walnut ; on the other ſide a diamond as large ; in the middle an emerald like a heart, much bigger. His ſtaff was wound about with a chain of great pearl, rubies, and diamonds, drilled. About his neck he wore a chain of three ſtrings of moſt excellent pearl, the largeſt I ever ſaw ; above his elbows, armlets ſet with diamonds, and on his wriſt three rows of ſeveral ſorts ; his hands bare, but almoſt on every finger a ring. His gloves, which were Engliſh, ſtuck under his girdle. His coat of cloth of gold, without ſleeves, upon a fine ſemain as thin as lawn. On his feet a pair of buſkins embroidered with pearl, the toes ſharp and turning up. Thus armed and accoutred, he went to the coach that attended him, *with his new Engliſh ſervant*, who was clothed as rich as any player, and more gaudy, and had broke four horſes, which were trapped and harneſſed in gold velvets. This was the firſt coach he ever ſat in, made by that *ſent out of England*, ſo like that I knew it not but by the cover, which was a Perſian gold velvet. He ſat at the end, and on each ſide went two eunuchs, who carried ſmall maces of gold ſet all over with rubies, with a long bunch of horſe-tail to flap the flies away. Before him went drums, trumpets, and loud muſic, many canopies, umbrellas, and other ſtrange enſigns of majeſty, made of cloth of gold, ſet in many places with rubies. Nine led horſes, the furniture of ſome garniſhed with rubies, ſome with pearls and emeralds, ſome only with ſtuds enamelled. The Perſian ambaſſador preſented him with a horſe. Next behind came three palanquins, the carriages and feet of one plated with gold, ſet at the ends with ſtones, and covered with crimſon velvet embroidered with pearl, and a fringe of great pearl hanging in ropes a foot deep, a border about it ſet with rubies and emeralds. A footman carried a footſtool of gold ſet with ſtones. The other two palanquins were covered and lined only with cloth of gold. Next followed the Engliſh coach newly covered and richly adorned, which he had given to queen Nourmahal, who ſat in it. After them a third, in which ſat his younger ſons. Then followed about twenty elephants-royal, led for him to mount, ſo rich in ſtones and furniture, that they glittered like the ſun. Every elephant had ſundry flags of cloth of ſilver, gilt ſatin, and taffety."

Beſides the coſtly articles of magnificence diſplayed to public view by this luxuriant prince in the external ornaments of his palace, there ſtands on record the following catalogue of the wealth which he poſſeſſed in jewels, gems, gold, &c.—"Of jewels, compoſed ſolely of diamonds, one batman and a half ; a batman is five and fifty pounds weight Engliſh : theſe are rough, and of all ſorts and ſizes, but none of leſs than two carats and a half. Of balaſs rubies, two thouſand. Of pearls, twelve batmans. Of rubies of all ſorts, two batmans. Of emeralds of all ſorts, five batmans. Of eſhime, which ſtone comes from Cataga, one batman. Of ſtones of Emen, a kind of red ſtone, five thouſand. Of all other ſorts, as coral, topazes, &c. the amount is innumerable. Of jewels wrought in gold, two thouſand and two hundred ſwords, the hilts and ſcabbards ſet with rich ſtones ; two thouſand poniards in like manner ornamented. Of ſaddle drums of gold, uſed in hawking, ſet with ſtones, five hundred. Of rich broaches for the head, in which their feathers are ſet, two thouſand. Of ſaddles of gold and ſilver, ſet with ſtones, one thouſand. Of tuikes, five and twenty : this is a great lance covered with gold, the fluke ſet with precious ſtones ;

they are carried before him when the king goeth to the wars. Of gold paraſols of ſtate, richly ſet with diamonds, one hundred. Of gold chairs of ſtate, one hundred and five. Of large agate cryſtal vaſes for wine, adorned with gold and jewels, one hundred. Of drinking cups of gold, five hundred; of which are fifty exceedingly rich, all of one ſtone, as beryl, ſapphire, &c. Of gold chains, ſtrung with pearl, and rings ſet with jewels, the number is infinite. Of gold plate of all kinds, exquiſitely wrought, as diſhes, goblets, baſons, three thouſand batmans." This account, the author adds, concerns his palace of Agra alone; but every one of his palaces, Delhi, Cabul, and Lahore, has each its reſpective proportion of ſimilar treaſures.

Upon the concluſion of theſe pageantries, the prince Khorum, third ſon of the emperor, was dignified with the name of Shah Jehan, or "king of the world;" under which title he was ſent into the Deccan to collect the tribute and keep in order the revenues of that newly-conquered domain. After the accompliſhment of theſe ſervices, he ſeems to have diſcarded from his mind all filial obedience and fraternal affection. He ſaw with indignation a woman ſwaying the ſceptre of Hindooſtan, and every poſt of honour and emolument beſtowed according to her fancy or caprice. He determined to break the charm by which his father and the empire were thus bound; and riſk every conſideration to obtain the throne, for which he eſteemed himſelf ſo much better qualified. The unfortunate Khoſro, his elder brother, had been committed to his cuſtody, for having been guilty of the very ſame offence. But this operated not upon the reflection of Jehan; and as Khoſro was not wholly incapacitated for reigning, and *might* be an obſtacle to his aſcending the throne, he was therefore deſtined to deſtruction. At midnight, ſome hired aſſaſſins ruſhed into the chamber of the unſuſpecting prince, and ſtrangled him in his ſleep. Jehan had already under his authority the provinces of the Deccan, Candeiſh, Berar, and Guzerat; over which he ruled with unlimited authority, appointed governors to the ſeveral provinces and cities, and affected on all occaſions the ſtate and ſplendour of a king.

But nothing leſs than the abſolute ſovereignty would ſatisfy his inordinate ambition; and to gain which he took the field at the head of a very numerous army. The emperor, to gratify his ſultana, had for ſome time removed his court to Lahore, which city ſhe deſired might be made the metropolis of the empire. To this diſtant province couriers were haſtily diſpatched, to appriſe Jehanguir of the danger that threatened him. This intelligence threw the whole court into the utmoſt conſternation, as there was but a ſmall force at Lahore; and Jehan was rapidly advancing into the province, to give his father battle. Orders were immediately iſſued for the neighbouring governors of Cabul and Moultan to join the royal ſtandard with all the forces they could muſter. The two armies met near Delhi, and a battle was fought; in which, by the firmneſs of Mohabet Khan, governor of Cabul, and the exertions of prince Shehriar, the king's fourth and youngeſt ſon, victory declared in favour of the imperial army.

Jehanguir, after defeating the rebels, marched firſt to Agimere, and thence to Agra; where the prince Parvez, his ſecond ſon, greatly incenſed at the preſumption of Jehan, had been collecting a powerful army, which he was eager to employ againſt his rebellious brother. The emperor, thus wrought up to a pitch of ſtern reſentment at Shah Jehan's perfidy, moſt unadviſedly encouraged this ſon to lead his inveterate army againſt the troops of the other. The rival brothers came to an engagement at Mando, ſeventy-five miles to the north of Burhampour; in which terrible conflict the event was long doubtful; but in the end Shah Jehan's troops were defeated; and he attempted to make a ſecond ſtand at the river Nerbudda; but Parvez, croſſing the ſtream, drove his ſcanty forces before him, and fixed his victorious ſtandards on the ramparts of Burhampour.

Jehanguir, in the mean while, leaving theſe two rival ſons to fight for his crown, retired with his ſultana into the luxuriant province of Cachimere, where he ſoon became diſſolved in the ſoft languor and delights of love. He uſed to declare that he would ſooner part with all his dominions, than with that ſingle province. On the borders of a beautiful and ſpacious lake, ſituated to the north of the city of Cachimere, he raiſed a palace of moſt elegant conſtruction, adorned with every rarity of art, and ſet off with the choiceſt advantages of nature. But in the midſt of theſe retired pleaſures, Jehanguir received the ſad tidings of the ſudden death of the prince Parvez. His affection for this ſon could only be equalled by the filial regard and dutiful attentions which Parvez ſtudiouſly paid to the will of his royal father. He was in all his purſuits the very reverſe of his brother Shah Jehan; and the diſtinguiſhed virtues which his early life diſplayed, afforded a happy preſage of future glory; but his untimely death for ever deſtroyed thoſe flattering hopes which his father had indulged, and left him overwhelmed with anguiſh and deſpair. The gloom and ſadneſs with which theſe conſiderations oppreſſed him, and the daily intelligence he received of Shah Jehan's freſh attempts to rend the crown from his aged brow, had ſuch an effect upon his feelings, that he fell a victim to a perturbed and diſtreſſed mind, and expired in a deep decline, at Bember, in his way to Lahore, on the 27th of October, 1627, in the ſixtieth year of his age, and the twenty-ſecond of his reign.

Immediately on the news of his father's death, which had been diſpatched for him into the Deccan, Shah Jehan repaired to the city of Agra, where all the omrahs met, and inveſted him with the imperial dignity, amid the loudeſt acclamations of the people, who rejoiced in him, becauſe he had uniformly and ſteadfaſtly oppoſed the maladminiſtration and perſecutions of the ſultana Nourmahal. He was crowned on the firſt of February 1628, in the thirty-ſeventh year of his age. The new emperor, however, was determined not to be behind-hand with any of his predeceſſors, or their connections, in ſecuring abſolute authority to himſelf, or in imbruing his hands in blood and cruelty. There appeared to be no ſurety in his ſucceſſion to the crown, while Shehriar, his youngeſt brother, or Bolaki, his own nephew, the ſon of his brother Khoſro, whom he had long before cauſed to be murdered, or either of the three ſons of ſultan Daniel, the deceaſed brother of the late emperor Jehanguir, remained alive; though they were all confined in the caſtle of Lahore. He ſent, without delay, an order for the ſecret murder of thoſe unfortunate princes; and at midnight the blood-hounds of deſpotiſm ſtole into their apartments, and ſtrangled them in their beds. Their bodies were then privately conveyed away, and buried in a garden near the tomb of the deceaſed monarch. In this manner, either by the dagger or the bow-ſtring, were diſpatched all the males of the houſe of Tamerlane; ſo that Jehan himſelf, and his children, alone remained of the poſterity of that great conqueror in India.

To obliterate the memory of theſe ſanguinary cruelties, Shah Jehan opened the gates of the ſtate-priſon of Gwalior to a great number of criminals, who had languiſhed in confinement there during the former reign. He then ſeduloully applied himſelf to rectify the numerous abuſes which, during the voluptuous reign of his father, had pervaded every department of the government. With inflexible ſeverity he puniſhed all well-founded complaints againſt his officers, whether civil or military; and eſtabliſhed an active and vigorous police throughout his dominions. By appropriate rewards he encouraged agriculture; and by great immunities he promoted commerce. Midnight robbery and plunder, before ſo frequent, were no longer heard of; and the viceroys in their reſpective provinces being compelled to refund out of their private fortunes the money extorted by depredators on the public roads, induced them to take ſuch vigorous meaſures for the extermination of thoſe banditti, that the traveller, in purſuit of buſineſs or pleaſure, journeyed in ſafety through the moſt unfrequented diſtricts.

From thus regulating the police, and wiſely enforcing a due adminiſtration of the laws, the new ſultan next determined to emulate even his father and grandfather in regal pomp and magnificence. He directed the famous tukt taôus, or *peacock throne*, to be conſtructed, of which the body conſiſted of ſolid gold, incruſted over with diamonds, rubies, ſapphires, and emeralds; and which, when completed, was valued at twelve hundred and fifty thouſand pounds ſterling! It was called "the peacock throne," from having the figure of two peacocks ſtanding behind it, as large as life, with their tails expanded, which were ſtudded with various jewels in imitation of the ocellated ſpots on the feathers. Between the peacocks ſtood a beautiful parrot, cut out of one emerald. The principal jewel was a ruby, which had fallen into the hands of Timor when he plundered Delhi. Tavernier, who ſurveyed Shah Jehans palace about twenty years after, deſcribes this and the other thrones as follows:

"The Great Mogul has ſeven thrones, ſome ſet all over with diamonds; others, with rubies, emeralds, and pearls. This (the peacock) is the largeſt, and is ſet up in the hall of the firſt court of the palace; it is, in form, like one of our field-beds, ſix feet long, and four broad. The cuſhion at the back is round like a bolſter; the cuſhions on the ſides are flat. I counted about a hundred and eight pale rubies in collets about this throne, the leaſt whereof weighed a hundred carats; but there are ſome that weigh two hundred. Emeralds I counted about a hundred and forty, that weighed ſome threeſcore, ſome thirty, carats. The under part of the canopy is all embroidered with pearls and diamonds, with a fringe of pearls round about. Upon the top of the canopy, which is made like an arch with four panes, ſtands a peacock, with his tail ſpread, conſiſting entirely of ſapphires and other proper coloured ſtones; the body is of beaten gold enchaſed with ſeveral jewels; and a great ruby upon his breaſt, to which hangs a pearl that weighs fifty carats. On each ſide of the peacock ſtand two noſegays, as high as the bird, conſiſting of various ſorts of flowers, all of beaten gold enamelled. When the king ſeats himſelf upon the throne, there is a tranſparent jewel, with a diamond appendant of eighty or ninety carats weight, encompaſſed with rubies and emeralds, ſo hung that it is always in his eye. The twelve pillars alſo that uphold the canopy, are ſet with rows of fair pearl, round, and of an excellent water, that weigh from ſix to ten carats apiece. At the diſtance of four feet, upon each ſide of the throne, are placed two umbrellas, the handles of which are about eight feet high, covered with diamonds; the umbrellas themſelves being of crimſon velvet, embroidered and fringed with pearl. This is the famous throne which Tamerlane began, and Shah Jehan finiſhed; and is really reported to have coſt a hundred and ſixty millions and five hundred thouſand livres of our money. Beſides this ſtately and magnificent throne, there is another leſs, of an oval form, ſeven feet long, and five broad. The outſide of it ſhines all over with diamonds and pearls, but there is no canopy over it. The five other thrones are erected in another magnificent hall, in a different court, entirely covered with diamonds, without any coloured ſtone."

Shah Jehan, like his father, was perſuaded that a public diſplay of magnificence raiſed awe in his ſubjects, and gave weight to his authority. With this view he ſelected a hundred youths from among the ſons of the nobility, who were of the moſt diſtinguiſhed merit. He gave to each a golden mace, and they always attended the preſence. They were uniformly dreſſed in clothes richly embroidered, with golden helmets, ſwords inlaid with precious ſtones, and ſhields ſtudded with gold. When the emperor went abroad, they conſtantly attended him with drawn ſabres, all mounted on the fineſt Arabian horſes. His vanity, however, was principally gratified in the ſplendour of his harem. Early in his reign he loſt his favourite ſultana, the daughter of the vizier Aſoph, and mother of all his ſurviving children. For a time he was inconſolable, and raiſed at Agra a magnificent tomb to her memory, which coſt no leſs than 750,000l. After her deceaſe, according to the faſhion of the Eaſt, he indulged his licentious paſſions to great exceſs, and his harem was crowded with the fineſt women of Aſia, ſelected from every province. Theſe he clothed in the moſt gaudy attire, and ſtuck all over with oriental pearls and precious ſtones. But the jewels which adorn the Mogul emperor are conſidered as the maſter-pieces, and are diſtinguiſhed by peculiarly reſplendent names; one is called the Sun, another the Moon, a third Aldebaran, a fourth Sirius, and a fifth the Bear-ſtar: and by theſe names the Mogul calls for them when he clothes himſelf in his regalia of ſtate.

Emulating alſo the nobleſt works of his forefathers, he determined to reſtore the ancient city of Delhi to more than its former ſplendour, by entirely rebuilding that celebrated metropolis. He drew the outlines of his new city in an extenſive plain, on the weſtern banks of the Jumna; and, in conſtructing it, made uſe of the ſame ſort of red ſtone which Akbar employed in building the palace of Agra. The city was fortified with twelve lofty towers, and had as many magnificent gates. The new palace appeared to vie with every thing of the kind in India; the walls of the principal apartments being lined with marble, and the ceilings overlaid with plates of ſilver. The grand moſque was without its rival, being built in compartments within and without with marble of various colours.. The bazars, or public market-places, were ſurrounded by colonnades, which, at the ſame time that they afforded a cool retreat below, ſupported noble terraces above; while the ſhops were ſtored with the richeſt merchandiſe of Aſia, encouraged by high immunities to centre in this new emporium of the eaſtern world. The city was ſeven miles in circumference, ſurrounded on three ſides by a wall of ſtone; the Jumna forming its defence on the fourth ſide, where Shah Jehan's principal care was to form two gardens of inconceivable magnificence, called "the gardens of Shalimar," which alone coſt him a million of money ſterling. Mr. Franklin, who inſpected this palace in its ruined ſtate, ſo lately as 1793, deſcribes it thus:

"The palace of the royal family of Timur, in Delhi, was erected by the emperor Shah Jehan, at the time he finiſhed the new city. It is ſituated on the weſtern bank of the Jumna, and is ſurrounded on three ſides by a wall of red ſtone. I ſuppoſe the circumference of the palace to be about a mile. The firſt object that attracts attention, is the Dewaun Aum, or public hall of audience. It is ſituated at the upper end of a ſpacious ſquare, and is a noble building; but now much in decay. On each ſide of the Dewaun Aum, and all round this ſquare, are apartments of two ſtories high, the walls and front of which in the times of the ſplendour of the empire, were adorned with a profuſion of the richeſt tapeſtry in velvets and ſilks; theſe decorations have however been long ſince torn away, and nothing but the bare walls remain. From the Dewaun Aum, we proceed through another handſome gateway to the Dewaun Khaſs, or hall of ſtate. This building, in former times, has been adorned with exceſſive magnificence; and though ſtript and plundered by various invaders, it ſtill retains ſufficient beauty to render it admired. I judge the building to be a hundred and fifty feet in length, by forty in breadth. The roof is flat, ſupported by columns of fine white marble, which have been richly adorned with inlaid flower-work of beautiful ſtones; the cornices and borders have been decorated with a great quantity of frieze and ſculptured work. The ceiling was formerly incruſted with a work of rich foliage of ſilver throughout the whole extent, which has been long ſince taken off and carried away. The delicacy of the inlaying in the compartments of the walls is much to be admired; and it is matter of heartfelt regret to ſee the barbarous ravages that have been made in picking out the different cornelians, and breaking the marble by violence. Around the interior of the Dewaun Khaſs, in the cornice, are the following words in Perſian, engraved in letters of gold upon a white marble ground: "If there be a paradiſe upon earth, this is it."

Shah Jehan, after having exhauſted an immenſe ſum on theſe great and magnificent works, reſolved to recruit his treaſury by once more plundering the Deccan, that inexhauſtible ſtorehouſe of gold and diamonds. For this important expedition twelve armies were diſpatched under twelve experienced generals, by different routes, into the kingdoms of Bejapour and Tellingana. The aſtoniſhed and unguarded Hindoos, being attacked at once by ſo many diſtinct armies, and from ſo many different quarters, knew not where or which way to retreat; and no quarter was given to any that reſiſted. "Towns and cities," ſays the hiſtorian, "were ſeen in flames on every ſide; the hills were ſhaken with the continual roar of artillery, and even the tigers of the deſert fled from the ferocious fury of man." One hundred and fifteen towns and caſtles were taken and deſtroyed in the courſe of the year; while from the elevated citadel of Dowlatabad the relentleſs Shah Jehan looked down with ſavage triumph on a country in flames, and an unoffending people driven to miſery and deſpair. The principal rajahs, ſeeing that diſcomfiture and univerſal ruin hung over their heads, at length ſolicited for peace. This was exactly what the politic ſultan wiſhed; he was anxious to return to the completion of his new capital; and he was glad to allow them peace; but it was only on the hard condition of acknowledging him, and his ſucceſſors, to be lords paramount over the Deccan; and of paying a large annual tribute, of which the firſt payment was to take place immediately; and, although no particular ſum is ſpecified, yet it is ſaid to have been ſufficient to re-imburſe Shah Jehan in the chief expences of his gaudy throne and gilded palace.

The emperor, thus elevated with victory and glory, advanced his ſons, who had been actively employed in the campaign, to poſts of higher dignity and more extenſive patronage. To Aurungzebe he gave the ſole command of the imperial army, and the abſolute government of the Deccan. His other ſons, Dara and Sujah, were promoted to higher rank in the army; the former being made an omrah of ten thouſand horſe and foot, and the latter of ſeven thouſand horſe and foot. The prince Morad too, fourth ſon of the emperor, who was in his ſeventeenth year, having given ſatisfactory proofs of great talents, was, with a proper aſſiſtant, made governor of Moultan.

It was not until the commencement of the year 1648, and long after this predatory and rapacious expedition into the Deccan, that the ſultan's new-built city of Delhi, but which he now choſe to have called after his own name, *Jehanabad*, was completely fitted for the reception of his numerous court, and the immenſe population of new ſettlers, that, encouraged by the promiſes of great immunities, flocked to it from every quarter. From Agra alone were exported thither, by his order and at his expence, no leſs than five hundred thouſand of its inhabitants; and that great city was, in its turn, left almoſt a deſert. On this occaſion, no bounds were placed to the generoſity and hoſpitality of the emperor; and when, in all his glory, he mounted the throne in that city on the feſtival of the Nauruz, or new year's day, which in India falls at the vernal equinox, there was no end to the preſents offered by the higher nobility and their ladies, to the ſultan and ſultanas. That feſtival was ſumptuous beyond all conception, and continued nine days; during which time the whole city, as well as the court, was treated at the public expence, and all claſſes were diſſolved in unreſtrained diſſipation and voluptuous pleaſure. And now, in the height of his glory and magnificence, the once active and enterpriſing Shah Jehan, having devolved on his ſon Dara, and the vizier Sadullah, the burthen of public buſineſs, gave himſelf up to the pleaſures of the harem, and to enjoyments totally unworthy of ſo great a monarch. Muſic, dancing, and comic entertainments, engroſſed the hours of his voluptuous life. To his favourite women he was generous beyond conception; but never nice in his choice of them. The gallery adorned with jewels is ſaid, by Manouchi, to have been made to gratify a dancing girl of the very loweſt claſs; and to the wife of Kalil Khan, one of his officers, he preſented a pair of ſlippers ſet round with diamonds of ineſtimable value.

No very important occurrences aroſe to interrupt theſe deluſive pleaſures of Shah Jehan, till the year 1656; when, freſh diſturbances breaking out in the Deccan, a new ſcene of bloodſhed, robbery, and plunder, was ſpeedily to take place. From motives of avarice alone, it ſeems to appear, that Aurungzebe repreſented to the emperor his father, that Cuttub, king of Golconda, had refuſed to pay the accuſtomed tribute, and had ſet at naught his authority, as viceroy of the Deccan. To ſtir up more effectually the reſentment of Shah Jehan, the ſtatement of theſe particulars was confided to Emir Jemla, a confidential perſon in the ſervice of Aurungzebe; and he ſucceeded ſo well with the emperor, that an army of twenty thouſand horſe was inſtantly ordered to follow him into the Deccan; where joining the viceroy's troops, the command was given by Aurungzebe to his eldeſt ſon Mohammed, in order to ſtifle the jealouſy of his brother Dara, whoſe claim to the ſucceſſion had kindled a violent ſtruggle between them. Mohammed, at the head of this army, ſoon preſented himſelf before the gates of Hydrabad, the capital of Golconda. Cuttub, wholly unprepared to reſiſt ſo formidable a force, endeavoured by timely ſubmiſſion to ward off the blow. He offered to pay down the arrears of the tribute, and ſent ſome cheſts of money, and caſkets of jewels, to the Mohammedan camp; but, in fact, the object being conqueſt and plunder, rather than reſtitution and peace, the dreadful work of deſolation commenced.

Than the ſack of this rich and elegant Hindoo city, according to various writers, nothing can be conceived more truly ſhocking. The pavement of the principal ſtreet and ſquare is ſaid to have been died with the blood of the miſerable inhabitants, and the ſpoil taken was beyond calculation; there being in it whole ſtreets full of ſhops of jewellers and bankers, in which the fineſt diamonds and jewels were wrought. But it was not only in ſuch treaſures that this ſuperb city abounded; it was crowded with merchandiſe brought to the ſhores of Coromandel from the remoteſt parts of Aſia, in exchange for thoſe valued trinkets; but the whole of this merchandiſe was conſumed by the flames, which ſpread in every direction. What was chiefly incombuſtible, the gold, the ſilver, and the jewels, remained uninjured to the conquerors; and of that the amount was enormous; for Thevenot informs us that the very floors of the ſtate-apartments in the palace were covered with plates of gold. In the mean time the rajah or king had eſcaped out of a private gate, and fled to the hill-fort of Golconda. The hill on which it ſtands, riſes like a ſugar-loaf to a prodigious height, and was mounted with cannon to its very ſummit. At its baſe, and round its ſides, ſtand the palace and the town. Mohammed inveſted this formidable retreat; and Cuttub, drawing courage from deſpair, marched out at the head of ſix thouſand horſe and twelve thouſand foot, and gave battle to the Mogul troops; but he was defeated with great ſlaughter; and Mohammed ruſhed into the caſtle with the retreating Hindoos. Cuttub now threw himſelf at the victor's feet, imploring mercy and forgiveneſs. Mohammed was inexorable; till Rizia, his beautiful daughter, appeared in a ſupplicating poſture; when, vanquiſhed by her charms, he ſheathed his ſword. A treaty favourable to Cuttub was concluded, by which only half of his wealth was to be given up to the conqueror. He granted him alſo his daughter in marriage, with a kingdom in reverſion for a dowry. The ſhouts of mirth, and the ſhrieks of ſorrow, were heard riſing indiſcriminately together on this memorable occaſion; and the palm of victory was ſeen blended with the funereal cypreſs.

Aurungzebe loſt no time in forwarding a pompous account of theſe exploits to the emperor, his father, who was now holding his court at Agra. Emir Jemla was charged with theſe diſpatches; and he ſo ingratiated himſelf with the overjoyed ſultan, that he conferred upon him the high office of vizier. While Jemla remained at Agra, information was received of the death of Adil, king of Viſiapour; and that the officers of his court had, without aſking permiſſion of the emperor, raiſed his ſon to the ſovereignty. Shah Jehan, who conſidered the dominions of Viſiapour as an appendage to his empire, highly reſented this neglect. The new vizier was therefore ordered to march with twenty thouſand men into that kingdom, and depoſe the ſon of Adil, till he ſhould make his ſubmiſſion at the court of Agra. On his arrival at Burhampour, he was joined by Aurungzebe, with all his forces. In the mean time, Ali, the vizier of the deceaſed, and of the exiſting ſovereign, had foreſeen the impending ſtorm, and hoped to guard againſt its fury by levying a conſiderable army. But he was totally defeated; all the ſtrong holds of the province ſurrendered; the king, led by his miniſter Ali, threw himſelf at the feet of the conqueror, and received a pardon on condition of paying down what, in our money, would be equal to one million eight hundred and ſeventy-five thouſand pounds!

The tidings of this enormous acquiſition of wealth reached the palace of Agra, juſt at the hour when Shah Jehan was ſeized with that dangerous malady, the reſult of intemperance in his ſeraglio, which was the ſignal for his four ſons to ruſh to war, and deſolate the empire with their ſanguinary conteſts for the throne. The better to conceal his views, and extinguiſh the jealouſy of his brothers, Aurungzebe affected the rigid auſterity of a Fakeer, or Mohammedan derveiſh. Being only the third ſon, and Dara, his elder brother, having been not only publicly proclaimed heir to the throne, but already inveſted with a great ſhare of the imperial authority, he ſaw in deep diſſimulation the only chance he had of attaining his ends. The diſeaſe of the ſultan rendering him unable to attend to public buſineſs, Dara, of his own accord, mounted the throne, and aſſumed all the inſignia of royalty. The violence with which he acted, betrayed at once his hatred, and his ſuſpicions, of his brothers, and hurried on that cataſtrophe to which their affairs were unhappily advancing. He forbad all perſons, on pain of death, from holding any correſpondence with his brothers. Their known agents in the capital were ſeized and impriſoned, and the property in their hands confiſcated. In a public aſſembly he expatiated on the diſloyalty of his brothers; and from intercepted letters unfolded their deſigns, and deprecated the horrors of a civil war. He declared his firm reſolution not to abandon a throne which heaven and his father had aſſigned him. An army proportionate to the emergency of the caſe was immediately aſſembled; and he ſeemed anxious to riſque the fate of the empire on the event of a bloody and unnatural war.

The emperor's ſecond ſon Sujah, who had accumulated great power in Bengal during his long government of that province, was the firſt who appeared in the field; and he juſtified his conduct by the violent meaſures of his brother Dara. He had attached to himſelf many of the great omrahs about the court; his reſources were extenſive, and his army formidable. He iſſued a manifeſto, declaring that he was marching to revenge the injuſtice done to his father, and to dethrone the parricide; and for this purpoſe he advanced with his army to the ſtrong poſition of Benares.

While the two elder brothers were thus meditating to deſtroy each other, the wily and ſagacious Aurungzebe determined to ſtep in between, and ſeize the glittering prize for which all were contending; and the better to inſure ſucceſs, he hoped to unite the army, the valour, and the reſources, of his younger brother Morad, with thoſe of his own. He therefore diſpatched to that young prince, in Guzerat, letters at once importunate and affectionate, informing him, that as he himſelf, from religious motives, declined being a candidate for the imperial dignity; and as he wholly diſapproved of the acceſſion of either of their elder brothers—of the firſt, from his violent temper and utter indifference about all religion; of the ſecond, from his being a declared heretic, and poſſeſſing but a moderate ſhare of intellect—he was reſolved to throw all the weight of his influence into the ſcale of Morad, who, from his united bravery, ability, and benevolent principles, was, in his contemplation, alone worthy to ſit on the throne of their immortal anceſtor, Tamerlane the Great: and with reſpect to himſelf, the utmoſt he deſired was, that when, by their joint exertions, the crown ſhould be ſecured to Morad, he ſhould grant him ſome recluſe corner of the empire, where he might paſs the remainder of his days in religious retirement and devotion, as became a good and virtuous Muſſulman. He accompanied theſe letters with one hundred thouſand rupees, apologizing for the ſmallneſs of the ſum, but adviſed him, without delay, to ſeize on the caſtle of Surat, where the imperial treaſure was depoſited, and employ the whole in raiſing mercenaries to reinforce his army; and then to meet him, with all his forces, at Ujein, in their way to ſeize the capital.

Morad, blinded by ambition, and beguiled by theſe ſpecious artifices of Aurungzebe, inſtantly put his army in motion, ſeized Surat and the imperial treaſure, levied a great number of freſh troops, and, having cauſed himſelf to be proclaimed emperor of Hindooſtan, haſtened to meet his brother at the place of rendezvous. But before the junction of the two armies, which took place on the banks of the Nerbudda, the troops of Dara had been ſufficiently active to gain poſſeſſion of Ujein, before the allied brothers could gain that poſt. The army of Dara was commanded by Kaſſim Khan and Jeſſwunt Sing, two generals of great military reputation, and firmly attached to the intereſts of Dara. Shah Jehan, who yet lived ſtruggling with his infirmity, and anxious to preſerve the lives of his children, by announcing to them a proſpect of his recovery, ſent poſitive orders, in letters authenticated by his own ſignature, for them to return peaceably to their reſpective viceroyalties. But the meſſengers were detained as priſoners, and the letters treated only as a forgery of Dara. The reſult was a battle, fought on the banks of the Nerbudda, in which the confederated princes were completely victorious. Aurungzebe and Morad now entered Ujein in triumph; from whence the latter, in the pride of his exultation, inſiſted on proceeding without delay to Agra; but the more prudent Aurungzebe convinced him of the neceſſity of halting there for ſome days, both to refreſh the army, and to obtain intelligence of what turn political affairs were now likely to take in that city.

In Bengal, the other detachment of Dara's troops had been more fortunate, which had been ſent againſt his next brother Sujah. The two armies got in ſight of each other on the oppoſite banks of the Ganges; and, Sujah not expecting an enemy, the diſcipline of his army was rather relaxed, and his camp not ſtrictly guarded. The troops of Dara, therefore, commanded by his ſon Soliman, diſcovered a fordable place for cavalry higher up the river, and, croſſing in the dead of night, he ruſhed furiouſly on the enemy, buried in profound ſlumber, and totally unprepared for reſiſtance. Sujah, rouſed by the claſhing of ſwords, and the cries of the wounded, ſtarted from his bed in aſtoniſhment. He was ſoon armed, and on horſeback; and at the head of his guards charged the enemy with heroic fury; but it was too late; his veteran troops were cut to pieces, or driven into the river, and the prince himſelf with difficulty made his eſcape in a canoe, nor ſtopped till he reached the ſtrong fort of Mongeer. Soliman continued for ſome time in Bengal; and cloſely inveſted the fugitive prince in Mongeer; but the critical ſituation of his father and grandfather at Agra imperiouſly required his aid, and he was compelled ſuddenly to raiſe the ſiege, making it a condition on the part of Sujah, that he ſhould no longer oppoſe the claim of Dara to the throne.

In the mean time, when intelligence of the defeat of Dara at the Nerbudda had reached Agra, the whole court was thrown into the greateſt conſternation. Shah Jehan himſelf was indeed ſurpriſingly recovered; but now he found himſelf a priſoner at the diſpoſal of his ſon Dara, and began to view the diſtractions in his family with the agonizing feelings of a dethroned king and a deſpiſed father. To whomſoever victory inclined, he was convinced that no benefit would reſult to himſelf; he was a priſoner of ſtate, and the ſceptre was gone from him. Dara had got firm hold, and he determined to keep it. Elated alſo with the ſucceſs of his ſon Soliman in Bengal, he now meditated a more ſignal triumph over Aurungzebe and Morad. For this purpoſe he put himſelf at the head of an army which conſiſted of one hundred thouſand horſe, and one thouſand pieces of ordnance. He advanced to the banks of the Chambul, about twenty miles from Agra; and there, occupying a poſition ſtrong by nature, and made doubly ſo by art, he waited with impatience the approach of the enemy. The confederate princes moved from Ujein, and encamped on an eminence directly oppoſite to Dara's army, from whence the extent and ſtrength of his lines could be diſcerned; and they appeared to Aurungzebe, who the following morning more cloſely reconnoitred them, too formidable to be forced by an army of ſuch inferior magnitude as theirs, ſcarcely amounting to forty thouſand men. The depth of the river too at that place was an additional obſtacle; and, though Morad was for deſpiſing every difficulty; the wary prudence of his brother again reſtrained his natural impetuoſity; while he accompliſhed by perfidy what force could not ſafely effect. Prevailed on by large bribes, a rajah in Dara's intereſt undertook to conduct the confederated army by ſecret paths over the mountains that ſtretch between that ſpot and Agra. Leaving, therefore, their tents, baggage, and part of their artillery, under a ſtrong guard, to amuſe the enemy, that very night they decamped, and the next morning were diſcovered by the enemy's ſcouts in full march towards Agra. Dara, equally confounded and aſtoniſhed, with precipitation mounted his cavalry, and puſhed at once between the enemy and the capital. He preſented himſelf in front of his confederated brothers, and immediatley began to form in battle array. Both armies having pauſed with a look of gloomy dread on each other for a whole day, the firing of Dara's artillery along the whole line the next morning announced the battle commenced. It was anſwered by volleys of ſhot, and a ſhower of arrows, from the confederates. At this moment Dara was ſeen aloft on his elephant, reſolutely advancing with his cavalry in the very face of the enemy's cannon. Aurungzebe's artillery, being well ſerved, did infinite execution among the great bodies of horſe, and they were ſoon thrown into confuſion. But Dara, wholly undaunted, continued to advance, animating his troops both by his voice and his example. Repulſed by repeated volleys, they again and again rallied, and at length, ruſhing forward in one impetuous phalanx, forced the enemy's artillery, broke the chains that linked them together, and, coming up with the centre commanded by Morad, a mutual and dreadful ſlaughter took place. Morad, from his elephant, dealt the arrows of death thick around him, and his troops, though out-numbered three to one, for a long time fought like lions by his ſide. At length, overpowered by multitudes, they were broken, and put into great diſorder. The young prince, however, though covered with wounds, diſdained to retreat; and ordered his elephant to be urged forward among the thickeſt of the foe, in hopes of animating his troops to renew the combat, and rally round the ſtandard of their leader. This bold meaſure had the deſired effect. His cavalry, ſeeing the enemy ſurrounding their prince, collected in his defence, and fought with renewed vigour. A daring Indian chief, leader of the rajapouts, unable from the height of the elephant to reach Morad with his ſword, cut the pillars that ſupported the roof of the *amari*, or caſtle, in which he ſat, and that falling upon him encumbered him for a time; but, on recovering himſelf, he inſtantly transfixed the bold aſſailant with an arrow, and the dreadful work of death was renewed, till the rajahpouts gave way.

Dara, heated by the ardour of battle, and deſirous of ſparing the further effuſion of blood, was advancing with an offer of terminating the conteſt by ſingle combat with Aurungzebe; but, on hearing of the retreat of his troops before Morad, he returned, accompanied by a ſtrong body of cavalry, to the ſupport of his repulſed battalions, and re-conducted them againſt the enemy with ſuch decided ſucceſs, as appeared to promiſe certain victory. At this inſtant, Shaiſta, the general of his right wing, who had not long before received a perſonal inſult from Dara, ſecretly favoured the cauſe of Aurungzebe, and was now reſolved to have his revenge. He rode haſtily up to Dara, congratulated him upon his ſucceſs, aſſured him that the conteſt was decided, that the day was his, and adviſed him to deſcend from his elephant, and mount a horſe in purſuit of the routed foe. Dara, not ſuſpecting treachery, incautiouſly followed this advice. His troops, no longer ſeeing him on his elephant, but ſuppoſing he was ſlain, were ſtruck with a ſudden panic, and fled tumultuouſly from the battle. Aurungzebe inſtantly coming up, and joining his forces to thoſe of Morad, fell with fury on the aſtoniſhed foe; and a victory was thus obtained over an enemy which was on the very point of being triumphant. Shaiſta Khan, (called alſo Khalil Khan,) by whoſe artful manœuvre the battle had been won, now joined the army of Aurungzebe. No purſuit was attempted by the victors; but near the field of battle they encamped; while Dara, continuing his flight towards Agra, reached that capital in ſafety.

Shah Jehan, on hearing of the event of this ſanguinary battle, which was fought on the 5th of June 1658, was overwhelmed with the deepeſt affliction; while Dara, aſhamed to ſee his injured father, and afraid of being betrayed into the hands of his brothers, flew to Delhi; where, with the money found in that metropolis, he ſet about raiſing a new army, and forwarded meſſengers to his ſon Soliman, to meet him with all his troops on the banks of the Ganges. But Soliman had been too formidable an object to be neglected by Aurungzebe; and, in conſequence, ſoon after the engagement, he had diſpatched confidential meſſengers to the two generals belonging to that prince, Rajah Jeſſing, and Delil Khan, with the information that Dara was utterly defeated; that moſt of the omrahs had joined the victorious army; that Shah Jehan, from age and infirmities, was no longer qualified to govern a great empire; that a ſucceſſor muſt be appointed, and that Morad was the moſt proper perſon; that to prolong the conteſt would be a fruitleſs waſte of blood; and he concluded by adding, that if they would ſeize on Soliman, and bring him a priſoner to the allied army, they ſhould not only keep their commands, but be rewarded with the higheſt honours of the empire. The two generals, on conſultation, were not averſe to joining the confederate princes; but the meaſure of ſeizing Soliman ſeemed to them, though not too wicked, yet too dangerous an enterprize for them to riſque. They, however, repreſented to Soliman the deſperate ſtate of his affairs; diſplayed the unconquerable power of his uncles; that oppoſition would, under the preſent circumſtances, prove fruitleſs; and they recommended him to retire to Serinagur, the rajah of which country was his friend, and among the mountains of which he would be ſafe, till an opportunity ſhould offer for commencing hoſtilities with a better proſpect of ſucceſs. The weak prince followed their advice; and, ordering his baggage to be packed up, commenced his march for the mountains; upon which thoſe faithleſs generals had the baſeneſs to ſend a body of troops to way-lay and plunder the baggage of this unfortunate prince. The robbers brought back an elephant loaded with gold rupees, by which he was driven to the greateſt diſtreſs in his long and toilſome retreat.

In the mean time the confederated brothers, on the fourth day after the battle, commenced their march for Agra. The capital was in no condition to ſuſtain a ſiege, and the gates were thrown open; but thoſe of the citadel, which was a place of great ſtrength, were kept ſhut. Aurungzebe, affecting filial reſpect for Shah Jehan, declined entering the city; and, with his brother Morad, encamped in a garden without the walls. In a few days, however, Aurungzebe diſpatched a confidential meſſenger to make his reſpectful ſubmiſſion to the aged Shah Jehan; he was deſired to touch the ground, in his name, with his forehead; and in the ſtrongeſt terms poſſible to aſſure him both of his affection as a ſon, and his duty as a ſubject. He was ordered to expreſs his extreme ſorrow for the blood that had been ſpilt, which was ſolely imputable to the ambition of Dara, whoſe violent and imperious temper had forced both Morad and himſelf into thoſe extremities; finally, that he rejoiced exceedingly on hearing of his recovery, and reſpectfully waited without the city the commands of his father and his ſovereign. To this embaſſy Shah Jehan replied by his favourite daughter, Jehanara Begum, whom he ſent on purpoſe to give weight to his anſwer, "That as to Aurungzebe, he was fully convinced of his zeal and loyalty as a ſon and a ſubject; that he ſuppoſed him to have been miſled by deſigning perſons, and, as he doubted not the contrition he had expreſſed was ſincere, he freely pardoned him. But he could not think thus favourably of Morad, who was an obſtinate rebel, and had actually proclaimed himſelf emperor in Guzerat; but that, if Aurungzebe would deſert Morad, he ſhould not only be received with open arms, but whatever he could deſire in the empire, next to the throne of his father, ſhould be at his command." The artful Aurungzebe affected to be won over by theſe kind words: "For himſelf, he ſaid, he had no ambition but to live as a derveiſh, retired from man, and devoted to God; that, in taking Morad's part againſt Dara, he acted from principle; that the generous and open nature of the former, who was alſo a good Muſſulman, rendered him better calculated for governing a kingdom, than the licentious and arbitrary diſpoſition of the latter; but that, if the emperor was determined not to revoke his deciſion in favour of Dara, no body had a right to control him; and he ſolemnly promiſed within two days to wait upon him in perſon, in order to diſcuſs that important queſtion."

Jehanara, deceived by her brother's proteſtations, haſtened to the emperor with the joyful intelligence, that his grey hairs were not to deſcend in ſorrow to the grave; that Aurungzebe would come in two days and make his ſubmiſſion; and that Dara might yet enjoy the throne, as being the elder brother. But the cautious emperor too well knew the ambition and ſubtlety of Aurungzebe to be himſelf deceived. Never indeed was a deeper game of duplicity played off; for, while Aurungzebe was determined that neither Dara nor Morad ſhould ſway the imperial ſceptre, Shah Jehan was as fully reſolved that Aurungzebe, if he once entered the gates of the palace, ſhould not again eſcape out of them. But Aurungzebe had no intention of viſiting his father. He had conſtantly an active ſpy at his elbow, Roxanara Begum, who was as devoted to his intereſts as Jehanara was to thoſe of Dara; and ſhe had forewarned him to beware of treachery, for that, if he entered the palace, he would be inſtantly ſeized. After the two days had elapſed, meſſage after meſſage reached Aurungzebe, ſoliciting the promiſed interview, and ſtating "that his aged ſire wiſhed only to embrace his repentant ſon, and reſtore him to favour and diſtinction." That aged ſire, however, had diſpatched letters to Dara of a very different ſtamp, which were intercepted and brought to Aurungzebe. Thoſe letters determined the ſteps now to be taken by the confederated brothers. At length a day of meeting was appointed by Aurungzebe, who ſent his eldeſt ſon Mohammed to announce his approach; but confeſſed, as reports hoſtile to his ſafety were in circulation, that unleſs a ſmall guard were allowed for the protection of his perſon, he could not enter the palace. A guard, therefore, conſiſting of a limited number of men, and commanded by his ſon in perſon, was permitted previouſly to enter the gates. The young prince, on entering, examined all the avenues; and, finding in one of the courts a body of men concealed, he complained to the emperor of an intention to ſeize his father's perſon, and declared, that, unleſs thoſe men were ſent away, he would diſpatch a meſſenger to prevent his father from entering the citadel. Shah Jehan, depending upon his numerous guards, conſented to diſmiſs them. Aurungzebe, on his near approach to the citadel, was announced; when on a ſudden, as if ſeized with a fit of devotion, he ordered the cavalcade to change their courſe, and move towards the tomb of Akbar, where he profeſſed his intention of offering up his prayers to heaven. This ſtrain of hypocriſy was the ſignal for action. The prince's party was compoſed of picked men, whom nothing diſmayed. They ruſhed on the imperial troops that guarded the gates, and, ſoon made themſelves maſters of the palace. The emperor, finding himſelf fallen into the very ſnare which he had ſet for his ſon, began to vent his rage againſt Aurungzebe, and his perfidious grandſon; to which the young prince replied not, but, making his obeiſance, reſpectfully retired.

Aurungzebe, whoſe inſatiable ambition had rendered him callous to the ties of nature, having thus accompliſhed his purpoſe, ſmiled at the earneſt meſſages now ſent by his aged ſire, to ſolicit an interview; and conſtantly returned an excuſe, accompanied with hints relative to the recent duplicity which had marked his father's conduct; adding, "that, when he had annihilated the power of Dara, he would himſelf come and open to him the gates of his priſon." He appointed Etbar Khan governor of the fortreſs; who ſhut up the wretched ſultan, with Begum Saheb, and all his women, cauſing ſeveral gates, through which there was a poſſibility of eſcape, to be walled up. Day and night a vigilant guard was kept, that the emperor might neither write, nor ſpeak, nor quit his apartment, but in the preſence of his guard.

The confederate brothers, having appointed their uncle Shah Heſt Khan, governor of Agra, and taken out of the royal treaſury what ſums they wanted, proceeded to Delhi for the deſtruction of Dara. But, on their arrival at Muttra, a grand entertainment was provided by Aurungzebe, at which Morad, who was voluptuouſly inclined, drank too freely of the Shiraz wine, while the rigid Aurungzebe refuſed to pollute his lips with the forbidden beverage. On pretence of buſineſs Aurungzebe quitted the apartment, and Morad ſunk into a profound ſleep. In this ſituation his ſabre and poniard were taken from him. Every previous precaution had been uſed for the ſucceſs of the enterpriſe. Confidential guards had been appointed, and a band of ruffians waited without. At this moment re-entered Aurungzebe, and, ſpurning with his foot the inebriated prince, exclaimed, "Is this a conduct becoming a great emperor? What will the nation think of him, who, having dethroned one prince for intemperance, ſuffers his intellects to be thus overpowered by wine? Morad, thy throne is for ever forfeited. Take this ſot away; bind him, and throw him into that room, there to ſleep out his wine." The prince ſearched in vain for his ſword and poniard; five or ſix guards ruſhed in, and, in ſpite of all his oppoſition, fettered his hands and feet. An eſcort and an elephant were ready at hand, which, on the 6th of July 1658, conveyed him to Gwalior, the ſtate-priſon of the houſe of Timour.

Aurungzebe now commenced his march for Delhi; but hearing that Dara had proceeded to Lahore, and reſolving not to leave a rival in the field, he continued his purſuit with the utmoſt rapidity; and, advancing conſtantly at the head of his army, he drank the fouleſt water, ate the coarſeſt food, and ſlept on the bare ground, like the meaneſt ſoldier. Dara, dreading to be overtaken by his implacable brother, quitted Lahore, and bent his courſe towards Moultan. Relaxing, therefore, in his impetuous career, and thinking his preſence neceſſary in the capital, Aurungzebe diſpatched Khan Jehan, his favourite omrah, with eight thouſand horſe, in purſuit of the fugitive Dara, while he himſelf returned with his retinue leiſurely to Delhi. Here contemplating the rapid ſucceſs of his career, he determined to reap the fruits of his hypocriſy, by circling his head with the imperial diadem; but this act, being ſo directly contrary to all his profeſſions as a religious devotee, required ſome previous management. His friends, who were in the ſecret, convened an aſſembly; and, from motives of *public neceſſity*, propoſed that he ſhould be *ſolicited* to wear that crown, to the burthen of which no one elſe was equal. As all of them were alike intereſted in the event, the propoſal was received with acclamation, and they went in a body to the palace, to intreat Aurungzebe to be reconciled to imperial honours. For a long time the crafty hypocrite refuſed, and even put on the appearance of being highly incenſed at ſuch a propoſition. But when they urged it upon him as a matter of *duty*, and that the *Deity* might be ſerved as faithfully amid the ſplendour of a throne as in the gloom of a cell, he with religious reluctance *ſeemed to conſent*. Without any of the pompous ceremonies uſual on ſuch occaſions, which he affected to deſpiſe, the humble Fakeer, or Muſſulman derveiſh, Aurungzebe, on the ſecond of Auguſt, 1658, aſcended the throne of Hindooſtan; on which occaſion he aſſumed the title of *Aulum-Geer*, or Conqueror of the World.

But, while Aurungzebe was thus intent upon ſecuring to himſelf the regal dignity, his brother Sujah, in the rich and fertile province of Bengal, had been ſucceſsful in raiſing another very conſiderable army, and was on his march to diſpute with the new emperor his title to the throne. Nor was Sujah the only competitor: in the ſouth, Dara had eſcaped the vigilance of the omrah Khan Jehan, and was rapidly increaſing his army, and extending his influence. Soliman his ſon, at Sirinagur, protected by its rajah, was enliſting under his banners the hardy inhabitants of the northern mountains. The Rajapoots, with Jeſſwunt at their head, were ready to join either of thoſe armies againſt him; while many parties, attached to the aged but dethroned king, ſtood aloof, waiting a favourable criſis to reſtore his authority, in oppoſition to that of either of his ſons. Aurungzebe, wholly undiſmayed at theſe ſurrounding perils, prepared to take the field. He ſent orders to his ſon Mohammed, at Moultan, to join him with all the forces under his command; and to Emir Jemla, to haſten towards Bengal with the troops from the Deccan.

Sujah, in the mean time, advanced from Allahabad, and encamped in a ſtrong poſition at Kidgwa, where he intrenched himſelf, and waited the enemy's attack. The emperor approached with rapidity; his ſon Mohammed commanding the van, which conſiſted of five thouſand horſe. Sujah, however, having a fine train of artillery which defended the front of his camp, and on which he placed great dependence, ventured not out of his lines. At day-break the following morning Aurungzebe commenced the action; but ſo ſtrongly was Sujah intrenched, that it was impoſſible to force his poſition, while his artillery made dreadful execution. The attack was repeated ſeveral times with no better ſucceſs; and the aſſailants were repulſed, diſcomfited, and thrown into diſorder. The army of Sujah, at this critical moment, ruſhed by thouſands from their lines; and, headed by their prince, attacked the enemy with ſuch vigour, that they began to fall back on every ſide. Aurungzebe, on this trying occaſion, evinced that fortitude and preſence of mind which was his peculiar characteriſtic. He urged on his elephant, carrying the imperial ſtandard, into the thickeſt battalions of the enemy; and, ſtimulated by his example, the retreating Moguls rallied round their prince. Sujah, on another elephant, eſpied him at a diſtance, and panted to meet his brother in combat; but the throng of elephants and cavalry between them prevented their meeting. In the mean time, the conductor of the elephant of Aurungzebe was ſhot through the heart. A ſtorm of arrows was then directed at Aurungzebe from every quarter; but, being clad in complete armour, they recoiled from him, while his nervous arm darted deſtruction upon the aſſailants. His conſummate general and chief omrah, Jemla at that moment coming up with a powerful reinforcement to his ſupport, and cutting his way into the hotteſt part of the battle, gave a deciſive turn to the fate of the day. Sujah, after performing acts of heroiſm that might have done honour to an Achilles, had yet the mortification to ſee his army routed in every quarter; and it was with the utmoſt difficulty that he eſcaped to the ſtrong fortreſs of Allahabad. Aurungzebe found himſelf in no condition to purſue the routed enemy. He was anxious to get back to Agra, where a report of his entire diſcomfiture had thrown the city into great confuſion. He now wrote a reſpectful letter to his father, ſtating his victory, and deſire to viſit him. But Shah Jehan refuſed to receive the letter, and returned it by the ſame meſſenger, with the ſilent diſdain of an injured father and an inſulted monarch.

In the mean while, his elder brother Dara had concentrated a freſh army in Guzerat, with which he directed his march towards Agra, and in a ſhort time encamped near Agimere, where he threw up intrenchments, and waited in expectation of being joined by many omrahs, his former friends. But in this the hopes of Dara were fatally diſappointed; yet he courageouſly prepared, though with very inadequate forces, for that battle which was to decide his fate. The circumſtances of this engagement are variouſly related; but it is agreed by all writers that it ended in the total overthrow of Dara; who, flying for ſuccour to the caſtle of a Patan chief named Jihon Khan, whoſe life he had twice ſaved, when doomed by Shah Jehan to be trampled to death under the feet of elephants, for rebellion, he was there received with every external mark of friendſhip and regard. This execrable villain, however, betrayed both him and his younger ſon into the hands of their enemy, and ſent them under a ſtrong eſcort to Delhi, where Aurungzebe at that time kept his court. The unfortunate Dara was committed to a ſtrong fort in the neighbourhood of Delhi, where ſome ruffians were ſoon ſent to diſpatch him. They entered his apartment in the dead of night, and ſtriking off his head, bore it reeking with blood to Aurungzebe, who anxiouſly waited its arrival. After ſatisfying himſelf that there was no impoſition, he ordered it to be taken from his ſight, and buried with the body in the tomb of Humaioon. The youthful companion of his ſorrows, his youngeſt ſon, was on the following morning conveyed to Gwalior.

In the midſt of theſe unnatural and cruel atrocities of Aurungzebe, his own ſon Mohammed, who had conceived a tender regard for the daughter of his uncle Sujah, and dreading the anger of his father on its becoming known, ſeized an opportunity of going over, with a conſiderable body of friends, to join the ſtandard of his uncle. Sujah gladly received the royal deſerter, and conſented to his immediate nuptials with his daughter, which were celebrated with the utmoſt magnificence; he then conſtituted him general in chief of his army.

The aſtoniſhed and offended Aurungzebe inſtantly ordered Jemla to purſue, with all the forces of the empire, his rebellious ſon; and neither to quit him, nor Sujah, till they had accompliſhed their deſtruction. The active vizier immediately opened the campaign, croſſed the Ganges on a bridge of boats, and marched with all ſpeed againſt Tanda, where Sujah and Mohammed then lay with a conſiderable army. Mohammed, in the ardour of youth, and accuſtomed to victory, urged his father-in-law to renounce the ſyſtem of intrenchment, and riſque every thing at once in a general engagement. Sujah conſented; and the prince, fondly expecting to be joined on the day of battle by the greater part of his father's troops, erected his ſtandard in the front of Sujah's army, and marched in the centre of the firſt line. In this hope, however, he was deceived. A large column of horſe bearing down upon him, by Jemla's expreſs order, convinced him, by the vigour of their aſſault, how little, except his own valour, he had to depend upon. Nor did the invincible fortitude of Sujah avail in trying to keep together the battalions which he perſonally commanded. They fled in every direction; and it was with the utmoſt difficulty thoſe two princes eſcaped being taken priſoners. They urged their flight together to Dacca, the laſt town of conſequence in Bengal; while Jemla entered Tanda in triumph, and remained there ſome time to regulate the affairs of the province.

Aurungzebe, though greatly enraged at the defection of his ſon, concealed his reſentment, and made uſe of ſtratagem to induce him to return to his duty and allegiance. In this he ſucceeded; and Mohammed, arriving at Agra, full of contrition for his offence, was by his unrelenting father immediately ſent priſoner for life to Gwalior. The unfortunate father-in-law, in the mean time, perpetually haraſſed by Jemla, was compelled to fly, with a few faithful followers, over barren mountains and trackleſs deſerts, into Arracan, where he was at firſt well received by the prince of that country; but who at length, either intimidated by the menaces of Aurungzebe, or overcome by the lucre of a great reward, withdrew from his protection, and either effected, or connived at, the aſſaſſination of Sujah and all his family!

Having nothing now to fear but from Soliman the ſon of Dara, yet not thinking his throne ſecure while that prince ſurvived, Aurungzebe, firſt by menaces, and then by bribes, prevailed on the rajah of Sirinagur to diſmiſs that unfortunate prince from his court; in conſequence of which he was ſeized, and conveyed to Delhi in fetters of gold. An order was immediately iſſued for his impriſonment for life; and he was in conſequence conveyed under a ſtrong guard to the other fugitives in Gwalior, where the whole of them are ſaid to have periſhed in turn by the effect of ſlow poiſon.

Aurungzebe, after this long ſeries of rapine and murder, finding himſelf without a rival in the throne, or a competitor in the field, began, for the firſt time, to indulge in the bleſſings of peace. His ſtern and implacable character had put rebellion out of countenance; while his fame as a warrior had ſpread far and wide through Aſia; inſomuch that ambaſſadors from Tartary, Perſia, Arabia, and even from Ethiopia, arrived ſucceſſively at Delhi, bearing the richeſt preſents to be laid at the feet of the Indian king. The empire thus remaining for ſome time undiſturbed, afforded Aurungzebe a favourable opportunity of developing his talent for legiſlation. Vigour and diſpatch marked all his meaſures. The omrahs who held commiſſions attended the preſence daily; and petitions were heard from the meaneſt ſubject, and cauſes decided, by the emperor himſelf, ſitting on his throne. The officers of ſtate were conſtantly employed in their reſpective departments; and meſſengers mounted on the fleeteſt horſes were in readineſs, at every poſt, to bear the imperial decrees to the remoteſt corners of the empire. Plain in his manners, inflexible in his juſtice, and with every paſſion but that of ambition ſubdued in his own breaſt, Aurungzebe could make but few allowances for the frailties of others. The diſtant viceroys trembled at his frown; and the leaſt deviation from their duty was puniſhed with degradation or with death.

During this repoſe of the empire, in February 1666, Shah Jehan, at the end of an impriſonment of ſeven years, expired in the caſtle of Agra. On receiving intelligence of his father's death, Aurungzebe haſtily proceeded to Agra, and was ſaluted by his ſiſter Jehanara as the real emperor; and on his entrance ſhe preſented him with a large golden baſin, which contained the moſt valuable jewels of their deceaſed father. The royal remains were ſolemnly interred in the famous marble mauſoleum erected by himſelf for his beloved wife, as noticed in the early part of his reign.

The following year Aurungzebe had the good fortune to learn, that his moſt formidable enemy, the famous Sevajee, was taken off by death. This able founder of the Mahratta ſtates had long bid defiance to every oppoſition; and, though various armies had been detached againſt him, both from Guzerat and the Deccan, they were utterly unſucceſsful in their attempts to ſubjugate him; and even Aurungzebe himſelf found his military talents and political intrigues completely baffled by the more ſubtle Sevajee. When death had releaſed him of this rival, he could not conceal his joy; but paid a tribute to his memory by exclaiming, "That man was indeed a great general, who has had the magnanimity to raiſe a new kingdom, while I have been endeavouring to deſtroy the ancient ſovereignties of India. My armies have been employed againſt him for nineteen years, and nevertheleſs his ſtate has been always increaſing."

And now, though Aurungzebe had taken ſufficient care to have his three brothers, with ſix of their ſons, devoted to deſtruction, yet was he alarmed by a report, variouſly circulated, that his brother Sujah had made his eſcape from his aſſaſſins, and taken ſhelter with his numerous adherents in the province of Bengal, with his friends among the Patans. And, the fact of his death being very much diſputed in Hindooſtan, the Patan chiefs took advantage of theſe doubts; and, in 1673, produced, as a competitor for the imperial diadem, a moſt princely perſon, in all reſpects reſembling Sujah, and who they declared was that identical ſon of Shah Jehan, marching towards his native city, to aſſert his rights, and to revenge the murder of his family. The Patan army, very conſiderable in its number, and with this nominal prince at its head, croſſed the Indus, and marched unoppoſed towards Delhi, publicly proclaiming their adopted champion *Emperor of Hindooſtan.* Aurungzebe, alarmed at the rapid advance of ſo powerful an enemy, ſupporting a pretender to his throne, marched out with all his forces to meet them, and arrived on the banks of the Indus juſt at the cloſe of the year 1674. The vanguard of the imperial army, which firſt croſſed the river, was unable to withſtand the impetuous attack of the Patans, and was defeated. But the next morning, when the whole of Aurungzebe's forces had croſſed, and formed for action, a moſt obſtinate and bloody conflict took place, in which the Patans were entirely defeated, and fled in great diſorder, with their fictitious prince, to their ſtrong holds in the mountains, along the whole line of the Paropamiſan range; yet ſo unbroken was their ſpirit, that, iſſuing in large bodies by night, they made frequent aſſaults on the Mogul camp, plundering their baggage, and cutting off their ſupplies; by which deſultory mode of attack the war was protracted for fifteen months. To counteract theſe marauders, Aurungzebe eſtabliſhed a chain of poſts, and left a ſufficient force to defend the country; while he himſelf returned to Delhi, after an abſence of two years and three months.

For ſome time peace and harmony ſeemed again to be entertained as welcome gueſts at the court of Aurungzebe; until the reſtleſs ambition of that inſatiable monarch determined him to plan a new expedition into the Deccan. In the ſpring of the year 1683 the king of Viſiapour died; and Aurungzebe diſpatched his ſon Azem, with a great army, to ſeize upon that kingdom; which, together with Golconda, and the whole peninſula, he now reſolved to incorporate with the Mogul empire. Though greatly reduced by the former invaſions, the rajah of that country was ſtill formidable; for both Myſore, and many other countries lying to the ſouth and weſt, were tributaries to that monarch, or to the king of Golconda; and, by their joint exertions, the army under Azem was driven back and defeated. On the news of this diſgrace, the angry and irritated Aurungzebe, early in 1684, marched himſelf into Viſiapour, at the head of an army three times larger than that of the Hindoos, and encamped at no great diſtance from the capital. Formidable as was his force, yet, according to his uſual plan of preferring ſtratagem to compulſion, he was laviſh of his promiſes and his treaſures among the chief officers of both the government and army of Viſiapour, to procure their defection; and by this means in a ſhort time his confidence of ultimate ſucceſs was ſo ſtrong, that he detached his ſon Mauzim, with a large proportion of the army, to attack the king of Golconda, whoſe active ſupport of the rajah of Viſiapour was well known. The intimidated king, on the approach of the Moguls, ſhut himſelf up in the fortreſs of Golconda, which Mauzim immediately inveſted; whereupon the rajah, dreading the loſs of his dominions, proffered the humbleſt ſubmiſſion, with a great quantity of gold, and the moſt precious diamonds of his mines. Theſe terms of capitulation being tranſmitted to Aurungzebe, then occupied by Viſiapour, he directed the prince his ſon to accede to them.

Aurungzebe, in the mean while, having diſtributed magnificent largeſſes among the chiefs of Viſiapour, the king of that country found his army ſo reduced in number, that, ſelecting that portion of it on which he could place the firmeſt reliance, he retired into his capital; but, not thinking himſelf ſafe within its walls, he retired to a neighbouring hill-fort, and left his more experienced generals to defend the city. After two or three vigorous aſſaults, the city ſurrendered; and Secunder, the unfortunate young monarch, being cloſely beſieged in the fort, and ſeeing no chance of eſcape, capitulated for the preſervation of his life, and the poſſeſſion of his women and children. He appeared before Aurungzebe in *ſilver chains*, and humbled himſelf to the duſt in the preſence of the haughty victor.

Immediately after the fall of Viſiapour, the greedy ſultan, notwithſtanding the terms of capitulation juſt before granted to the king of Golconda, conſidered thoſe terms as nugatory, being ratified only by his ſon! Under covert of this ſcandalous ſubterfuge, he reſolved to march to that capital, in oppoſition to the repeated remonſtrances of the prince Mauzim, who declared that the ambition of the emperor was about to ſacrifice the honour of his ſon, which was pledged to that monarch. Aurungzebe, regardleſs of theſe remonſtrances, and of every tie which integrity and honour know, marched directly to Golconda, and inveſted that ſtrong fortreſs, in the month of January, 1687. The emperor himſelf conducted the ſiege, and fixed his head-quarters in the city of Hyderabad. The walls and ramparts of Golconda are ſix miles in circumference; but were eaſily inveſted by the immenſe army of Aurungzebe, which conſiſted, as ſome report, of no leſs than five hundred thouſand men. On the 27th of September, after a cloſe ſiege of eight months, a general attack was made by night; and the garriſon, exhauſted by famine and fatigue, after a ſlight reſiſtance, were overpowered, and for the moſt part cut in pieces. The unfortunate king, who had taken ſhelter in the meaneſt office of his palace, was dragged from his hiding-place before the conqueror, who not only treated him with marked indignity, but inflicted the ſcourge, in order to extort a diſcovery of treaſures ſuppoſed to be concealed.

Thus, in the year 1687, were the potent and golden kingdoms of Viſiapour and Golconda, which had reſiſted for two centuries all the machinations of the Mogul monarchs, added to the over-grown empire of Aurungzebe. Yet to ſubjugate the other unconquered parts of the peninſula was the arduous effort of the remainder of the prolonged life of this indefatigable monarch; who, in ſpite of increaſing age and infirmities, (for he was now in his 73d year,) continued from this time till his death almoſt conſtantly in the field. The Carnatic, which had been dependant on Golconda, the Myſore, tributary to Viſiapour, and the rajahs of Tanjore, Tritchinopoly, and other ſmaller kingdoms, were quickly reduced; but the Mahrattas, under Sahojee, the ſon of Sambajee, and grandſon of the famous Sevajee, founder of thoſe ſtates, obſtinately diſputed every inch of ground, and often reduced the enemy to the greateſt ſtraits, in a country devaſtated by perpetual war. The war, however, lingered on, until the great object upon which ſo many years of the life of Aurungzebe had been employed, the reduction of the Deccan, was accompliſhed; when, exhauſted with age, and worn down to ſkin and bone, he retired, for a few weeks previous to his death, into winter-quarters at Ahmednagur. There, finding his diſſolution inevitably approaching, at the advanced age of ninety ſome glimpſes of remorſe appear to have broken in upon a mind long rendered callous by the fouleſt crimes of bloodſhed and murder. Two letters, written by him to his ſons Azem and Kambukſh, a ſhort time before his diſſolution, diſplay evident ſymptoms of a perturbed and diſtreſſed mind. On Friday the 21ſt of February, 1707, after performing his morning devotions in company with his attendants, he exclaimed, "Oh! that my death may happen on a Friday, for bleſſed is he who dieth on that day!" when ſuddenly he ſunk down, and was no more.

Thus, at an age to which few of human race attain, expired the mercileſs deſtroyer of his own diſtinguiſhed family, and the ſcourge of the Hindoos. He rigidly followed the principles of the Mohammedan faith; and we cannot but admire the unſhaken reſolution with which, during ſo long a life, he ſubmitted to privations of every kind, though preſiding in the moſt luxurious court, and wielding the richeſt ſceptre of Aſia. His diet conſiſted chiefly of herbs and pulſe; no fermented liquor ever paſſed his lips; in the pleaſures of his harem he was, at leaſt, more temperate than his predeceſſors; keeping, indeed, according to the cuſtom of the Aſiatics, a number of women, but rather for oſtentation than uſe. He allowed himſelf but little time for ſleep or meals; and that portion of his active day that was not devoted to the hearing of petitions and other public buſineſs in the hall of audience, was paſſed in a perpetual routine of prayer, ablution, and reading the Koran. Except on public feſtivals, the veſt he wore ſeldom exceeded the value of eight rupees; nor were his ſaſh and tiara, as had been the cuſtom with the former emperors, loaded with gold and jewels. In the camp he was the moſt indefatigable ſoldier of his whole army; riſing early, retiring late to reſt, content with the coarſeſt fare, and ſlept often on the bare ground, wrapt up in the ſkin of a tiger.

Aurungzebe, as a ſovereign, though deeply ſtained with blood, yet was otherwiſe endowed with many excellent qualities. He was accompliſhed in literature beyond moſt of the princes of the houſe of Timour. He was maſter of the Perſian and Arabic languages; and wrote with fluency that of his anceſtors, the Moguls. He patronized learned men throughout his dominions; and wrote with his own hand many of the government diſpatches, which were remarkable for their brevity and preciſion. He erected many ſchools and univerſities in different parts of his empire; ſtored them with books in every branch of learning; appointed over them the moſt able maſters; and endowed them with competent ſalaries from the funds of the empire. Theſe learned ſeminaries he occaſionally viſited, and entered with freedom, attempered by dignity, into various diſputations with the ſchoolmen. There certainly were in his manners much of complacency and affability; and a benignity reigned in his features, which we too well know was foreign to the feelings of his heart. He had four ſons: Akbar, the eldeſt, died in Perſia; of the three ſurviving ſons, the eldeſt, named Shah Aulum, or Mauzim, was at the time of his father's death viceroy of Cabul. Azem, the ſecond ſurviving ſon, was with his father in the Deccan, and was his favourite. Kambukſh, the youngeſt, was governor in the newly-conquered province of Viſiapour. Aurungzebe alſo left a *ſhort will*, which, for its moral and its hiſtorical importance, is here recited; and which, while it demonſtrates his wiſhes in regard to their future deſtiny, manifeſtly expreſſes his apprehenſion of the civil war which ſoon took place between them.

Aurungzebe's last Will.—"I came empty-handed into the world, and empty-handed I quit it. Whoever of my fortunate children ſhall chance to rule the empire, let him not moleſt Mohammed Kambukſh, ſhould he reſt contented with the two new ſoubahs of Viſiapour and Hyderabad.—There cannot be a better vizier than Emir-al-Omra.—Let all the king's ſervants be true and faithful to Mohammed Azem Shah.—Whoever ſhall chance to have the empire, let him not turn out or moleſt thoſe born or bred up in my houſe.—If the diviſion I formerly made proves agreeable to my children, it will prevent a great deal of confuſion and bloodſhed.—There are two imperial ſeats, Agra and Delhi; whoever ſettles in Agra may have the province thereof, Deccan, Malva, and Guzerat.—And who reſides at Delhi, may have Cabul and the other provinces.—I came naked into the world, and naked I go out of it. Let no enſigns or royal pomp accompany my funeral; let Hamid-o'din-Khan, who is faithful and truſty, convey my corpſe to the place of Shah Zen-al-din, and make a tomb for it, in the ſame manner as is done for derveiſhes; low and plain, without any manner of ornament; let not my fortunate children give themſelves any concern about a monument.—There is in my private treaſury 57,382 rupees; let 1000 rupees be diſtributed among the poor at my funeral."

As another curious ſpecimen of the mode of writing, and manner of expreſſion in the epiſtolary ſtyle, among theſe extraordinary people, the following letter from Aurungzebe to his ſon Azem, when at the point of death, as hinted above, is alſo thought worthy of the reader's attention:

To Azem Shah.—"Health to thee! My heart is near thee. Old age is arrived: weakneſs ſubdues me, and ſtrength has forſaken all my members. I came a ſtranger into this world, and a ſtranger I depart. I know nothing of myſelf, what I am, and for what I am deſtined. The inſtant which paſſed in power hath left only ſorrow behind it. I have not been the guardian and protector of the empire. My valuable time has been paſſed vainly. I had a patron in my own dwelling, (conſcience,) but his glorious light was unſeen by my dim ſight. Life is not laſting; there is no veſtige of departed breath, and all hopes from futurity are loſt. The fever has left me, but nothing of me remains but ſkin and bone. My ſon Kambukſh, though gone towards Viſiapour, is ſtill near: and thou, my ſon, art yet nearer. The worthy of eſteem, Shah Aulum, (or Mauzim,) is far diſtant; and my grandſon, Azeem Ooſhaun, by the orders of God, is arrived near Hindooſtan. The camp and followers, helpleſs and alarmed, are, like myſelf, full of affliction; reſtleſs as the quickſilver. Separated from their lord, they know not if they have a maſter or not.

"I brought nothing into this world; and, except the infirmities of man, carry nothing out. I have a dread for my ſalvation, and with what torments I may be puniſhed. Though I have ſtrong reliance on the mercies and bounty of God, yet, regarding my actions, fear will not quit me; but, when I am gone, reflection will not remain. Come then what may, I have launched my veſſel on the waves. Though Providence will protect the camp, yet, regarding appearances, the endeavours of my ſons are indiſpenſibly incumbent. Give my laſt benedictions to my grandſon, Bedar Bukht, whom I cannot ſee, but the deſire affects me. The begum his daughter appears afflicted; but God is the only judge of hearts. The fooliſh thoughts of women produce nothing but diſappointment. Farewell! farewell! farewell!"

The remains of this Great Mogul were ſcarcely depoſited in the ſilent grave, before the thirſt for empire which agitated the breaſts of his two elder ſons broke forth into open contention, and divided the intereſts of the great omrahs of ſtate. India had not for ages witneſſed two ſuch formidable armies as were now to be oppoſed to each other by Azem Shah, and Shah Aulum, to decide their right of ſucceſſion to the throne. Azem Shah, however, being on the ſpot, loſt no time in ſeizing upon the government; and he aſcended the throne in the Mohammedan year or hegira 1118, or that of Chriſt 1707, immediately after the interment of his father. He alſo aſſumed the command of the imperial army, which he conſiderably increaſed, and after ſome time commenced his march for the capital, Agra. His elder brother Shah Aulum, the inſtant he received intelligence of his father's death, marched from Cabul to Lahore, where he greatly augmented his forces; and ſent an expreſs to his ſon Azeem Ooſhaun, to haſten with the troops belonging to his government of Bengal, and ſecure Agra before Azem Shah could arrive from the Deccan; while he himſelf, by forced marches, would take poſſeſſion of Delhi. Theſe ſervices were completely effected, while the tardy Azem Shah was ſporting and hunting on the banks of the Jumna. So enveloped was he in the pride of his own importance, that he believed no arm was ſufficiently powerful to be lifted up againſt him; and even when meſſengers arrived with certain intelligence of his brother's approach, he diſmiſſed them with reproach, inſiſting that Shah Aulum, inſtead of daring to invade the unconquerable empire of Hindooſtan, was more likely to fly for ſafety and ſhelter to ſome other clime. Immenſe clouds of duſt, however, which ſeemed to darken the diſtant horizon, convinced the too-confident emperor of his miſtake; and with an ungracious and forbidding aſpect he commanded the diſperſed troops of his numerous army to collect together. His eldeſt ſon, Bedar Bukht, who had been bred to arms in the camp of his grandfather Aurungzebe, was directed to march forward at the head of the firſt diviſion to reconnoitre the enemy. His chief omrah or general, Zoolfeccar Khan, was commanded to bring up the rear diviſion; while he himſelf put his elephants and guards in motion in the centre.

The day before the battle, Shah Aulum ſent by an aged derveiſh the following meſſage to his brother Azem Shah: "By the divine auſpices, we inherit from our anceſtors an extenſive empire, comprehending many kingdoms. It will be juſt and glorious not to draw the ſword againſt each other, nor conſent to ſhed the blood of the faithful. Let us equally divide the empire between us. Though I am the elder, I will leave the choice in your power." The vain-glorious and haughty Azem, miſtaking this condeſcenſion for cowardice, replied, that "he would anſwer his brother on the morrow in the battle;" and diſmiſſed the derveiſh with contempt.

The morning no ſooner dawned, than Shah Aulum prepared to take ample revenge for this coarſe affront; and commenced the fatal action by a tremendous roar of cannon. His eldeſt ſon Azeem Ooſhaun led on his right wing; while his principal general Monauim Khan, with two of the young princes, Ichander Shah and Jehan Shah, conducted the left; the pre-eminent ſtation of Shah Aulum was of courſe in the centre, where he contrived to place a choſen band of the moſt undaunted of his chieftains. His artillery played inceſſantly, which did great execution; and his ſons, advancing, fired ſhowers of muſquetry, which fell like hail. Theſe were oppoſed by a line of rockets in the front of the army of Azem Shah, which, hurling fiery darts on the heads of the aſſailants, dealt confuſion and death around them. The ſun, obſcured by duſt and ſmoke, was in the meridian, and the heat exceſſive. Both armies with equal rage began to cloſe; and the carnage was unſpeakable. A valiant chief of Azem Shah boldly advanced on the right wing of the enemy, and, penetrating to the elephant of Azeem Ooſhaun, hurled his ſpear at the prince; but it miſſed him, and ſtuck in the thigh of an attendant; at which the prince in an inſtant diſcharged an arrow through the heart of the aſſailant, and he fell dead to the ground. The prince Wallajah, who ſupported him, being driven back, took ſhelter with his brother Bedar Bukht. The left wing, commanded by Zoolfeccar Khan, was now attacked with incredible fury; but he quickly drove back the daring enemy, and killed their leader. At this inſtant Azeem Ooſhaun came up with his whole diviſion to their relief; on which Zoolfeccar retreated, and, deſcending from his elephant, mounted a horſe, and, deſerting his prince, fled from the field of battle, which determined the rout of the left wing. In the mean time Bedar Bukht, the heroic ſon of Azem, had for a time dealt death and deſtruction around him, and cut off a party headed by Ruſtum dil Khan, who now changed ſides, and declared for the emperor. But the valiant prince, being overpowered by freſh aſſailants, was obliged to retreat to the centre, while the greater part of his wing were killed or diſperſed.

The principal followers and perſonal attendants of Azem Shah at length gathered round him, determined to preſerve his perſon, or ſell their lives in his defence. The valiant and truly brave on both ſides, thus meeting at the head of their reſpective princes, deſcended from their elephants, and prepared to engage on foot. The battle now raged hand to hand; the chieftains and prime of the nobility fought with ſabres, till the dead lay on heaps, and obſtructed the advances of freſh aſſailants. At length a muſket-ball, and ſeveral arrows, ſtruck the valiant prince Bedar Bukht, and he ſunk down dead on the ſpot. The three ſons of Shah Aulum, as if determined at once to end the conflict, now gathered round the elephant of their defeated uncle, and inſtantly diſpatched him; they then turned towards the party of his youngeſt ſon, the prince Wallajah, who unfortunately partook of the ſame fate with his father and brother Bedar Bukht. Thus periſhed Azem Shah and his two ſons, after a reign of only three months and twenty days.

Ruſtum dil Khan, who, as noticed above, had early in the day changed ſides, contrived to place himſelf near Azem Shah during the reſidue of the battle; and, on ſeeing him left dead in his amaury, he aſcended the elephant, and cutting off the head of the corpſe, remounted his horſe, and galloped with it in triumph to the victor. With exulting hope of great reward, he laid his prize at the prince's feet; but Shah Aulum, having heard of his defection, loaded him with the reproaches he ſo juſtly merited; ordering the head to be buried with proper reſpect, and forbidding the trumpet of victory to be ſounded. In the mean time Monauim Khan took charge of the bodies of the unfortunate young princes; and treated the ladies of their harems with reſpect and tenderneſs; for in the eaſtern countries the women always follow the camp, at leaſt where Mohammedaniſm prevails. Shah Aulum paſſed the night on the field of battle, and the next day encamped his army round the gardens of Dhera, about ſix miles from Agra; to which capital he next repaired, and aſcended the throne of his father Aurungzebe, without further oppoſition; taking on that occaſion the name of Bahadur Shah.

After repoſing from the fatigues of the campaign, the new emperor concerted meaſures for reducing his younger brother Kambukſh, who had aſſumed the uncontrouled ſovereignty in the Deccan. With a princely forbearance, Shah Aulum, now Bahadur, neither perſecuted nor puniſhed any of the adherents of Azem Shah; but on the contrary conciliated the regard of the unfortunate nobility who had eſcaped from the late battle, by condeſcending manners, and acts of perſonal kindneſs. By theſe means his ſtandard was joined by almoſt all the great omrahs; and he marched towards the Deccan with an army ſuperior by at leaſt a hundred thouſand men to any which had ever before entered that rich and fertile diſtrict. He now appointed his conſummate general Monauim Khan, his vizier; and Zoolfeccar Khan, the late general of Azem, he named as the future governor of the Deccan; beſtowing upon him at the ſame time the title or office of emir ul omrah, or treaſurer of the empire. The four royal princes, ſons of Shah Aulum, held principal commands in the army; and almoſt all the nobility of the ſtate joined in the ſplendour of this memorable expedition.

Shah Aulum began his march into the Deccan early in the Muſſulman year or hegira 1120, A. D. 1708; and, by the prudent management of the vizier, though the army was immenſe, the greateſt ſupply of forage and proviſions was found ready prepared at every halting-place of the troops, whereby the higheſt order and diſcipline was maintained in the army. When the emperor arrived at a ſmall diſtance from Hyderabad, where Kambukſh had fortified himſelf, he diſpatched a meſſenger to him with a letter written in his own hand, to the following effect:—"Our ever-honoured father reſigned to you only Beejapour; but we give you, in addition, Hyderabad. Theſe two extenſive countries, long famous for their great kings, producing a revenue more than half of Hindooſtan, we leave to you, without interference or reluctance, and ſhall eſteem you dearer than our own children. Think not then of contention, nor conſent to ſhed the blood of the faithful, nor diſturb the repoſe of our government. If you give the ear of acceptance to this advice, we will farther confer upon you the nizamut of the Deccan, if agreeable to you; and, after viſiting the ſacred tomb of our father, we will return to Hindooſtan."

There was no treachery in this generous offer; for Shah Aulum always ſhowed liberality and affection in his conduct to his brothers. Kambukſh, weak and ſelf-conceited, paid not the ſmalleſt attention to the pacific offer of his brother, but added affronts and inſults to his authority. In conſequence of this obſtinacy he was deſerted by his principal officers, and moſt of the zemindars of the Deccan retired to their homes; while the troops mutinied for arrears, and hourly threatened to plunder his effects. Will it be believed, that he yet determined to reſiſt, and expected victory? He even quitted the aſylum of the city-walls, and encamped upon a plain about the diſtance of three coſs, with his ſmall force, within ſight of the emperor's army. Shah Aulum, from compaſſion to his brother, and the hope of yet reducing him by gentle means, would not permit his troops to attack; but Kambukſh interpreted the inactivity of the imperial army into fear, and ſounded the trumpet of defiance. At length the emir ul omrah Zoolfeccar Khan, who had a keen enmity againſt the miſguided prince, reſolved to ſeize him. He accordingly obtained leave to march, under the pretence of reconnoitring the enemy, and moved towards him with his own followers, a diviſion from the troops of Monauim Khan, and a body of Mahrattas under the chief Neema Scindia. The infatuated Kambukſh ſet up a contemptuous laugh at this ſmall detached force; but, being charged at once on all ſides, was inſtantly deſerted by his followers, except a few perſonal attendants. Notwithſtanding this, he fought as long as he had ſtrength to uſe his bow and arrows, from his elephant, till at length he ſunk down on his ſeat through loſs of blood from ſeveral wounds. He was then taken by Daood Khan, and carried to the prince, his nephew, Jehan Shah, who, with his brothers, had ſtood at ſome diſtance during this extraordinary ſkirmiſh. The captive prince was conveyed to the imperial tents, and viſited by his brother the emperor, who endeavoured to comfort him by every expreſſion of affectionate concern. But his wounds were mortal. He replied to the emperor, "There are, in a caſket upon my elephant, ſome jewels of our father and my own, of which I beg your majeſty's acceptance." He then languiſhed till nine at night, when, without a groan, he reſigned his breath.

The emperor Bahadur Shah Aulum held now the undiſputed ſovereignty over all Hindooſtan; and it might have been expected that years of peace, and relaxation from the toils of war, would naturally have followed: but ſuch was not the ordination of Providence. Only a ſhort time elapſed, before intelligence arrived that the Seiks, a tribe of Hindoos ever hoſtile to the Mohammedans, had riſen in rebellion, and taken poſſeſſion of Sirhind, and were laying waſte the country towards Lahore. The emperor, therefore, reſolved to march in perſon, without delay, towards Lahore; and, having by forced marches arrived at that city, he reſolved inſtantly to lay ſiege to Sirhind; but which place the rebels deſerted on his approach, and retired to the fortreſs of Daber, the reſidence of their goorrah, or chief, where they fortified themſelves as ſtrongly as poſſible. The imperial army ſoon arrived within ſight of the goorrah's camp, which lay round the walls of Daber, on different heights commanding the paſſes to that fortreſs, ſituated on a ſummit, ſurrounded by hollows, craggy rocks, and deep ravines. Shah Aulum had reſolved to lie inactive before the enemy for ſome time, in hopes by this means to render them confident, and tempt them to an engagement; on which account he iſſued poſitive orders to the princes and all the omrahs, not to advance near the enemy's lines on any pretence, however favourable. Some days paſſed in this ſtate of inactivity, when the khan khanan, or chief general, entreated permiſſion of the emperor to advance, with his own followers, to reconnoitre the enemy's poſition: which was granted, on condition that he ſhould not commence an attack without further orders from the preſence. However, when he had approached near their lines, the enemy began a warm cannonade from their works, while bodies of their infantry on the heights galled him with rockets, muſquetry, and arrows. His ſoldiers, enraged, were not now to be reſtrained; and the khan khanan, more jealous of his military fame than fearful of the emperor's diſpleaſure, ventured for once to diſobey, by giving directions to attack. He diſmounted from his horſe, and led his troops on foot up the moſt difficult acclivities, driving the rebels before him with the greateſt rapidity and ſucceſs. This ſcene paſſing within ſight of the royal camp, the chiefs and ſoldiers, emulous of glory, waited not for orders, but haſtened to join in the aſſault; while the emperor and the four princes viewed the fight from the ſquares of their encampments, with a mixture of anger and ſatisfaction. At laſt the rebels were driven from all their works, to the narrow ſummit round the fort of Daber, where they continued to defend themſelves in a deſperate manner, but without even the hope of eſcape from inevitable ſlaughter; when night coming on, rendered friends and foes undiſtinguiſhable to each other. The khan khanan, ſure of having the goorrah or chief in his power, gave orders for his troops to ceaſe the attack, and lie upon their arms in their preſent poſition, till the morning ſhould enable him to finiſh it with ſucceſs. He had, however, unluckily neglected to block up a ſecret path leading from the fort to the hills. The goorrah, a man of great art, generally appeared in the dreſs and ſplendour of a prince; but, during the night, without acquainting his followers of his intentions, he changed his habit, and left the fort undiſcovered. The khan khanan, at early dawn, renewed the attack, and gained the place ſword in hand, exulting in the certainty of carrying the goorrah dead or alive to the emperor, whoſe diſpleaſure at his diſobedience of orders would by this ſervice be changed to approbation: but who can relate his grief and diſappointment at finding that his prize had eſcaped, without leaving a trace of his footſteps behind him? The goorrah's ſpeed of foot was alſo uncommon; and he alone was acquainted with the paths and mazes through the hills that led to the ſnowy mountains which he had marked for ſhelter. The khan khanan loſt for a time almoſt the uſe of his faculties, which were abſorbed in the dread of the emperor's diſpleaſure. Indeed he had ſoon the cruel mortification of learning from meſſengers, that his majeſty was highly enraged againſt him. But though this did not continue long, and Shah Aulum, regarding his former ſervices, received him again into favour after a few days; yet this noble and faithful miniſter never recovered from the ſhock he now received, added to the pain he felt at ſeeing three of the princes, and the emir ul omrah Zoolfeccar Khan, uſing all their arts to complete his ruin, which ſtuck like a poiſoned arrow in his breaſt. He loſt all ſatisfaction from worldly enjoyment, and died in a few days, ſincerely lamented by the emperor.

After the Seiks were thus completely routed, Shah Aulum directed his march back to the city of Lahore; where he had no ſooner arrived, than he was ſeized with a deadly malady, which all at once infected his head and heart with inſupportable pain, and ſo inſtantaneous was the fatal effect, that it gave full reaſon to imagine it proceeded from poiſon. He was ſeized with faintings, which continued without intermiſſion, till, on the 21ſt of Mohirrim, 1124, A. D. 1712, he deſerted this tranſitory world for that of eternity. He had been, from the firſt inſtant of his illneſs, given over; and the princes, and ladies of the harem, made loud and violent lamentations round his bed, and put on every token of the moſt heartfelt ſorrow.

Bahadur Shah Aulum reigned five years and eight months; and his biographer, Eradub Khan, has left on record the following character of him:—"Shah Aulum was generous and merciful, of a great ſoul, tempered with affability, diſcerning of merit. He had ſeen the ſtrict exerciſe of power during the reigns of his grandfather and father, and been uſed to authority himſelf for the laſt fifty years. Time received a new luſtre from his acceſſion, and all ranks of people received favours equal, if not ſuperior, to their merits; ſo that the public forgot the excellencies and great qualities of Aurungzebe, which became abſorbed in the bounties of his ſon and ſucceſſor. Some narrow-hearted perſons, however, out of ingratitude and envy, attributed his general liberality to ill-placed extravagance and profuſion; but it is a fact, that the deſerving of every profeſſion, and worthy of all degrees, whether among the learned or the eloquent, the noble or the ignoble, received an attention from the throne, which the eye of time prior to this had never ſeen, nor had ſuch been heard of before by the ears of fame. His perſonal qualities and perfections ſpeech is unequal to relate. His valour was ſuch, that he had reſolved on meeting Azem Shah, whoſe bravery was celebrated, in ſingle combat. His four ſons, poſſeſſed of great power and conſiderable force, he ſuffered conſtantly to be near his perſon, never giving himſelf a moment's ſuſpicion regarding them, nor preventing their forming connections with the prime nobility. He permitted the ſons of thoſe princes who had fallen in battle againſt him to appear at all times completely armed in his preſence. The infant children, inſtead of ſending into captivity, which had ever been the cuſtom, he let remain unmoleſted with their mothers; while thoſe arrived at manhood daily accompanied him in the chace, unguarded, and ſhared in all his diverſions. His court was magnificent to a degree beyond that of Shah Jehan. Seventeen princes, his ſons, grandſons, and nephews, ſat generally round the throne, in the manner following:—On his right hand, Jehander Shah, his eldeſt ſon, with his three ſons; his third ſon Ruffeh Ooſhaun with his three ſons; and Bedar Dil, ſon to his nephew Bedar Bukht. On his left, Mohammed Azeem Ooſhaun with his two ſons, and Jehan Shah with his ſon. Ali Tibbar, the only ſurviving ſon of Azem Shah, ſat on the right hand of Azeem Ooſhaun; and a little to the right, ſomewhat advanced, the two ſons of Mohammed Kambukſh. Behind the royal princes, on the right, ſtood the ſons of conquered ſovereigns; alſo a vaſt crowd of the omrahs, from the rank of ſeven to three thouſand, ſuch as were allowed to be on the platform between the ſilver rails. How can I mention every particular of the ſplendid ſcene? On the eeds, and other feſtivals, his majeſty, with his own hands, gave the betel and perfumes to all in his preſence, according to their ranks. His gifts of jewels, dreſſes, and other favours, were truly royal. When in private, he dreſſed plain and humbly, like a religious, and daily, without fail, prayed with many in company. Frequently, on holidays and Fridays, when travelling, he would read the prayers himſelf, in the grand tent of audience, and repeat portions of the Koran with a ſweetneſs which captivated the moſt eloquent Arabians. He never miſſed the devotions of the latter part of the night, and frequently employed the whole in prayer. In the early part of the evening, he had generally an aſſembly of religious and learned men. He himſelf related traditions, in the number of which he excelled, as well as in a knowledge of the holy laws. Thus, in his amiable qualities, he ſtrictly copied the example of his illuſtrious father Aurungzebe."

The emperor Bahadur Shah Aulum left four ſons. Jehander Shah, the eldeſt, was a weak man, devoted to pleaſure, who gave himſelf no trouble about ſtate-affairs. Azeem Ooſhaun, the ſecond ſon, was a prince of winning manners. Aurungzebe had always purſued the policy of encouraging his grandſons, and employing them in public affairs. To the latter he had given the viceroyalty or government of the three provinces of Bengal, Bahar, and Oriſſa, where he had accumulated a rich treaſure, and formed a conſiderable army. Ruffeh Ooſhaun, who had been made the private companion of his father, was a prince of quick parts, a great proficient in learning, a fine writer, and of much knowledge in the law; but at the ſame time addicted to pleaſure, and paid no attention to public affairs. Jehan Shah, the youngeſt, had the greateſt ſhare of all the princes in the management of public affairs, and had formed the cloſeſt friendſhip and connection with Monaum Khan, the vizier.

Immediately on the death of Bahadur Shah Aulum, his ſecond ſon, Azeem Ooſhaun, claimed the ſovereignty; which gave ſuſpicion that he had ſome concern in the death of his father. The imperial camp was ſo diſpoſed, that the tents of the deceaſed emperor were pitched along one bank of the Rawee, and on the other oppoſite, thoſe of the prince Azeem Ooſhaun, at a conſiderable diſtance from Lahore. The three other princes were encamped nearer to it; but Jehander Shah almoſt cloſe to the walls, and the greateſt part of his train occupied the houſes of the neareſt ſtreets. The influence and riches of Azeem Ooſhaun had long raiſed the enmity and jealouſy of his brethren; who now, for their general ſafety, formed a compact to ſupport each other. The emir ul omrah had been diſguſted with Azeem Ooſhaun, for preferring to himſelf the khan khanan; from which time he had courted alternately Ruffeh Ooſhaun, and Jehan Shah. On this occaſion, he ſwore to aſſiſt the three brothers in effecting the deſtruction of Azeem Ooſhaun, and make an equal diviſion of the empire and royal treaſures among them.

Azeem Ooſhaun had already the command of the imperial camp, and had formed a public court and levee for the nobility. Moſt of the omrahs had joined him, with their followers; alſo the royal artillery. He had, beſides, a very conſiderable army in his own pay, which he had brought with him from Bengal; ſo that his brothers, though all leagued againſt him, would have formed but a weak enemy, if he had immediately attacked them. But he acted otherwiſe: he encamped on the plain, keeping the river in his rear, and began to throw up works to defend himſelf, inſtead of proceeding to a general action. In the mean time the three brothers, by the advice of the emir ul omrah, drew all the artillery from the fort of Lahore, and encamped their united forces in one line, making the city their defence on their rear. When Azeem Ooſhaun had intrenched himſelf, and the three brothers began their approaches on every ſide, his conduct became highly blameable. It appeared that the ſuperior force dreaded the inferior; and that thoſe who ought to be the beſiegers were now the beſieged. Thus Azeem Ooſhaun's army grew diſpirited daily, while the enemy's gained ardour every hour, at finding that proſpect of ſucceſs, of which in the beginning they had almoſt deſpaired. In ſhort, the whole camp began to be alarmed, and even the boldeſt officers to feel a dread of the ill conſequences of being cooped up in unneceſſary intrenchments.

On the fifth day, therefore, Azeem Ooſhaun moved from his camp in order of battle; and his ſon, the prince Mohammed Kerreem, though commander of the advanced corps, was detained with him, inſtead of taking poſt at the head of his diviſion. Jehan Shah now moved ſteadily, in ſlow order, towards Azeem Ooſhaun, whoſe terrified troops began to give way from around him. The miſguided yet truly brave prince, when he ſaw this unfavourable turn to his affairs, though he might have ſaved himſelf by mounting a horſe, and flying from the field, yet ſcorned to owe his ſecurity to diſhonour, and would not move from his elephant, but advanced almoſt alone towards Jehan Shah. While thus advancing, his elephant-driver was killed, and the few till then remaining with him deſerted him to a man. He received many wounds from arrows and ſhot, till he ſunk down fainting upon his ſeat; while his elephant, without a driver, and agitated with pain, ran furiouſly through the enemy, who purſued him in vain for ſome hours, and during that time the unfortunate prince died of fatigue and loſs of blood. His ſon Mohammed Kerreem, in the height of the confuſion, threw himſelf from his elephant, and mounting a horſe, eſcaped from the battle; but only to ſuffer a worſe fate than dying in action.

Of the termination of this battle, the celebrated Mogul poet and hiſtorian Eradut Khan gives the following curious deſcription: "At the beginning of the action, the three princes were drawn up nearly oppoſite that part of the camp where I unfortunately had placed my family, in a wretched ſquare, to which the enemy advanced ſtill nearer, as the battle raged, and our troops began to fly. Mahabut Khan, Hummeed ul Dien, and other lords, had in the beginning ſent their families acroſs the river to places of ſafety, which precaution I was prevented from uſing, by being attendant on Azeem Ooſhaun's perſon in the line. The river was about a rocket's flight from the ſquare incloſure; and, upon the rout of our line, Khan Zummaun, my friend, adviſed me, while the enemy's troops were yet employed in fight, to conduct my women out of danger to the other ſide; at the ſame time offering me a boat he had ready for his own ſecurity againſt purſuit, and a guard of one hundred and fifty perſons, his own followers. Accordingly I placed my wife and daughter in two covered pallekees, with a ſum ſomewhat exceeding four thouſand gold mhors, (about ſix thouſand pounds ſterling, reckoning the mhor at ſixteen Sicca rupees,) a caſket of jewels, betel-plate of gold ſet with jewels, and other valuable ornaments belonging to my daughter, deſigned for her marriage-portion, leaving clothes and every thing elſe to chance. As Providence decreed it, the women's pallekees had juſt arrived at a narrow inlet of water, when Azeem Ooſhaun's elephant, and Mohammed Kerreem's, were running towards it, purſued by the enemy. I was advanced a little in front to prepare the boat; when ſuddenly one of my attendants cried out, "Where are you going? Your honour is ruined!" I looked behind me, and ſaw the enemy near my women; upon which, in a ſtate of furious deſpair, I haſtened back with my grandſon Meer Einaiut Oolla, as Khan Zummaun's people could not reach me in time for my aſſiſtance. We two had juſt joined the women, when the rapacious Moguls had begun to plunder; upon which I leaped from my horſe, and, ſeizing my wife and daughter by each a hand, ruſhed with them into the rivulet up to their waiſts, and covered the reſt of their perſons with a cloth, drawing my ſword to defend them with my life from further inſult: and, luckily for my honour, their faces were not ſeen by the eyes of a ſtranger. The Moguls, more attentive to gain than ſhedding of blood, after plundering the pallekees and other carriages of every thing, even to the coarſeſt outer coverings, rode off in ſearch of other prey, without attacking me or my attendants, who were hid in different buſhes and hollows. When the alarm was over, and friends and enemies had paſſed by, I was joined by my ſervants from their various ſhelters, and, having replaced my women in the pallekees, returned to my late miſerable dwelling, which had been alſo plundered, even to foot-cloths and carpets. No pillows or ſeats were left us but the bare ground, and no apparel but that drenched in water on our backs; nevertheleſs, I gave grateful thanks to the Almighty for the preſervation of my life and honour, with a ſincere fervour. With the approach of night the confuſion ſlackened, and about nine o'clock all was over, and quiet reſtored. I then ſaid to myſelf, 'What is gone, is gone!' and, with a calm mind, recited one hundred and twenty verſes of the Meſnavi, applicable to the preſent ſtate of affairs."

Jehan Shah, after gaining the victory over Azeem Ooſhaun, judging, from the purity of his own intentions, that thoſe of his two brothers and the emir ul omrah were equally juſt towards him, though fortune had placed all the treaſures of the vanquiſhed in his power, ſcorned to uſe this advantange contrary to his oath of alliance. He ſent the body of Azeem Oooſhaun to Jehander Shah, his eldeſt brother; and, when all the plunder of his camp was collected, he delivered the whole into the hands of the emir ul omrah, or chief treaſurer, who was to make an impartial diviſion of the provinces and treaſures between the brothers. This ſtrictneſs to his word was the cauſe of his ruin. The emir ul omrah had privately reſolved to ſeat Jehander Shah on the throne without a rival; for, being a weak prince, fond of his pleaſures, and averſe from buſineſs, he beſt ſuited the purpoſe of a miniſter who was ambitious of uncontrouled power. With this view, he delayed making a diviſion of the treaſure, knowing that the troops of Jehan Shah and Ruffeh Ooſhaun would ſoon become clamorous for the payment of their arrears, and would deſert in great numbers; and Jehan Shah, plainly perceiving the wavering of his followers, thought it moſt adviſable to prevent worſe conſequences, by putting all to the hazard of an immediate engagement. The next morning, being Monday, in the year of the hegira 1124, of Chriſt 1712, he formed his line, and began a cannonade; which was anſwered by the enemy, and kept up on both ſides till mid-day with equal ſucceſs. At length the fire of Jehan Shah began to ſlacken, and his troops to ſeparate on various pretences; ſo that near half the army deſerted, in ſpite of the prince's repeated orders to maintain the line. Obſerving this, he raiſed a report that the emir ul omrah was killed; in conſequence of which he ſounded the trumpet of victory, and his troops believed him, returning moſt of them to their poſts. It was now about four o'clock, when Jehan Shah, without looking behind him, advanced on the enemy's centre with a furious ſpeed, where the emir ul omrah was ſtationed with a few followers. Jehander Shah had before retired to repoſe in his tents. The chiefs of Jehan Shah ruſhed through all oppoſition to that quarter, gained the tents, and plundered even the ladies of the harem, who made a violent outcry. Jehander Shah, rouſed from his ſleep, without attending to their ſafety, fled to ſeek his own, undreſſed as he was, with the emir ul omrah, who was engaged againſt Jehan Shah in unequal combat, as he had only with him three or four hundred horſe. At this inſtant Ruffeh Ooſhaun, who ſeemingly ſupported Jehander Shah, but was waiting for an opportunity to deſtroy both him and Jehan Shah, appeared in the rear of the latter with his whole force. A numerous corps of infantry alſo now oppoſed him in front, not only ſtopping his charge, but confuſing his troops; who, ſeeing themſelves likely to be ſurrounded, loſt all ſpirit, and fled to a man on the right and left, leaving him expoſed alone upon his elephant: and he was ſoon killed by a muſquet-ſhot. His ſon, Ferkhundeh Akhter, a prince of moſt promiſing accompliſhments, who ſat behind him, deſcended, and fought with his ſcymetar, till he fell dead, covered with wounds. Both the bodies were carried to the emir ul omrah, who ordered the victory to be ſounded.

There now remained no other competitors for the crown than Jehander Shah and Ruffeh Ooſhaun. The latter had the firmeſt reliance on the attachment and oaths of the emir ul omrah, who, during the life of the late emperor, had been ſupported by him in the ſtrongeſt manner againſt the khan khanan. On this account, he had reſolved to wait as a ſpectator of the ſtruggle, till the fall of one of his rivals, and then to ruſh upon the ſurvivor, while fluſhed with victory, and unguarded againſt a new enemy. This deſign he now communicated to his followers, and deſired them to ſupport him in an immediate attack on Jehander Shah; but they would not conſent, pretending that the dawn of morning was more favourable for the purpoſe; ſo that the prince was obliged to ſtop, and wait their pleaſure. He ſpent the night under arms, with ſleepleſs impatience for the return of day; while ſome of his treacherous adviſers communicated his plan to the emir ul omrah, and promiſed to aſſiſt in the deſtruction of their patron. Juſt as the morning twilight appeared, Ruffeh Ooſhaun advanced ſilently towards the enemy, hoping to ſurpriſe them; but, before he had reached their camp, the commanding officer of his artillery, either through treachery or ignorance, fired a gun towards the quarter of Jehander Shah, which rouſed his troops. The alarm was immediately ſounded; and, the enemy marching rapidly to battle with a train of artillery in front, none would now ſtand to ſupport Ruffeh Ooſhaun. His followers fled in confuſion to the right and left; and the unhappy prince was in a ſhort time left alone, ſurrounded by enemies on every ſide; but, truly brave, and regarding the honour of the family of Timour, he threw himſelf from his elephant, and, drawing his ſabre, fought ſingly on foot againſt thouſands of aſſailants. But what could he effect, more than ſell one life at the expence of many? He was ſoon hewed down with repeated wounds, and reſigned his breath to him who gave it. "Such courage, (ſays Eradut Khan,) I muſt with juſtice remark, never appeared among the deſcendants of Timour, as was ſhown by the offspring of Aurungzebe; nor do the various hiſtories record the like gallant oppoſition of a prince ſingly againſt numbers. True valour is proved in the extremity of danger; but it is eaſy to aſſume the appearance of courage in the day of ſafety."

Jehander Shah, now unrivalled in the empire, ordered the mangled bodies of his martyred brothers to be kept three days on the field of battle, expoſed to public view. They were afterwards conveyed to Delhi, and interred without ceremony or pomp, in the mauſoleum of the emperor Humaioon, the general receptacle of the murdered princes of the imperial family. Thus Jehander Shah, by the intrigues and treachery of the emir ul omrah Zoolfeccar Khan, triumphed over his three brothers, and aſcended the throne of Hindooſtan, wholly unqualified for the arts of government, and addicted to low vices unworthy of his name, and unknown among his illuſtrious anceſtors. He made the vaſt empire of Hindooſtan bend to the fooliſh whims of a public courtezan, named Lall Koor; ſo that the higheſt offices, great titles, and unreaſonable grants, were ſhowered profuſely on her illiterate relations and friends. The emperor frequently rode with her in a chariot through the markets, where ſhe purchaſed, according to her whim, ſometimes jewels, gold, ſilks, and fine linen; at others, greens, fruits, and the moſt trifling articles. A woman named Zohera, keeper of a green-ſtall, one of her particular friends, was promoted to a high rank, with a ſuitable jaghire, or revenue, for the pompous maintenance of herſelf and family: a circumſtance almoſt incredible: while the emir ul omrah Zoolfeccar Khan aſſumed to himſelf the direction of the government, and the authority of the ſovereign. He ſtudied to ruin the moſt ancient families, inventing pretences to put them to death, that he might plunder their poſſeſſions. Unhappy was the perſon he ſuſpected to be rich; for wealth and vexatious accuſations always accompanied each other. He took enormous emoluments and revenues for himſelf, while he diſpoſed of money to others with a hand ſo ſparing, that even his own creatures, whom he rewarded with empty titles, were reduced to the ſevereſt penury. The minds of high and low, rich and poor, near or diſtant, friends or ſtrangers, were turned againſt him. Hindoos and Muſſulmans, though at variance in all other reſpects, agreed in praying to heaven for the fall of his power, and night and day meditated his deſtruction.

In this wretched manner was the government and ſovereignty of the moſt exalted empire of the world conducted, when all at once a report prevailed that the prince Ferokhſere, ſon to the martyred Azeem Ooſhaun, had marched from Bengal towards Bahar, intending to revenge his father's death, and ſeize the imperial throne. Jehander Shah, and the emir ul omrah, though they feigned to diſbelieve the intelligence, yet in their hearts were ſtruck with dread, and mutually recriminated and reflected on each other. Jehander Shah would often exclaim, "I did not kill Azeem Ooſhaun: it was the emir ul omrah, who muſt now go and anſwer the claims of his ſon for ſatisfaction. What have I do with it?" Zoolfeccar Khan, offended at theſe reflections of his maſter, took not the neceſſary precautions againſt the enemy, but employed his time in forwarding his own immediate intereſts; and, while the rebellion was daily gathering force, the emperor's miniſters, divided againſt each other, were undetermined how to act. Kokultaſh Khan, the principal general, refuſed to take the command of an army, if the emir ul omrah remained at Delhi, pretending that the emperor was not ſafe in his hands; and the latter did not think it proper to quit the court, where, in his abſence, ſuch a dangerous rival would poſſeſs the whole power. Jehander Shah did not dare to think, much leſs to fix, whom he ſhould entruſt with the command; but at length it was reſolved that Aiz ul Dien, eldeſt ſon of Jehander Shah, ſhould march at the head of the army, under the tutelage of Khan Dowran, ſon-in-law to Kokultaſh Khan, a weak man, who had ſcarcely ever ſeen a ſhot fired. The troops who marched with him did not amount to ſix thouſand, though there were among the officers many omrahs of the higheſt rank. On his arrival at Agra, he was joined by Jauts, Rajahpouts, and many Fojedaurs, with a fine train of artillery. From Agra, Aiz ul Dien marched without delay to Etawa, and from thence to Cudjwa, where Ferokhſere had arrived with the two chiefs of the Syeds, and near ſeventy thouſand horſe and foot, ſtedfaſt in his cauſe, and who ſerved from the earneſt hope of enriching themſelves by a revolution.

The two camps being in ſight of each other, on the 29th of Showal, early in the morning, Syed Abdallah Khan, at the head of his detachment, advanced to reconnoitre the enemy's poſition. This brought on a ſkirmiſh, and afterwards a cannonade on both ſides, which continued till night, without much execution; but Khan Dowran, a perfect ſtranger to war, was much alarmed at the dangers of his new profeſſion. He thought he ſhould do the ſtate moſt ſervice by ſaving the prince from inevitable deſtruction. Accordingly, unknown to his officers, about midnight he fled with him in a woman's covered palankeen, ſtopping not till he arrived at Agra; from whence he diſpatched to Jehander Shah accounts of his gallant ſervice, and zealous care of the heir-apparent. The officers of his army, in the morning, finding their chief had fled, laid aſide all thoughts of reſiſtance, and each provided for his own ſafety. Moſt of them went over to the ſervice of Ferokhſere, and the remainder returned precipitately towards Agra. Syed Abdallah Khan would not allow them to be purſued, and, what is more extraordinary, adviſed Ferokhſere to halt ſome time in the camp, inſtead of following his ſucceſs with rapidity. The news of the defeat reaching Delhi, threw the court into ſuch confuſion, that no other plan was at firſt reſolved on, than to wait the enemy's approach in the vicinity of the city, and hazard all in one engagement, as it was expected time would not allow of more diſtant operations. Accordingly, Rajee Khan was ordered with the imperial artillery to Feridabad, about three coſs from the city, where ground was choſen for the encampment; but, as ſoon as it became known that Ferokhſere had not advanced beyond the field of battle, Jehander Shah altered his plan, and began his march towards Agra. On his arrival there, the emir ul omrah opened the royal treaſures, which had been for ages ſhut up, diſpoſing of money, jewels, plate, and valuable effects, to the amount of two crores of rupees, among the troops, who were now ſeventy thouſand horſe, and foot without number. Moſt of them too were veteran ſoldiers, but little affected to the royal cauſe, becauſe they had experienced ſlights in the days of peace, and knew this profuſe bounty to proceed only from the dread of the times. The imperial army encamped at firſt near the gardens of Dehera; but upon intelligence arriving that Ferokhſere had advanced to Eatimadpour, near the Jumna, intending to croſs, it was thought adviſable to move along the oppoſite bank to prevent him. Both armies remained a week thus, on different ſides, in ſight of each other, as if each was afraid to attack his rival.

On the night of the 13th of Zeekaud, intelligence was received that the Syeds had, by a countermarch of twenty miles, gained the ford of Gaow Ghaut, and croſſed the river with their advanced corps and all the artillery; alſo that Ferokhſere, with his whole army, intended to follow the next day. When this news was brought to the emir ul omrah, he was viſibly affected and alarmed, as were all the nobility in his train. Orders of march were judiciouſly iſſued for the next morning, to take the enemy by ſurpriſe. Jehander Shah moved accordingly; but moſt unadviſedly halted before he had ſight of the enemy, encamping on the broken ground and hollow ways on the banks of the Jumna. This at once diſpirited the troops, who judged that their generals had choſen a ſtrong poſition, more from fear of a ſudden attack, than proper caution and judgment of the ground. The next morning, however, the imperial army continued the march to Secundra, and the day after to Gaow Ghaut, where the enemy's troops were ſtill croſſing, and Ferokhſere had not yet joined. The emir ul omrah Zoolfeccar Khan, with a number of nobility, reſolutely advanced in front, to reconnoitre the poſition of the enemy; as did alſo the emperor, when he arrived with the main army. The Syeds, notwithſtanding their inferior force, drew up to a man, and prepared to receive them; but the emir ul omrah choſe to defer taking advantage of his preſent ſituation, as it was late in the afternoon, and the approach of night, during an action, would create much confuſion and diſorder. With this idea he encamped on the banks of a rivulet which ran between him and the enemy.

Early in the morning the imperial troops were commanded to form; the emir ul omrah in front, and upon his right Kokultaſh Khan. In the centre ſtood the emperor Jehander Shah, attended by Rajee Khan, with the royal artillery. To the left were the troops of Kokultaſh Khan, and many other omrahs. The enemy's army advanced ſlowly till within reach of cannon-ſhot, when they commenced the battle with their artillery and rockets; which were anſwered with great fury by Rajee Khan. After a cannonade of ſome time, two bodies from the enemy's line vehemently charged the imperial army, one with a red, the other with a green, ſtandard. The former was the corps of Rajah Jubbeeleh Ram, and the latter of Syed Houſſein Ali Khan. The firſt body charged directly on Kokultaſh Khan; and the other puſhing through the line of Rajee Khan's artillery, which was deſerted as it approached, attacked the centre, in which was Jehander Shah. The imperial troops fell back upon the camp, and great confuſion took place; as the men, elephants, and horſes, became entangled among the ropes of tents, carriages, and baggage. Numbers fled; but the emir ul omrah Zoolfeccar Khan remained firm, and the enemy was kept long at bay by his gallantry and ſteadineſs; but he was not ſupported. It was now about five o'clock, and the victory doubtful; when, juſt at the inſtant, Syed Abdallah Khan, with a great body of reſerve, charged Jehander Shah, who ſtood with his troops at ſome diſtance in the rear of the emir ul omrah, to whoſe ſupport they never came up. They ſcarcely waited to be attacked; but broke their line, and fled on all ſides. Jehander Shah haſtily joined the corps of Kokultaſh Khan, and was cloſely purſued by the enemy, who thus forced him between two fires, Ferokhſere having now come to the aſſiſtance of Jubbeeleh Ram, who had renewed the attack in front. Kokultaſh Khan was killed after a ſhort ſtruggle, his troops diſperſed, and Jehander Shah ſuddenly diſappeared from his elephant. The rout became general, and only the emir ul omrah kept his ground. When he could hear no tidings of the emperor, and it became dark, he retired ſlowly to Shah Gunge, near Delhi, where he remained till midnight, diſpatching meſſengers on all ſides in ſearch of his ſovereign, with the hopes, if he could be found, of rallying the troops, and making another effort the next day; but all in vain; Jehander Shah could not be heard of; upon which he thought proper to provide for his own ſafety, and marched to Delhi. Thus, in the ſpace of a few hours, was the empire of Jehander Shah deſtroyed, and poſſeſſed by Ferokhſere, who ſounded the joyful march of triumph.

As yet it was not known to what quarter Jehander Shah and the emir ul omrah had retired. Aſſud ul Dowlah, father to the latter, was in the command of Delhi, and had in his power the confined princes. It was apprehended that the emir ul omrah would retreat to the Deccan with his maſter; but he, not being able to find him, gave up that intention. Jehander Shah, who had ſhaved his beard and whiſkers to prevent his being known, arrived a ſhort time before the emir ul omrah, at the palace of Aſſud ul Dowlah. This became known throughout the city; upon which the friends to the family of Azeem Ooſhaun ſurrounded the houſe, and demanded the delivery of the royal fugitive. Aſſud ul Dowlah was obliged to confine him, to ſuppreſs their clamours. Making a virtue of neceſſity, he wrote a petition to Ferokhſere, ſtating, that he had impriſoned Jehander in his own houſe, and waited the imperial orders concerning his diſpoſal. In return, firmauns were diſpatched, applauding his conduct, forgiving all paſt offences, and continuing him in the vizaret, with Syed Abdallah Khan as his deputy, to whoſe care Jehander Shah was for the preſent to be entruſted. All theſe gracious aſſurances ſatisfied Aſſud ul Dowlah, and had ſuch an effect on the emir ul omrah, his ſon, that he thought it beſt to remain at Delhi, and wait the emperor's mercy, which he hoped would ſpare his life and fortune. The reign of Jehander Shah was eleven months and five days.

When Ferokhſere had reſtored order in the city of Agra, he began his march to Delhi, and halted at Khizzerab, about four miles diſtant from that capital. The next morning, Aſſud ul Dowlah, and his ſon, the late emir ul omrah Zoolfeccar Khan, came to pay their reſpects, and were honoured with dreſſes and other marks of favour; after which the former was diſmiſſed, but the latter commanded to wait. He accordingly remained with Khaujeh Aſſim. In a little time a dinner was ſent from the royal table for the emir ul omrah, who at firſt refuſed to eat, ſuſpecting poiſon; but on the khaujeh's offering to partake, his fears ſubſided, and he agreed to dine. Half an hour had not elapſed, before the Syed Abdallah Khan came from the emperor's apartment, and ſpoke as follows to the emir ul omrah:

"His majeſty commands you to inform him why you confined the prince Kambukſh in the Deccan, contrary to royalty and reſpect to the emperor?" The emir ul omrah unheſitatingly anſwered: "I confined the prince by the orders of Aurungzebe, his ſovereign and mine. Had he commanded me to impriſon my own father, I ſhould have complied." Abdallah Khan then withdrew, but inſtantly returning from the emperor, ſaid: "You were the general and chief miniſter of Azem Shah; was it acting loyally to deſert him in the field, and ſeek your own ſafety by flight?" He anſwered, "While he was alive I kept the field; but, when he was ſlain, I dared not to oppoſe a prince of the blood, without a rival of equal dignity at the head of our army." Upon this Abdallah Khan returned; but, coming back ſoon, ſaid, "What were the circumſtances of your conduct to the martyred prince, his majeſty's father, Azeem Ooſhaun?" The emir ul omrah anſwered, "He behaved inattentively to me, and I then attached myſelf to his brother; but in this I did no more than other nobles, who each embraced the cauſe of the prince he beſt loved, and from whom he received the greateſt favours." Abdallah Khan then ſaid, "Why was his majeſty's beloved brother inhumanly murdered in cool blood, many days after the battle, when other princes were allowed to live?" The emir ul omrah, convinced by this queſtion, that no ſubmiſſions or entreaties could ſpare his life, angrily exclaimed, "If I am to die, kill me inſtantly, nor vex me longer with vain interrogations." Upon this, a band of chelas, or ruffians, ruſhing in upon him, threw him on the ground; and, having ſtrangled him with a bowſtring, ſtamped upon his breaſt, and ſtabbed him with daggers in ſeveral parts of the body. He was then caſt without the court of the divan, as a ſpectacle to the populace. His effects and eſtates, with thoſe of his father, were confiſcated to the royal uſe.

The day ſucceeding this tragedy, Ferokhſere made his public entry into Delhi, where he aſcended the muſnud or throne. On this occaſion the heads of the late emperor his uncle, Jehander Shah, and the emir ul omrah, were carried on poles, their bodies hanging feet upwards acroſs an elephant, as marks of his triumph. The aged miniſter Aſſud ul Dowlah was alſo compelled to attend the proceſſion, ſhabbily dreſſed, in a palanquin, and accompanied by the ladies of his family, as ſpectators of their own diſgrace. Rajah Soubeh Chund, dewan to the late emir ul omrah, had his tongue cut out; but he firſt ſaid to the cruel Ferokhſere, "Be not ſelf-ſecure from the retribution of your actions, for every ſeed ſown produceth its kind." Many nobles and dependants of the late emperor were put to death by the bowſtring. Aiz ul Dien, ſon of Jehander Shah, Ali Tibbar, the ſon of Azem Shah, and Humaioon Bukht, younger brother to Ferokhſere, were deprived of ſight by a red-hot iron drawn over their eyes. Owing to the unjuſt ſlaughter and puniſhments inflicted on numbers innocent of crimes, perſons of all ranks were ſeized with horror. The dread of death was ſo great, that many nobles, previous to going to court, uſed to take leave of their families, and on their return home offer prayers and alms, as in thankſgiving for their eſcape from imminent danger.

Ferokhſere had not long enjoyed the throne, before a jealouſy aroſe between him and his vizier Abdallah Khan, which finally occaſioned the downfall of the empire. The vizier had diſpoſed of two principal offices to his friends, which the emperor wiſhed to confer on other perſons. Abdallah upon this obſerved, that if, in the very commencement of his office, his advice ſhould not be followed, it would deſtroy his credit as vizier; while Meer Jumlah, Ferokhſere's private favourite, remarked, that, how far ſoever princes might truſt ſervants with power, yet they ought not to appoint to important ſtations, without orders from the preſence. In ſhort, though this diſpute ended in the vizier's giving up one of the offices to the emperor's choice, yet it left mutual hatred in their minds.

Meer Jumlah now ſought ſuperiority over all the nobility; and, having ſeized the fortunes of Aſſud ul Dowlah and his ſon, was meditating the deſtruction of the Syeds, of which Abdallah Khan, and his brother Houſſein Khan, who had ſucceeded to the office of emir ul omrah, were the principal. He could not bear to ſee theſe brothers the patrons of the people, and guiders of the adminiſtration. Abdallah Khan being vizier, and his brother emir ul omrah, or chief treaſurer of the empire, it was difficult to exerciſe any act of government without their approbation. At the ſame time, Meer Jumlah, the confidential miniſter of the emperor, who had publicly ſignified that his promiſes and ſignature were the ſame as his own, received applications, and granted petitions, in oppoſition to the vizier. The diſputes grew ſo high, that the brothers left off attending the court, levied troops, and fortified themſelves in their palaces; while Ferokhſere held councils againſt them with Meer Jumlah, Mohammed Ameen Khan, and Khan Dowran; but from unpardonable irreſolution, his plans were changed from day to day, and nothing was determined. At length the emperor's mother went to Abdallah Khan, and ſatisfied his mind, by agreeing that his troops ſhould garriſon the citadel, while he and the emir ul omrah viſited her ſon. Accordingly, the brothers went to court, aſked pardon for their offences, and complained of the emperor's ſuſpicions of their attachment from the inſinuations of intriguing perſons. Taking off their ſwords, they laid them at his feet, ſaying, "If we are guilty, here are our heads, and there the inſtruments of puniſhment; but if, from regard to our ſervices, our deaths ſhould be uneaſy to the royal mind, diſplace and diſmiſs us from the preſence, that we may gather purity in a pilgrimage to Mecca, and the holy tombs of our illuſtrious anceſtors. If it is the royal will to uſe our ſervices, and keep us in the preſence, to liſten to the calumny of the factious, and injure and diſgrace us, is contrary to the practice of juſt ſovereigns, and the rules of prudence." Ferokhſere declared himſelf ſatisfied; and it was ſettled that Meer Jumlah, being promoted to the ſoubadary of Bahar, ſhould be baniſhed the preſence, and the emir ul omrah marched to the Deccan, as governor or viceroy.

After theſe arrangements, the emperor celebrated his marriage with the daughter of the Maharajah Ajeet Sing. The emir ul omrah conducted the feſtivities on the part of the bride; and the marriage was performed with a ſplendour and magnificence till then unſeen among the princes of Hindooſtan. The illuminations rivalled the planets, and ſeemed to upbraid the faint luſtre of the ſtars. High and low ſhared the feſtivity, and joy thrilled through the veins of all. It was during this happy interval of peace and feſtivity, that the Engliſh Eaſt-India Company firſt obtained from Ferokhſere their firmaun of free trade in Hindooſtan.

After the ſplendid celebration of theſe nuptials, the emir ul omrah, Houſſein Ali Khan, was diſpatched with a ſuitable cavalcade to take poſſeſſion of his viceroyalty of the Deccan. The emperor however had appointed Daood Khan, the chief of an Afghan tribe, to act as deputy to the emir ul omrah; but with ſecret orders to cut him off. Daood Khan, therefore, ſoon began to act as if independent; upon which the emir ul omrah ſent a meſſage to him, that, as the government of all the Deccan had been conferred upon him, it was neceſſary he ſhould not draw his foot from the circle of obedience, but come to meet him ſubmiſſively, or retire to Delhi. But Daood Khan, diſregarding this, pitched his camp under the walls of Burhampour, and called to his aſſiſtance Neemajee Scindia, a Mahratta chief, who had heen taken into the imperial ſervice by Shah Aulum, and enjoyed the rank of omrah of ſeven thouſand. The emir ul omrah marched to Burhampour; and Daood Khan prepared to receive him. The engagement was very bloody on both ſides. Daood Khan had given orders to his elephant-driver to make his way through every obſtacle to the emir ul omrah, whom he was reſolved to challenge to ſingle combat. His bravery began to carry every thing before it; and at length he approached the perſon of the emir ul omrah; whoſe army, ſeized with a panic, fled on all ſides, leaving him with only a few confidential attendants. At this criſis, a matchlock-ball ſtruck Daood Khan; who fell dead on the ſeat of his elephant. His followers inſtantly diſperſed, and the emir ul omrah ſounded the trumpet of victory, commanding the body of Daood Khan to be dragged at the tail of an elephant round the city of Burhampour. On this occaſion the following circumſtance is related. Daood Khan, while ſoubadar of Guzerat, had married the daughter of a zemindar of that province, and ſhe was at the time of his death ſeven months gone with child. Determined not to ſurvive her lord, ſhe ripped open her womb, ſo as to ſave the life of the infant, and died. When the emperor received intelligence of theſe events, he was much afflicted, and began again to meditate the deſtruction of the two brothers.

Theſe contentions, however, were for a time ſuperſeded by a freſh inſurrection of the Seiks. The leader of the ſect was Bunda, ſupported in the command of the inſurgents by many reſolute chiefs. Abed ul Summud Khan, governor of Cachimere, was now promoted to the ſoubadary of Lahore, and ſent againſt the rebels with a great army. After many ſevere engagements, he forced Bunda to take refuge in a fortreſs, which was blockaded ſo effectually, as to cut off every ſupply. The garriſon was reduced to the neceſſity of eating cows, horſes, and other animals forbidden by their laws; when at length, having no proviſion of any ſort left, and being reduced to the extremity of famine and diſeaſe, they begged for quarter. Abed ul Summud Khan, having planted a ſtandard on the plain, commanded them to come out, and lay their arms under it. He then divided the meaner ſort among his chiefs, who cut off their heads, and threw their bodies into a river near the fortreſs. Bunda, and the other chief captives, were ſent to Delhi; through which Bunda was carried in an iron cage; while his attendants and followers were covered with ſheep-ſkins, with the wool outwards. The Seiks bore the inſults of the populace with the greateſt firmneſs; and ſteadily refuſed the emperor's offers of life, if they would embrace the Mohammedan faith. They were put to death, an hundred each day, for ſeven days. On the eighth, Bunda and his ſon, with their remaining friends, were executed without the city. A dagger was put into the hands of the chief, who was commanded to kill his infant ſon; but refuſing, the child was ſlain by the executioner, his heart torn out, and forced into the father's mouth. Bunda was then put to death, by the tearing off his fleſh with red-hot pincers, and other tortures, which he bore with the greateſt conſtancy; and, had he not inflicted ſimilar cruelties on others, he might be regarded as a martyr to his faith. It is ſaid, he made the following reply to Mohammed Ameen Khan, who had remonſtrated with him on his conduct: "When the ſins of a people become exceſſive, the divine Avenger ſends forth among them a tyrant, like myſelf, to puniſh their crimes; but, when the meaſure of juſtice is filled, commits him to the hands of one more powerful, that he may receive the reward of his actions. What are the cruelties and oppreſſions of the wicked, if they ſhow not the rod of the Almighty?"

Shortly after this tragical ſcene, the eed al fitter, or faſt of Ramazan, occurred, when the emperor went in ſtate, attended by the nobility and troops, to the place of public worſhip without the city; and it was rumoured, that on this day the vizier Abdallah Khan would be taken priſoner, or aſſaſſinated. The vizier attended, but no attempt was made againſt him. Jealouſies and apprehenſions had however ariſen to ſuch a height, that he no longer thought himſelf ſafe without his brother; and accordingly wrote him to haſten to Delhi, as Ferokhſere was daily planning ſchemes for their deſtruction.

The emir ul omrah, Houſſein Ali Khan, enraged by this intelligence from the vizier his brother, reſolved to haſten to his aſſiſtance, and by one deciſive blow deſtroy their enemies. Ferokhſere was now filled with dread, and attempted a reconciliation with the vizier; who, in order to gain time for the arrival of his brother, took a freſh oath of fidelity, as did the emperor of regard and attachment; but there was no ſincerity on either ſide. The vizier, by beſtowing jaghires, and promiſing various advantageous offices of the ſtate, had gained over moſt of the omrahs and nobility; ſo that Ferokhſere had no perſon of conſequence or ability attached to him, but Jey Sing, rajah of Ambere. He adviſed the emperor inſtantaneouſly to take the field, and truſt his cauſe to the bravery of his troops; but in vain. Ferokhſere, cowardly, and ſunk in the voluptuouſneſs of the harem, would not quit the walls of his palace, where he continued; at one time laying ſchemes for the aſſaſſination of the brothers; and at another, making the moſt abject ſubmiſſions to them. The emir ul omrah, in the mean while, having placed his own troops in ſuch fortreſſes of the Deccan as he choſe to retain, gave up the remainder to the Mahrattas, as the price of their friendſhip; and began his march to Delhi, with an army of thirty thouſand horſe, ten thouſand of whom were Mahrattas. Meeting with no obſtruction in his way, he encamped cloſe to Delhi, near the minaret of Feroſe Shah; and, contrary to the rules of etiquette, which did not admit of any ſubject keeping a band within twenty-four miles of the preſence, he commanded his muſicians to play on his entering his tents; ſaying, that he no longer conſidered himſelf as a ſervant of the emperor, and would not regard the royal ceremonials.

Ferokhſere, upon intelligence of this mark of diſreſpect, was overwhelmed with indignation; but ſtill at a loſs how to act. At one time he reſolved to exert his authority, and take the field; but his fears overcame his courage, and he had recourſe to mediation and entreaty. The rajah Jey Sing again adviſed him to leave the palace, and encamp; aſſuring him, that he would inſtantly be joined by the imperial ſervants, who would double the force of the brothers in number, and puniſh their inſolence; that it was moſt probable their own followers would deſert them, ſhould they ſee his majeſty reſolved, and join the imperial ſtandard, when the miniſters muſt ſubmit to his pleaſure, or fly. But Ferokhſere could not be rouſed to action. He again determined to give himſelf up to the will of the two brothers, the Syeds, and even commanded all the nobility to receive their orders, and act under their authority. At length he received a meſſage from Abdallah Khan, that if he would diſmiſs the rajah Jey Sing from court, and confer the offices immediately about the royal perſon on their dependants, and admit a guard of their troops into the citadel, he and his brother would come and pay their obeiſance with fidelity and loyalty. Ferokhſere in reply, aſſured them that he would confer the above offices on Abdallah Khan, and other Syeds, and receive their viſit on the feſtival of the noroze, which would begin in a few days. Jey Sing, having received the royal orders to quit Delhi without delay, retired to his zemindary of Ambere, unable to aſſiſt his degenerated ſovereign.

The unhappy Ferokhſere, having conſented to the demands of the Syeds, on the eighth of February 1719, their troops were admitted into the palace, and the royal guards withdrawn; when Abdallah Khan, with Maharajah Ajeet Sing, the emperor's father-in-law, entered, and poſted their dependants where they thought proper, to prevent ſurpriſe. The emir ul omrah, Houſſein Ali Khan, in princely ſplendour and parade, attended by his army, marched through the city, and entered the palace towards evening, his troops remaining under arms. He was kindly received by the emperor, who ſhed tears, and placed his own turban upon his head; conferring upon him alſo all the jewels he had upon his dreſs; but the emir ul omrah behaved haughtily, refuſed part of the gifts; and having upbraided his majeſty with want of confidence in himſelf and his brother, who had been the inſtruments of his exaltation to the throne, took his leave, neglecting the cuſtomary ceremonial of reſpect at his departure, and returned to his camp. At the ſame time the vizier, with his followers, left the palace, and the royal guards were re-admitted to their ſtations.

Ferokhſere, though thus ſhamefully treated by his miniſters, took no meaſures for the ſafety of his perſon. It is probable, he thought the brothers would be contented with the powers of government, and leave him the name and pageantry of emperor; and that he had reſolved to ſtruggle no longer for greater privileges of royalty. On the eighth day after the interview, the vizier and Ajeet Sing again introduced themſelves to the emperor, and demanded certain conceſſions and appointments for themſelves and friends. Abdallah Khan, in angry terms, ſet forth, that, in return for the ſervices performed by himſelf and his brother, they had met with ill-founded jealouſies, and treacherous attempts upon their lives; of which the royal orders to Daood Khan and others to deſtroy them, were clear proofs; that they could not any longer ſubmit to his authority, unleſs they had ſecurity for their perſonal ſafety, by all the offices of the palace being committed to the hands of their own friends, upon which they muſt inſiſt. Ferokhſere, notwithſtanding he ſaw himſelf entirely in the power of his enemies, again deſired they would wait till the approaching feſtival, when their requeſts ſhould be complied with; which the vizier refuſed, and proceeded to violence. Ferokhſere retreated to the apartments of the women, which he hoped would be held ſacred. Night was advanced, and day, like the fallen ſtar of the emperor, ſunk in darkneſs. The gates of the citadel were cloſed upon his friends; troops of the emir ul omrah, with ten thouſand Mahrattas, remained under arms. Early in the morning, a rumour prevailed that the vizier had been killed by Ajeet Sing, who had reſolved to protect the emperor, his ſon-in-law; upon which ſeveral noblemen prepared to riſe againſt the emir ul omrah; and their troops were actually put in motion. The friends of the emir ul omrah, alarmed at the gathering ſtorm, were in a wavering ſtate, when their courage was revived by intelligence of the vizier's ſafety. This was ſoon ſpread abroad, and the emperor's friends were diſperſed with little bloodſhed or reſiſtance. It was now confirmed that Ferokhſere had been taken priſoner; and that Ruffeh ul Dirjaut had been nominated to the throne; which appeaſed the tumult, and order was reſtored.

It is ſaid, that Abdallah Khan repeatedly requeſted Ferokhſere to quit the private apartments, and deſigned to leave him in poſſeſſion of the throne, if he would conſent to certain reſtrictions; but the emperor would not truſt his perſon from the harem. While meſſages were carrying on between him and the vizier, the tumult began without; Abdallah Khan received information from his brother, that no time was to be loſt, as there was danger of a general revolt in the city. He therefore forced the doors; and after much ſearch, found the emperor, ſurrounded by his mother, wife, daughter, and other princeſſes. He was forced from among them in the moſt peremptory manner, and confined in a dark chamber, over one of the gates of the palace. Ruffeh ul Dirjaut, the ſon of Ruffeh ul Kudder, youngeſt ſon of Shah Aulum, was then taken from confinement, and ſeated on the throne. His acceſſion was announced by the ſound of muſic and firing of cannon; and in a few hours order and quiet were reſtored to the capital. Excluding the reign of Jehander Shah, which by ſome writers is added to that of Ferokhſere, he ſat on the throne of Hindooſtan ſix years, four months, and a few days, according to lunar computation. He was the firſt of the Great Moguls whoſe father had not been emperor.

Upon the acceſſion of Ruffeh ul Dirjaut, who was yet in his minority, it was agreed that Abdallah Khan ſhould reſide in the palace; which he filled with his own dependants and relations. The jaghires and property of all the dependants of the late emperor were ſeized, excepting thoſe of his queen, daughter of Ajeet Sing, at whoſe requeſt they were ſpared, and ſhe was allowed to return to her father. But the wretched Ferokhſere was doomed to various calamities. A hot iron was drawn over his eyes, but it did not wholly deſtroy his ſight. Still anxious for liberty, he ſent repeated meſſages to the brothers, the Syeds, begging mercy and reſtoration to his throne; offering to act in all affairs agreeably to their pleaſure: but in vain. Poiſon was twice mingled in his victuals without effect; but, being adminiſtered a third time, he was thrown into violent agonies, and continued long in torture. During his pangs he invoked curſes on his murderers, and called on God, whoſe name had witneſſed the treaty he had made with them, to avenge his cauſe by inſtant puniſhment. The brothers, upon this, ordered his death to be haſtened with the bow-ſtring; but it was with difficulty the executioners could place it round his neck, as he ſeized it with his hands, and they were obliged to beat them with clubs, ſo that he was put to great pain before he expired. Upon his death, the brothers became poſſeſſed of abſolute authority, and the imperial treaſures, and acted without controul. They divided money, jewels, elephants, horſes, and rich plate, between them; and Abdallah Khan, who was much addicted to women, ſeized the ladies of the royal harem for his own uſe. The new emperor was but a child, and no more than a pageant; but he did not long ſurvive his exaltation, dying of a conſumption, after a nominal reign of four months and a few days; being ſucceeded by his younger brother Ruffeh ul Dowlah. But this prince, alſo inheriting the ſame infirmity as his brother, was ſoon taken extremely ill; and, being paſt hopes of recovery, Nudjum Ali Khan was diſpatched to Delhi, to bring down one of the confined princes to ſucceed him. He fixed upon Rooſhun Akhter, the ſon of Jehan Shah, ſon of Shah Aulum, eldeſt ſurviving ſon of Aurungzebe, who, with his mother, had been impriſoned ſince the death of his father, and acceſſion of Jehander Shah. Ruffeh ul Dowlah died before his arrival, after a reign of only three months. This event was kept ſecret till the arrival of Rooſhun Akhter; when the royal corpſe was ſent in great funeral pomp to Delhi, where it was interred in the mauſoleum of Cuttub ul Dien.

Rooſhun Akhter aſcended the throne of Hindooſtan in the year 1720, and took the name of Mohammed Shah. He was at that time in his ſeventeenth year, deficient neither in foreſight nor courage; but was ſurrounded by the dependants of the vizier and emir ul omrah; without whoſe permiſſion he did not even move from the camp to take the air, nor interfere in any of the affairs of the empire.

Nizam ul Muluk, ſoubahdar of Malwa, a moſt active and diſtinguiſhed perſon in the modern hiſtory of Hindooſtan, called by European writers the Nizam, had particularly rendered himſelf an object of jealouſy to the brothers, who wiſhed to remove him to another quarter, leſs favourable to his intereſt than the frontier of the Deccan, where he had great influence with the Mahrattas. They offered him the choice of four other ſoubahs, under pretence that the emir ul omrah wiſhed to reſide in Malwa himſelf. But Nizam ul Muluk excuſed himſelf from making any ſuch exchange, and was in conſequence threatened with the utmoſt reſentment of the brothers; whereupon he reſolved to throw off his obedience to their authority, and take upon himſelf an independent ſovereignty in the Deccan. For this purpoſe, having croſſed the Nerbudda, he prevailed on the governor of Aſere to put him in poſſeſſion of that important fortreſs; and he was equally fortunate in obtaining the citadel of Burhampour. The emir ul omrah, receiving advice of his progreſs, prepared to march in perſon againſt him; but his brother Abdallah Khan was for making up the diſpute in a friendly and peaceable manner; which produced a controverſy between them, whereby they became irreſolute and diſtracted in their councils. After much deliberation, coercive meaſures were reſolved on; and it was agreed that Abdallah Khan ſhould proceed to Delhi, to quiet an inſurrection in that diſtrict; while the emir ul omrah moved with the emperor, to reſtore peace in the Deccan: accordingly the imperial army began its march to oppoſe the progreſs of Nizam ul Muluk.

The uſurpations however of the two brothers, the Syeds, had for a long time been regarded with jealouſy by the omrahs and nobility, who of courſe wiſhed their deſtruction. Mohammed Ameen Khan, who converſed in private with the young emperor, had gained his aſſent to the plans of Nizam ul Muluk, and had reſolved if poſſible to procure the aſſaſſination of the emir ul omrah. He communicated his intention to Saaudut Khan, the fogedar of Biana, and Hyder Khan. It was agreed to caſt lots who ſhould ſtrike the blow, and the chance fell upon the latter. On the fifth day's march, therefore, he approached the emir ul omrah to preſent a petition; and, while he was reading it, Hyder Khan drew his dagger, and plunged it to his heart. The emir ul omrah, the famous Houſſein Ali Khan, fell dead on the ground. A hundred ſwords of his attendants were in a moment drawn, and Hyder Khan was inſtantly cut in pieces; but a band of Moguls, headed by Mohammed Ameen Khan, approaching, diſperſed the attendants; and cutting off the head of the emir ul omrah, carried it to the emperor; who, rejoicing in the event, determined now to diſmiſs the other brother. Mohammed Ameen Khan was therefore appointed vizier in his place; and Khan Dowran, emir ul omrah. Their relations and dependants were advanced to honours and high ſtations; and all who had aſſiſted in diſplacing the Syeds, were rewarded by the royal favour.

Abdallah Khan, the ſuperſeded vizier, was arrived within forty coſs of Delhi, when a courier brought him intelligence of his brother's aſſaſſination, and of the events which had in conſequence followed. His eyes were drowned in ſorrow; but, ſeeing there was no remedy but patience, he reſolved to return immediately to Agra, and ſet another prince on the throne. He accordingly ſent to offer the muſnud to the ſons of Jehander Shah, but neither of them would accept it. He did the ſame to Nekoſeer, ſon of Akbar but he declined it; when the offer was at laſt embraced by ſultan Ibrahim, ſon of Ruffeh ul Kudder, and grandſon of Shah Aulum.

On the eleventh of Zeehudje, A. D. 1720, Ibrahim aſcended the throne with the uſual ceremonies. He was viſited on the ſecond day after by Abdallah Khan, who prevailed on the nobility at Agra to accept offices under him, and advanced them large ſums of money to levy troops. In a few days he had an army of eighty thouſand horſe; with which he took the new-made emperor Ibrahim, and, marching, from the capital, pitched his camp near the Eedgaeh, a place of public worſhip not far from the city. Here he was joined by Gholam Ali Khan, and two other chiefs, who had eſcaped from the emperor's camp. As it was reported that Mohammed Shah was advancing to Agra by the way of Rajepoutana, Abdallah Khan made his third day's halt at the tomb of Cuttub ul Dien; but, having intelligence of an alteration in the royal route, he moved to Feridabad. He was joined daily by numerous bands of Syeds from Barreh, ſeveral Afghan chiefs and principal zemindars, and alſo by many dependants of his deceaſed brother. On the ninth of Mohirrim, A. D. 1721, Mohammed Shah marched from Shawpour, where he had waited ſeveral days in hopes of being joined by Abed ul Summud Khan, and Maharajah Jey Sing, but they did not arrive. Both armies moved in order of battle, and ſeveral ſharp ſkirmiſhes took place. Hyder Koulli Khan, with the artillery, commanded Mohammed Shah's advanced line; Saaudut Khan, and Mohammed Khan Bunguſh, the right; and Khan Dowran, the new emir ul omrah, the left wing. Mohammed Ameen Khan took poſt with the emperor in the centre. The artillery was ſtationed in the front of the army, and behind it the war-elephants in ſtrong armour, with maſſive chains to wield with their trunks.

Abdallah Khan, having marched from Houſſunpour, pitched his camp within three coſs of the imperial army; and on the twelfth formed his order of battle. Nudjum ul Dien Ali Khan, a younger brother of the Syeds, took the command of the advanced line; Abdallah Khan, with ſultan Ibrahim, took poſt in the centre; but there were no regular commanders of the right and left wings. The night of the thirteenth was paſſed under arms; and in the morning, Mohammed Shah advanced to give battle. A cannonade was kept up the whole day; when towards evening the advanced line of the rebels was put to flight, and Mohammed Shah took poſſeſſion of their ground, but did not puſh his advantage farther. Abdallah Khan, at ſun-ſet, ordered a ſmall tent to be pitched for his repoſe. Both armies remained under arms, and the imperial artillery continued firing all night; which ſo intimidated the enemy, that many chiefs with their followers fled, and in the morning not more than ſeventeen,

teen, out of a hundred, thouſand horſe remained with Abdallah Khan. He however was yet undaunted; and at day-light charged the imperial army with great vigour. A bloody and obſtinate conflict enſued, in which the fortune of Mohammed Shah prevailed. Abdallah Khan, deſerted by all but a few perſonal attendants, diſmounted from his elephant, and fought bravely on foot; but he was overpowered, and taken priſoner, with his brother Nudjam ul Dien, and carried before the emperor. Sultan Ibrahim, who had fled from the field, was alſo taken, and remanded to confinement.

Mohammed Shah, after this deciſive and important victory, rewarded the ſervices of his nobility and army according to their merits, and prepared to march to the capital, Delhi. On the twenty-ſecond he entered the city in great pomp, upon an elephant moſt ſumptuouſly capariſoned, followed by many others in houſings of embroidery and cloth of gold. Several travelling thrones and carriages, richly ornamented with precious ſtones, gold, and enamel, dazzled the eyes of the beholders. The troops of the houſehold and thoſe of the nobility were all newly clothed, and increaſed the ſplendour of the cavalcade. Numbers of beautiful horſes, in furniture ſet with jewels and enamelled, were led in the proceſſion, which was ſplendid beyond all the eye had ever before ſeen. Money was ſcattered in profuſion to the populace, whoſe acclamations at the reſtoration of the imperial authority reached the heavens. The emperor arrived in the palace about eight o'clock, where his mother, Koodſia Begum, and the other princeſſes, firſt made their offerings, waving round his head golden baſons filled with jewels, and gold and ſilver coins, which were afterwards diſtributed to the poor. After this ceremony, the nobility and people were permitted to preſent their gifts of congratulation. The empire now bid fair to enjoy perfect peace, and the happieſt proſpect appeared of a long and glorious reign to Mohammed Shah.

Shortly after this grand celebration of the riſing proſperity of Mohammed Shah, died Mohammed Ameen Khan, who had enjoyed the office of vizier only twenty two days; nor was he regretted by the people, to whom he was oppreſſive. Intending to enlarge his palace, he had diſpoſſeſſed ſeven hundred families in his neighbourhood of their habitations. The immenſe wealth which he had acquired from the confiſcations and plunder of the Syeds and their dependants, was moſt diſintereſtedly given up by the emperor to his heirs; an act of generoſity which contradicts the imputation of avarice, too generally attributed to Mohammmed Shah; for at this period the royal treaſury was very low, the late miniſters having plundered it of vaſt ſums, and even coined into money the golden and ſilver rails of the hall of audience. It was the general uſage of the princes of the houſe of Timour, to ſeize the effects of their deceaſed courtiers; and they conſidered it ſufficiently generous to leave a ſmall part only to the heirs. The important office of vizier was now beſtowed upon Nizam ul Muluk; and, upon his arrival at court, the emperor, in the Muſſulman year or hegira 1135, of Chriſt 1722, conſummated his nuptials with Mallakkeh Zummaneh, daughter of Ferokhſere; upon which occaſion he releaſed Abdallah Khan, the former vizier, from impriſonment.

Nizam ul Muluk, poſſeſſing the abilities of a great and able ſtateſman, earneſtly adviſed the emperor to dedicate his time to the adminiſtation of public affairs; but Mohammed Shah was become too much the ſlave of pleaſure to liſten to his advice. Khan Dowran, Kummir ul Dien Khan, and other noblemen, favourites of the emperor, and jealous of the influence of the new vizier, made it their buſineſs to divert the royal mind by diſſipated amuſements; till at length Nizam ul Muluk, diſguſted at the voluptuous manners of the court, reſigned the exerciſe of his office, under pretence of quelling an inſurrection in Guzerat, and obtained leave to march from Delhi. He left the capital after a few months ſtay, much to the ſatisfaction of Mohammed Shah and his favourites, who regarded not the decline of the empire, while they were left to the enjoyments of luxury and indolence in the harems of their women. From this period the imperial authority became only nominal in the Deccan; Nizam ul Muluk being in fact the ſovereign, though oſtenſibly the viceroy of Mohammed Shah, who received no tribute, but the offerings cuſtomary at feſtivals and other particular occaſions.

When Nizam ul Muluk ſaw no probability of an end to the depraved policy of the court, and the weakneſs of its miniſters, he excited the Mahrattas to make a general war upon Hindooſtan; which was continued for ſome years with various ſucceſs, but generally to the advantage of the Mahrattas, who in conſequence became more bold and daring. Arraroo, a zemindar of Korah, taking advantage of this weakneſs of the empire, had put to death his governor Jaun Niſſar Khan, brother to the vizier's wife, and ſeized his family and treaſures; upon which Azim Oollah Khan was ſent to chaſtiſe him, but the zemindar took refuge in his woods, and eluded his purſuer, who, tired out, returned to Delhi, leaving his army under the command of Khowauzim Beg Khan. Arraroo, emboldened by Azim Oollah Khan's retreat, attacked and ſlew the deputy; upon which the vizier applied for aſſiſtance to Saaudut Khan, ſoubahdar of Oude, for the reduction of the rebel. This chief poſſeſſed great generoſity and valour; and, in the year 1735, he marched againſt Arraroo, in his way to Delhi. Arraroo on his approach reſolved to oppoſe him; and, having intelligence that Saaudut Khan had juſt alighted at his tent, and that he had on a green veſt, and was alſo to be known by the whiteneſs and length of his beard, the rebel ruſhed ſuddenly from ambuſh with his followers. Saaudut Khan remounted his elephant, and drew up his army as well as the ſuddenneſs of the attack would permit. He had however changed his dreſs, and wore a white veſt; ſo that Arraroo, miſtaking for him Abou Terraub Khan, a principal chief, who was habited in green, and had a long white beard, levelled his attack at him, and, charging cloſe to his elephant with ſome reſolute followers, wounded him mortally with a ſpear. This occaſioned much diſorder; but Saaudut Khan bravely attacked the rebel in turn, and after a ſharp conflict put him to death; upon which the rebels fled in diſorder. Saaudut Khan ſent Arraroo's head to the emperor; but the ſkin of the body he cauſed to be flayed off, and ſent ſtuffed with ſtraw to the vizier. But freſh rebellions ſtill continued to break out; and every year witneſſed the falling away of different provinces, the governors of which thought fit to ſet up for themſelves.

About this time the ſoubahdary of the province of Patna was conferred upon Shujah ul Dowlah, the nabob of Bengal, in addition to that government and of the province of Oriſſa. Shujah ul Dowlah was a native of Burhampour; and, during Aurungzebe's campaigns in the Deccan, he married the daughter of Jaffier Khan, ſoubahdar of Bengal, and accompanied his father-in-law to that province; but, not agreeing with her in diſpoſition, he reſided moſtly at Cuttac, the capital of Oriſſa, of which he was governor. Shujah ul Dowlah was celebrated for his clemency, juſtice, and all good qualities; and Bengal, which is called the paradiſe of regions, truly merited the appellation during his adminiſtration; when perſons of all ranks, living in eaſe and ſafety, were loud in his praiſes, and repoſed themſelves under the ſhade of his proſperity.

The Mahrattas, in the year of the hegira 1149, A. D. 1735, notwithſtanding they had been defeated in ſeveral actions, ſtill continued their invaſions; and, advancing now with a menacing aſpect towards the capital, the emir ul omrah, Khan Dowran, was diſpatched with a great army to the vicinity of Agra; while the vizier, Kummir ul Dien Khan, was ſent with a powerful force towards Agimere; but, inſtead of acting on the offenſive, they waſted their time in idle negociations for peace, while the enemy plundered the country around them. Saaudut Khan, ſoubahdar of Oude, was much more anxious to acquire fame, by expelling the Mahrattas and redeeming the diſgrace of the empire. He marched from his capital, attended by his ſon-in-law Suffder Jung, in purſuit of the Mahratta chief Row Mulhar, who had croſſed the Jumna, and waſted the country from Etawa to Mootee Baug, cloſe to the city of Agra. At length, Saaudut Khan, coming upon him by forced marches, defeated him with great ſlaughter. Three principal officers were taken priſoners, and Mulhar with great difficulty eſcaped. The fugitives, in their panic miſtaking the paſſage of the river Jumna, which they had forded, were drowned in great numbers; many were taken priſoners, and a few gained the oppoſite ſhore. Mulhar with a few followers reached the camp of Bajeerow, another Mahratta chief, near Gwalior. Saaudut Khan, therefore, iſſued orders for each of his ſoldiers to prepare four days' proviſions, and leave his baggage in the camp, intending to purſue the enemy to their own province, and redeem the faded honour of Hindooſtan; but he received poſitive orders from the emir ul omrah to halt till he could join him with his forces; ſo jealous was he leſt any laurels ſhould be won but by himſelf. This gave time to the Mahratta chiefs, Mulhar and Bajeerow, to recover from the late defeat; and the latter reſolved to march towards Delhi, at that time almoſt deſtitute of troops for its defence. So rapid was his progreſs, that he burned part of the ſuburbs of the capital, before any intelligence of his movement had gained the city. The emperor and inhabitants were thrown into the utmoſt conſternation. They were not relieved till after three days, by the arrival of Saaudut Khan, and the armies of the vizier and emir ul omrah. The enemy then retreated into Malwa, but were not purſued; and the miniſters, to the diſgrace and irreparable loſs of the empire, perſuaded Mohammed Shah to purchaſe a temporary peace, by conſenting to the choute, or payment of a fourth part of the revenues to the Mahrattas. Thus ſhamefully was the welfare and permanence of the ſtate compounded for with its enemies; while the diſpirited emperor, loſt in the ſoft dalliances of his harem, never once took the field to check theſe gigantic ſtrides of the Mahratta chiefs. Nizam ul Muluk, who had been again brought over to the emperor's intereſt by a royal confirmation of his viceroyalty in the Deccan, attempted to recover the province of Malwa from the Mahrattas; but, after marching and defeating Bajeerow, he was obliged haſtily to return for the defence of Delhi, againſt the Perſian invader Nadir Shah, who was advancing rapidly towards it.

It was the emperor's misfortune, that Khan Dowran, the emir ul omrah, poſſeſſed unbounded influence over his mind; ſo that this miniſter directed all things as he thought proper, however impolitic or unadviſeable; an inſtance of which was ſtrikingly manifeſted in the compromiſe with the Mahrattas. With the ſame imprudence, he neglected furniſhing the ſupplies of money to the ſoubahdar of Cabul, for keeping up the ſtations in the ſtrong holds and paſſes on the confines of the empire in that province; to which cauſe may be attributed the invaſion of Nadir Shah, who would never, in all probability, have attempted his expedition, had he not heard of the defenceleſs ſtate of the frontier. The oſtenſible cauſe of the Perſian monarch's diſpleaſure againſt Mohammed Shah, was the protection which the rebellious Afghans had received in Hindooſtan, after their defeat by his arms when regent of Perſia; though he had ſent an ambaſſador to Delhi, requeſting the emperor that they might not find an aſylum in his dominions. Nadir Shah, on his acceſſion to the throne of Perſia, ſent alſo another ambaſſador; but no credence was given to him, nor the miniſter permitted to return to his court. During the ſiege of Candahar, Nadir diſpatched a nobleman of rank, named Mohammed Khan, to the court of Delhi, to repeat his requeſt concerning the fugitive Afghans, and to expreſs his ſurpriſe at the neglect ſhown to his embaſſies by the emperor of the Moguls. Mohammed Shah and his miniſters were at a loſs what anſwer to return; and delayed the diſmiſſion of the ambaſſador, in hopes that he might fail in the conqueſt of Candahar, and be obliged to retreat into Perſia, when they would avoid the diſgrace of acknowledging a uſurper as equal in rank with the ſovereign of Hindooſtan. Theſe repeated ſlights, and the eſcape from his vengeance which the Afghans had found in the provinces of Hindooſtan, determined Nadir Shah, upon the fall of Candahar, to invade the empire. Accordingly, after that event, he marched to Cabul, which he took with little oppoſition, and remained in the vicinity near ſeven months; during which time his troops were employed in exterminating his enemies the Afghans. It is probable he would not have advanced farther, had not a plenipotentiary, and ſeveral horſemen, whom he had ſent from Cabul to Delhi, been murdered on their route by the inhabitants of Jellalabad. Upon intelligence of this ſhameful act of violence exerciſed upon the ſacred character of his ambaſſador, he inſtantly marched againſt that city, ſlaughtered the people, and purſued his route to Peſhawir, where Naſir Khan, the ſoubahdar of Cabul, reſided; to whom he ſent a meſſage, ſignifying that he ſhould arrive on a certain day, when, if not oppoſed, he would ſpare the country, and receive him into favour. Naſir Khan, however, prepared for reſiſtance, and was defeated, and taken priſoner; but after a few days' impriſonment, was reinſtated in his government on the part of the Perſian monarch. From Peſhawir, Nadir proceeded to Lahore, the ſoubahdar of which, Zekariah Khan, after ſome little oppoſition in the field, took refuge in the capital, which he ſhortly after ſurrendered, and was inveſted with the command of it by the conqueror; who, leaving ſome of his troops to enſure his fidelity, marched towards Delhi.

Mohammed Shah and his profligate miniſters had long pretended to deſpiſe the arms of the victorious Nadir, and to diſbelieve the daily accounts received of his approach. He at length, however, took the field; but in the ſpace of two months marched only four days' journey from Delhi to the plain of Karnal; and here the fate of the devoted empire was decided. The imperial army encamped on the banks of the canal of Alimerdan Khan, which ſupplied the city of Delhi with water. Entrenchments were thrown up, and a numerous artillery, linked together with chains, was planted round the camp. Nadir Shah, after taking Lahore, ſent frequent meſſages to the Mogul camp, deſiring the diſmiſſion of his ambaſſadors, but was not obeyed; for what reaſon was never known. The emir ul omrah placed great hopes in the valour of the Rajahpouts; but neither Jey Sing, nor any of the great rajahs, obeyed the ſummons to the royal ſtandard; ſending idle excuſes for their delay in their ſeveral diſtricts. Great dread and confuſion prevailed in the camp; and ſo bad was the intelligence of the approach of the invaders, that it was not known how far Nadir had advanced, till ſome wounded fugitives, from a foraging party, proclaimed to the affrighted Moguls the certainty of the Perſians being within a few miles of their entrenchments. A general apprehenſion of alarm took place: and the emperor waited with the utmoſt anxiety for the arrival of Saaudut Khan, the ſoubahdar of Oude, upon whoſe conduct and valour he had placed all his hopes of delivery. At length he arrived; and, being brought into the imperial preſence, he was received with the higheſt diſtinction, and commanded to encamp near the diviſion of the emir ul omrah.

Saaudut Khan had but juſt left the emperor, and repaired to his ground, when word was brought him that the Perſians had attacked his baggage, and were committing great ſlaughter; upon which he immediately remounted his elephant, and ſending intelligence of this event to the emir ul omrah, with a requeſt of aſſiſtance, haſtened againſt the enemy. The emir ul omrah communicated the meſſage to the emperor, who conſulted Nizam ul Muluk. He recommended that Saaudut Khan ſhould be recalled within the entrenchments, as the day was far advanced, and his troops were fatigued with a long march, ſo that it would be moſt prudent to delay offering battle to the enemy till the morrow. Mohammed Shah, approving this advice, communicated it to the emir ul omrah; but he, attributing it to the neglect and indolence of the nizam, repreſented to the emperor, that as Saaudut Khan had advanced far from the lines, and was moſt probably already engaged with the enemy, not to aſſiſt him, and voluntarily to give up ſuch a deſerving nobleman to ſlaughter, would be againſt the dictates of valour and generoſity; therefore, permitting others to act as they choſe, he ſhould haſten to ſupport him. Having ſaid this, he advanced with his light artillery, and ſuch troops as were inclined to follow him. About a fourth part of the day remained, when he came within a ſhort diſtance of Saaudut Khan. Nadir Shah had formed his army into two diviſions; one of which he left for the protection of his camp, and with the other advanced to the attack, ſubdividing it into three bodies. Two of theſe he detached to attack each of the omrahs, and remained himſelf with the third, as a reſerved line, to give aſſiſtance wherever it might be neceſſary. The Perſians advanced with great fury, and in about half an hour the troops of Hindooſtan were thrown into confuſion with great ſlaughter. The emir ul omrah, Khan Dowran, was dangerouſly wounded, and moſt of his principal followers ſlain. His remaining attendants brought him back to the camp in the evening, where he ſoon after died of his wounds. Saaudut Khan, who had remained on the field of battle, being deprived of moſt of his troops by ſlaughter or flight, was at laſt quite ſurrounded by the Perſians, and incapable of further reſiſtance; when he was known by a young ſoldier, a native of the ſame city with himſelf, who, calling to him by name, conjured him to ſave his life by becoming his priſoner; at the ſame time, running up to his elephant, ſeated himſelf by his ſide. Saaudut Khan gladly ſubmitted to the generoſity of the youth, who carried him before Nadir Shah, and he was treated with kindneſs and diſtinction.

For the three following days the Mogul camp preſented a ſcene of confuſion not to be deſcribed; but, what is extraordinary, it was not attacked by the Perſians. Saaudut Khan, hearing reports of the death of the emir ul omrah, and hoping to ſucceed him in office, had prevailed on Nadir Shah to offer peace, and retreat from Hindooſtan, on the payment of two crores of rupees, i. e. two millions ſterling; and receiving a viſit from the emperor. He accordingly communicated theſe conditions to the emperor and Nizam ul Muluk, who were rejoiced beyond meaſure at the idea of ſuch moderate terms. Mohammed Shah ſent the nizam without delay to the Perſian camp, where he was received with great favour by Nadir Shah, who ratified the treaty; and he returned exulting to the emperor. The glad tidings of peace ſpread through the camp, and gave new life to the diſheartened troops; but their joy was of ſhort duration. Nizam ul Muluk, ambitious of the dignity of emir ul omrah, requeſted it in return for his ſervices in the negociation; and the emperor immediately conferred it upon him, unmindful of the offence it might give to Saaudut Khan. The next day Mohammed Shah went to viſit the Perſian monarch, agreeably to his requeſt, and was met near the camp by Nadir's ſon, Nuſſer Oollah Mirza, who alighted from his horſe upon ſeeing him; when the emperor was ſet down in his travelling throne, and they embraced each other. The prince then remounted, and conducted the emperor to his father; who received Mohammed Shah ſtanding at the entrance of his tent, embraced him with kindneſs, and, leading him to his muſnud, ſeated him by his ſide. After ſome converſation, and the uſual ceremonies of preſents and entertainments, Mohammed Shah returned to his own camp, where his preſence gave joy, and aſſurance that peace was fully concluded. Such indeed was the opinion of the emperor and all his ſubjects; and ſo would it have been, but for the ſelfiſh diſloyalty of a diſguſted miniſter.

Saaudut Khan, learning that the office of emir ul omrah had been diſpoſed of to another, burned with envy and diſappointment. In the fury of his paſſion he reſolved to be revenged upon the emperor and his rival. He obſerved to Nadir Shah, that two crores of rupees were too ſmall a conſideration for the wealth of Hindooſtan; that he, as an individual, could pay ſo much; and that the removal of Nizam ul Muluk, who alone had any ability to reſiſt his arms, would make the Perſian monarch maſter of the empire without a blow, when he might march to Delhi, only eighty miles diſtant, and poſſeſs himſelf of the immenſe treaſures of the imperial palace, and of the wealthy inhabitants of the capital. The avarice of Nadir was awakened by this treacherous repreſentation; and he invited Nizam ul Muluk to his preſence; who, relying upon the faith of treaties, haſtened without ſuſpicion to his camp, where he was commanded to remain, and to prevail on Mohammed Shah, by letter, to make him another viſit. The nizam now repreſented to Nadir, that his behaviour was contrary to treaty; to which the Perſian replied, that he did not mean to depart from his agreement, or injure the perſon or empire of Mohammed Shah, but muſt have another interview. The nizam wrote information of this to his maſter; who, not knowing where to look for ſupport in the abſence of his miniſter, came to the camp of Nadir Shah, attended only by a few of his favourite domeſtics, forbidding many of the nobility, who were anxious to guard his perſon, to follow him. Upon his arrival, he was ordered by the Perſian monarch to remain in a tent pitched for his reception, and to ſend for his family, equipage, and the officers of his houſehold; which he did. At the ſame time orders were ſent to the Mogul camp to break up, and the ſoldiers to retire where they choſe without moleſtation; but the vizier, Kummir ul Dien Khan, was ſummoned to the preſence. Saaudut Khan, and Thamaſp Khan, a confidential nobleman of Nadir Shah, were diſpatched to Delhi, to receive the keys of that capital, and of the imperial palaces, from the governor; after which the conqueror, with his royal captive, proceeded by eaſy marches to that city. The utmoſt dread and confuſion prevailed in the Mogul army after the departure of Mohammed Shah. Individuals conſulted their ſafety by flight, but were plundered or killed; many by the Perſian marauders, and others by the huſbandmen of the country, who, in time of trouble in Hindooſtan, or after a defeat, knock down the wretched fugitives they meet, for the ſake of plunder.

On the eighth of March 1739, Nadir Shah reached the gardens of Shalimar, and permitted Mohammed Shah to proceed to his palace in Delhi, with his family and domeſtics. On the ninth, the conqueror made a triumphant entry into the city with his army, which was encamped on the bank of the Jumna, under the palace; but Nadir Shah took up his reſidence within it; the grand hall of audience, and ſeveral other apartments, being prepared for his reception. Coins had been ſtruck at the imperial mint for this occaſion, which were diſtributed to the people in the cavalcade, bearing this inſcription: "King over the kings of the world is Nadir, king of kings, and lord of periods." On the tenth died Saaudut Khan, of a cancer in his back, with which he had been long afflicted. It was reported, that he poiſoned himſelf, from the pangs of conſcience at his being the adviſer of Nadir's advancing to Delhi; but the rumour was not true.

The ſtricteſt diſcipline was obſerved by the Perſians, and no perſon ſuffered from the victors the ſlighteſt outrage; when, on the night of the tenth, a fatal tumult aroſe, which involved the inhabitants of Delhi in deſtruction. It was ſuddenly rumoured, that Nadir Shah was dead; having been aſſaſſinated by a Calmuck woman in the harem, at the inſtigation of Mohammed Shah. The inhabitants too eaſily credited what they wiſhed to be true. They flew to arms, and maſſacred every Perſian they met in the city; which, during the night, was a ſcene of confuſion and horror. The nobles of Hindooſtan, inſtead of attempting to quell the rage of the people, by proclaiming that Nadir was ſtill alive in the palace, which was garriſoned by his troops, remained inactive; and at ſome of their houſes, the Perſians who lodged in them were treacherouſly murdered. Nadir Shah, at the commencement of the tumult, ſent out ſome officers to perſuade the people of their error; but, inſtead of being liſtened to, they were ſlaughtered. Seeing it in vain to moderate their fury, and not chuſing to hazard his troops in the darkneſs of night and the cloſe ſtreets of the city, he reſolved to let the ſtorm ſpend itſelf, and wait for morning to take vengeance on its authors. About a thouſand Perſians were ſlain.

Early in the morning, Nadir Shah iſſued from the palace, attended by his troops, and took poſt at the college of Rooſhun ul Dowlah, ſituated in a principal ſtreet. From hence he diſpatched bands of ſoldiers, commanding them to ſlaughter, without diſtinction of age or ſex, the wretched inhabitants of Delhi, in every avenue where they might find a murdered Perſian. His orders were obeyed with a ſavage keenneſs. The carnage laſted from ſun-riſe till mid-day. About eight thouſand Indians, Moguls, and Afghans, were maſſacred, and their houſes plundered, by the Perſians. To add to the horror of the ſcene, fires broke out in ſeveral parts of the city. It is impoſſible to deſcribe the horror and miſery of Delhi during this and many following days, when the ſtreets ſtreamed with human blood, and the bodies of the dead obſtructed the paſſages. Theſe were at length piled together in heaps, without diſtinction of rank or religion, and burned in the rubbiſh of the ruined houſes. Several noblemen were put to death by Nadir Shah, for being acceſſary to the murder of Perſians during the tumult, and among them a ſon-in-law of the vizier, Kummir ul Dien Khan.

On the fourteenth, Nadir Shah began his ſeizure of the imperial effects and treaſures. Three crores and fifty lacs were found in the treaſury. A crore and fifty lacs in plate; fifteen crores in jewels; the celebrated peacock throne, valued at one crore; and ſeveral other thrones of rich though ſmaller value, with the armoury, eſtimated at eleven crores, were ſeized for his uſe; alſo five hundred elephants, a great number of Arabian horſes, and the ſuperb camp-equipage of the emperor. On the fifteenth, a treaty of peace was drawn up, ſtipulating that the provinces eaſtward of the Sind ſhould remain to the emperor of Hindooſtan; and thoſe weſt of it be ceded to the crown of Perſia. Thus, Cabul, Tatta, and part of Moultan, were wreſted from the empire. This inſtrument bears date in the Muſſulman year or hegira 1151, A. D. 1739.

On the ſeventeenth, Nadir demanded from the vizier two crores and twelve lacks of rupees; threatening him with inſtant death in caſe of concealment. On the eighteenth, a contribution was demanded from the nobles and ſervants of the court, bankers, merchants, and artizans, to the emperor, which was levied with the utmoſt ſeverity. On the nineteenth, the collectors began their exactions upon individuals; and many perſons put themſelves to death to avoid torture.

On the twenty-firſt, the Perſian artillery, by order of Nadir Shah, with twelve thouſand men, marched out of the city, eſcorting the immenſe plunder of the capital to the gardens of Shalimar. On the twenty-ſecond, Nadir Shah's equipage, among which were all the magnificent tents taken from the palace, was pitched on the banks of the Jumna, before the Lahore gate; and a thouſand Perſians of rank, who had taken up their quarters in the palaces, marched to Shalimar. Centinels were placed at the gates of the city, while a general plunder, or murder, of the wretched inhabitants, who were poſſeſſed of jewels or other property, took place. A type of the laſt day's ſpoliation exhibits a ſcene the moſt horrid and afflicting. It was, before, a general maſſacre; but now, the murder of individuals in cold blood. In every houſe, in every chamber, was heard the cry of death. Buſſunt Roy, agent of the penſions, killed his family and himſelf, and many others followed his example, in order to avoid ſcandalous inſult and violence from being offered to their perſons. It was now that an aged derviſe approached Nadir Shah, and ſaid, "If thou art a god, act as a god; if thou art a prophet, conduct us in the way of ſalvation; if thou art a king, render the people happy, and do not deſtroy them." To which Nadir replied, "I am no god, to act as a god; nor a prophet, to ſhow the way of ſalvation; nor a king, to render the people happy; but I am HE whom God ſends to the nations which he has determined to viſit with his wrath!"

On the fifth of April, Nadir Shah's ſeals were taken off the imperial palace, and thoſe of Mohammed Shah affixed in their room; when Nadir reſolved to reſtore Mohammed Shah to his throne. The ſame day firmauns were iſſued to all the nobles and omrahs in the different provinces, with theſe contents: "Between us and our dear brother Mohammed Shah, in conſideration of the regard and alliance of the two ſovereignties, the connections of regard and friendſhip have been renewed; ſo that we may be eſteemed as one ſoul in two bodies. Now our dear brother has been replaced on the throne of this extenſive empire, and we are moving to the conqueſt of other regions, it is incumbent that ye, like your forefathers in former times, walk in the path of ſubmiſſion and obedience to our dear brother, as they did to former ſovereigns of the houſe of Timour. God forbid it; but, if accounts of your rebelling ſhould reach our ears, we will blot you out of the pages of the book of creation."

On the ſeventh of April, Nadir ſent ſome valuable jewels and bracelets to Mohammed Shah, with a meſſage, that his march was fixed for the ſeventeenth of the month; and deſiring, that on the morrow he would viſit him, attended by the nobility, with all the inſignia of royalty, that he might give him ſome valuable advice, and take his leave. Accordingly, the next morning, being the eighth of April, Mohammed Shah, with imperial pomp, attended by the court, proceeded on a travelling throne to the grand hall of audience, at the ſteps of which Nadir Shah received him, and led him to the muſnud; after which all perſons retired. The two monarchs remained in private for near an hour. Nizam ul Muluk and other great lords were then admitted; to whom Nadir Shah ſpoke nearly an hour, in terms of advice mingled with threats. Viands were then diſtributed, and dreſſes conferred upon them. Nadir Shah preſented jewels for a turban, with a ſword ſet with diamonds, to Mohammed Shah, who then took leave, and retired in the ſame order he came.

On the fourteenth, Nadir Shah ſounded his retreat from Delhi, and proceeded by regular marches into Perſia. See the article PERSIA. It is wonderful, but true, that the lower orders of the people of Delhi, at leaſt the debauched, who were by far the moſt numerous, regretted the departure of the Perſians; and to this day, the exceſſes of their ſoldiery are topics of humour in the looſer converſation of all ranks, and form the comic parts of the drolls or players. The people at that time appear to have regarded only perſonal ſafety, or perſonal gratification. Miſery was diſregarded by thoſe who eſcaped it; and man, centred wholly in himſelf, felt not for his kind. This ſelfiſhneſs, deſtructive of public and of private virtue, was almoſt univerſal in Hindooſtan at the invaſion of Nadir Shah; nor have the people become more virtuous ſince, conſequently not more happy nor more independent.

Upon the retreat of Nadir Shah, the emperor made ſome changes among the great officers of ſtate. Saaudut Khan, who had ſo infamouſly conſpired to ruin his country, was ſucceeded in the government of Oude by his ſon-in-law Suffder Jung; Zekariah Khan was continued ſoubahdar of Lahore; and Shujah ul Dowlah, nabob of Bengal, being dead, was ſucceeded by his ſon Allah ul Dowlah; who being ſhortly after defeated and ſlain by Aliverdi Khan, governor of Patna, the uſurper ſeized the provinces of Bengal, Bahar, and Oriſſa, and was confirmed in them by the imperial grants, for a large peſhcuſh or preſent to the prince, and promiſe of remitting the annual revenues to the treaſury. Nizam ul Muluk returned to the Deccan, which had fallen into great diſorder, from the diſaffection of the provinces during the invaſion of Nadir Shah, and the general relaxation of the government, which followed.

Mohammed Shah, acquiring prudence from the experience of paſt misfortunes, now determined upon a more ſtrict adminiſtration of his affairs throughout the empire; and with this view he, in the year of the hegira 1156, A. D. 1743, ſummoned to court Ameer Khan from Aleabad; Suffder Jung, ſoubahdar of Oude; Zekariah Khan, nizam of Lahore and Moultan; alſo the rajahs Bukht Sing Rhatoree and Jey Sing. A mandate was likewiſe diſpatched to Nizam ul Muluk; but he pleaded an excuſe from his great age; though in fact he was at the time employed in ſecuring the government of the Deccan to his family. Rajah Jey Sing died before he could ſet out for Delhi; and three of his wives, with many concubines, burned themſelves on his funeral pile. Ameer Khan, and Suffder Jung, on their arrival at court, were received with every mark of royal favour. This year the emperor's only ſon, ſultan Ahmed, was married to a daughter of the lineal deſcendant of Mahabut Khan, an active omrah in the reign of Jehanguir. The ſoubahdary of Guzerat was beſtowed on Fukhir ul Dowlah; but, after a feeble attempt to recover it from the Mahrattas, he returned to Delhi in his private capacity.

The emperor marched in perſon, at the earneſt requeſt of Suffder Jung, to reduce Ali Mohammed Khan, the founder of the Rohilla ſtates, who had, from the negligence of the government, poſſeſſed himſelf of independent authority over the diſtricts of Kutteer, now called, from the reſidence of the Rohillas, Rohilcund. He was beſieged in a fortreſs called Bangur; and, being taken priſoner, was committed to the care of the vizier; after which the royal army returned to Delhi. Zekariah Khan dying in 1745, the ſoubahdary of Lahore was conferred on the vizier, who appointed two ſons of the deceaſed his deputies.

Peace had for a year or two ſhed its benign influence over the realms of Hindooſtan, when the invaſion took place of Ahmed Shah Abdallah. He was the ſon of a chief of the Afghan tribe of Abdal; and was taken priſoner in his infancy by Nadir Shah; who, finding him poſſeſſed of courage and ability, promoted him to a conſiderable command in his army. Upon the aſſaſſination of that monarch, (ſee the article Persia,) he had the good fortune to poſſeſs himſelf of a conſiderable treaſure, with which he retired to his native country, and aſſumed the honours of royalty over the Afghans of his tribe. In the year of the hegira 1161, A. D. 1747, he marched againſt the fortreſs of Candahar, which ſubmitted to his arms; and prevailed upon Naſir Khan, the ſoubahdar of Cabul, to acknowledge his authority; permitting him to continue in office, on promiſing to pay down five lacks of rupees. He then advanced againſt Peſhawir, which inſtantly ſubmitting, he marched agaiſt the city of Lahore, which alſo fell into his hands after a ſhort reſiſtance. Emboldened by this ſucceſs, and the weakneſs of the empire, Ahmed Shah Abdallah reſolved to attempt the conqueſt of the capital itſelf, and boldly marched from Lahore towards the city of Delhi. Mohammed Shah, being much indiſpoſed, diſpatched his only ſon, prince Ahmed, againſt the enemy, under the conduct of the vizier, Kummir ul Dien Khan, Suffder Jung, ſoubahdar of Oude, Eeſuree Sing, rajah of Jeypour, and ſeveral other chiefs, with a great army. They advanced ſo haſtily, that the enemy had artfully paſſed by them, and plundered the rich city of Sirhind, where the baggage of of the young prince was depoſited. Upon intelligence of this misfortune, the prince immediately turned back; and, on his arrival near the enemy, he threw up entrenchments round his camp. The Afghan Abdallah did the ſame; and for ſome days ſeveral ſkirmiſhes took place between the two armies. At length, Kummir ul Dien Khan, the vizier, being killed by a cannon-ball while at his devotions in his tent, a panic prevailed in the Mogul army, and Eeſuree Sing, with his rajahpouts, fled from the field. Meer Munnoo, the vizier's ſon, and Suffder Jung, however, diſdained to fly, and by their valour reſtored order in the camp. The next day, a magazine of rockets taking fire in the enemy's camp, numbers of the troops were wounded by the exploſion; and Ahmed Shah Abdallah, either diſheartened by this loſs, or ſatisfied by the plunder of Sirhind, thought proper to draw off his army towards Cabul. Mohammed Shah, being near his end, commanded the prince to return to Delhi; but, before he could reach the capital, the emperor expired, aged forty-eight years, in the thirty firſt year of his reign, and in the year of the hegira 1161, A. D. 1747. His death was concealed for ſome days, till the arrival of the prince; who, on his approach, was ſaluted emperor in the garden of Shalimar; from whence he went in royal pomp to the great moſque, where the public ſervice was read, and coins were ſtruck, in his name.

Mohammed Shah was not deſtitute either of abilities or judgment; but he laboured under an indolence of diſpoſition unpardonable in a ſovereign; on which account he was overruled by his miniſters in all the important queſtions of the ſtate, and perſuaded by his harem againſt expoſing his perſon in the perils of war; hence he was rarely the leader of his own army. He was unable to reſtore the empire from the decline it had ſuffered under Ferokhſere; and, after the invaſion of Nadir Shah, he became diſpirited, and gave himſelf up to retirement, and the ſociety of religious men. He was averſe from oppreſſion and ſhedding of blood, and the people from him ſuffered no wrong. While he lived, the royal name was reſpectable; and by his juſtice he ſuſtained the tottering pillars of the ſtate from falling into total ruin, though he could not repair the unwieldy fabric.

Ahmed Shah, on his acceſſion, offered the vizarut to Nizam ul Muluk; who excuſed himſelf from accepting it on account of his great age, being in his hundred and fourth year; nor did he long ſurvive this refuſal, dying about a month afterwards in the vicinity of Burhampour, the capital of Candeiſh. He had governed the Mogul provinces of the Deccan for thirty years, as an independent prince, except in name, with great ability and ſucceſs. He left behind him ſix ſons; and was ſucceeded in the Deccan by the ſecond, Meer Ahmed Naſir Jung; the eldeſt, Ghazee ul Dien, reſiding at the court of Delhi, in the office of emir ul omrah. The memory of Nizam ul Muluk is ſtill venerated in Hindooſtan, for his wiſdom, policy, generoſity, and learning.

Immediately on the death of the nizam, the vizarut was beſtowed on Suffder Jung, who aſſumed the whole adminiſtration of the imperial authority; Ahmed Shah, contrary to the hopes which had been formed of him, giving himſelf up to pleaſure, and paying no attention to the proſperity of the government. Suffder Jung's firſt meaſure in office, was to attempt the expulſion of the Rohillas from his province of Oude. He, for this purpoſe, ſummoned an army of Mahrattas to his aſſiſtance, with which he moved from Delhi, and in two months recovered his own dominions from the enemy, and obliged the Rohilla chief, with his allies, to take ſhelter in the hills. The other Rohillas purchaſed their pardon by the payment of a large contribution. About this time died Naſir Jung, ſecond ſon and ſucceſſor to Nizam ul Muluk in the Deccan, by a conſpiracy of his own ſervants, aſſiſted by the

French, who ſurpriſed his camp while he was engaged in quelling a rebellion raiſed by his nephew Muzznffir Jung, who was taken priſoner; but, on the death of his uncle, was placed on the muſnud of the Deccan by the conſpirators. This young prince was aſſaſſinated almoſt immediately after his acceſſion, by the ſame perſon who had raiſed him to power; when Sullabut Jung, third ſon of the old nizam, was placed on the muſnud by the French, aſſiſted by the rajah Ragonaut Row. M. Dupleix, the French governor of Pondicherry, was created a noble of the empire, and the northern circars granted in jaghire to his nation.

In the Muſſulman year 1165, A. D. 1751, Ahmed Shah Abdallah again advanced as far as Lahore; and was oppoſed for four months by the viceroy Meer Munnoo; who, however, loſing two of his principal generals, and his troops being diſpirited, was obliged to ſubmit. He was received into favour by the conqueror, who appointed him governor of Lahore and Moultan under his authority; and thus were theſe two valuable provinces torn from their dependence on the deſcendants of the houſe of Timour. At this period, Ghazee ul Dien Khan, eldeſt ſon of the late nizam, eſteeming the death of his brother Niſir Jung favourable to his claims on the government of the Deccan, offered to pay a large ſum to the emperor, if he would grant him the ſoubahdary of that country. Ahmed Shah complied, and Ghazee ul Dien prevailed on the Mahrattas to aſſiſt him in taking poſſeſſion of that diſtrict.

Ghazee ul Dien reached Aurungabad, the capital of the Deccan, unmoleſted, but died ſuddenly, a few nights after his arrival in that city; upon which his followers diſperſed. He left one ſon, named Shaab ul Dien, a youth of extraordinary abilities. By the intereſt of Suffder Jung, he was appointed to ſucceed his father as emir ul omrah, and received the ſame titles of Ghazee ul Dien Khan Bahadur, which his father had borne. The firſt uſe which he made of his power, was to adviſe the emperor to proceed to extremities in his reſentment againſt his patron, Suffder Jung; who was in conſequence obliged to retire to his government of Oude. Ghazee ul Dien, with an army of Mahrattas, now marched againſt Soorauje Mul, chief of the Hindoo tribe of Jauts, who had poſſeſſed themſelves of the province of Agra. The rajah, unable to keep the field, retired to his ſtrongeſt fortreſs, which was ſurrounded; but the miniſter, having no battering cannon, petitioned the emperor to ſend the royal train from Delhi. But Ahmed Shah, who had been alarmed at the ambitious proceedings of the young emir ul omrah, became apprehenſive of his own ſafety, ſhould he get poſſeſſion of the Jaut territories. Soorauje Mul ſent alſo privately to court, that if the emperor would march to Secundra, which lies between Delhi and Agra, he would join him with his troops, and free him from the treachery of his miniſter. Ahmed Shah, therefore, refuſed the cannon, and marched from Delhi with a ſmall army of houſehold guards, and a cumbrous train of followers and baggage, carrying with him all the ladies of the harem, to Secundra. Ghazee ul Dien, on intelligence of this movement, detached a party of Mahrattas to impede his progreſs. The plunderers ſurpriſed the royal camp in the night. Ahmed Shah, with his mother and vizier, made their eſcape to Delhi, leaving their unhappy followers to the mercy of the enemy. On this occaſion, all the inſignia of royalty, the imperial baggage, and many princeſſes of the Timour family, fell into the hands of the Mahrattas. After they had taken their fill of plunder, the ladies were releaſed, and furniſhed with an eſcort to Delhi. Ghazee ul Dien now haſtened back, full of reſentment, to Delhi; where, by the aſſiſtance of the Mahrattas, he depoſed the unfortunate Ahmed Shah, who had his eyes put out, and was confined with his mother in Seleemgur. Yezzeez ul Dien, ſon of the late Jehander Shah, was proclaimed emperor, by the title of Aulumgeer, on the tenth of the Muſſulman month Shaubaun, hegira 1167, A. D. 1723. At this time died Suffder Jung, the late vizier, and ſoubahdar of Oude; and was ſucceeded in his government and eſtates by his ſon Sujah ul Dowlah.

Ghazee ul Dien, upon the eſtabliſhment of the new adminiſtration, marched from Delhi, carrying the pageant monarch with him as an inſtrument by which he intended to wreſt Lahore and Moultan from its late conqueror Shah Abdallah; the viceroy, Meer Munnoo, being lately dead, and the conſequent confuſion of affairs promiſing ſucceſs to his deſigns; but, a mutiny breaking out in a corps of cavalry, the officers treacherouſly ſeized his perſon, and treated him with great indignity. The emperor, who was diſguſted at the haughtineſs of his miniſter, encouraged the mutineers, and offered them a large ſum to deliver their priſoner into his hands. In this dangerous criſis, the fortitude and addreſs of Ghazee did not forſake him. He ſoothed the diſcontented officers with aſſurances of paying their arrears, and forgetting their diſreſpect to his perſon. They releaſed him; and the firſt uſe he made of his freedom was, to order Nujeeb ul Dowlah, with his followers, to fall upon the revolted corps. Numbers were ſlaughtered, and the reſt diſperſed. The miniſter returned to Delhi, where he placed the weak Aulumgeer under a guard; and then taking with him the emperor's eldeſt ſon, Ali Gohur, renewed his expedition to Moultan. The daughter of Meer Munnoo had been betrothed to Ghazee ul Dien; and he now diſpatched a ſplendid eſcort and a letter to her mother, demanding his bride. She complied with his requeſt, and committed the young lady to the charge of his emiſſaries, with her marriage portion, happy to purchaſe ſo eaſily the protection of the vizier. While engaged in the feſtivities of his nuptials, the miniſter detached a conſiderable force to Lahore; and the governeſs, not ſuſpecting treachery, was ſeized and conducted with her treaſures to the camp of her ſon-in-law, who conferred the government of the province on Adeena Beg Khan, for thirty lacks of rupees. Upon the accompliſhment of this affair, he returned with his treaſure to Delhi.

Ahmed Shah Abdallah, on receiving intelligence of the vizier's treachery, marched from Candahar, and purſued his route to Delhi. Ghazee ul Dien, knowing himſelf incapable of reſiſting ſuch an enemy, begged forgiveneſs of his mother-in-law, and, obtaining her recommendations to Abdallah, ſet out for his camp with a few attendants. The Afghan chief rebuked him ſeverely for his treacherous conduct; but conſented to pardon him, on promiſe of a large contribution from Delhi. To the capital the miniſter accompanied him; and, like Nadir Shah, the conqueror took up his reſidence in the palace, in the year of the hegira 1170, of Chriſt 1756. The wretched emperor Aulumgeer, being incapable of reſiſtance, the city was for many days given up to the merciless plunder of the Afghan ſoldiers, whoſe avarice was inſatiable. Such was their cruelty in gratifying it, that numbers of the unfortunate inhabitants put themſelves to death, with their women, to eſcape diſgrace. A whole month paſſed in terror and alarm. The houſes of the nobility were plundered; and thoſe families who had been fortunate enough to eſcape the rapacity of Nadir Shah, were now alſo involved in ruin.

Shah Abdallah next proceeded to plunder the provinces, and marched againſt the rajah Soorauje Mul, after taking Bullumgur, and inflicting a general maſſacre on the unhappy inhabitants of Muttra, a city venerated as holy among the Hindoos, and the reſort of pilgrims from all parts of the empire; but a plague breaking out in his camp, obliged him to retreat. He accordingly returned to Delhi, near which he was met by the wretched Aulumgeer, who entreated him not to leave him in the power of his oppreſſive miniſter Ghazee ul Dien. At his requeſt, Nujeeb ul Dowlah was appointed emir ul omrah; and enjoined to protect his maſter againſt the power of the vizier. At this time, the two widows of the late Mohammed Shah, fearful of reſiding longer in the ruined capital, offered the daughter of that emperor to Shah Abdallah, and petitioned for an aſylum for themſelves in his dominions. He accepted the princeſs in marriage, and complied with the requeſt of the ſultanas, who accompanied him to Candahar. His ſon, Timour Shah, who was married at the ſame time to a daughter of Aulumgeer, was left with a conſiderable force to protect Lahore.

During theſe calamities in Delhi, the Deccan was alſo diſordered by revolutions. M. Dupleix, the French general, who had obtained the ſole influence in the court of the nizam Sullabut Jung, was governed in his turn by the advice of Hyder Jung, a native nobleman, who led him as he pleaſed. M. Dupleix continued to conduct the affairs of the Deccan, till, by the intrigues of Nizam Ali, brother to Sullabut Jung, his counſellor Hyder Jung being aſſaſſinated, and the Engliſh, who had patroniſed Mohammed Ali Khan in the province of Arcot, growing powerful, he was obliged to return into the French territories to the aſſiſtance of his countrymen. Nizam Ali, being now without a rival, depoſed his brother, and aſſumed the government; but his power was much curtailed by the Mahrattas, who obliged him to reſign to them a great part of his territories, and pay a tribute for the remainder.

Upon the retreat of Ahmed Shah Abdallah to Candahar, Ghazee ul Dien, the ſuperſeded emir ul omrah, having prevailed on the nabob of Ferokhabad, Ahmed Khan Bunguſh, to join him with his troops, and called to his aſſiſtance an army of Mahrattas under Ragonaut Row and Holkar, marched immediately to Delhi. The emperor, and Nujeeb ul Dowlah, the new emir ul omrah, having no army of any conſequence, were obliged to ſubmit to the enemy. But Nujeeb ul Dowlah, by bribing the Mahrattas, obtained leave to retire to his government; while the wretched emperor was again left in the power of Ghazee ul Dien, who now poſſeſſed uncontrouled authority over him. His jealouſy, however, was alarmed by the emperor's eldeſt ſon, Ali Gohur, who had obtained from his father a jaghire in the vicinity of the capital, and was employed in raiſing contributions from it, at the head of a ſmall body of troops. The vizier obliged the emperor to recall the prince, who returned to Delhi; but no artifices could prevail upon him to enter the citadel, where he knew he ſhould be made a priſoner. Ghazee, enraged at his reſiſtance, ſurrounded his palace; when the prince, by a gallant effort, cut his way with a very few brave followers, through the troops, and made his eſcape to Nujeeb ul Dowlah, who protected him for eight months; at the expiration of which he marched to try his fortune in Bengal, the nabob of which province, Surajah ul Dowlah, had been depoſed by the aſſiſtance of the Engliſh, and Meer Jaffier ſet up in his room.

Ghazee ul Dien, diſappointed in his views on the heir to the empire, reſolved to execute vengeance on Nujeeb ul Dowlah, his protector; and for this purpoſe called in an army of Mahrattas, under the chiefs Junko, and Duttah Scindia; who invaded his country, which he defended againſt them for ſome months, being aſſiſted by the nabob of Oude, and the Rohillas; when the Mahrattas were ſuddenly called away to oppoſe the Afghans, who were again advancing under Shah Abdallah. Ghazee ul Dien Khan, dreading the reſentment of that prince for the indignities ſhown to Aulumgeer, and the removal of Nujeeb ul Dowlah from the poſt of emir ul omrah conferred upon him by Abdallah, aſſaſſinated the unhappy Aulumgeer; and, leaving Delhi in poſſeſſion of the Mahrattas, retired to one of the fortreſſes of Soorauje Mul, chief of the Jauts, who gave him protection. Mohee ul Sunnut, ſon of Kaum Bukhſh, and grandſon of Aurungzebe, was now ſeated on the throne, by the title of Shah Jehan, and ſaluted emperor, in prejudice of the rightful heir, Ali Gohur.

During theſe events, the Mahratta power had extended itſelf in almoſt every province of Hindooſtan; when Nujeeb ul Dowlah, the Rohillas, and Sujah ul Dowlah, united their forces, to prevent, if poſſible, the total overthrow of the Mohammedan empire. The Hindoo princes alſo were equally oppreſſed by the Mahrattas; who, though of the ſame faith, only left a bare maintenance to thoſe whom they conquered. Both Muſſulmans and Hindoos therefore joined in petitions to Ahmed Shah Abdallah, that he would come and aſſume the throne of Delhi, in which they promiſed to ſupport him. Abdallah, rejoicing at the invitation, advanced without delay towards the Indian metropolis. He was ſoon joined by the chiefs Nujeeb ul Dowlah, Saadoollah Khan, Hafiz Rhamut, and Doondee Khan. The Mahrattas were encamped near Delhi; and Shah Abdallah marched to give them battle. For ſome days, ſkirmiſhing only took place between detached parties. At length, the Mahratta chief Duttah Scindia, diſtreſſed for proviſions, having firſt ſent off his nephew Junko to the Deccan, determined to hazard a battle. With his whole army diſmounted, he drew up in front of his camp, daring the enemy to come to action. The challenge was accepted, and a bloody engagement took place, in which, at laſt, Duttah and the greateſt part of his troops were cut to pieces. Shah Abdallah, immediately after the victory, haſtened in purſuit of Junko, and ſoon reached Narnoul. Here he received intelligence that Holkar, the Mahratta chief in the Jeypour country, had marched to Soorauje Mul, chief of the Jauts, whom he endeavoured to prevail upon to join him; but he alleged in his excuſe for not complying, that he could not ſpare troops from his garriſons. Holkar upon this moved with his own troops to Secundra, twenty coſs to the eaſtward of Delhi, where the Rohilla chiefs had collected ſtores for Abdallah's army, hoping to diſtreſs him by ſeizing them; but the Rohillas had taken the precaution to move the grain acroſs the Ganges. Abdallah, upon this intelligence, detached Puſſund Khan with a body of cavalry againſt Holkar. In the ſpace of twenty-four hours he marched with fifteen thouſand horſe from Narnoul to Delhi, the diſtance of ſeventy coſs, or one hundred and forty miles; and only remained a ſingle day at that city for refreſhment, croſſed the Jumna the night following, and about dawn arrived at Secundra, where Holkar was encamped. The Mahratta chief was completely ſurpriſed, and had ſcarcely time to make his eſcape quite naked, with about three hundred followers. The reſt of his troops were either killed or taken priſoners, and a great plunder fell into the hands of the victors. Shah Abdallah then moved from Narnoul to Delhi; and at the approach of the rainy ſeaſon croſſed the Jumna to canton at Secundra, for the convenience of being ſupplied with proviſions.

When the intelligence of Duttah Scindia's defeat and death, and the overthrow of Holkar, reached the Mahrattas in the Deccan, Suddaſheo Row, commonly called Bhow, with an army of artillery and ſepoys diſciplined in the European method, and an innumerable hoſt of cavalry, marched to regain their credit in Hindooſtan. Upon the arrival of this army near Agra, Soorauje Mul, the Jaut rajah, was prevailed upon by Mulhar and Holkar, who had taken refuge with him, to viſit the Bhow; and at Muttra, Ghazee ul Dien Khan, the murderer of Aulumgeer, joined them. Suddaſheo Bhow, as the rapidity and depth of the Jumna would not permit him to croſs and attack Shah Abdallah, marched to Delhi, which he entered, in the Muſſulman year 1173, A.D. 1759, and immediately commenced an aſſault upon the palace. One attack was made at the lion baſtion, and another at the Delhi gate. At length the Mahrattas ſucceeded in ſtorming the place; when Suddaſheo Bhow entered the palace and broke down the ceiling of the grand hall of audience, which was of ſilver, and melted it for coin. The gold and ſilver plate at the tombs and ſepulchres of the emperors he alſo ſeized; and was guilty of every plunder expreſſive of a baſe and grovelling mind. He placed Shah Jehan Bukht, ſon of Ali Gohur, on the throne, and appointed Sujah ul Dowlah his vizier, in hopes that this meaſure would ſow diſſenſion between him and Shah Abdallah. This event happened in the year of the hegira 1174, A. D. 1760.

The inſtant that Ahmed Shah Abdallah was adviſed of the proceedings in Delhi, though the river Jumna was not yet ſafely fordable, he gave orders for march, and ſwam with his army acroſs the river at Pakput; which ſo aſtoniſhed the Bhow, who had marched to plunder the town of Sirhind, that he gave up the deſign, and returned with precipitation to Panniput. He had with him one hundred and forty thouſand horſe, commanded by the moſt celebrated Mahratta chiefs, beſides his corps of ſepoys and artillery; but, with this great force, not thinking himſelf equal to engage the Afghan chief Abdallah, he entrenched himſelf on a plain to the north of Panniput. The Afghan chief ſoon arrived near him, and ſent out parties to prevent grain from paſſing to his camp. Daily ſkirmiſhes took place between detachments from both armies. At length Abdallah, finding that nothing would force the Mahrattas from their camp, reſolved to ſtorm it. Jehan Khan, Puſſund Khan, and Nujeeb ul Dowlah, formed the van, and were followed by the other Indian chiefs. The Mahrattas, on their approach, drew out at a little diſtance in front of their lines The action began with much fury at twelve o'clock, and continued doubtful, with great ſlaughter, till evening at twilight, when the Rohilla infantry of Nujeeb ul Dowlah forced their way into the enemy's works, and Bulwunt Row, a near relation to the Bhow, was killed, with a great number of men; but night coming on, Shah Abdallah ordered a retreat, and the ſtruggle ceaſed. Famine and ſickneſs raged in the Mahratta camp, and numbers died every day; but, they ſtill held out, in expectation of receiving ſupplies from Pundit, the chief of Etawa and Korah; but in this they were diſappointed. The Mahratta camp was at length rendered intolerable by filth of every kind; numbers dying hourly of famine and ſickneſs. The chiefs held a conſultation, and agreed, that, as by remaining in their entrenchments they muſt periſh by diſeaſe and hunger, it was better to hazard a battle, and, if defeated, fly to the Deccan. They accordingly marched out of their camp, and advanced, with their artillery in front, towards the army of Abdallah, who was prepared for their reception, and permitted them to move a conſiderable diſtance from their lines; when the Afghans ruſhed upon them with ſuch fury, as not to give them time to uſe their cannon. The Bhow was killed almoſt on the onſet; which had an immediate effect on his troops, who fell into diſorder. Junko, and many other chiefs were killed, and the rout became general. The field floated with the blood of the numerous ſlain. Two and twenty thouſand men and women were taken priſoners, and the plunder of the Mahratta camp exceeded all valuation. A great train of artillery, fifty thouſand horſes, two hundred thouſand cattle, ſeveral thouſand camels, and five hundred elephants, formed a part of this vaſt capture. Ahmed Shah Abdallah, after this great victory, marched to Delhi, where he continued ſome months. Before his departure, he directed that the rightful heir, Ali Gohur, ſhould be declared emperor of Hindooſtan; and commanded the vizier Sujah ul Dowlah, and the other chiefs, to promote his authority. Sultan Jehan Bukht, his ſon, was continued on the throne as regent, till his father, then engaged in warfare in Bengal, ſhould be able to return to Delhi; and Nujeeb ul Dowlah, the emir ul omrah, was entruſted with the care of the city, and protection of the royal family. Such was the ſtate of things when Ahmed Shah Abdallah took his departure from Hindooſtan.

Ali Gohur was at the head of an army in the province of Bengal, when the intelligence reached him of the murder of his father Aulumgeer, by Ghazee ul Dien. The prince was accordingly proclaimed emperor, by the name or title of Shah Aulum II. on which occaſion he was met by his vizier Sujah ul Dowlah, Nujeeb ul Dowlah, the emir ul omrah, and other chiefs from Delhi, to congratulate him on his advancement to the throne. This event took place in the Muſſulman year or hegira 1175, A.D. 1761. The new emperor continued in Bengal, where he was engaged in the diſputes between the Engliſh factory and the nabob, an event which involved him in the jarring intereſts of the French and Engliſh in that province for the ſpace of ten years, and which reduced him at laſt to become a kind of penſioner on the bounty of the Engliſh, in the city of Allahabad; during all which time he was never once able to viſit Delhi, the capital of his empire. That city continued to be governed by Nujeeb ul Dowlah till his death; when he was ſucceeded in his office of emir ul omrah by his ſon Zabtah Khan, who continued to protect the royal family, and to govern the ſmall diſtricts round Delhi which yet remained to the houſe of Timour.

It was not till the year 1771, that Shah Aulum, becoming weary of his retirement at Allahabad, and finding, after repeated applications, that he could not obtain the aſſiſtance of the Engliſh to put him in poſſeſſion of Delhi, over which for a long time paſt he had only maintained a nominal authority, reſolved to quit their protection, and call in the Mahrattas to reſtore him, amidſt his ſurrounding enemies, to the Mogul capital. To this reſolution he was urged by Huſham ul Dowlah, his favourite, who hoped to acquire the ſole adminiſtration of the royal affairs. His own army was very ſmall, but well appointed; and he had two battalions of ſepoys, which had been diſciplined by Engliſh officers. He moved from Allahabad to Nubby Gunge, where, by appointment, he was met by Mahadjee Scindia, a diſtinguiſhed Mahratta chief, who undertook to eſcort him to the camp of his principal Biſſajee, then encamped near Delhi. He agreed to pay the Mahrattas ten lacks of rupees, as ſoon as he ſhould be put in poſſeſſion of the city; but they inſiſted upon the ſum in advance; which, after much negociation, was given them, and they performed the conditions. About the latter end of December 1771, Shah Aulum made his entry into Delhi, and received the congratulations of his family, and the joyful acclamations of the inhabitants of the ancient capital of Hindooſtan.

The emperor's enjoyments in Delhi were but ſhort and fleeting. He had reſolved on the ruin of Zabtah Khan, the ſon of Nujeeb ul Dowlah, and father of Gholaum Kaudir Khan, who ſucceeded him as chief of the Rohillas. Many reaſons were aſſigned for this haſty and perſecuting meaſure. He had, it was ſaid, been deficient in reſpect to the royal authority, while Shah Aulum reſided at Allahabad; and it was alſo whiſpered, that during his command in the palace of Delhi, he had abuſed his truſt, by corrupting the ladies of the harem, and contaminating the blood of Timour, by ſleeping with the princeſs Khierooniſſa, the emperor's ſiſter; a conduct highly deſerving the royal diſpleaſure. Whatever the cauſes were, Shah Aulum had determined to ſeize his territories; and the Mahrattas agreed to aſſiſt him; not only from the hope of plunder, but of gratifying their revenge for the loſſes they had ſuffered from Nujeeb ul Dowlah; to the ſuperior courage of whoſe Rohilla troops, the victory of Ahmed Shah Abdallah at Panniput had been principally owing.

Shah Aulum marched in January 1772, not more than twenty days after his arrival at Delhi, with an army of ninety thouſand men, chiefly Mahratta cavalry; and without delay entered the hereditary diſtricts of Zabtah Khan; who, unable to reſiſt ſuch a force, evacuated his capital of Ghoſe Ghur, which was given up to plunder; and he fled acroſs the Ganges, hoping to defend his territories on the eaſtern bank of that river, which he truſted would impede the royal progreſs. He ſtationed ſome troops at the different fords; but this weakened his main body, and was the cauſe of his deſtruction. Nujeef Khan gallantly croſſed the river, and diſperſed the troops at one of the ſtations, when he was followed by the chief part of the Mahratta army; after which Zabtah Khan made but little reſiſtance. He fled to Pattergur, where he had depoſited his women and treaſures; but was ſo cloſely purſued, that he had not time to remove them. This place ſurrendered after a few days' ſiege, and his family and effects fell into the hands of the enemy; but Zabtah Khan made his eſcape to the vizier Sujah ul Dowlah, at Shawabad, the frontier city of his dominions; as did another Rohilla chief, Hafiz Rhamut, to purchaſe his protection.

This campaign ended very little to the ſatisfaction of the Mogul emperor; for the Mahrattas paid him no reſpect, and allowed him ſcarcely any ſhare of the plunder acquired by the war, to grace his entry into Delhi. They alſo reſtored to Zabtah Khan his women and children, for a lack and half of rupees, which was generouſly advanced him by Sujah ul Dowlah. At the concluſion of the rains, the affairs of the emperor aſſumed a ſtill more gloomy aſpect. His treacherous allies, the Mahrattas, whoſe only object was preſent gain, having drained Shah Aulum's treaſury, agreed, for a ſum of money, to reſtore to Zabtah Khan the country, for which they had been ſo amply paid by the ſovereign, and to give back to the Jauts ſome diſtricts which had been reſigned to the emperor on his firſt arrival at Delhi. They inſolently iſſued their orders to the royal officers to evacuate their ſtations, and marched out at the head of their troops to ſee them enforced.

At length, the Mahratta army, combined with the Jauts, and Rohillas under Zabtah Khan, arrived near Delhi; and the emperor was now obliged to throw himſelf wholly on the mercy of his enemies. After ſome days ſpent in negociation, the Mahrattas encamped nearer the city, and their chiefs, Biſſajee and Holkar, with Zabtah Khan, eſcorted by a large body of troops, made a triumphant entry into the palace, to viſit his majeſty. They advanced upon their elephants to the gate of the hall of audience, a privilege allowed only to the imperial family. They even attempted to penetrate the female apartments; and were prevented only by the intricate windings of the paſſages from moleſting the women, and adding the worſt diſgrace to fallen royalty. At the gate of the hall of audience the chiefs condeſcended to alight, and to make the cuſtomary obeiſances; but the unfortunate emperor was obliged, at the ſame time, to deſcend from his throne, and ſit on a ſmall carpet to receive them. Biſſajee and Holkar then led him back to his throne, that it might be ſaid he received it from their hands. The whole of the interview paſſed in the moſt humiliating condeſcenſions of the emperor, and the greateſt inſolence on the part of the Mahrattas. When they had plundered Delhi, they retreated towards the Jumna, and ſhortly after returned to the Deccan, where ſome diſſenſions in their own government called for the preſence of their chiefs. It is probable that they had long before reſolved on a retreat to their own country, and that the neceſſity of it haſtened their treacherous conduct to the emperor; being determined to obtain all they could from territories which they were obliged to quit.

Towards the end of April 1774, Nujeef Khan, the emir ul omrah, marched from Delhi, to join Sujah ul Dowlah; who with his allies the Engliſh, under the command of colonel Champion, had defeated the Rohillas in a general engagement, in which Hafiz Rhamut, the leading chief, being killed, the others fled for refuge to the hills, leaving their country an eaſy prey to the rapacious vizier; who took poſſeſſion of all Rohilcund, except the diſtrict of Rampour, which was granted in jaghire to Fyzoollah Khan, upon his ſubmiſſion to the vizier. Zabtah Khan alſo joined Sujah ul Dowlah; but, being greatly in arrear to the royal treaſury for the revenue of his country, Shah Aulum, in his abſence, detached a force, who expelled his collectors from Mheerut and other diſtricts, without oppoſition. The emperor's affairs, though far from brilliant, yet, by the addition of territory taken from Zabtah Khan, aſſumed a more princely aſpect; but for this he was ſhortly to ſuffer, from the ſon of Zabtah Khan, the moſt unheard-of indignities ever offered to the ſacred character of a ſovereign prince.

In January 1775 died the vizier Sujah ul Dowlah, in the midſt of his proſperity. He had planned a conqueſt over all the territory uſurped by the Mahrattas in the provinces of Mulwa, Agra, and Bundelcund; and, had he lived a few years longer, there is little doubt but that he would have confined the Mahrattas to their own limits; which would have been a bleſſing to the diſtracted empire of Shah Aulum, and the Mohammedans in Hindooſtan. Sujah ul Dowlah was ſucceeded in territory by his eldeſt ſon, Aſoph ul Dowlah; and upon his preſenting a peſhcuſh or offering, and ſending a general with five thouſand men and ſome artillery to attend the emperor, was appointed to ſucceed him in the office of vizier. The other great omrah of ſtate, Nujeef Khan, died in 1782, when his adopted ſon, Affraſiaub Khan, who then poſſeſſed the city and province of Agra, was appointed to ſucceed him. He had no ſooner entered upon his office of emir ul omrah, than he prevailed upon Shah Aulum to march to Agra, by promiſes of giving up that city, with the fortreſs, to his diſpoſal. The emperor, flattered by the hope of acquiring more power, left Delhi, and arrived at Agra in October 1784; when the golden keys of the citadel were preſented to him by Affraſiaub; and he had the ſatisfaction of being called "King of the World," in the palace of his anceſtor, the renowned Akbar; but it was garriſoned by the troops of the miniſter. On the twenty-ſecond of that month, Affraſiaub had an interview with the Mahratta chief Mahadjee Scindia; when it was agreed that they ſhould jointly attack the Rohillas and Rajahpouts; but their plans were fruſtrated by an unfortunate event. On Tueſday the ſecond of November, Affraſiaub Khan was aſſaſſinated by a ſoldier employed by Mohammed Beg, chief of the Rajahpouts, who dreaded the power which Scindia's alliance would give to ſo active and warlike a miniſter. This event occaſioned a new revolution in affairs, by transferring the authority of the Moguls to the Mahrattas.

Scindia, by preſents of money, and a regular allowance for the royal houſehold, prevailed on Shah Aulum to come to his camp, and beſtow upon the peſhwa, or chief miniſter of the Mahratta ſtates, the office of vaqueel muttulluk, or ſole director of the empire. Under this grant, he claimed the command of the army of the unfortunate Affraſiaub, and the governments of Agra and Delhi; and as he was at the head of a large body of Mahrattas, and the Mogul chiefs diſagreeing among themſelves in the choice of a ſucceſſor, he eaſily effected his deſigns. Shah Aulum was now permitted to return to Delhi, and ſixty thouſand rupees per month were ſettled by Scindia for his ſupport; but a body of Mahrattas was ſtationed with him, to prevent his encouraging any other power; ſo that, in fact, he was only a ſtate-priſoner in the hands of Scindia.

Towards the end of the year 1787, a conſiderable body of Mahrattas, under Royjee Patcel, who had been ſent to collect a tribute from the rajah of Jeypour, being defeated, Scindia marched with his whole army into that country, and advanced within a ſhort diſtance of the capital. The rajah, being aſſiſted by the chief of Jodepour, and other allies, diſtreſſed his enemy by cutting off his ſupplies; ſo that both Mahrattas and Moguls became diſcontented, and Mohammed Beg, with his followers, joined the rajah. In this conjuncture, Scindia reſolved to make a puſh, leſt the defection ſhould become general. A ſevere action took place, and Mohammed Beg was ſlain; but the valour and conduct of his brother Iſmael Beg reſtored the courage of the troops, which had given way from the loſs of their chief, and victory declared for the Rajahpouts. Three days after this event, Scindia was deſerted by the diſciplined battalions of ſepoys, who went over to Iſmael Beg. This misfortune was followed by repeated defeats, which obliged him to retreat with precipitation acroſs the Chumbul, to the neighbourhood of Gwalior, and quit for the preſent all offenſive operations; leaving garriſons in the citadel of Agra and fortreſs of Alighur, in hopes of their holding out till he could obtain freſh reinforcements from the Deccan.

The evacuation of the provinces of Delhi and Agra by the Mahratta army, produced a fatal change in the royal affairs. Shah Aulum, the pageant of every ſucceſsful party, marched from Delhi at the invitation of the rajah of Jeypour, who advanced within three days' journey of the capital to pay his reſpects; but whether he was unwilling to engage in the adminiſtration of the royal concerns, intimidated by fears of the return of the Mahrattas, or reſolved only to act for the preſervation of his own country, he in a ſhort time obtained his diſmiſſion, and withdrew to his own territories. Shah Aulum returned to Delhi, where he hoped to remain ſecure and undiſturbed, till Scindia's return with a reinforcement, or a decided ſuperiority of his enemies. Unhappy indeed was his ſituation, and bitter the cup of affliction which was ordained to follow. Over-awed by a Mahratta garriſon in his capital, and depending for ſupport on the power of Scindia, he was obliged, at the ſame time, to lend his name to his enemy Iſmael Beg; who, after defeating the Mahrattas in the field, had taken ſeveral places from them, and now laid ſiege to Agra, under pretence of the imperial authority.

At this criſis ſtarted up an enemy, the moſt cruel and unrelenting of all others to the unfortunate Shah Aulum. Gholaum Kaudir Khan, a Rohilla chief, ſon and ſucceſſor to the late Zabtah Khan, determined to revenge the perſecutions lately offered to his father, and hoping to acquire additional territory and power out of the wreck of public affairs, marched from his reſidence of Ghoſeghur, and appeared ſuddenly before Delhi, which the Mahratta garriſon evacuated on his approach. He obliged the emperor to confer immediately upon him the office of emir ul omrah, which his father had borne; after which he moved, as by regal authority, to lay ſiege to the fortreſs of Alighur, where Scindia had left a garriſon.

The prince Jehander Shah, who had reſided ſince the year 1784 at Benares, under protection of the Engliſh, was at this time reſolved to try his fortune in this ocean of troubles. He marched to Delhi, and was joined on his route by ſome thouſands of adventurers. On his arrival at the capital, he was received with joy by his father, who empowered him to direct the operations of the ſelf-created emir ul omrah, Gholaum Kaudir Khan; and the prince, after obtaining the releaſe of his women and children, who had been impriſoned ſince his flight, repaired to the ſiege of Alighur. He was ſoon diſguſted with the brutal diſreſpect of the Rohilla chief; and in conſequence repaired to Agra, in hopes of finding a better ſervant in Iſmael Beg; but was diſappointed. The money he had brought with him from Benares being exhauſted, his followers became clamorous for pay, and the unhappy prince was obliged to divide among them his effects. Not chuſing under theſe misfortunes to return to Delhi, leſt the influence of his brother Akbar Shah, the favourite ſon of Shah Aulum, ſhould prevail on his father to confine him in his unprotected ſtate, he threw himſelf again on the generoſity of the Engliſh. They again received him, and he repaired once more to Benares, where he did not long ſurvive his return; but died in May, 1788, after an illneſs of little more than twenty-four hours.

Gholaum Kaudir Khan, on the fall of Alighur, marched to aſſiſt Iſmael Beg in the ſiege of Agra; but, they ſoon diſagreeing, he left him, and proceeded to make conqueſts for himſelf in other parts of the country. By this time Scindia, having received ſome ſuccours from the Deccan, diſpatched his confidential miniſter, Rana Khan, and Runjeet Sing, rajah of the Jauts, to raiſe the ſiege of Agra; near which a bloody battle enſued, on the ſixteenth of June, 1788, in which Iſmael Beg was completely defeated with the loſs of all his cannon, baggage, and ſtores. He made his eſcape with great difficulty, by ſwimming his horſe acroſs the Jumna, and reached the camp of Gholaum Kaudir Khan. The Rohilla chiefs, being joined by many more of their followers, reſolved to march forthwith to the capital, and compel Shah Aulum to give up his connection with their enemies the Mahrattas. To this they were inſtigated by ſeveral of the dependents of the emperor; who, having offended Scindia, dreaded his diſpleaſure, ſhould they fall again into his hands. The ſupineneſs of the Mahrattas, after their defeat of Iſmael Beg, is not to be accounted for. Inſtead of marching immediately to Delhi, Scindia only advanced to Muttra; ſo that the unfortunate Shah Aulum was left expoſed to the inſult and treachery of his ſervants, and, in the end, to dethronement, plunder, and loſs of ſight!

Gholaum Kaudir Khan, on his arrival oppoſite Delhi, requeſted the emperor to admit him into the city, but was refuſed; upon which he reſolved to make his way by force; and, with Iſmael Beg, croſſed the Jumna in the night. Rajah Himmut Bahadur, and the few Mahrattas in the place, fled inſtantly; and the Mogul chiefs, with their followers in the emperor's ſervice, joined Iſmael Beg; ſo that the unhappy Shah Aulum, unable to reſiſt, was obliged to open the gates of the citadel, and receive the rebels. They were introduced by the Nazir, who anſwered for their fidelity to his majeſty, and that they would free him from the controul of the Mahrattas, and the diſgrace of depending for a caſual ſupport on the infidels, the natural enemies to the faithful. Gholaum Kaudir, and Iſmael Beg, falling at the emperor's feet, aſſured him that their only object was his honour, and the expulſion of the Mahrattas; which they promiſed to effect, if one of the young princes was authorized to accompany them to the field. A treaty was then drawn up, and ſolemnly ratified by oaths in one of the moſques in the palace, by which it was ſtipulated, that Shah Aulum ſhould receive a third part of the revenues for the ſupport of his honour and dignity. The emperor, in conſequence, committed his ſon Soleyman Shekkoh to their care, and a day was fixed for his march againſt the Mahrattas; but this adjuſtment was deceitful. In a few days, Gholaum Kaudir demanded a large ſum of money to pay the troops, which Shah Aulum refuſed; and the ſavage Rohilla reſolved to poſſeſs himſelf of whatever treaſure might be found in the palace, by dethroning the emperor. To this infamous conduct he was excited by the treacherous Nazir, who, forgetting thirty years of confidence and favour, had informed him that his maſter poſſeſſed hoards of treaſure and jewels, though he pretended inability to ſatisfy the troops. The Nazir is the ſuperintendent of the private apartments of the harem, always a eunuch. The degraded and deplorable ſituation of the once auguſt family of Timour will appear more fully, in the following faithful tranſlation of a journal of the monſtrous tranſactions of the unfeeling Gholaum Kaudir, as given in Captain Scott's Hiſtory of Deccan; a work which claims particular attention and regard.

July 26, 1788.—About ſeven in the morning, Meerza Iſmael Beg, with his officers, and Meerza Muttullub Khan, repaired to Gholaum Kaudir, who was ſeated in the hall of audience; and, after ſome converſation, ſent repeated demands of money from the emperor, through the Nazir. Meerza Muttullub obſerved, that, had his majeſty poſſeſſed ſuch a conſiderable ſum, his affairs would not have fallen into ſuch extremity. He was commanded to be ſilent by Gholaum Kaudir; who ſent two attendants to bring Bedar Bukht, ſon of the emperor Ahmed Shah. This prince, being conducted into the oratory, was ſeated on the throne, and the cuſtomary ſalutations of royalty made to him by the chiefs. Gholaum Kaudir then diſpatched Shah Aulum, with nineteen princes, his ſons and grandſons, under a guard to the apartment called Noor Mahal. After this a diſpute aroſe between Gholaum Kaudir and Iſmael Beg, concerning the latter's remaining in the palace; and Iſmael Beg at length departed in wrath to his camp.

July 27.—Bedar Bukht received the compliments of the officers, and ordered ſeveral of the depoſed emperor's ſervants into confinement. Soleyman Shekkoh was brought from the camp, and impriſoned with his father, who was this day denied even water by Gholaum Kaudir. The miniſters of the general moſque requeſted to know in the name of what emperor the prayers were to be read; and the Rohilla anſwered, "In the name of God and his prophet." He this day ſent for the aged princeſſes, Mallekeh Zummaneh and Sahebeh Mhal, from their houſe in the city. On their arrival in the palace, he paid his reſpects, and told them the private apartments of the harem ſhould be under their direction. They approved of his conduct, but warned him not to act in ſuch a manner as to draw the ſcorn of mankind. He replied, that, under the royal auſpices, the empire would be properly regulated. The ladies of Shah Aulum's family repreſented, that for two days they had been without food. He ordered them victuals.

July 28th.—This day, the princeſs or begum Mallekeh Zummaneh, aſſiſted by the Nazir, ſearched the apartments of fourteen of Shah Aulum's women, and ordered all their money and effects to be collected in the oratory; after which they delivered them to Gholaum Kaudir Khan. The effects of Merza Akbar Shah were alſo confiſcated; and Bedar Shah conferred the rank of emir ul omrah on Gholaum Kaudir Khan.

July 29th.—To-day, a quarrel occurred between Bedar Bukht and the begums Mallekeh Zummaneh and Sahebeh Mhal, who threatened to leave the palace; obſerving, that they had ſeen four reigns, and been independent of all; had come from their houſes to ſerve his family, but would return, and commit him wholly to the pleaſure of Gholaum Kaudir. This ſilenced him. Bedar now ſent to Soleyman Shekkoh, and Akbar Shah, aſſuring them they ſhould not want while he could relieve them; but that they muſt be reconciled to the decrees of Providence, and conſider, that their father had reigned thirty years, while his ſuffered the diſtreſs they now complained of. Gholaum Kaudir Khan, having prepared five whips, obliged the ſultan to take one in his hands, and accompany him to extort a confeſſion of his treaſures from Shah Aulum.

July 30th.—This day, the apartments of Shawabadee Begum were ſearched, and a caſket of jewels, ſome ſtrings of pearl, and gold and ſilver plate, being found, were delivered to Gholaum Kaudir; who alſo ſeized ninety-nine horſes from the royal ſtables. Thirty thouſand rupees were found buried in the floor of a room, beſides ſome plate. The Rohilla ſent the latter to the mint, and commanded coins to be ſtruck in the name of Bedar Bukht Shah, with the following inſcription: "The ſupporter of the true religion of Mohammed, Bedar Shah, by the grace of God, ſtamped coins throughout the world." To-day, five rupees, a bed, and a carpet, were ſent by Gholaum Kaudir to the unfortunate Shah Aulum. Several ladies of the harem were tied up and beaten with whips, to force a diſcovery of their effects; and the palace was filled with cries and lamentations. Except the garments they had on, every thing was ſeized.

July 31ſt.—Gholaum Kaudir agreed to give Iſmael Beg five lacks of rupees from the plunder of the palace. Several of the confined princes were inſulted by blows; and ſeven bankers and corn-merchants ſeized and impriſoned to extort money from them.

Auguſt 1ſt.—The Nazir and the eunuchs repreſented to the emperor, that they had by ſevere chaſtiſement extorted a diſcovery from ſome of the ladies of the harem of a quantity of gold and ſilver plate, with ſome jewels. He ordered them to be ſent to Gholaum Kaudir. Meerza Buddoo, an ancient prince, uncle to Shah Aulum, was ſeized by the Rohilla, and a demand made of a lack of rupees. Pleading inability, he was delivered to a ſet of peons to be flogged. To-day, Gholaum Kaudir went to Shah Aulum, and threatened him. The unhappy prince replied, "What I had, you have taken; but, if you think I conceal ſome treaſures within me, rip up my bowels, and be convinced." The traitor then aſſured him, if he would diſcover his hoards, he ſhould re-aſcend his throne. Shah Aulum anſwered, "I have no ambition left; may God protect you, who have laid me aſide: I am content with my fate." The Rohilla then proceeded to the apartments of the brothers of Shah Aulum, and threatened them with puniſhment. Four trunks of wearing-apparel, a few jewels, and a ſilver bedſtead only, were found in them on the ſtricteſt ſearch. The Nazir repents, now too late, of his conduct; and will have more cauſe every day. Iſmael Beg is treating with Scindia, who has promiſed to give him a jaghire, and a command in his army.

Auguſt 2d.—To-day, perſons were ſent to dig up the floors of the apartments of Meerza Buddoo. Some jewels, plate, and wearing-apparel, were found. The prince and his family were ordered to be kept without food; but at the earneſt interceſſion of Meerza Hinga, uncle to Bedar Bukht, it was allowed them. Gholaum Kaudir to-day roughly demanded from the new emperor the whole ſum he had promiſed for his throne. Bedar Bukht Shah ſaid, "He had given every thing as yet diſcovered, and deſired the jewels might be valued." The Rohilla replied, "Jewels were to him of no value; he muſt have money, or plate to coin." A meſſage coming from the princeſs Mallekeh Zummaneh, that ſhe wiſhed to ſee him, he would not go; but abuſed her to the eunuchs who brought the meſſage. Bedar Shah entreated him to be pacified, and every exertion ſhould be uſed to procure money. The ſultan would have embraced him, but the wretch drew back, and retired in diſpleaſure; after which he ſent a band of Affghans to guard the royal perſon, and extort money. They threatened to pull Bedar Shah from his throne, and correct him with blows; upon which he exclaimed, "If this is empire, the ſcanty meal I enjoyed when among the confined princes was ſweet indeed." The Afghans ordered him to be ſilent, ſaying, "they had ruined Shah Aulum in an inſtant; and what was he better than him." Guards were alſo placed over the begums Mallekeh Zummaneh and Sahebeh Mhal; and Gholaum Kaudir informed them, "that, as the world would now at any rate call him traitor, he was reſolved to ſeize the whole property of the royal family." Nazir trembles for his ſafety, and has diſcharged his attendants. Seven lacks of rupees are demanded from him.

Auguſt 3d.—To-day, Gholaum Kaudir Khan ſeated himſelf in the preſence of Bedar Shah, the higheſt diſreſpect he could be guilty of to the ſovereign, and ſmoked his hookah before him; ſtretching out his feet on the royal muſnud, or throne, at the ſame time inſulting him by abuſive language.

Auguſt 4th.—Bedar Shah ſent a note by Nazir to Gholaum Kaudir, requeſting him to have the jewels valued, but he refuſed; demanding ſix lacks in money, and would not ſuffer Nazir to return. The begums Mallekeh Zummaneh and Sahebeh Mhal have diſcharged their houſeholds. Ruttun Ram adviſing Bedar Shah to ſend a khelaut to the vizier, he ſaid, "I have none but this old garment on my body."

Auguſt 5th.—Gholaum Kaudir to-day forced the doors of the royal baths; and, finding two ſilver chairs, ſent them to the mint. The apartments and effects of Meerza Akbar Shah were ranſacked. Thirty-two elephants and one hundred horſes from the royal ſtables were ſent to the Rohilla camp. A requeſt of Shah Aulum for ſome foot-cloths was complied with.

Auguſt 6th.—The thrones and other ſeats belonging to Shah Aulum, ornamented with gold or ſilver, were broken to pieces, and the plate ſent to the mint. Gholaum Kaudir ſeized the clothes and ornaments of ſixty dancing girls belonging to the palace. On their complaining of his oppreſſion, he commanded them to ſing and dance; and, being pleaſed with their performance, gave them back their clothes; but kept their jewels, and turned them out of the citadel. After this, he went to the apartments of the prince Meerza Baber, which were ranſacked; and ſent a woman to ſearch the harem. When every thing was ſeized, the prince and the ladies were ordered to be put with the reſt of the royal family in confinement. The dwelling of Meerza Khoord, brother to Shah Aulum, was next plundered. The chief woman-ſervant of Kirrammut ul Niſſa Begum was ſeized, and ſeverely beaten, to make her diſcover the effects of her miſtreſs; but ſhe would not confeſs, and was put into priſon. The floors of the begum's apartments were then dug up, and ſome gold ornaments found. Gholaum Kaudir to-day threatened Bedar Shah with puniſhment, if he would not ſpeedily ſupply him with money, as the troops were becoming clamorous for pay. He then went to Shah Aulum, and demanded a diſcovery of the money he had ſaved from the revenues of Bengal and Allahabad. He replied, "that what was in the palace was ſeized; he had no more; and begged to be put to death, that he might be freed from miſery." The Rohilla replied, "he would not hurt him, but force a confeſſion from his ſons Meerza Akbar and Soleyman Shekkoh." Upon which Shah Aulum ſaid, "I am in your hands, but injure not my children." Gholaum Kaudir threatened the princes, who declared they knew nothing of their father's treaſure; but informed him, that there was a Caſhmirian woman in the ſervice of Koottubee Begum, who, if money was concealed, was informed of it. Upon this the woman was ſent for and queſtioned; but, confeſſing nothing, ſhe was confined for further examination. Bedar Shah to-day gave Gholaum Kaudir a pair of gold bracelets and twenty-five thouſand rupees, which had been diſcovered, with which he was well pleaſed, and ſent to the ſhah five trays of apparel from the wardrobe, and five ſilver plates. Bedar Shah deſired he would carry him to the general moſque to pay his devotions; but the Rohilla told him not to be in haſte, and he ſhould go at a convenient time in proper ſtate. The diſſenſion with Iſmael Beg increaſes daily, and that chief is treating with the Mahrattas; but, till their arrival, waits to get what he can from the plunder of the palace. The furniture of the royal elephants was ſeized to-day.

Auguſt 7th.—Bedar Shah ſent a meſſage to Gholaum Kaudir, "that he had, to gratify him, though unbecoming his dignity as a prince, aſſiſted in rifling the palace, and ſurrendered the treaſure diſcovered. Nothing more was left, but he was ready to accompany him to the field, and acquire wealth for him with the ſword." Gholaum Kaudir viſited Shah Aulum, and told him, "he was ſorry for his treaſons, but would make amends by ſeating his ſon Meerza Akbar on the throne." Shah Aulum replied, "he might act as he pleaſed; but, as for himſelf, he was weary of ſuch degraded empire, and only wiſhed to be retired, and employ himſelf in devotion." Bedar Shah was ſeverely threatened this day with correction, if he did not procure more money; upon which he replied, "that he had given all in his power, and ſhould be happy to be releaſed from ſuch mock-royalty."

Auguſt 8th.—Bedar Shah was again threatened with correction and confinement, in caſe he did not produce more money or jewels; and again replied, "that Gholaum Kaudir might act as he pleaſed."

Auguſt 9th.—In the apartments of Mubaric Mhal, upwards of a hundred women were ſearched, and afterwards impriſoned. Bedar Shah declared to Gholaum Kaudir, "that there were no more valuables left in the palace; but, if he choſe, he would attend him to collect money from the rajahs and zemindars." The Rohilla anſwered, "that, if money was not brought him on the morrow, the ſhah muſt take the conſequence." Twenty cheſts of lace and tiſſues were this day burned by Gholaum Kaudir, to extract the ſilver. Bedar Shah requeſted an interview, but was rudely refuſed in the evening. A meeting took place between Gholaum Kaudir and Iſmael Beg Khan. Nazir was threatened with flagellation if he did not produce money.

Auguſt 10th.—Gholaum Kaudir, attended by five Rohillas, went to Shah Aulum, and demanded a diſcovery of his hidden treaſure. The unfortunate and degraded emperor replied, "I have none; take what you can find in the fort." The villain then ordered his attendants to lift up the princes Meerza Soleyman, Akbar Shah, and others, and daſh them on the ground; which they did. Shah Aulum in the agony of his grief exclaimed. "Traitor, forbear ſuch cruelty on my children in my ſight." Upon this, Gholaum Kaudir made the Rohillas caſt him on the ground; after which they ſat upon his breaſt, and ſtabbed out his eyes with a dagger. He then gave orders for the like cruelty to be inflicted on the princes; but was prevented by the entreaties of an officer, named Seetuldaſs. The palace reſounded with lamentations among the ladies of the harem. They were commanded to be ſilent on pain of chaſtiſement. In the afternoon, Bedar Shah was carried into the city, attended by the Rohilla; but the latter, ſuſpecting treachery from Iſmael Beg, returned ſuddenly with him to the palace. The inhabitants deſert the city in crowds. The bankers' and jewellers' ſhops have been ſhut up many days.

Auguſt 10th.—Two ſurgeons were ſent to attend Shah Aulum, who lies in great agony of pain. Some money and effects were ſent by Gholaum Kaudir to Iſmael Beg, who is much diſſatisfied. A meeting afterwards took place between them, and they viſited Bedar Shah in company.

Auguſt 11th.—Shah Aulum petitioned for ſome relief, as his family had been three days without proviſions. Gholaum Kaudir ordered twenty-eight rupees per day to be diſtributed for their ſupport.

Auguſt 12th.—Gholaum Kaudir ordered an eſcort to to conduct the plunder of the palace to Ghoſeghur. The cooking-utenſils of the royal kitchens were ſeized this day,

Auguſt 13th.—Bedar Shah deſired the Nazir to prepare a moſque in the palace for his devotions; but was informed, that the carpeting, &c. had been ſeized. Upon his importunity, however, ſome ſort of preparation was made; and Bedar heard, for the firſt time, the prayer read in his own name as emperor. Two infant ſons of the prince Soleyman Shekkoh to-day died for want of food. Shah Aulum diſmiſſed his phyſicians, and declined nouriſhment, ſaying, "it was more preferable to die, than live, and behold his family periſhing around him." Bedar ordered the children to be buried in the Mhal. He ſaid, "that Shah Aulum complained unjuſtly, and ſhould be reſigned to the decrees of Providence." Gholaum Kaudir paid his devotions at the tomb of Nizam ul Dien, where he was met by Iſmael Beg, and mutual oaths of reconciliation paſſed between them.

Auguſt 14th.—The ladies from ſeveral apartments of the harem were turned out into Sulleemghur, a part of the old palace; and Bedar Shah was commanded by Gholaum Kaudir to dig up the floors in ſearch of treaſure. Parties of Mahratta horſe to-day appeared cloſe to the city. Shah Aulum is in great agony, what he eats voiding by the noſe.

Auguſt 15th.—The Rohillas mutinied; and Gholaum Kaudir was obliged to remain cloſe in the citadel. Meerza Iſmael Beg confined ſeveral inhabitants of the city to extort money from them.

Auguſt 16th.—Bedar Shah deſired Gholaum Kaudir to think of preparing to reſiſt the Mahrattas, who were now plundering round the city, and carrying off the cattle and grain. Many angry meſſages paſſed between Gholaum Kaudir and Iſmael Beg, concerning the diviſion of plunder. At length, the former went to viſit the latter in the evening to try an accomodation. Two diamonds, which had been given from the plunder of Shah Aulum to Bedar Shah, were this day taken from him by the Rohilla.

Auguſt 17th.—To-day, Gholaum Kaudir and Iſmael Beg viſited Bedar Shah, and demanded money, that they might pay the troops, and attend him to the field. He replied, "that he had none; but would conſign over to them the Nazir, from whom they might extort it." A convoy of baggage, &c. from Ghoſeghur was intercepted by the Mahrattas, and many Rohillas cut to pieces. Numbers were drowned in the Jumna, in trying to eſcape from the enemy by fording it. The Mahrattas appeared on the bank of the Jumna oppoſite the citadel. Bedar Shah deſired Gholaum Kaudir to march, offering to accompany him.

Auguſt 18th.—The Mahrattas continued their approaches; all ſupplies were ſtopped from the city, and the ſhops ſhut up. Part of the Rohilla army croſſed the river, unoppoſed by the enemy. Gholaum Kaudir went into the apartments of the confined princes, and ordered the property of Khier ul Niſſa Begum, ſiſter of Shah Aulum, to be ſeized. Her money, ornaments, and even the garments ſhe had on, were taken. Several princes were brought before him, whom he addreſſed, ſaying, “You aſpired to empire, give me your treaſures for it.” In reply, they wept, and ſaid, “You have taken all we had; there is nothing remaining but our lives.” He then cauſed them to be beaten with whips, and ſent them back to confinement. A demand was made on the begums Mallekeh Zummaneh, and Sahebeh Mhal, for five lacks of rupees.

Auguſt 19th.—The effects of the two begums were this day ſeized, guards placed on their houſes, and their attendants ſent priſoners to the citadel. A letter was preſented from Shah Aulum, requeſting relief, as he and his family were periſhing with hunger. Gholaum Kaudir threw the letter on the ground, and exclaimed, “I came not here of my own will; but, as I ſlept in a garden at Secundra, ſuddenly an apparition ſtruck me on the face, ſaying, March ſpeedily to Delhi, depoſe the emperor, and ſeize the country.” Meerza Meendo, uncle of Shah Aulum, was to-day ſo ſeverely flogged, by order of the Rohilla, as to faint away, and at length diſcovered a chamber, under the floor of which were ſecreted ſome large cheſts, two of which were filled with gold coin, and others with rich cloths. The contents of this hoard were unknown to Shah Aulum, and had been depoſited there by Shah Begum in the laſt reign.

Auguſt 20th.—A guard was placed over the Nazir, and his effects ſeized. He was alſo commanded to diſcover the hidden treaſures of Shah Aulum, on pain of puniſhment. Bedar Shah ſent a requeſt to Gholaum Kaudir for the releaſe of Meerza Buddoo; but the meſſenger returned without delivering it; Gholaum being in a violent rage, which made him fearful of going into his preſence. About nine at night, Bedar ventured to ſend again, begging that he would, for pity's ſake, allow ſome victuals for the women; upon which he ſent a ſmall quantity of oil and flour. Many ladies of the harem were ſearched to-day, and Rohilla ſoldiers placed at their apartments. Gholaum Kaudir came into the oratory, and had much converſation with the emperor and the begums Mallekeh Zummaneh and Sahebeh Mhal; when it was agreed, that the ladies belonging to Bedar Shah ſhould be removed from the harem, and a ſtrict ſearch be made for treaſure in every room. Shah Aulum was ſent for, and ordered to diſcover his hoards. He replied, “that he knew of none, and begged for compaſſion on his miſeries, and his family dying with hunger.” The Rohilla told him, “he ſhould yet have more calamities to ſuffer.”

Auguſt 21ſt.—To-day, Gholaum Kaudir ordered Mallekeh Zummaneh and Sahebeh Mhal from their chambers into the apartments of Akbar Shah, and alſo the begum of Bedar Shah. Upon this Bedar Shah went to him to complain of his inſulted honour; when the Rohilla, turning him back, told him to go and keep them company; and he retired to them accordingly. Four ladies died of grief and hunger this day. Their bodies were thrown into the open court, while Gholaum Kaudir was ſurveying the labourers, who, by his orders, were buſied in digging up the floors of the harem. He to-day commanded ſome of the princes to ſing for him; and, one of his attendants entreating him not to be ſo diſreſpectful, he exclaimed, “If they cannot ſing, what elſe are they fit for? They are the offspring of ſingers. Had they been princes, would they have tamely ſuffered me to act as I have done?”

Auguſt 22d.—Bedar Shah came to Gholaum Kaudir, and requeſted him, from regard to God and the prophet, to allow ſome proviſion for his women and children; when the Rohilla frowned ſternly upon him, and uttered much abuſive language. Bedar Shah with the begums are now confined in the octagon turret, ſurrounded only by ſkreens. Gholaum Kaudir ſent for Akbar Shah and other princes, to ſing and play before him, which they dared not refuſe. After the performance, he expreſſed his approbation, and ſaid, “Shah Aulum and his family ſhould no longer be diſtreſſed for neceſſaries and food.”

Auguſt 23d.—The houſe of the Nazir was ſearched, but nothing of much value diſcovered. The Rohilla chiefs grow clamorous for money. Gholaum Kaudir pretends he has none, and is dividing among them the effects of the palace.

Auguſt 24th.—A daughter of the prince Meerza Toghrul died of hunger, and was buried in her chamber. Meerza Iſmael Beg ſent to enquire of Gholaum Kaudir if he meant to march, as the enemy were now ſurrounding him. Gholaum Kaudir excuſed himſelf for his behaviour to the Nazir, by declaring, that he had ſeized his property, only leſt it ſhould be ſuſpected that he was his adviſer in the plunder of Mallekeh Zummaneh and Sahebeh Mhal. Parties of the Mahrattas appeared to-day cloſe to the old citadel, and carried off ſome horſes and bullocks. Munniar Sing, who commanded the palace-guard, having allowed ſome proviſions to paſs to Shah Aulum, and the other confined princes, was rebuked ſeverely by Gholaum Kaudir.

Auguſt 25th.—Meerza Iſmael Beg threatened Gholaum Kaudir, that if he would not deliver up his ſhare of the plunder, he would leave him; and the Mogul chiefs alſo declared, if he remained longer in the citadel, they would quit his ſervice. Gholaum Kaudir made no anſwer. Mallekeh Zummaneh and Sahebeh Mhal ſent a petition that they might not be left to periſh with hunger, but rather be relieved from their miſeries by immediate death. Bedar Shah threatened to put on a religious habit; but was told by the Rohilla, that he muſt prepare to march. He replied, that he would not move.

Auguſt 26th.—Bedar Shah requeſted of Gholaum Kaudir to dethrone him, as he was weary of a dignity which did not afford him and his family the moſt common neceſſaries of life. Gholaum Kaudir ſeized all the horſes of the royal ſtables, and diſtributed them among his followers, leaving only fifteen for the emperor's uſe. Six ladies of the harem died of hunger, and their bodies were thrown over the walls of the citadel, on the ſands of the Jumna. On its being reported, that many others were in a dying ſtate, from the ſame cauſe, Gholaum Kaudir ſent a ſmall ſupply for the women of Bedar Shah, but took no notice of the reſt.

Auguſt 27th.—Four ladies of Shah Aulum's harem, weary of life, threw themſelves from a window into the river, and were drowned. Their bodies were ſtripped by ſome ſoldiers, one of whom was wounded in a ſcuffle for the diviſion of the garments. The unfortunate Shah Aulum, almoſt famiſhed, ſent a ſmall ſilver bow-ring, by a ſoldier who pitied his condition, into the market for ſale. It produced only ſeven pice, (about ſix-pence,) with which ſome coarſe bread was purchaſed for his meal. A conſiderable ſum of money, many valuable jewels and rich effects, were found in the houſe of Sahebeh Mhal, and ſeized by Gholaum Kaudir.

Auguſt 28th.—Some proviſions and apparel were allowed to Shah Aulum and his family. Mallekeh Zummaneh and Sahebeh Mahl entreated, but in vain, to be allowed to retire to their houſes in the city. Gholaum Kaudir refuſed to viſit Bedar Shah, though repeatedly ſent for. The Nazir was releaſed from his confinement. The ſhops in the city are ſhut up, owing to the riotous behaviour of the Rohillas from the dearneſs of grain, the Mahrattas preventing all ſupplies from the country.

Auguſt 29th.—Gholaum Kaudir, in a frolic of intoxication, ſent for Akbar Shah and ſeveral other princes, ſons of Shah Aulum, to the lion baſtion, where he entertained them with a feaſt and dancing. After ſome time, laying his head on the knees of Akbar Shah, he ſlept for two hours. On awaking, he wept, ſaying, "he had been guilty of great crimes, and repented of his behaviour; that he would reſtore all the property he had taken, but could not replace the eyes of Shah Aulum." Akbar Shah, after ſome conſideration, obſerved, that "the providence which had given eyes to his father, had alſo taken them away; and the inſtrument of heaven was not to blame." They ſat at the entertainment until ſunriſe.

Auguſt 30th.—Bedar Shah went to viſit Gholaum Kaudir, who would not ſee him, and ordered him to retire to his apartments. The women of the harem are in the greateſt diſtreſs for want of victuals.

Auguſt 31ſt.—Bedar Shah, by meſſage, entreated Gholaum Kaudir to order ſome relief to the confined princes and ladies of the harem; but was anſwered with angry refuſals. Gholaum Kaudir, in paſſing by the Mhal, was accoſted with loud complaints from the unfortunate women, who begged him to allow them food, or let them leave the citadel; but he paſſed on, ſaying, "that in four days more he would relieve them." He went to Bedar Shah's bed-chamber, and, finding a ſcymetar on the bed, took it away; at the ſame time commanding the guards not to let Bedar Shah come to him on any account.

September 1ſt.—The troops of Gholaum Kaudir are mutinous for their arrears. He has ſpent this day in trying to appeaſe them, but in vain. They threaten to deſert him. Gholaum Kaudir went out to the tomb of Humaioon to pacify the Rohillas. After much argument, one of the mutineers, drawing his dagger, ruſhed towards him, but was ſtopped by his companions. At length, the troops were ſatisfied with the aſſurance of receiving two months pay immediately, and Gholaum Kaudir returned to the palace.

September 3d.—News arrived that the zemindars in Sarungpour, the dominions of Gholaum, were in arms; on which account he reſolved to march to Ghoſeghur, leaving Iſmael Beg in Delhi, to defend it againſt the Mahrattas.

September 4th.—Gholaum Kaudir is preparing for his march. A new quarrel has ariſen between him and Iſmael Beg, concerning the diviſion of the plunder.

September 5th.—Bedar Shah requeſted, by meſſage, that Gholaum Kaudir would permit barbers to be admitted to Shah Aulum and his ſons, who had not been ſhaved ſince the day of his dethronement. It was allowed. Gholaum Kaudir has been the whole day drinking, and liſtening to the ſinging-girls.

September 6th.—A wife of the deceaſed emperor Ahmed Shah died in the palace, and Gholaum Kaudir would not permit the body to be carried out for interment, though Bedar Shah entreated his permiſſion. The Rohilla has been this day conſulting with his officers, concerning his defence againſt the Mahrattas.

September 7th.—As Gholaum Kaudir was ſitting under a tree this day, a black ſnake fell upon him from one of the branches, but he received no injury. A quantity of gold and jewels was diſcovered in the ceiling of a chamber. Part of the Rohilla army croſſed the river, on which the Mahrattas retreated to ſome diſtance.

September 8th.—Bedar Shah obſerved to his attendants, that his was a ſtrange empire, for he could not even obtain neceſſaries for his family; that he read the Koran nightly, ſlept upon the bare ground, and prayed at midnight, in hopes that God in his mercy would have pity on his ſituation. Gholaum Kaudir reviewed his artillery, and is preparing to march.

Nothing further remarkable occurred till the 14th, when Gholaum Kaudir, alarmed at information of Iſmael Beg's being in treaty with Scindia to deliver him up to that chief, ſuddenly left the palace, and ſwam the Jumna on an elephant, to join the part of his army encamped on the other ſide. In a few days, however, he returned; and, going to Shah Aulum, aſſured him, that, though he might reign again if the Mahrattas were victorious, he ſhould not enjoy the preſence of his children, as they ſhould be put to death in caſe of his defeat. The ſavage Rohilla then obliged all the ſons of the unfortunate emperor to embark in a boat, and croſs the river to his camp. Akbar Shah making ſome reſiſtance, Gholaum Kaudir drew his ſcymetar, and threatened to kill him, if he did not embark; when the prince was obliged to comply. The plunder of the palace was alſo carried off in boats. The day following, the Rohilla returned to the citadel, and ſeverely beat Shah Aulum with his own hands, threatening to murder all the princes. He then obliged the aged begums, Mallekeh Zummaneh and Sahebeh Mhal, to go to his camp, in ſpite of their lamentations and entreaties. Then, ſetting fire to all the combuſtible parts of the city, he evacuated it, and repaired to his camp. Upon his departure, a detachment of Mahrattas took poſſeſſion of the city and palace. Rana Khan, the chief, releaſed Shah Aulum from his confinement, and ordered refreſhments for the unfortunate emperor, and the numerous perſons in the harem; who, for ſeven days, had been able to procure no ſuſtenance but dry grain and water. New coins were ordered to be ſtruck in the name of Shah Aulum, who was again ſaluted emperor; but he wiſhed to decline the throne in favour of his ſon Akbar Shah, whom he had always intended for his ſucceſſor.

Rana Khan, having thus ſettled affairs at Delhi, and being reinforced by Ali Bahadur, with a conſiderable force from the Deccan, croſſed the Jumna, to attack Gholaum Kaudir. That chief, finding it impoſſible to ſtand againſt ſo powerful an enemy, endeavoured to make his retreat into his own country; but was intercepted. He took refuge in the town of Mhirta, and made propoſals of ſubmiſſion; but the Mahrattas would not hear them; and on the 21ſt of December, 1788, they made a general aſſault on the place. Gholaum Kaudir defended himſelf a whole day againſt their attacks; but, ſeeing that he muſt eventually be reduced, he in the night mounted a fleet horſe, and made his eſcape. He had not rode many miles, when his horſe ſtumbled, and Gholaum was ſo bruiſed by the fall, that he could not move. In this ſituation he was ſeized by ſome villagers, who carried him to the Mahratta camp. He had, previous to his flight, concealed the moſt valuable jewels acquired from the plunder of the palace, in his ſaddle and houſings. To whoſe lot this great prize fell, is not known, as the horſe was never after heard of. The Nazir, and other chiefs who had remained in Mhirta, were in the morning obliged to ſurrender, with the troops, at the diſcretion of the enemy. Gholaum Kaudir was at firſt treated with diſtinction; but ſoon put into heavy irons, with his companion in treachery, the diabolical Nazir. Akbar Shah and the other ſons of Shah Aulum, with the begums Mallekeh Zummaneh and Sahebeh Mhal, alſo the depoſed Bedar Shah, were reſpectfully treated by Rana Khan, who ſent them to Delhi, with a proper eſcort for their protection. Bedar Shah was remanded to impriſonment. The Mahrattas then poſſeſſed themſelves of Ghoſeghur, and all the territories of Gholaum Kaudir fell into the hands of Scindia, againſt whoſe army the Rohillas and Afghans could no longer ſtand. The wretch Gholaum Kaudir now received from Scindia the uncommon puniſhment due to ſuch a ſeries of uncommon crimes. His ears, noſe, arms, and legs, were cut off; and in this mutilated condition he was ſent to Shah Aulum; but died on the road, before he reached Delhi. There the fragments of his body were carried about in proceſſion, and afterwards elevated conſpicuouſly over the principal gates of the city, as the laſt means of gratifying the reſentment of the enraged inhabitants. Theſe ſhocking events cloſed the year 1788.

The lamentable condition to which the unfortunate emperor Shah Aulum was reduced, the indignities he had ſuffered, and the plunder and devaſtation of his palace, appear to have made a deep impreſſion on the mind of Scindia; to whoſe inactivity, or want of information of the movements of the enemy, theſe misfortunes were in a great meaſure to be attributed. The Mahratta chief, therefore, reſolved to make immediate and ample repriſals for the injuries ſuſtained. He marched full of indignant rage and reſentment into the Rohilla country; nothing could ſtand againſt the torrent of his impetuous arms: thouſands after thouſands fell before the unabated valour of his troops, urged forward by the ſpirit of revenge, and the hope of plunder. In a very ſhort period he reduced the whole of Rohilcund, transferring its revenues to the treaſury of Delhi. He next levied contributions upon the rajahs of Jeypour, Oudipour, and Jodipour, who had taken part with the Rohillas; obliging them to cede half of their territories to Shah Aulum, and pay him an annual tribute for the moieties they retained.

In the conduct and proſecution of theſe meaſures, Mahadjee Scindia appears to have been governed by the principles of juſtice, and the feelings of a generous mind. But ſuch ſeems to be the nature of the conſtitution and character of the eaſtern world, that avarice and ambition will ſoon or late predominate, and direct the views of every powerful individual; while the lower orders, proſtrate and humble, appear to think themſelves born to lick the feet of their arbitrary governors. So Scindia, after he had ſucceſsfully annihilated the power and authority of the late oppreſſors of Shah Aulum, finding himſelf without an enemy to fear, or an army to contend with, became himſelf the oppreſſor of the oppreſſed, in the reſtraint he exerciſed over the fallen repreſentative of Tamerlane the Great. All the revenues attached to this royal houſe, formerly ſo incalculable in their amount, and ſo unbounded in their extent, were now reduced almoſt to nothing. The various diſtant provinces of the realm had been ſeized by the rich and overgrown ſervants of the crown to their own uſe, or re-conquered by the deſcendants of the original rajahs of thoſe diſtricts; while the tract of country round Delhi, with the recent conqueſts, and the ſmall revenues ariſing to Shah Aulum, together with the internal regulation of the city, and the management of the ſtate, fell entirely under the arbitrary controul of Scindia; and thus the nominal emperor, blind both of body and mind, became a mere penſioner and dependent on the bounty and will of this Mahratta chief.

Mahadjee Scindia dying in 1794, his influence and authority were transferred to his nephew Dowlat Rao Scindia; who, ſucceeding him as chief over this powerful tribe of Mahrattas, acquired the ſame arbitrary controul over the perſon and palace of the reigning emperor. His views, after the death of his uncle, ſoon became more widely extended: and he even pictured to his heated imagination the fanciful idea of one day aſcending himſelf the imperial throne of Delhi, by firſt ſeizing upon all the territories in amity with Shah Aulum, and then conquering the inferior provinces which might be inimical to his aggrandizement. To this end he ſoon found means to form a powerful connection with the French. By communicating to them an earneſt wiſh to circumſcribe the growing power of the Engliſh, he in a ſhort time found himſelf ſurrounded with French volunteers, devoted to his intereſts, and ſubmiſſive to his commands. Under their direction he eſtabliſhed founderies for modern cannon in the neighbourhood of Delhi, to take place of the old unweildy artillery of the Hindoos; and he inveſted theſe new allies with full authority to form numerous battalions of ſoldiers and ſepoys, and train them for war upon the moſt rigid principles of European tactics. He now made treaties of co-operation with Holkar, and other Mahratta chiefs, which formed the principal ſtrength of the native troops of Hindooſtan; and recommended Frenchmen to new-organize their armies, and direct their diſcipline. In all theſe meaſures the moſt flattering ſucceſs attended him; no leſs than twenty thouſand French ſepoys, well armed and diſciplined, had formed cantonments on choſen ground in the vicinity of Coel, and were commanded by officers ſelected by Bonaparte himſelf. Scindia, and a French council, had poſſeſſed themſelves of the palace of Delhi, as well as of the perſon and family of the Mogul emperor; and ſeveral vaſt armies of the Mahrattas and their allies were in motion, to carry into effect the plans of devaſtation, which this council had in its ſanguinary policy laid down for the ſubjugation of the whole country; when, fortunately, theſe deep-laid ſchemes were penetrated and circumvented, by the indefatigable activity and wiſdom of the then governor-general of Bengal, the earl of Mornington, now marquis of Welleſley. He moſt judiciouſly directed the military operations of lord Lake and ſir Arthur Welleſley againſt this hydra-headed combination; and, by the gallant attacks and brilliant victories of thoſe two brave generals, theſe vaſt armies were in one campaign annihilated; and the ſurviving French, almoſt to a man, made priſoners of war. Lord Lake then, with a retinue of his officers, waited upon the aged Shah Aulum, and once more reſtored him unſhackled to his throne in Delhi. The brave general proffered the beſt ſervices of his victorious army to defend in future his rights, and the alliance of his maſter, the ſovereign monarch of Great Britain, to ſecure him from the inſidious deſigns and artifices of the French. The Mogul emperor, overcome with ſentiments of genuine gratitude for this providential deliverance, gladly threw himſelf on the protection of the Engliſh; and, were it poſſible for a man deprived of both his eyes to cry, the ſympathetic tears of heart-felt joy muſt have ſtolen down his aged cheeks. This great event was accompliſhed in September 1803, when Shah Aulum had nearly reached his eightieth year; and after he had languiſhed for fifteen years under the oppreſſion of the Scindia Mahrattas. He aſcended the throne of Delhi in 1761; but his reign, though comparatively long, had been compoſed of one unbroken chain of unparalleled misfortunes. He ſurvived this happy turn of fortune more than three years: his death happened on the 8th of December, 1806; and he was ſucceeded by his ſon Akbar Shah, the preſent feeble repreſentative of the fallen houſe of Timour.

## ESTABLISHMENTS OF THE PORTUGUESE, DUTCH, FRENCH, AND ENGLISH, IN HINDOOSTAN.

In whatſoever country gold and diamonds, fine linen and gaudy ſilks, ſweet-ſmelling perfumes, jewels and gems, to decorate the fair, or exalt the pride of man, ARE TO BE FOUND, there will the adventurous merchant bend his courſe, and brave the moſt alarming dangers, to found a traffic in thoſe highly-prized articles. The choiceſt region of the earth for the production of theſe treaſures, is, as we have already ſeen, that part of the Aſiatic continent called India, or Hindooſtan; but, inſtead of that luxuriant country being ſublimely bleſſed, or even benefited, by this overflowing bounty of Nature, all its misfortunes, and moſt bitter calamities, have reſulted from the ſplendour of its riches, by holding out a conſtant lure to bloodſhed and ſlaughter, aſſaſſination and murder:—juſt like the ſplendid glow-worm, which, from its luſtre alone, becomes the prey of the watchful nightingale. And whether it be Mogul or Turk, Aſiatic or European, Mohammedan or Chriſtian, with the ſelf-ſame incitement before him, the ſelf-ſame diſpoſition to ſpoliation and plunder, to chicanery and robbery, is found to exiſt. But for thoſe glittering baubles, the deſolating irruptions of the bloody-minded Mahmood, of Gengis, and of Tamerlane, had never taken place;—but for them, the nations of which we are about to ſpeak had never explored the Indian Seas, nor embrued their hands in blood-guiltineſs abroad, or furniſhed the baneful examples of Eaſtern luxury and voluptuouſneſs at home.

Almoſt the only channel through which the goods of

India could anciently be procured, was, as we have before hinted, that of the caravans to the borders of the Caſpian Sea, and thence to Alexandria in Egypt; from whence the Venetians and Genoeſe had become the carriers, and greatly enriched their reſpective ſtates, by dealing out, at an enormous price, theſe bewitching articles to the nations of Europe. See Commerce, vol. iv. p. 857. It happened about this time that the enlarged mind of Emanuel king of Portugal was bent on making nautical diſcoveries; and, having in his eye this enviable commerce of the maritime Venetians, determined, if poſſible, to outrival them, by finding a nearer way to that faſcinating land of unbounded wealth. The ſpirit of enterpriſe was thus awakened into activity; and a ſmall Portugueſe fleet advanced along the weſtern ſhore of the African continent, far beyond the utmoſt boundary of other navigators in thoſe ſeas. Encouraged by ſucceſs, it became more adventurous, and ſurmounted difficulties which were once deemed inſuperable. When the Portugueſe found in the torrid zone, which the ancients had pronounced to be uninhabitable, fertile countries, occupied by numerous nations; and perceived that the continent of Africa, inſtead of extending in breadth towards the weſt, according to the opinion of Ptolemy, appeared to contract itſelf, and to bend eaſtward; more extenſive proſpects opened to their view, and inſpired them with confident hopes of reaching India, by continuing to hold the ſame courſe which they had ſo long purſued.

After ſeveral preparatory attempts, a ſmall ſquadron ſailed from the Tagus, under the command of Vaſco de Gama, whoſe abilities and courage fitted him for ſuch an arduous enterpriſe. He was the firſt who ventured beyond that promontory which forms the ſouthern extremity of Africa, firſt diſcovered by his countryman Bartholomew Diaz, who called it "The Stormy Cape;" (ſee Good Hope, vol. viii. p. 678–687;) and, after experiencing proſperous navigation along the ſouth-eaſt of Africa, he arrived at the city of Melinda, and had the ſatisfaction of finding there a people far advanced in civilization and the arts of life; and, being conducted by their pilots, he ſailed acroſs the Indian ocean, and landed at Calicut, on the coaſt of Malabar, on the 22d of May 1498, ten months and two days after his departure from the port of Liſbon.

At that period, Secunder, the ſon of Beloli, ſat on the throne of Delhi; and the inferior ſovereign of Calicut, called the zamorin, aſtoniſhed at this unexpected viſit of an unknown people, whoſe aſpect, and arms, and manners, bore no reſemblance to any of the nations accuſtomed to frequent his harbours, and who had arrived in his dominions by a route hitherto deemed impracticable, received them with that fond admiration which is often excited by novelty; but, in a ſhort time, from motives of jealouſy, and fearing their object was conqueſt, he formed various ſchemes to cut them off. The Portugueſe admiral, however, extricated himſelf with ſingular dexterity; and at laſt ſailed from Calicut with his ſhips loaded not only with the valuable commodities peculiar to that coaſt, but with many rich productions of the eaſtern parts of India. He returned to Portugal in two years after his ſailing from the Tagus, but with an exceſſive loſs of men; for, out of one hundred and forty-eight perſons whom he took with him, only fifty-five returned. Emanuel received him with every teſtimony of reſpect and kindneſs; created him count of Videgueira; and not only declared him Admiral of the Indies, but made that office hereditary in his family.

On the firſt rumour of this ſucceſsful voyage, the Venetians, with the quick-ſighted diſcernment of merchants, foreſaw the immediate conſequence of it to be the ruin of that lucrative branch of commerce which had contributed ſo greatly to enrich and aggrandize their country; and they felt this with more poignancy, becauſe they did not poſſeſs any means of preventing, or even of retarding, its operation. The hopes and fears of both were well-founded. The Portugueſe entered upon the new career, opened to them, with activity and ardour; and made exertions, both commercial and military, far beyond what could have been expected from a kingdom of ſuch inconſiderable extent. A much ſuperior fleet was now prepared with all poſſible expedition, and ſailed under the command of Peter Alvarez Cabral. This ſecond fleet, which conſiſted of thirteen ſhips, made ſo reſpectable an appearance, when it arrived on the coaſt of India, that the zamorin, terrified at its arrival, ſent meſſengers to invite the admiral on-ſhore; entertained him with hoſpitality, and aſſigned him a commodious houſe for the eſtabliſhment of a factory, and the depoſition of ſtores. Incidents of diſagreement, however, again aroſe, and Cabral ſeized on all the Indian ſhipping then in the harbour. The enraged citizens of Calicut in revenge ſurrounded the factory, burnt the houſe, plundered the magazines, and maſſacred all the Portugueſe who were not fortunate enough to effect their retreat on-board the fleet. Cabral, after plundering the rich India ſhips, ſet fire to them; and, pointing his cannon againſt the town, ſeverely battered the walls and adjacent buildings; he then ſet ſail for the port of Cochin, ſituated likewiſe on the coaſt of Malabar, about thirty leagues diſtant from Calicut. Between the rajah of Cochin and the Zamorin, a violent diſſenſion had for ſome time exiſted; in conſequence of which, the artful Cabral adviſed a defenſive league to be formed by the rajah and the kings of Coulau and Cananor, againſt the haughty Zamorin. By their patronage he was enabled to return to Europe with a moſt valuable cargo; and three ambaſſadors ſent with him by thoſe princes to the court of Portugal, gave unuſual ſplendour to his arrival at Liſbon. In the voyage homeward, the valuable iſland of Saint Helena was firſt diſcovered, and taken poſſeſſion of, by this fortunate adventurer.

A ſquadron of four ſhips was diſpatched by Emanuel, under Don Juan Calleca, before the return of Cabral, to ſupport his operations; and theſe were ſoon followed by a moſt reſpectable fleet of twenty ſail, with a proportionable number of troops, under the command of the former adventurer Vaſco de Gama; who, though advanced in years, was ready at his ſovereign's call to renew his career of glory on the Indian ſeas. The zamorin, who had equipped a fleet of forty ſhips, was again beaten; which gave new confidence to the friendly rajahs of Cochin and Cananor; and the Portugueſe admiral returned, laden with greater wealth than ever India had yet poured into the harbours of Liſbon.

But the zamorin, on the departure of Gama, immediately took his revenge, marched an army of fifty thouſand men againſt Cochin, demanding the inſtant ſurrender of all the Portugueſe in his dominions. Trimumpara, the aſtoniſhed rajah, acted with great firmneſs, and refuſed to accede to the ungenerous demand; upon which the zamorin ſet fire to the town, and maſſacred the inhabitants without diſtinction of age. But on the arrival of the renowned Alphonſo Albuquerque, in the year 1507, accompanied by Triſtram d'Acugna, marſhal of Portugal, with a fleet of ſeventeen ſhips, and three thouſand troops, he ſoon reſtored the expelled rajah, retook Cochin, and drove out the zamorin's army with great ſlaughter. He then ſailed for the port of Calicut, and attacked the city by ſea and land; when, reſolving to retaliate the ſeverity exerciſed againſt the rajah of Cochin, he burnt the town, deſtroyed the fortreſs, and pillaged the zamorin's palace, in which was found a magazine of immenſe treaſures. On ſight of this, the impatient ſoldiers, regardleſs of order and diſcipline, and thinking they had totally diſcomfited the enemy, ruſhed forward to ranſack and plunder the rich ſtores of gold and jewels. But, while the Portugueſe ſoldiers were thus diſperſed through the numerous apartments and private receſſes of the palace, the zamorin's army rallied, and, coming upon them while rioting in the ſpoils of the city, they were to a man cut to pieces; and the marſhal d'Acugna periſhed in the undiſtinguiſhed ſlaughter. Albuquerque himſelf, after receiving a dreadful contuſion on the head, with the utmoſt difficulty eſcaped on-board his ſhip. See the article CALICUT, vol. iii. p. 620.

Defeated in his views of driving out the zamorin, and ſeizing his territory, Albuquerque next projected the ſcheme of reducing the iſland of Goa, in the province of Guzerat, on the Malabar or weſtern coaſt of Hindooſtan, and making it the emporium of the Portugueſe trade in the Eaſt Indies. See the article GUZERAT, vol. ix. p. 133. At that period, Bahadur was the aſſumed king of Guzerat, having, as we have ſtated, during the diſtractions of the Afghan dynaſty of Lodi, ſhaken off the yoke of the Delhi emperors, and ſet up for himſelf; while the king of the Deccan, from whoſe dominions Goa had been taken, was Mahmud Shah, a weak and debauched prince, who reſigned his authority to his general Adil Shah, called alſo *Idalcan*. The Portugueſe admiral had no ſooner poſſeſſed himſelf of Goa, and left it under the care of a governor, than intelligence of the important tranſaction was tranſmitted to Adil Khan; who, without the ſmalleſt delay, equipped an army and a fleet, and ſailed to its relief. Landing his troops, he vigorouſly aſſaulted the place, killed the Portugueſe governor, and cut in pieces all who had not time to eſcape to their ſhips. Theſe veſſels ſailed in queſt of Albuquerque, who now collecting the whole naval and military force of his nation then in India, commenced a new and terrible aſſault on the works that defended the port, and then ſtormed the city, putting every one to death who was found in arms. The utmoſt efforts were now employed to render Goa impregnable: walls flanked with baſtions, and a ſtrong caſtle, were conſtructed of immenſe ſtrength; and innumerable palaces and churches gradually aroſe to adorn this new metropolis of Portugueſe India. See the article GOA, vol. viii. p. 643.

Three celebrated ports in the Indian Seas were at this period poſſeſſed by the Mooriſh or Mohammedan merchants; namely, Aden, on the coaſt of Arabia; Ormus, in the Perſian Gulf; and Malacca, the capital of Malay. Albuquerque now formed the bold deſign of driving out the Moors, and ſeizing their poſſeſſions in the name of king Emanuel, his royal maſter. The force which the Portugueſe commander brought againſt Malacca, the firſt object of his aſſault, conſiſted of nineteen ſhips of war, and fourteen hundred troops; with which he made ſo furious an attack upon the city both by ſea and land, that the Malays, though they made a long and obſtinate reſiſtance, were at length overcome. The city was taken by ſtorm, the inhabitants put to the ſword, and their wealth plundered by the victors. Of this wealth, the grand ſpur of the occaſion, ſome eſtimate may be formed, when it is reflected that only a fifth of it, which was reſerved for the king, amounted to two hundred thouſand pieces of gold! Albuquerque, after having maſſacred the Moors, repeopled the city with native Malays, erected a fort of great ſtrength to defend it from ſurpriſe, while he took poſſeſſion of the neighbouring iſlands called the MOLUCCAS; which ſee, for an account of them.

During the time that Albuquerque was proſecuting theſe ſchemes of ambition at Malacca, we will not ſay with what claim of juſtice or right, Goa was aſſaulted by another formidable army of Hindoos, ſent by Adil Khan (or Idalcan,) to recover that capital from their foreign enemy, in which they ſucceeded. On the firſt intelligence of this unlooked-for hoſtility, the Portugueſe admiral quitted the Indian Archipelago, and took with him all the forces that could be ſpared; conſiſting of twenty-one ſhips, and four thouſand land-forces, with which he commenced a furious attack on Goa by ſea and land; and ſo irreſiſtable was the ardour of his troops, that the city was quickly compelled to ſurrender, on conditions dictated by the conqueror. The fame of Albuquerque began now to expand in every direction over the weſtern coaſt of India; and both the Zamorin, and Adil Khan, ſent ambaſſadors to ſolicit his future friendſhip and alliance.

This point gained, the enterpriſing Albuquerque immediately put in force his meditated attack upon Aden, at the entrance of the Red Sea. Againſt that celebrated city, he fitted out twenty ſhips, containing ſeventeen hundred Portugueſe and eight hundred Malays. But, on their arrival, they found the place more ſtrongly fortified than they had any idea of. Nevertheleſs they attempted to take the citadel by ſtorm, but were driven back by the natives with prodigious ſlaughter, and obliged to give up the enterprize. They in revenge burnt all the ſhipping in the harbour; and entered on the fourth day the mouth of the Red Sea, on which they ſpread their ſails with great exultation, being the firſt Portugueſe veſſels that ever navigated that lake; where they had alſo the good fortune to capture ſeveral rich ſhips belonging to the ſultan of Cairo; but, being compelled to winter at Comaran, they ſuffered ſeverely from ſickneſs and famine, and were greatly reduced in their numbers. When the ſeaſon permitted, Albuquerque returned to India; but ſecured the ſpacious port of Maſkat in Arabia Felix, which he added to his other conqueſts, and made it an emporium for the wealth of the three Arabias, of Perſia, and of India; and it continued to maintain this pre-eminence till nearly the middle of the ſeventeenth century, when, in conſequence of their tyranny and avarice, the Portugueſe were violently expelled by an inſurrection of the inhabitants, never more to hoiſt their flag, or renew their traffic, in that ſeaport of Aſia.

Though foiled in his attempts upon Aden, Albuquerque was determined to reduce to the Portugueſe flag the rich commercial city and iſland of Ormus, ſituated in the Perſian Gulph: ſee the article ORMUS. The whole of his forces in India attended him on his expedition. In haughty terms he demanded of its terrified ſovereign, Turan Shah, a weak and effeminate prince, full poſſeſſion of the citadel, the eſtabliſhment of Portugueſe factories on the iſland, and the future dependence of his kingdom on the crown of Portugal. If theſe conditions were refuſed, he threatened to burn the capital, and plunder the iſland. Turan Shah heſitated not to obey this arbitrary ſummons; the keys both of the citadel and the palace were yielded up to the invader. Its palaces were converted into factories for the new ſettlers, and the ſtores and artillery of the place, not requiſite for its immediate defence, were depoſited on-board the fleet, and conveyed to Goa. Pedro d'Albuquerque, a kinſman of the admiral, was appointed governor; who ſhortly after put to death the ſultan and his miniſters, and put fifteen princes of the blood under confinement, while they plundered their effects, and ſeized upon the unbounded wealth of the place!!!

The thirſt after glory ſtill ſtimulating Albuquerque to the aggrandizement of his own country, he now formed two political yet daring projects. One was to deſtroy the trade of Alexandria into the eaſt by way of the Red Sea, and to ruin all Egypt, by inducing the emperor of Abyſſinia to divert the channel of the Nile into the ſea, before it reaches Egypt. The other was, to tranſport a large body of horſe to Arabia, in order to plunder Mohammed's tomb at Mecca, and thereby put an end to the religious and commercial pilgrimages to that place. But theſe mighty deſigns were cut ſhort by the death of Albuquerque, which happened on his return to Goa, after a ſhort illneſs, in his ſixty-third year, Dec. 16, 1515.

His ſucceſſor Lopez Saurez eſtabliſhed a ſettlement at Columbo, on the iſland of Ceylon, making its ſovereign compound for his kingdom, by acknowledging himſelf a ſubject of the king of Portugal. And at a ſomewhat later period, the city and iſland of Diu, at the entrance of the gulf of Cambay, denominated the Key of India, at that time ſubject to Bahadur, ſovereign of Guzerat, with one of the fineſt ports in India, was likewiſe ſubjected to the controul of the Portugueſe, by the mode commonly practiſed by their commander, of aſſiſting the prince againſt his enemies, and in return demanding permiſſion to eſtabliſh a factory, and erect a fortreſs in his capital. This aſſiſtance was afforded to Bahadur by the Portugueſe in his war with the emperor Humaioon, as recited in the preceding hiſtory of the Mogul emperors; but he was afterwards betrayed into the hands of his enemies, and, endeavouring to eſcape, periſhed in the ſea near the fort of Diu. Baſſain, in the diſtrict of Baglana, was ſeized and made a Portugueſe factory by d'Acugna in 1555, and by that viceroy formed into a place of great ſtrength. Daman too, and Chaul, under the ſame auſpices, roſe to conſiderable eminence; and the former could boaſt a citadel abſolutely impregnable, as was experienced by Aurungzebe himſelf. In Bombay, they enjoyed the excellent harbour, which, ſince the year 1661, became ſubject to England; and in Onore, they enjoyed the monopoly of the fineſt pepper produced in India.

Having in this predatory manner become maſters of the whole coaſt from the Indus to Ceylon, they ſailed round the extremity of that iſland, and began to form ſettlements on the eaſtern ſide of the peninſula, or coaſt of Coromandel. See the Map. At Negapatam, then an indifferent town, but which they ſoon improved into a city of great magnificence, they fixed their firſt ſtation. Their ſecond was at Meliapour, where their great apoſtle or miſſionary, St. Thomas, was buried; and whoſe ſepulchre its inhabitants affect to ſhow at this day on the ſummit of a neighbouring mountain. This city was made the Portugueſe capital in Coromandel; and had no rival, except their metropolis in Malabar. Of this place indeed, ſcarcely any veſtiges remain; our capital of Fort Saint George, or Madras, from which it is diſtant only ten miles, having been chiefly built out of its ruins. Maſulipatam, ſituated near the mouth of the Kiſtna, was the third and laſt of their ſettlements on this coaſt.

Thus the year 1560 might be conſidered as the meridian of the glory of the Portugueſe empire in Hindooſtan. Their commerce had become the moſt conſiderable of any nation in the world; and they now propoſed to extend it to China and Japan. A ſquadron of eight ſhips was fitted out, laden with articles of the moſt coſtly European merchandiſe, and the command given to Ferdinand Andrada, who arrived ſafely at Canton, and both himſelf and Perez, the Portugueſe envoy, were received with kindneſs and diſtinction. Diſputes, however, unhappily ariſing, as is ſaid, from the inſolence of the Portugueſe, the ambaſſador was thrown into chains, while Andrada was obliged to ſail back for ſafety to Malacca. Thus matters remained for ſeveral years; when a daring pirate, with a formidable fleet, having laid ſiege to Canton, and ſeized upon the iſland of Macao, and a Portugueſe ſquadron arriving before Canton juſt at the ſame time, they fell upon the pirates, killed their leader, retook Macao, and drove the piratical adventurers entirely out of thoſe ſeas. By this means they ſo effectually conciliated the regard of the Chineſe monarch, that he beſtowed Macao upon them, with permiſſion to form a ſettlement there, and trade with his ſubjects upon the moſt favoured terms. Macao was immediately fortified by them, and became one of the moſt celebrated marts of Aſia; as they were thereby enabled to eſtabliſh a lucrative commerce with the rich iſlands that form the extenſive empire of Japan, firſt diſcovered by ſome navigators of that nation about the year 1540; but from which they were afterwards expelled, for interfering with the forms of its government, and aſſuming a pre-eminence over the ſtate, which was by no means their due.

Such, however, had been the induſtry and ingenuity of this people, that they had completely turned the commerce of the whole eaſtern world into a new channel. "Previous to this commerce," ſays Faria, the Portugueſe hiſtorian, "ſpices were conveyed to Europe with vaſt trouble and coſt. The clove of Molucca, the nutmeg and mace of Banda, the ſandal of Timour, the camphor of Borneo, the gold and ſilver of Luconia, and all other ſpecies of wealth, drugs, ſpices, perfumes, and curioſities of China, Java, Siam, and other eaſtern kingdoms, were carried to the market of the city of Malacca, ſeated in the Golden Cherſoneſe; whence the inhabitants of all the weſtern countries, as far as the Red Sea, brought them; carrying on this traffic by way of barter, money being of leſs value than the commodities imported. It was this trade that enriched the cities of Calicut, Cambaya, Ormus, and Aden; the merchants adding to the articles brought from Malacca, the rubies of Pegu, the ſtuffs of Bengal, the pearls of Kilkare, the diamonds of Narſinga, the cinnamon and richer rubies of Ceylon, and the pepper, ginger, and other ſpices, produced on the coaſt of Malabar. From Ormus they were conveyed to Europe up the Perſian Gulf, by the way of Baſſora, at the mouth of the Euphrates, and thence diſtributed in caravans through Armenia, Trebiſond, Tartary, Aleppo, and Damaſcus; and then at the port of Baruth upon the Mediterranean, the Venetians, Genoeſe, and Catalonians, loaded their veſſels with them to their reſpective countries. Thoſe that came up the Red Sea were landed at Toro and Suez, towns at the bottom of that gulf, thence they were tranſported in caravans to Grand Cairo, and down the Nile to Alexandria, whence they were ſhipped off to Europe."

While the illuſtrious Emanuel lived, no efforts were wanting to ſuſtain in its full vigour that mighty empire in India, which his policy had planned, and which his wiſdom and power were happily united to conſolidate. He enjoyed the uncommon felicity of living long enough to ſee whatever he had ſo boldly projected arrive at its full maturity. On his death, which occurred in 1521, no relaxation of vigour or diſcipline took place; his ſucceſſor, John III. anxious to follow up the maxims of his wiſe progenitor, regularly diſpatched to India, at the proper ſeaſon, fleets not only adequate to all the purpoſes of ſelf-defence, but alſo of the moſt enlarged commerce, on the coaſts and iſlands of Aſia. But during the reign of Sebaſtian, the Portugueſe empire in India fell under the ſuperſtitious tyranny of monks and bigots; in every city the Jeſuits erected the bloody banner of the ſpiritual inquiſition, whereby the moſt unheard-of cruelties were exerciſed upon the perſecuted but unoffending natives; until their name became the abhorrence and execration of the Indians. The ſame cauſes operated, with nearly the ſame effects, in Europe, and contributed materially to the ſubjection of Portugal to the Spaniſh yoke, which took place in 1580. During this diſaſtrous period of nearly ſixty years, their power and influence in India kept gradually declining; Ormus was ſeized upon by the Perſians; and they loſt their valuable ſettlements in Ceylon; which, together with the great capital of Malacca, and moſt of the Molucca iſlands, were wreſted from them by the Dutch. See the articles HOLLAND, and PORTUGAL. Inſtead of eighteen or twenty ſhips that were accuſtomed annually to be ſent to India, for the purpoſes of ſuſtaining their military and commercial eſtabliſhments, only five or ſix were now diſpatched thither; and the iſlands of Diu and Goa were almoſt the only part of their Indian ſettlements left undiſturbed. On the reduced produce of their trade, the moſt burthenſome taxes began to enſue; and, while a pampered nobility and prieſthood fattened on the remains of Aſiatic luxury, the inferior claſſes ſtruggled under the preſſure of taxation, poverty, and miſery. The ſpirit of the country was broken. Neither ſhips nor men were to be procured in numbers proportionate to reſiſt the encroachments of their Dutch rivals; who were actively invading the coaſts and iſlands of Aſia, and every where erecting their ſtandards over the humbled flag of Portugal. Thus baffled and degraded in India, her troops, in whom the ſpirit of mercantile adventure was not wholly extinguiſhed, now directed their views towards the ſhores of South America; and in the rich territory of Braſil they found no mean compenſation for the loſſes they ſuſtained in Hindooſtan. Here they built a noble city, planted an extenſive colony, and formed, in a few years, one of the richeſt ſettlements in the world; and which has, during the perſecuting reign of Napoleon Bonaparte, afforded a ſafe and peaceful aſylum to the aged queen

Iſabella, the prince regent, and royal family of Portugal. See the article BRASIL, vol. iii. p. 350–352.

The ſpirit of oriental commerce which firſt animated the Dutch, was brought into action, and inflamed, by the immenſe treaſures they beheld every year entering the port of Liſbon, brought home in ſafety by their own ſhips, which appeared as if alone privileged to viſit the eaſtern world. They ſoon, however, determined to participate with them; and boldly advanced beyond the Cape, in queſt of this land of unbounded treaſures. Cornelius Houtman, in 1595, with a fleet of four ſhips, was the firſt Dutchman who navigated the Indian ſeas. As this was a voyage rather of diſcovery than of traffic, no great riches were brought home; but the favourable proſpect he gave of their future attainment, and the eaſe with which he acquired acceſs on the coaſts and iſlands of Java, with whoſe ſovereign he had formed the ground-work of an alliance, were inducements ſufficiently important to determine the United States of Holland to fit out another ſquadron of four ſhips on this ſervice; and which, in 1597, ſailed under the command of admiral Van Neck, whoſe prudence and valour ſoon ſecured them a ſettlement in Java and the Moluccas; and he returned with this good news to the Texel, loaded with their richeſt productions.

The Portugueſe had entered India with all the importance and hauteur of conquerors; but the wary Dutch artfully concealed from the natives their ambitious views, and profeſſed only to viſit their ſhores as merchant-adventurers. Their ſucceſs was proportionate to their plain and ſimple appearance; and, hence their cauſe was generally favoured by the Indians in their conteſts with their vain-glorious rivals. Theſe early ſucceſſes encouraged the enterpriſing ſpirit of the principal Dutch merchants to form themſelves into an Eaſt-India Company; for which, in 1602, they obtained a charter. It was in vain that the Spaniards and Portugueſe now united their efforts to ſtop their progreſs; a ſeries of triumphs over their combined rivals quickly enabled them to plant their ſtandard in the Indian Archipelago, and at length opened the way to their final ſettlement at Batavia; a city, which in a few ages, became the rival in grandeur, in wealth, and population, with the proudeſt capitals of Aſia. See the article BATAVIA, vol. ii. p. 795.

After ſecuring themſelves firmly in their ſettlement of Batavia, and rendering that city impregnable to the moſt formidable enemy that could be brought againſt them, the Dutch, in 1655, made themſelves maſters of Calicut; in which ſtrong hold the Portugueſe ſtandard had triumphantly waved ever ſince the year 1500. In a ſhort time after, they took from them the valuable port of Columbo, their principal ſettlement in Ceylon; and thus adding the only ſecure mart for cinnamon, to the Molucca iſlands, they ſucceſsfully acquired, and ſcrupulouſly retained, a complete monopoly of the trade for ſpices. With the diſtant empires of Japan and China they had formed commercial treaties, and carried on an almoſt excluſive and lucrative traffic with thoſe nations. They had eſtabliſhed their extenſive colony at the Cape of Good Hope; and were every where riſing in Hindooſtan to the higheſt point of power and ſplendour, on the ruins of their once envied rivals, the Portugueſe; who now retained nothing in India but the iſlands of Goa and Diu.

But, in the nature of human events, it was impoſſible that this brilliant eſtabliſhment could long remain unenvied, or enrich its projectors, without their experiencing, in turn, a ſucceſſion of rivals as formidable and vigilant as themſelves. Of this truth they had ſoon reaſon to be convinced, by the preparations made both by the Engliſh and French, to form extenſive ſettlements on the ſame inviting coaſts, and ſhare with them at leaſt, if not excluſively ſeize, this lucrative and important commerce. It was to the comprehenſive mind and vigorous meaſures of the immortal Colbert, that the French are indebted for the eſtabliſhment, in 1664, of an Eaſt-India Company, founded on a charter granted by Louis XIV. for the term of fifty years, that their efforts and intereſts might have time to conſolidate. Fifteen millions of livres, about 656,000l. ſterling, were in a ſhort time raiſed; and, in the ſpring of the following year, four large ſhips, equipped both for commercial and military operations, ſailed from Breſt, and ſafely arrived in the road of Madagaſcar in July 1665.

After having experienced various diſaſters at Madagaſcar, and finding its ſituation unfavourable as well for health as for commerce, the colony, in 1668, on the united recommendation of two enterpriſing foreigners, one the ſieur Caron, a diſaffected Dutchman, and the other the ſieur Marcara, a native of Iſpahan, they ſettled in Surat, and other places on the Malabar coaſt. By the active exertions of the ſame Perſian, who is ſaid to have been related to ſome perſons of diſtinction at the court of Golconda, they ſhortly after got a footing at Maſulipatam, on the Coromandel coaſt; they alſo obtained a ſettlement at Bantam, in Java; and at Balaſore, and Hoogly in Bengal, as well as at St. Thomas, where they had factories: and finally, after ſeveral ſevere conflicts with the Dutch, they eſtabliſhed themſelves in great force at Pondicherry, which became an important capital in India. At the ſame time, they were continually enlarging the ſphere and adding to the ſtrength of the fortifications of this newly-erected emporium; from whence they carried on a lucrative trade with the other great marts of India, and, from the near neighbourhood of the diamond mines, they acquired a principal advantage from thoſe rich commodities.

After the lapſe of a few years, efforts were made to renew the expiring charter; and, by a ſingular ſtroke of policy, an union, in 1719, was formed between the French Eaſt and Weſt India companies, under the general title of the "COMPANY OF THE INDIES;" with a new and increaſed capital, of not leſs than fifty millions of livres. Under theſe favourable circumſtances they not only extended their commerce on the Indian continent, but began to drive a briſk trade with China for teas; with Mocha for coffee, and Arabian drugs; and with Baſſora for pearls, and the rich articles of the Perſian loom. The great iſles of Bourbon and Mauritius were alſo by the ſame ſpirit of enterpriſe added to their acquiſitions in the Eaſt; and at Chandernagore, two miles below Hoogly, in Bengal, they had exhauſted their whole military ſkill, in erecting a fort and baſtions, fully adequate to reſiſt any force that could be ſent againſt it, at leaſt by the native powers. Thus, about the year 1740, the French had completely and extenſively eſtabliſhed themſelves on the ſhores of the eaſtern world.

This wonderful activity and perſeverance of the French, to gain a firm and ſtable footing on the Indian continent, was unqueſtionably excited more by political than commercial views; at leaſt in the breaſt of Louis XIV. and his ſagacious miniſter. We have already had occaſion to notice, and it was well known in Europe, that under the favourable auſpices of queen Elizabeth and James I. plans had been formed in England, and judiciouſly, though ſlowly, carried into execution, for forming eſtabliſhments in Hindooſtan, under the ſanction and authority of the Great Mogul. Jealous of the laurels which were to be plucked in that diſtant region, whether by war or commerce, the envy of the Gallic nation was awakened by thoſe early adventurers; and a choſen party of Frenchmen was ſoon on the alert, to ſeize, or circumvent, the advantages ſuppoſed to have been had in view by the Engliſh. Their plans, however, were not to be obſtructed or defeated. The merchants of London, convinced, by the enquiries that had been ſet on foot in the country, of the advantages to be derived from the Indian commerce, had obtained from the public-ſpirited queen a charter, bearing date the 31ſt of December, 1600; conferring on them excluſively the right of trading to the Eaſt Indies, for a certain limited time, connected with many other privileges and immunities; and from whence may be dated the riſe and progreſs of the Britiſh EAST-INDIA COM-

PANY; for the legal regulations of which, ſee the article COMPANY, vol. iv. p. 875-883.

The firſt fleet fitted out by this company ſailed under the command of captain James Lancaſter, on the 5th of June 1602, and ſafely arrived in the road of Acheen, in Sumatra; by the ſovereign of which place, after the delivery of the queen's letters and preſents, they were honourably received, and ſanctioned by a treaty. They afterwards touched at the Moluccas, where they were received with equal diſtinction; and ſuffered to return with a valuable cargo of ſpices, with which they reached the Thames in September 1603.

The ſecond Engliſh voyage to India was undertaken in 1604, with a fleet of three ſhips, under ſir Henry Middleton, who returned not only with one of the richeſt cargoes that had ever before arrived in the Britiſh Channel, but with letters and preſents of conſiderable value to king James I. from the ſovereigns of Bantam and Tidore.

Captain Keeling commanded the third Engliſh fleet to India; and with him was diſpatched captain Hawkins, in quality of ambaſſador to the Mogul court; where he procured for his countrymen thoſe early commercial encouragements, which laid the foundation of all their ſubſequent proſperity in the Eaſt. The fourth expedition, deviating from the regular channel of trade, viſited the ſhores of the Arabian Gulf, with indifferent ſucceſs; but the fifth, which captain Middleton a ſecond time commanded, was eminently fortunate; for, after triumphing over the machinations of the Dutch at the Moluccas, he is ſaid to have brought home with him a hundred and thirty tons of nutmegs, and the ſame quantity of mace, beſides many other valuable articles of traffic.

The united efforts of the Dutch and Portugueſe were now to be called forth againſt the Engliſh, to render, if poſſible, their commercial plans abortive. The Dutch, having become abſolute maſters of the ſpice-iſlands, and uſing both fraud and force to retain them, it was reſolved by the Engliſh to attempt gaining a ſettlement on the ſhores of the province of Cambay. In 1611, four ſtout ſhips, under the command of captain Beſt, ſailed for India; and after a proſperous voyage, came to anchor in the road of Surat, and eſtabliſhed a factory there. A powerful fleet was ſoon diſpatched by the Portugueſe viceroy at Goa, to exterminate this Engliſh ſettlement; but after three actions, the Portugueſe were totally defeated, and the Engliſh exulted in their ſucceſs. After this triumph, captain Beſt ſailed for Acheen and Java, where the fame of his exploits had arrived before him, and ſo intimidated the Dutch, that no obſtruction was thrown in the way of his commercial intercourſe; and he returned to England in 1614, loaded with riches and glory.

The ſucceſsful miſſion of captain Hawkins, at the Mogul court, gave occaſion for James I. to ſend out ſir Thomas Roe, on an embaſſy to Jehanguir, the then reigning ſultan of Hindooſtan, at the court of Agra, as noticed at p. 44 of this article. A ſquadron, fitted out under captain Keeling, conveyed the new ambaſſador, with a ſtately coach, and other magnificent preſents, to the ſhores of India; and which, proving highly acceptable to the Great Mogul, procured for the company many important privileges. The Dutch, however, were ſo firmly eſtabliſhed in their newly-erected city and caſtle of Batavia, and fortified in a manner ſo impregnable, that after many ſevere battles, fought with unſhaken courage on both ſides, a treaty was entered into, by which it was ſtipulated, July 7, 1619, that from that date a general commerce, throughout the Eaſt Indies, ſhould be uninterruptedly carried on by both nations; and that, to prevent all unfair practices, the price of the different commodities ſhould be fixed by commiſſioners appointed for the purpoſe; but that, in conſequence of prior right, and incalculable expences incurred in erecting forts and magazines, in the Molucca iſles, Banda, and Amboyna, the Engliſh ſhould enjoy one-third part of the commerce, and the Dutch the other two-thirds; with many other equitable and ſalutary regulations. But this treaty was almoſt immediately violated by the Dutch; after which followed, in 1622, thoſe horrible cruelties and maſſacres on the part of the Dutch, which for ages caſt a dark veil over the ſacred character of Chriſtianity, and rendered its followers odious both in the ſight of Muſſulmans and Hindoos. For particulars of theſe unexampled atrocities, ſee the article AMBOYNA, vol. i. p. 405.

In the year 1661, a new charter was granted to the Engliſh Eaſt-India Company by Charles II. with the addition of many new and great privileges. And now a ſtill more important benefit was obtained, by the acquiſition of the port, town, and iſland, of Bombay, ceded to his majeſty by Portugal, as part of his conſort the Infanta's portion, and conſigned in full property to the Eaſt-India Company for ever. See the article BOMBAY, vol. iii. p. 163. The ſituation being eminently convenient for their trade in this quarter, no expence was ſpared in the improvement and defence of the iſland; it having alſo the advantage of a ſpacious harbour, in which a numerous navy can at all times ride in ſafety.

In the mean while the company had formed a new and extenſive ſettlement at Madras, on the eaſtern ſide of the peninſula, which was conſiderably aided by the friendſhip of the king of Golconda; who in 1691 agreed to accept an annual ſum or tribute for a free trade in his dominions, inſtead of the cuſtoms which had been at firſt levied on all their merchandiſe. To defend this ſettlement, Fort William was conſtructed, and formed a large irregular tetragon, of brick, and a peculiar kind of mortar uſed in India, which becomes harder than ſtone. The town was built in a ſtraggling manner, which, with the gardens indiſpenſible to eaſtern dwellings, covered a large tract of ground. At Hoogly, and in its vicinity, the Dutch and French, allured by the great profits of the Bengal trade, had alſo forts and factories; but they were in a ſhort time greatly ſurpaſſed by the Engliſh ſettlement of Fort William, now Calcutta. In order to ſanction theſe eſtabliſhments with imperial authority, an embaſſy had been diſpatched to the court of Ferokhſere, as noticed under the reign of that Mogul ſovereign, which was moſt favourably received, and proved the means of obtaining a firmaun or royal grant of ſeveral important immunities; ſuch as to coin money, conſtruct fortifications, trade with the interior of Hindooſtan, and import and export goods, free of cuſtoms, within the extent of their own domain. From this period, Calcutta and the province of Bengal, which had, till now, looked up to the ſettlement of Madras for protection and advice on all occaſions of difficulty and danger, became the ſuperior preſidency and emporium of the Engliſh nation in the eaſtern world. See the article CALCUTTA, vol. iii. p. 610.

The two rival ſettlements of Madras and Pondicherry, being both ſituated on the coaſt of Coromandel, at the diſtance of only one hundred miles apart, could ſcarcely avoid being involved in the diſputes and conflicts that, as we have already ſeen, were for ever breaking out between the native princes in the Deccan; ſo far removed from the court of Delhi, that the Mogul emperor, even had he been in the zenith of the Muſſulman power, could hold but little reſtriction over them. The ſuperior knowledge too of the Europeans in military ſcience, and, above all, the infinite advantage which their well-conducted artillery gave them in Indian warfare, made the native powers at all times ſolicitous to have their aſſiſtance in their conteſts with each other. They were at firſt indeed only auxiliaries; but a mutual thirſt for national ſuperiority between the French and Engliſh, aided by the enchanting proſpect of becoming ſharers in the immenſe ſpoil, ſoon induced them to act as principals in the political wars of the country.

But before any active part was taken in the quarrels between the rajahs or nabobs of the Deccan, it unfortunately happened, that, in a trial of ſtrength between the Engliſh and French, the latter were the victors; and, by this early triumph over the Engliſh, gained at once the higher eſtimation and confidence of the native princes. In conſequence of the war which broke out between Great Britain and France in 1744, fleets were diſpatched by each of thoſe powers to protect their new ſettlements in India. Commodore Barnet, with three Engliſh men of war and a frigate, joined by two others on his arrival, appeared firſt on the coaſt of Coromandel, giving new ſpirits to their countrymen at Madras; while the greateſt deſpondency prevailed among the French at Pondicherry. But before any hoſtile meaſures could be carried into effect, a well-appointed ſquadron, conſiſting of nine ſhips of war, arrived from France, under M. Bourdonnais; and an engagement took place, in which the Britiſh ſhips were ſo much diſabled, that they were obliged to ſail for Trincomalee, then belonging to the Dutch, in the iſland of Ceylon, to refit. Bourdonnais, in the mean while, on the 3d of September 1746, formed the bold reſolution of laying ſiege to Madras; which, after the moſt obſtinate defence that could be made by its ſlender garriſon, was obliged to ſurrender on the 10th of that month, and the French flag was immediately diſplayed over Fort St. George.

The ranſom agreed upon with Bourdonnais for the reſtoration of the place, was 1,100,000 pagodas, or about 440,000l. ſterling. This was for the town alone: all the money, merchandiſe, military and naval ſtores, &c. were ſent on-board the French ſhips. The amount of theſe was calculated at 200,000l. more. M. Dupleix, however, the governor of Pondicherry, refuſed to ratify the treaty; inſiſting that Madras ſhould be razed to the ground; and nothing but the honourable firmneſs of M. de la Bourdonnais, in adhering to the terms of the capitulation, preſerved the place. This triumph of the French had a wonderful influence on the public mind in Hindooſtan; and they became in conſequence the favoured nation; till the year 1748, when, in conſequence of the peace of Aix-la-Chapelle, Madras was reſtored to the Engliſh, in exchange for Cape Breton. But, though peace was thus reſtored at home, a partial warfare was ſtill carried on in India between theſe two nations, in order to ſanction or ſupport their oppoſite intereſts with the leading powers in that country.

The firſt affair which led the French and Engliſh to imbrue their hands in the blood of the natives, was the diſpute between the ſons of Nizam ul Muluk, concerning their ſucceſſion to the viceroyalty of the Deccan, and the appointment of a ſucceſſor to their father, as nabob of Arcot. The Carnatic is one of the moſt conſiderable nabobſhips of the Deccan; and from its capital, Arcot, it is alſo named "the Province;" and the prince, the Nabob of Arcot. Nizam ul Muluk, in 1745, had nominated Anwar-odean to be nabob of the Carnatic under him, while he attended the court of Delhi. On the nizam's death, which happened in 1747, as heretofore recited, at the great age of one hundred and four years, his ſecond ſon, Naſir Jung, was appointed to ſucceed him as viceroy of the Deccan, by the Mogul emperor Ahmed Shah. He was, however, in 1751, oppoſed by his own nephew, Muzzuffir Jung, who applied to M. Dupleix for aſſiſtance. By him he was ſupplied with a body of Europeans, and ſome artillery; after which, being alſo joined by Chunda Saheb, an active Indian chief, he took the field againſt Naſir Jung, the legitimate viceroy. This prince was ſupported by a body of Britiſh troops; and the French, dreading the event of an engagement, retired in the night; ſo that their ally was now obliged to throw himſelf on the clemency of Naſir Jung. His life was ſpared, though he himſelf was detained as a ſtate priſoner: but the traitor, forgetting the kindneſs ſhown him on this occaſion, entered into a conſpiracy againſt the life of Naſir Jung, and murdered him in his camp; as briefly noticed at the commencement of the reign of Ahmed Shah, p. 68 of this article. In this infamous tranſaction he was encouraged by Dupleix and Chunda Saheb, who had retired to Pondicherry. Immenſe riches were found in the tents of Naſir Jung; great part of which fell to the ſhare of Dupleix, whom the uſurper Muzzuffir Jung aſſociated with himſelf in the government. By virtue of this aſſociation, the French governor aſſumed the ſtate and formalities of an eaſtern prince; and he and his colleague Muzzuffir Jung, now appointed Chunda Saheb nabob of Arcot. In 1749, Anwar-odean had been defeated and killed by Muzzuffir Jung and Chunda Saheb, who were aſſiſted therein by the French; after which, his ſon Mohammed Ali Khan, had put himſelf under the protection of the Engliſh at Madras, and was confirmed by Naſir Jung as his father's ſucceſſor in the nabobſhip or government of Arcot. This government therefore was now diſputed between Mohammed Ali Khan, appointed by the legal viceroy Naſir Jung, ſupported by the Engliſh company; and Chunda Saheb, nominated by the uſurper Muzzuffir Jung, and protected by Dupleix, at Pondicherry. Muzzuffir Jung, however, did not long enjoy his authority; for in 1751, thoſe who had been the means of raiſing him to the power he enjoyed, thinking themſelves ill rewarded for their ſervices, fell upon him ſuddenly, defeated his forces, and put him to death; proclaiming Sulabut Jung viceroy of the Deccan. On the other hand, Ahmed Shah appointed Gauzedy Khan, the elder brother of Sulabut Jung, who was confirmed by Mohammed Ali Khan in the government of Arcot: but the affairs of the Mogul emperor were at that time in ſuch diſorder, that he could not ſupport the nomination he had made. Chunda Saheb, in the mean time, determined to recover by force the nabobſhip of Arcot. With this view, he had again recourſe to Dupleix at Pondicherry, who reinforced him with 2000 Sepoys, 60 Caffres, and 420 French; upon condition that, if he ſucceeded, he ſhould cede to the French the town of Valdour, in the neighbourhood of Pondicherry, with its dependencies, conſiſting of eighty-one villages. Thus reinforced, he defeated Anwar-odean, who loſt his life in the engagement, re-aſſumed the government of Arcot, and punctually performed the engagements he had come under to his French allies.

During all this time Mohammed Ali Khan had been ſupported by the Engliſh, to whom he fled for ſuccour after his father Anwar-odean's death. By them he was ſupplied with a reinforcement of men, money, and ammunition, under the conduct of major Lawrence, a brave and experienced officer. By means of this ſupply he gained ſome advantages over the enemy; and, repairing afterwards to the Engliſh ſettlement, he obtained a farther reinforcement. With all this aſſiſtance, however, he accompliſhed nothing deciſive; and, the Engliſh auxiliaries having retired, he was defeated by his enemies. Thus he was obliged to enter into a more cloſe alliance with the Engliſh, and cede to them ſome commercial advantages which had been long in diſpute. The Engliſh now reſolved to take a more active part; and, faithful to their engagements, in return for the diſtricts and immunities granted, they diſpatched a body of troops to aſſiſt Mohammed Ali, who was then cloſely beſieged at Tritchinopoly by Chunda Saheb, at the head of twelve thouſand horſe, and five thouſand ſepoys, with all the French troops from Pondicherry, which out-numbered the Engliſh ten to one. The preſidency of Fort St. David, a ſtrong Britiſh factory about twelve miles ſouth of Pondicherry, and one mile from Cuddalore, made every exertion to increaſe the number of their troops and artillery; but the army of Chunda Saheb and the French was ſtill ſo much ſtronger, that the event of a battle ſeemed extremely doubtful; and it was now that Mr. Clive firſt offered his ſervices in a military capacity. He had been employed as a writer, but appeared better calculated for a military life. He propoſed to the preſidency, as the only reſource in this extremity, the bold meaſure of attacking Arcot itſelf; and offered to lead the troops upon the expedition; which, he urged, would infallibly cauſe a diverſion of the enemy's force from Tritchinopoly. This important enterprize was as fortunately conducted as it was judiciouſly planned; for the city of Arcot having no walls or ramparts, and the fort being defended by only a ſlender garriſon, they entered the place with little oppoſition; and one hundred thouſand aſtoniſhed inhabitants beheld a handful of Engliſh take poſſeſſion of the capital of the Carnatic, its military ſtores, and accumulated riches. The generous victors, however, ſeized only the public treaſure; all property of a private nature was deemed ſacred, and reſtored to the owners.

This ſpirited undertaking had the effect deſired. Chunda Saheb found himſelf compelled to raiſe the ſiege of Tritchinopoly, to attempt the recovery of his capital; but by the united exertions of major Lawrence, Mr. Clive, and the army of Mohammed Ali, which conſiſted of Mahrattas, Myſoreans, and a detachment from Tanjore, now increaſing in numbers every day, Chunda Saheb was at length driven to ſuch extremities, that his forces were completely blocked up in the iſland of Seringham, near Tritchinopoly; while he himſelf fled for ſuccour to Mona-ji, the general of the Tanjore army, who ordered him to be arreſted, and thrown into irons. On this intereſting occaſion the chiefs all aſſembled, to determine in what manner the unfortunate prince ſhould be diſpoſed of. The Engliſh, the Mahratta, and the Myſorean, generals, were all equally anxious to have the charge of ſo important a perſonage; but the Tanjorine firmly refuſed to part with his priſoner; having reſolved on his deſtruction, a hired aſſaſſin ſtabbed him to the heart; and then, ſevering the head from the body, carried it in ſavage triumph to Tritchinopoly, where it was expoſed on the ramparts. The army of the murdered prince immediately diſperſed; and the French, who had fortified themſelves in the great pagoda of Jambakiſtna, ſhortly after ſurrendered themſelves priſoners of war. Thus Mohammed Ali, through the bravery and friendſhip of the Engliſh, was now acknowledged as nabob of the Carnatic, and received its revenues accordingly; but he was not ſuffered to continue long in peace.

M. Dupleix, ſtung with reſentment at the diſcomfiture of his troops, and jealous for the honour of his nation, had been exerting all the energies of his mind, to overcome the politics of the Engliſh. He proceeded to the extraordinary meaſure of applying to be made himſelf nabob of the Carnatic, in oppoſition to Mohammed Ali Khan; and, through the intrigues of M. Buſſy, who had ſo far inſinuated himſelf into favour with the aſſumed viceroy of the Deccan, Sulabut Jung, that he pretended to have obtained a firmaun for his appointment; although his own title to the viceroyalty had never yet been confirmed by the Mogul emperor. By virtue of this pretended authority, therefore, Dupleix commiſſioned Mortiz-ally of Vellore, to act as his lieutenant; and received of him no leſs than fifty thouſand pounds, as the price of this delegated office. Dupleix now aſſumed all the pomp and dignity of a real nabob: he mounted his elephant of ſtate; went abroad proceeded by muſic and dancing girls, after the oriental faſhion; and, when he kept his dubar or court, he appeared ſitting croſs-legged on a ſofa, and received preſents, as ſovereign of the country, from his own council, as well as from the natives; and the revenues which he obtained, in addition to former grants, amounted annually to above a million of money ſterling.

Thus the forces of the Engliſh and French Eaſt-India companies were engaged in a courſe of hoſtilities, at a time when no war exiſted between the two nations; pretending that they only acted as auxiliaries to the princes of Hindooſtan. The French, however, having ſo far outgeneraled the Engliſh, a formal complaint was made by the Britiſh miniſtry to the court of Verſailles, concerning the ambitious projects of the French governor on the Coromandel coaſt; and the recall of M. Dupleix was inſiſted upon, otherwiſe a national rupture muſt enſue. An order for an immediate equipment, for the ſhores of India, of a ſquadron of men of war under admiral Watſon, with a large body of troops, induced the French court, at that time not prepared for a war, to check the ambitious career of their ſervants. Early in the ſpring of 1754, M. Godeheu was, in conſequence, ſent out to ſuperſede M. Dupleix. The new governor, on his arrival, made the moſt friendly propoſals; and deſired a ceſſation of arms until all their diſputes could be adjuſted in Europe. Theſe propoſals being readily liſtened to on the part of the Engliſh, deputies were ſent to Pondicherry; and a proviſional treaty and truce were concluded, on condition that neither of the two companies ſhould for the future interfere in any of the differences that might take place in the country. The other articles related to the places or ſettlements that ſhould be retained, or poſſeſſed, by the reſpective companies, until freſh orders ſhould arrive from the courts of London and Verſailles; and, till then, it was ſtipulated, that neither of the two nations ſhould be allowed to procure any new grant or ceſſion, or to build forts in defence of any new eſtabliſhment; nor ſhould they proceed to any ceſſion, retroceſſion, or evacuation, of what they then poſſeſſed; but, every thing ſhould remain on the ſame footing as formerly. The claim of Mohammed Ali, as nabob, was alſo acknowledged throughout the Carnatic, and he fixed his reſidence at Arcot, the capital, under the protection of the Engliſh.

This treaty was publiſhed in due form on the 11th of January 1755; at the end of which month admiral Watſon returned with his ſquadron from Bombay; and M. Godeheu returned to France in the beginning of February, leaving M. Leyrit his ſucceſſor at Pondicherry. M. Buſſy, by the ſoubahdar or viceroy of the Deccan, Sulabut Jung, was ſtill however openly countenanced in his intrigues at Golconda; and M. de Sauſſay was left to command the troops at Siringham. Matters, therefore, did not long continue in a ſtate of tranquillity. Early in the year it appeared that the French were endeavouring to gain an influence over all the provinces of the Deccan. M. Buſſy, grown into importance by the encouragement he had received, made a demand of the fortreſs of Golconda from Sulabut Jung; and M. Leyrit encouraged the fouzdar or governor who rented the Velu, to take up arms againſt the nabob, Mohammed Ali Khan. He even ſent three hundred French, and as many ſepoys, from Pondicherry, to ſupport this rebel, and oppoſe the Engliſh who were engaged by the nabob to collect his revenues from the tributary princes. In this office they had been employed ever ſince the ceſſation of hoſtilities; one half of the revenue being paid to the nabob, and the other to the company; which involved them in a kind of military expedition into the country of the Polygars, who had been previouſly ſummoned to ſend agents to ſettle accounts with the nabob. Four of them obeyed the ſummons; but the chief Lachenaig refuſed, and it was therefore reſolved to attack him. The country was very ſtrong, being almoſt entirely fortified by nature or art; but, Lachenaig was however obliged to ſubmit, and pay his tribute.

The Engliſh then marched to Madura, a ſtrong town about ſixty miles ſouth of Tritchinopoly. On their approach it ſubmitted, and the inhabitants ſeemed pleaſed with their change of government. Here a deputation was received from a neighbouring polygar, deſiring an alliance; and, as a proof of his ſincerity, he made an offer of two ſettlements on the ſea-coaſt of his country, oppoſite to the iſland of Ceylon; which would greatly facilitate their future commerce with Tinivelly. Before this time they could not reach that city but by a circuitous march of from four to five hundred miles; but, from the new ſettlements, the diſtance to Tinivelly was no more than fifty miles, and reinforcements or ſupplies of any kind might be ſent them from Madras or Fort St. David in four or five days. This offer being accepted, colonel Heron, the Engliſh commander, marched to attack the governor of Madura, who had fled to Coilgoody. The place was taken and plundered, not ſparing even the temples; whoſe idols they either deſtroyed, or carried off; which inſpired the inhabitants with the utmoſt rage againſt the victors, on account of this contempt of their religion.

The next exploit of captain Heron was marked by an act of the moſt diſgraceful cruelty, at a fort named Nell[illegible] cotta, forty miles ſouth of Tinivelly. The aſſault was made with great reſolution; and the troops gained poſſeſſion of the parapet, without being repulſed. On this the garriſon called out for quarter, but it was barbarouſly refuſed; a general maſſacre of men, women, and children, enſued; only ſix perſons out of four hundred being ſuffered to eſcape with life, and that for the ſake of a great ranſom!

The next expedition of this commander was againſt the fort of Volſynatam. The people here were highly incenſed at the plundering of Coilgoody, and particularly at the loſs of their ſacred images, which the rapacious conquerors had carried off. In conſequence of this, they had already ſlaughtered a party of ſepoys, whom the commanding officer at Madura had ſent out to collect cattle. In their march the Engliſh army had to go through the defile of Natam, one of the moſt dangerous in the peninſula. In the middle of this narrow paſs, the army was attacked by the Hindoos; and the whole muſt certainly have been cut to pieces, had it not been for the courage and policy of captain Smith, who had the command; and who requeſted a parley, and agreed to reſtore to the furious Hindoos their ſtolen gods; which, certainly were not worth the carrying away, being only made of braſs, and of a diminutive ſize. Colonel Heron was tried by a court-martial for miſconduct in this affair; and, being found guilty, was declared incapable of ſerving the company any longer; ſoon after which he returned to Europe, and died in Holland.

While the Engliſh were thus engaged in conducting the affairs of the nabob Mohammed Ali Khan in the Carnatic, M. Buſſy had quarrelled with the ſoubahdah Sulabut Jung, and was diſgracefully ordered to leave the court of Golconda. M. Buſſy took his leave without any marks of diſguſt, having under his command about ſix hundred Europeans, with five thouſand ſepoys, and a fine train of artillery. His enemies, however, had no mind to allow them to depart in ſafety; and therefore ſent orders to all the Polygars to oppoſe their paſſage, ſending ſix thouſand Mahrattas after them to haraſs their march. But, notwithſtanding this oppoſition, M. Buſſy reached Hydrabad with very little loſs. Here he took poſſeſſion of a garden, formerly belonging to the kings of Golconda; where he reſolved to keep his poſt, until ſuccours ſhould arrive from Pondicherry and Maſulipatam. At this place Sulabut Jung propoſed to attack him; and, the better to attain his purpoſe, applied to the Engliſh preſidency at Madras for a body of troops to aſſiſt him in this ſervice. Nothing could be more agreeable to thoſe who had the power at that place, than ſuch an invitation; and a detachment of four hundred Europeans and fifteen hundred ſepoys was on the point of being ordered to the aſſiſtance of Sulabut Jung, when expreſſes from Bengal informed them of the greateſt danger that had ever threatened the Britiſh ſettlements in Hindooſtan.

This danger aroſe from the diſpleaſure of Surajah ul Dowlah, the nabob of Bengal. His grandfather, Aliverdi Khan, having died in May 1756, Surajah ſucceeded to the nabobſhip of Bengal, Bahar, and Oriſſa. He was congratulated on his acceſſion by Mr. Drake, the Engliſh preſident at Calcutta, who ſolicited his protection in behalf of his countrymen. This was readily promiſed, even to a greater degree than what had been ſhown by his grandfather; but in a ſhort time his reſentment was incurred by the impriſonment, as it is ſaid, of Omichund, an eminent Gentoo merchant, who had lived ſeveral years under the protection of the Engliſh government at Calcutta. Of this, however, Surajah ul Dowlah did not complain; but founded his pretence of war upon the conduct of the Engliſh in repairing the fortifications of Calcutta. On this account the nabob ſignified his diſpleaſure, and threatened an attack, if the works were not demoliſhed. With this requiſition the preſident and council pretended to comply; but nevertheleſs went on with their works, applying firſt to the French, and then to the Dutch, for aſſiſtance; but, as neither of theſe nations thought proper to interfere, the Engliſh were obliged to ſtand alone in the quarrel.

Surajah ul Dowlah took the field on the 30th of May 1756, with an army of forty thouſand foot, thirty thouſand horſe, and four hundred elephants; and on the 2d of June detached twenty thouſand men to inveſt the Engliſh fort at Caſſumbazar, a large town, ſituated on an iſland, formed by the weſtern branch of the Ganges. The fort was regularly built, mounted with ſixty cannon, and defended by three hundred men, principally ſepoys. The nabob pretending a deſire to treat, Mr. Watts, the chief of the factory, was perſuaded to put himſelf in his power; which he had no ſooner done, than he was made a cloſe priſoner, with Mr. Batſon, a ſurgeon, who accompanied him; and the factory ſurrendered at diſcretion. But they were not only deprived of every thing they poſſeſſed, but ſtripped almoſt naked, and ſent to Hoogly, where they were cloſely confined. The nabob then marched directly to Calcutta, which he inveſted on the 15th. Though he now threatened to drive the Engliſh entirely out of his dominions, yet he propoſed an accommodation with Mr. Drake, provided he would pay him his duty upon the trade for fifteen years, defray the expences of his army, and deliver up the Indian merchants who were in the fort. This being refuſed, a ſiege commenced, and the place was taken in three days through the treachery of the Dutch guard who had the charge of a gate. The nabob promiſed that no harm ſhould be done the Engliſh; nevertheleſs they were ſhut up in a priſon ſo cloſe, that out of one hundred and forty ſix every ſoul periſhed, except twenty-two. For particulars of this fatal cataſtrophe, ſee the article CALCUTTA, vol. iii. p 610.

The news of this diſaſter put an end to the expedition projected againſt M. Buſſy; and Clive (now advanced to the rank of colonel) was inſtantly diſpatched to Bengal, with four hundred Europeans and one thouſand ſepoys, on-board the fleet commanded by admiral Watſon. They did not arrive till the 15th of December, at a village called *Fulta*, ſituated on a branch of the Ganges, where the inhabitants of Calcutta had taken refuge after their misfortune. Their firſt operations were againſt the forts Buſbudgia, Tanna, Fort William, and Calcutta, all of which had fallen into the hands of the enemy; but were retaken almoſt as ſoon as they could approach them. An expedition was then propoſed againſt Hoogly, about ſixty miles above Calcutta, the place of rendezvous for all nations who traded to Bengal; its warehouſes and ſhops being always filled with the richeſt merchandiſe of the country. This was likewiſe reduced; and the city deſtroyed, with the granaries and ſtore-houſes of ſalt, on each ſide the river; which proved very detrimental to the nabob, by depriving him of the means of ſubſiſtence for his army. Surajah ul Dowlah, enraged at this ſucceſs of the Engliſh, determined to cruſh them at once by a general engagement. From this, however, he was intimidated by a ſucceſsful attack on his camp, which ſoon induced him to conclude a treaty. This took place on the 9th of February 1757, on the following conditions. 1. That the privileges and immunities granted to the Engliſh, by the Mogul emperors, ſhould not be diſputed. 2. That all goods with Engliſh orders ſhould paſs, by land or water, free of any tax, fee, or impoſition. 3. All the company's factories which had been ſeized by the nabob ſhould be reſtored; and the goods, money, and effects, which had been plundered, ſhould be accounted for. 4. That the Engliſh ſhould have permiſſion to fortify Calcutta as they thought proper. 5. They ſhould alſo have liberty to coin their own imports of bullion and gold.

Intelligence being about this time received of a war having broken out between France and England, the firſt object that naturally occurred, after the concluſion of this treaty, was the reduction of the French power in Hindooſtan; in conſequence of which it was repreſented to admiral Watſon, by a committee of the council of Bengal, that this was the only opportunity he, perhaps, might ever have of acting offenſively againſt them. An attack would therefore immediately have been made on Chandernagore, had not a deputation arrived from that place, requeſting a neutrality in this part of the world, until matters ſhould be finally decided in Europe. The negociation, however, was broken off, on a ſuggeſtion, that the government of Chandernagore, being ſubordinate to that of Pondicherry, could not render any tranſaction of this kind valid. It remained therefore only to obtain the conſent of the nabob to make an attack upon this place; but this was impoſſible; for in ten days after the concluſion of the above treaty, he ſent a letter to admiral Watſon, complaining of his intention. "It appears (ſays he) that you have a deſign to beſiege the French factory near Hoogly, and to commence hoſtilities againſt that nation. This is contrary to all rule and cuſtom, that you ſhould bring your animoſities and differences into my country; for it has never been known, ſince the days of Timour, that the Europeans made war upon one another in the king's dominions. If you are determined to beſiege the French factories, I ſhall be neceſſitated, in honour and duty to my king, to aſſiſt them with my troops."

Nothing leſs was now decided upon in the Engliſh council at Calcutta, than the depoſition of the nabob; which at this time appeared eaſily practicable, by ſupporting the pretenſions of Meer Jaffier Ali Khan, who had with other noblemen entered into a conſpiracy againſt him. Meer Jaffier had married the ſiſter of Aliverdi Khan, the predeceſſor of Surajah ul Dowlah; and was now ſupported in his pretenſions by Ameen Chund, general of the horſe, and by Jugget Seet, the nabob's banker, who was reckoned the richeſt merchant in India. By theſe three leading perſons the deſign was communicated to Mr. Watts, the Engliſh reſident at the nabob's court, and by him to colonel Clive, and the ſecret committee at Calcutta. The management being left to Watts and Clive, it was thought proper to communicate the ſecret to Omichund, through whom the neceſſary correſpondence might be carried on with Meer Jaffier Khan. This agent proved ſo avaricious, that it was reſolved to ſerve him in his own way; and by a piece of treachery, to gain their point with both parties. Two treaties where therefore prepared; (ſee the article ENGLAND, vol. vi. p. 745;) in one of which was ſtipulated a compliance with Omichund's demand; but in the other his name was totally omitted; and both theſe treaties were ſigned by all the principal perſons concerned, except admiral Watſon, whom no political motives could influence to ſign an agreement which he did not mean to keep. Theſe treaties, the ſame in every reſpect, except as to Omichund, who was thus ouſted of his claim, were to the following purport: 1. All the effects and factories belonging to the province of Bengal, Bahar, and Oriſſa, ſhall remain in poſſeſſion of the Engliſh, nor ſhall any more French ever be allowed to ſettle in thoſe provinces. 2. In conſideration of the loſſes ſuſtained by the Engliſh company by the capture and plunder of Calcutta, Meer Jaffier to pay one crore of rupees, or 1,250,000l. ſterling. 3. For the effects plundered from the Engliſh at Calcutta, he engaged to pay fifty lack of rupees, or 625,000l. 4 For the effects plundered from the Gentoos, Moors, and other inhabitants of Calcutta, twenty lacks, or 250,000l. 7. For the effects plundered from the American merchants, inhabitants of Calcutta, ſeven lacks, or 87,500l. 8. The diſtribution of all theſe ſums to be left to admiral Watſon, colonel Clive, and Meſſrs. Drake, Watts, Kilpatrick, and Becher; to be diſpoſed of by them as they ſhould think proper.

All things being now in readineſs, colonel Clive began his march againſt Surajah ul Dowlah, on the 13th of June 1756. Before any act of hoſtility was committed, however, colonel Clive wrote the nabob a letter, upbraiding him with his partiality to the French; and telling him, that "the rains being ſo near, and it requiring many days to receive an anſwer, he had found it neceſſary to wait upon him in his camp. Surajah ul Dowlah, foreſeeing that he was to be attacked, marched to Plaſſey, where he threw up intrenchments, and waited the arrival of colonel Clive, who, among the Hindoo chiefs, was now called Sabut Jung. Before the battle commenced, colonel Clive was informed by Ameen Chund, that Meer Jaffier had pretended to reconcile all differences with Surajah ul Dowlah, and had agreed to join him, the better to carry on the conſpiracy; but that, inſtead of allowing his troops to engage, he ſhould endeavour to gain over the chief commanders; none of which, he aſſured Clive, would make any defence after the firſt onſet; but either fly from the field, or join the Engliſh.

Colonel Clive began his attack with a cannonade ſo unremitted and inſtantaneous, that it confounded the ſight of his oppoſers, and overcame their faculties of hearing Meer Jaffier Khan, and his aſſociates in treachery, kept their detachments at a diſtance; but Meer Muddun, and his faithful followers, who were ready to ſacrifice their lives, or gain the victory, bravely oppoſed the enemy. They were, however, unable to charge, from the violence of the cannonade, but kept reſolutely, though ſlowly, advancing, till at length they gained the Grove of Plaſſey; upon which colonel Clive, not expecting ſuch reſiſtance, reproached Ameen Chund, and accuſed him of premeditated deception; ſaying, "that he had repreſented the army of Surajah ul Dowlah as diſaffected to his perſon; but now the contrary appeared from their valiant oppoſition." The Hindoo chief replied, "that the preſent enemy was only Meer Muddun, and a few others, who were faithful to the nabob; but when he was routed, the truth of his aſſertions would appear." At the inſtant of this converſation, Meer Muddun received a mortal wound from a cannon-ball. He was carried immediately to the nabob, and, having uttered a few words, expired before him. Surajah ul Dowlah, involved in deſpair, now ſent haſtily for Meer Jaffier, and beſought his aſſiſtance and advice. Meer Jaffier, judging this a fit opportunity to complete his treachery, adviſed, that, as but little of the day was remaining, the troops ſhould be recalled to their tents; and, in the morning, he promiſed to repulſe the enemy. The troops were accordingly ordered to retreat; which was the ſignal for them to fly in every direction, as if totally routed. The unfortunate nabob, now perceiving the treachery, and ſeeing himſelf wholly deſerted, eſcaped with difficulty from the field of battle; and wandered, he knew not where, with his women and their attendants, in queſt of an aſylum.

Meer Jaffier Khan, in the mean time, joined colonel Clive at Plaſſey; with whom, and the Engliſh troops, he the next day entered Moorſhedabad, and iſſued proclamations to the inhabitants in his own name. His partners in conſpiracy, and thoſe attached to his intereſt, haſtened to preſent their congratulations and offerings. On the 29th of June 1757, Meer Jaffier Khan ſounded the trumpet for his exaltation; and, aſſembling in the grand hall of the palace, colonel Clive, in the preſence of the rajahs and grandees of the court, ſolemnly led him by the hand to the muſnud or throne of ſtate; where he was unanimouſly ſaluted ſoubahdah or nabob; the Mogul monarch, Aulumgeer, having at this time loſt all authority in Bengal. The important buſineſs of the diviſion of the plunder, and the reſtitutions to the Engliſh for their loſſes at Calcutta, were now immediately entered upon; but the ſum which Jaffier had engaged to pay on that ſcore, was found far to exceed all the treaſures left in coined money and jewels in the treaſury of Surajah ul Dowlah. The ſum ſtipulated by the company for its ſervices, according to the accurate Mr. Maurice, amounted to 22,000,000 of ſicca rupees, equal to 2,750,000l. ſterling, including donations to the ſquadron, the army, and the committee. Of this vaſt aggregate, upon the ſtrong and repeated repreſentation of the treaſurer of the abſolute inefficiency of the exchequer at once to diſcharge the demand, one half was agreed to be paid immediately down; the other half to be paid in three years, at three equal inſtalments. On the 6th of July was received the ſum, in coined ſilver, of 7,271,666 rupees, which being packed up in ſeven hundred cheſts, and laden in one hundred boats, was, under a ſtrong eſcort, conveyed down the river to Calcutta, the boats of the whole fleet attending with banners diſplayed, and muſic ſounding, in the manner of a triumphal proceſſion. In Auguſt following, the remainder was paid in gold and jewels; and cauſed not only the publi cbut the private treaſuries of individuals in Calcutta to overflow with wealth.

Meer Jaffier Khan, being thus inveſted with the ſovereignty or nabobſhip of Bengal, Berar, and Oriſſa, loſt no time in diſpatching his ſon-in-law Meer Coſſim Khan, in purſuit of the unfortunate Surajah ul Dowlah. The wretched fugitive, having made his eſcape in a boat upon the Ganges, hoping to be ſuccoured by the French troops under M. Law, had arrived on the bank oppoſite to Raujemahal; where, with his women, preſſed by hunger, after a faſt of two days, he diſembarked at the cell of a devotee, named Dana Shah, of whom he aſked help in procuring victuals. To this man, in the days of power, he had offered ſome affront, the memory of which ſtill dwelt upon his mind. The fakeer received him courteouſly, and provided food; but privately diſpatched information of his important gueſt to Meer Coſſim, who haſtened to the cell, and took him priſoner, with his women and effects. Surajah ul Dowlah now entreated for his life, and begged to be allowed a moderate income, and a retired dwelling. Meer Coſſim Khan, diſſembling his ſavage intentions, obtained by promiſes a caſket of jewels from the begum, or princeſs, to an immenſe amount. On Sunday, the fifteenth of July, Surajah ul Dowlah was brought, a diſgraced captive, to Moorſhedabad, his late capital. When the people beheld him in this fallen ſituation, they were ſo penetrated with grief and anger, as to prepare to reſcue him; but were prevented by their ſuperiors, who had expectation of reward from his rival; ſo, that the virtue of the weak was of no effect, where the proſpect of gold was held up in oppoſition. Surajah ul Dowlah was now ordered to be put to death; but, no one was found baſe enough to undertake the murder. At length, a wretch named Mohammuddy Beg, who from his infancy had been cheriſhed by Surajah ul Dowlah, and from whoſe grandmother he had received a portion with his wife from charity, offered to execute the horrid deed. When the unfortunate nabob ſaw him approach his perſon, he ſaid, "Art thou come to kill me?" and, upon receiving a reply in the affirmative, began to pray; then ſuddenly exclaimed, "Will not they let me live ſomewhere in obſcurity?" The execrable aſſaſſin, without vouchſafing an anſwer, fell upon the cheriſher of his early days, thus proſtrate and in chains, and ſtabbed him to the heart! Meerza Mahadee, brother of Surajah ul Dowlah, was next ordered to be aſſaſſinated; and, he was put to death between two boards uſed to tighten bales of ſhawls!

While theſe ſhocking tranſactions were going forward with the new nabob, the utmoſt efforts were uſed by the Engliſh to expel the French entirely from Bengal. Chandernagore had already fallen, and the whole of that garriſon were to continue priſoners of war; but, about the time of ſigning the treaty, M. Law, with a ſmall body of troops, made his eſcape, and bent his march towards Patna. There he had collected about two hundred French, the only remains of that nation in Bengal. With theſe he was within two hours march of Surajah ul Dowlah's camp, when the battle of Plaſſey was fought: on hearing the news of which, he ſtopped; but afterwards, being informed of the nabob's eſcape, he marched again to his aſſiſtance, and was within a few hours of joining him, when he was taken. Three days after, he was purſued by major Coote, at the head of 223 Europeans, three companies of ſepoys, and fifty Laſcars or Indian ſailers. The vigilant M. Law, however, had the good fortune to eſcape. Before the return of major Coote, admiral Pocock had ſucceeded to the command of the fleet, in conſequence of the deceaſe of admiral Watſon, who died on the 16th of Auguſt. News alſo arrived, that the French had again become ſucceſsful on the coaſt of Coromandel. Sulabut Jung, as has already been obſerved, had applied to the Engliſh for aſſiſtance againſt the French; but, as they were prevented from giving that aſſiſtance by the diſaſter at Calcutta, he found himſelf under a neceſſity of accommodating matters with his former friends, and admitting them again into his ſervice. M. Buſſy was now reinforced by the troops under M. Law; who had collected as many Europeans in his journey as made up 500, with thoſe he had at firſt. With this army he undertook to reduce the Engliſh factories of Ingeram, Bandermalanka, and Vizagapatnam. As the two former places were in no ſtate of defence, the greateſt part of the company's effects were put on ſhipboard on the firſt alarm; but, as Vizagapatnam was garriſoned by 140 Europeans and 420 ſepoys, it was expected that it would make ſome defence. If any was made, however, it appears to have been very trifling; and by the conqueſt of this the French became maſters of all the coaſt from Ganjam to Maſſulipatnam. In the ſouthern provinces the like bad ſucceſs attended the Britiſh cauſe. The rebel Polygars having united their forces againſt Mazuphe Khan, allied with the Engliſh, they obtained a complete victory over him; after which, the ſepoys being prevailed upon to quit Madura, the conqueror ſeized upon that city for himſelf.

In the beginning of 1758, the French made an attempt on Tritchinopoly. The command was given to M. d'Auteuil; who inveſted the place with nine hundred men in battalion, with four thouſand ſepoys, one hundred huſſars, and a great body of Mahratta horſe. Tritchinopoly was then in no condition to withſtand ſuch a formidable power, as moſt of the garriſon had gone to beſiege Madura, under captain Caillaud; but this commander, having received intelligence of the danger, marched back with all his forces, and entered the town by an obſcure road, which the enemy had neglected to guard; and the French general, diſconcerted by this ſucceſsful manœuvre, drew off his forces, and returned to Pondicherry.

Both parties now received conſiderable reinforcements from Europe; admiral Pocock being joined by commodore Stevens, with a ſquadron of five men of war, and the French by nine men of war and two frigates, having on-board general Lally, with a large body of troops; the Engliſh admiral ſailed in queſt of them; and an engagement took place, in which the French were defeated with the loſs of ſix hundred killed, and a great many wounded: while the Engliſh had only twenty-nine killed, and eighty-nine wounded. The former returned to Pondicherry, where they landed their men money, and troops. But, notwithſtanding this ſucceſs at ſea, the Engliſh were greatly deficient in land-forces; the re-eſtabliſhment of their affairs in Bengal having almoſt entirely drained the ſettlements on the coaſt of Coromandel of the troops neceſſary for their defence. The conſequence of this was, the loſs of Fort St. David, which general Lally reduced, deſtroying the fortifications, demoliſhing alſo the adjacent villages, and ravaging the country in ſuch a manner as filled the natives with indignation. He proved ſucceſsful likewiſe in the reduction of Devicottah; but, was obliged to retreat with loſs from before Tanjour, his army being greatly diſtreſſed for want of proviſions; and money in particular being ſo deficient, that on the 7th of Auguſt 1758, the French ſeized, and carried into Pondicherry, a large Dutch ſhip from Batavia, bound to Negapatnam, and took out of her 5000l. in ſpecie.

From this time, the affairs of the French began to decline. On their retreat from Tanjour, they abandoned the iſland of Seringham; however, they took Tripatore; but were defeated in their deſigns on the important poſt of Chinglapet, ſituated about forty-five miles ſouth-weſt of Madras. Their next enterpriſes, on Fort St. George and Madras, were equally unſucceſsful. The latter was beſieged from the 12th of December 1758, to the 17th of February 1759; when they were obliged to abandon it with great loſs: which diſaſter greatly contributed to depreſs their ſpirits, and abate their intereſt with the native powers.

General Lally next reſolved to attack Wandiwaſh, which had lately been taken by colonel Coote. The advantage in numbers was entirely in favour of the French general. The battle began about eleven o'clock on the 22d of January 1760; and in three hours the whole French army gave way, and fled towards their camp; but quitted it on finding themſelves purſued by the Engliſh, who took all their cannon and baggage. They collected themſelves under the walls of Cheltaput, about 18 miles from the field of battle; and ſoon after retired to Pondicherry. Colonel Coote then commenced the ſiege of Cheltaput, which ſurrendered in one day; the fort of Timmery was reduced by major Monſon; and the city of Arcot by captain Wood. This laſt conqueſt enabled the Engliſh to reſtore the nabob, Mohammed Ali Khan, again to his dominions, of which he had been deprived by the French. M. Lally, in the mean time, had recalled his forces from Seringham, by which means he augmented his army with five hundred Europeans. All theſe were now ſhut up in Pondicherry, which was become the laſt hope of the French in India. To complete their misfortunes, admiral Corniſh arrived at Madras with ſix men of war; and, as the French had now no fleet in theſe parts, the admiral readily engaged to co-operate with the land-forces. The conſequence was the reduction of Karikal, Chellambrum, and Verdachellum, by a ſtrong detachment under major Monſon; while colonel Coote reduced Permacoil, Alamperva, and Valdour. Thus he was at laſt enabled to lay ſiege to Pondicherry, the capital. Previous to this, however, it had been blockaded by ſea and land, which reduced the place to great ſtraits for want of proviſions, and induced a mutinous diſpoſition among the garriſon. The batteries were not opened till the beginning of December 1760; and the place capitulated on the 15th of January 1761; by which an end was put to the power and intrigues of the French in this part of Hindooſtan.

While the Engliſh were thus ſucceſsfully employed on the coaſt of Coromandel, their affairs in Bengal, under the new nabob, were ſaid to be daily growing into diſorder. Meer Jaffier Khan, whom they had exalted upon the downfal of the unfortunate Surajah ul Dowlah, became a proud, imperious, and revengeful, ſoubahdar, though weak and voluptuous in his government. He was viſited by many, who had formerly lived with him on terms of intimate equality, hoping to ſhare ſome advantage by his exaltation; but they were generally mortified by a cool reception. Among them was Meerza Shumſe ul Dien; who, in the days of Jaffier's diſtreſs, had aſſiſted him with a ſum of money, and now hoped to have it repaid; but it was long before any notice was taken of him. At length he applied: when the nabob ſaid, "I have not forgotten your former kindneſs, which I mean to repay; but at preſent the expences of the Engliſh army, and other contingencies are ſo great, it is not in my power. When God ſhall give me ability and opportunity, I will not be unmindful of you." The Meerza, pretending feelings of compaſſion, ſaid, "My lord, I am ſtruck with your ſufferings; but, alas! Surajah ul Dowlah plundered my houſe, or I ſhould now have eſteemed contributing to your relief as an honour." Meer Jaffier was womaniſhly fond of jewels, of which he always wore great numbers in his higher fortunes. On this day, his neck, arms, wriſts, and turban, were more richly ornamented than uſual; and the Meerza wittily ſaid, "To be ſure, theſe few ſtones about your perſon are not of any great value to any one; but I ſhould think a blow from one of your highneſs's hands an honour and ſatisfaction." A ſtring of jewels was obtained.

When only one year and three months of Jaffier's government had elapſed, the troops were driven to deſpair, and the people ripe for an inſurrection. Abed ul Hadee and other chiefs conſpired to remove him by aſſaſſination; but, many perſons being in the plot, ſome one betrayed it to the nabob; and Abed ul Hadee and Meer Cauzim Khan, the two principal conſpirators, were ſeized and put to death. About three months after this, rumours were ſpread that the Mogul prince Ali Gohur, eldeſt ſon of the emperor Aulumgeer, was about to enter Bengal. This intelligence alarming the nabob, and his ſon Meerann, they, for their own ſafety, paid up part of the arrears due to the troops; and ſent peremptory orders to Ramnarain, the Hindoo rajah of Patna, to pay up all his arrears of tribute due to the royal treaſury, that it might be ready when demanded by the young prince. Such was the ſituation of affairs in Bengal, when Ali Gohur made his eſcape from the attack of Ghazee ul Dien Khan, in Delhi, as related under the reign of Aulumgeer. He haſtened firſt to Sujah ul Dowlah, ſoubahdar of Oude; and afterwards ſought protection with Mohammed Koollee Khan, ſoubahdar of Allahabad. This nobleman was a young man of courage; and, being ambitious of enlarging the limits of his government, he was eaſily tempted, by the diſorders in Bahar and Bengal, to attempt their conqueſt under the royal ſanction; for which purpoſe he offered his ſervices to the fugitive prince, who readily accepted them. Mohammed Koollee was alſo ſupported in his hopes by aſſurances of aid from Sujah ul Dowlah, his couſin; who, however, was not ſincere; and only promoted the expedition in order to remove his relation from the fort of Allahabad, which he wiſhed to ſeize for himſelf.

In 1759, Mohammed Koollee Khan, under the royal ſtandard of Ali Gohur, who had procured from his father, the Mogul emperor, grants of Bengal, Bahar, and Oriſſa, began his march towards Patna, to receive the tribute. When rajah Ramnarain heard of his approach, he was much alarmed; as neither Meer Jaffier, nor his allies, the Engliſh, had yet moved from Moorſhedabad. The dignity of the royal name, and the terror of a Mogul army, filled his mind with dread, and made him act with caution. He pitched his camp at a little diſtance from the city, reſolving to join either the prince, or the nabob and the Engliſh, whichever ſhould firſt arrive. Hearing that the royal army had croſſed the Carumnaſſa, and that Meer Jaffier had not yet left the capital, he thought it wiſeſt to treat with the former; but firſt aſked the advice of Mr. Amyatt, the chief of the Engliſh factory, then at Patna; obſerving, that "without the arrival of the nabob's army, he was unable to cope with the enemy." Mr. Amyatt replied, that "as to himſelf, if aſſiſtance arrived, he would remain at Patna; but if not, on the near approach of the enemy, he would retire towards Bengal, and wait the orders of council, or contingency of events; that as for Ramnarain, he ſhould try to amuſe the enemy as long as he could, till orders or help arrived from the nabob; but, in caſe he was hard puſhed, to proceed as he ſhould find moſt for his own advantage and ſafety."

Upon the approach of the prince nearer Patna, Mr Amyatt, with the reſt of the Engliſh, embarked in their boats, and retired twenty or thirty coſs towards Bengal, leaving their factory under the protection of Ramnarain; who now determined to viſit the prince and Mohammed Koollee Khan. In a little time he reached the royal camp; and being obliged to undergo all the ceremonies of royal audience, which he had never before been accuſtomed to, he approached the throne with a terrified aſpect, and parched lips, to preſent his offering. He was then inveſted with a khelaut, or dreſs; but, as he had himſelf till now been only a beſtower of ſuch preſents, he was wearied with the numerous obeiſances, uſually made on receiving every ſeparate piece. When this was over, having ſtood and recollected himſelf a little, and rolled his eyes over the wretched appearance of the prince, and the ſtrange manners of his attendants, he, with contempt of himſelf for having ſubmitted to the interview, haſtened back to Patna, where he iſſued immediate orders to ſhut the gates, and man the walls of the city. For ſome days he continued to amuſe the prince, and Mohammed Koollee Khan, with trifling preſents and meſſages, in order to prevent hoſtilities till the arrival of Jaffier's army; and when he received intelligence that the nabob's ſon Meeraun, and colonel Clive, were approaching from Moorſhedabad, he ſent a meſſage to Mohammed Koollee Khan, ſtating, “ that he conſidered himſelf as a ſervant of the nabob of Bengal, and had only viſited him as a gueſt of his maſter's; but did not underſtand his demand of the province.” On this Koollee Khan flew into a violent rage, vowing that he would bring him by force to the prince. Accordingly, in the morning he began to cannonade; and the ſiege was carried on for ſome days with great briſkneſs. In all probability Patna would have fallen into his hands, had not the operations been interrupted by intelligence, which cauſed him inſtantly to raiſe the ſiege. This was, that Sujah ul Dowlah, who had obtained his permiſſion to ſhelter his women at the fort of Allahabad, had treacherouſly ſeized upon that ſtrong-hold, and poſſeſſed himſelf of the province. Mohammed Koollee, therefore, turned from Patna, in order to protect his own province; and the prince, unable to act with his own ſmall army, reluctantly accompanied him. On his arrival at Phoolwawree, only four miles from the city, he was met by M. Law, who had haſtened with his ſmall band of Frenchmen from Chitpour, to offer his ſervices. M. Law remonſtrated with him, but in vain, on the folly of a retreat, when he was ſo near ſucceſs. He marched onwards, and M. Law went to viſit the prince, and offer his aſſiſtance. The prince unheſitatingly informed him, “ that he depended on Mohammed Koollee Khan even for his daily expences, and without him could not continue the ſiege; therefore muſt retire to Chitpour, in hopes of ſupport from the rajah of that country.” M. Law requeſted leave to accompany his highneſs; and ſaying, “ that he was ready to expoſe the lives of himſelf and his people, in endeavouring to reſtore his rights.” The prince then complained loudly to him of the folly of the nobles of Hindooſtan; who, he ſaid, were cowardly, giving up their empire to ruin; that he had travelled from Delhi to the coaſt of Bengal, and been witneſs to nothing but oppreſſion of the poor, and plundering of travellers. “ Though I,” ſaid he, “ have uſed every argument to excite ſuch powerful nobles as Sujah ul Dowlah, the vizier, and Ummaud ul Muluk, the emir ul omrah, to regulate the empire, and attempt the recovery of Bengal from the Engliſh, they would not attend to me, nor underſtand their real intereſts.”

So ſoon as Sujah ul Dowlah heard of the return of Mohammed Koollee Khan from before Patna, he commanded a large body of his troops to intercept his march, and take him priſoner; but on ſight of the troops, Mohammed Koollee Khan, againſt the advice of his friends, conſented to diſband his army, and throw himſelf on the protection of Sujah ul Dowlah; who immediately on his arrival kept him a priſoner, and ſhortly after put him to death.

It was at this juncture that the Mogul prince Ali Gohur received intelligence of the murder of his father Aulumgeer, as related under that reign; upon which he diſpatched an expreſs to Sujah ul Dowlah, whom he appointed his vizier; and the office of emir ul omrah he beſtowed on Nujeeb ul Dowlah. The prince, on his acceſſion, aſſumed the name of Shah Aulum II. but he could not repair to Delhi, on account of the great armies of Mahrattas which hovered round that capital, and would infallibly intercept his march. That noble city too, having been juſt at that time ſacked and plundered by Ahmed Shah Abdallah, nothing reigned therein but confuſion and diſtreſs. He was, however, now joined by Kaumgar Khan with five thouſand horſe, Dilleer Khan, and Aſſaulut Khan, with their numerous followers; and, being thus reinforced, he proceeded to engage Ramnarain in his camp; who was defeated, and with difficulty eſcaped to Patna. Captain Cochran and Mr. Barwell were killed, with ſome ſoldiers and ſepoys; but the remainder of the Engliſh, who had joined Ramnarain, having ſpiked one of their cannon, retreated in good order to Patna. The emperor and Kamgaur Khan did not purſue the enemy, having ſuffered much in the action, and loſt the two gallant chiefs Dilleer Khan and Aſſaulut Khan. But had the royal army followed the fugitives, it is moſt probable Patna would have fallen without reſiſtance. For ſome days the city was in the utmoſt confuſion; but, no enemy appearing, the ſpirits of the inhabitants revived.

The emperor next marched to attack Meeraun, the nabob Jaffier's ſon, who was advancing from Moorſhedabad; but in this movement the royal army was defeated by the gallantry of the Engliſh. In this action Meeraun was wounded. Shah Aulum, by advice of Kaumgar Khan, now haſtened by forced marches through the hills, in hopes of ſurpriſing Meer Jaffier in his capital; but the nabob, having timely intelligence from his ſon Meeraun, was prepared; upon which the royal army retreated, and marched by another rout towards Patna; hoping, as Meeraun had moved towards Moorſhedabad to the aſſiſtance of his father, that the city might fall an eaſy prey before he could return to relieve it. Unfortunately for the young emperor, his army halted a few days at Bahar, which gave time to Ramnarain to prepare for defence; for the greater part of his troops were with Meeraun, and only a few ſepoys in the Engliſh factory. Upon intelligence of the approach of the enemy, as many troops as were in the neighbouring diſtricts were called in; and Mr. Amyatt increaſed his force to about three companies of ſepoys, from the ſeveral ſtations. At length the enemy commenced the ſiege, and a few nights after, M. Law with the French troops attempted an eſcalade; but were defeated by the vigilance and activity of the Engliſh, and rajah Shittabroy. An Engliſh detachment arriving under captain Knox, they made a ſally upon the beſiegers, who were eaſily defeated. Kaumgar Khan now retired towards Gyah Maunpour with the emperor, and raiſed contributions upon the neighbouring diſtricts for his ſupport.

At this period, the rajah Khadim Houſſein Khan, being fearful of the treachery of Meeraun, the nabob Jaffier's ſon, reſolved to join the emperor, with five thouſand horſe, ſeven thouſand infantry, and upwards of forty pieces of artillery; and pitched his camp on the bank of the river oppoſite Patna. Had he done this before the arrival of captain Knox, Patna would certainly have fallen into the hands of the emperor, and Khadim Houſſein Khan would have acquired great honour. Ramnarain, upon intelligence of his approach, conſulted with Mr. Amyatt; who obſerved, that, as the emperor was now at a diſtance, the rajah ſhould detach the greater part of his forces with captain Knox, who had undertaken to croſs the river, and fall upon Khadim Houſſein. Ramnarain was aſtoniſhed he ſhould think of attempting it with ſo ſmall a force; but, Mr. Amyatt preſſing him, he promiſed to prepare his troops to join the Engliſh. Mr. Amyatt alſo deſired the aſſiſtance of rajah Shittabroy, who with great willingneſs joined captain Knox, with two hundred horſe and foot. The Engliſh detachment conſiſted of three or four companies of ſepoys, one of Europeans, and two field-pieces of artillery. The troops of Ramnarain, however, did not join; ſo that the Engliſh, with Shittabroy, alone attacked the enemy, and defeated them with great ſlaughter. Khadim Houſſein Khan retreated towards the diſtrict of Butteah; and captain Knox, unable to purſue him, leſt the abſence of his detachment ſhould leave Patna expoſed to the emperor's army, re-croſſed the river a few days after the battle.

In the mean time Meeraun, who had been detached by the nabob, his father, from Moorſhedabad, upon intelligence of the defection of Khadim Houſſein Khan, arrived near Patna with his own army, and the Engliſh forces under colonel Calliaud. Without entering the city, they croſſed the river in purſuit of Houſſein; who, having already been defeated by ſo few of the Engliſh, ſtrove only to effect a ſafe retreat from the province. He kept up a ſort of running fight for ſeveral days with Meeraun, till his progreſs was ſtopped by the hills, and the river Ghunduc; ſo that he muſt inevitably have fallen into the hands of Meeraun, had not his death happened by the viſitation of divine Providence. But as the death of this young prince, in one of the charges brought by Mr. Burke againſt

Mr. Haſtings, was attributed to aſſaſſination through the treachery of the Engliſh, we have thought it right to copy the true account of that event, as given by Erudat Khan, one of the native hiſtorians of Hindooſtan, in his own words:

“As it was now the commencement of the rainy ſeaſon, and the decree of divine vengeance hung over Meeraun, about the third hour of the night of Wedneſday the 18th of Zeekaud, 1173, (A. D. 1760,) a heavy ſtorm began. The world was dark and gloomy to Meeraun and his aſſociates; and the ſplendour of the day of his life and proſperity changed to the black night of deſtruction. About a third part of the night was elapſed, when his companions, with his attendants, were diſmiſſed. Meeraun, to guard againſt the violence of the ſtorm, quitting his large tent, retired to a ſmaller one, called, from the inventor of it, a Dulleel Khaunee, low, and without walls, ſecured by ſtrong pegs fixed in the ground very cloſe. A favourite courtezan, with whom he generally ſlept, alſo two or three other ſinging girls, a ſtory-teller, and a domeſtic to pat his limbs, were with him. (This patting of the limbs is common in the eaſt, to promote circulation of the blood.) As the life of the women was yet to remain, after a ſhort time he diſmiſſed them; when the domeſtic began to pat his feet, and the ſtory-teller his charm, to the ſleep of death. God knows, whether he was ſleeping, or his eye wakeful in expectation of the meſſenger of fate; when, in the height of a moſt heavy ſhower, the threatening thunder of avenging anger roared, and the lightning of wrath deſcended on the head of Meeraun, who reached the place of final vengeance in the poſture in which he lay upon his bed. The ſame flaſh, falling on the domeſtic and the ſtory-teller, killed them alſo. Some time after the accident, when the fury of the ſtorm had abated, the attendants whoſe turn it was to watch, coming in, ſaw them in the ſleep of death, and immediately, without noiſe or clamour, informed ſome of the principal officers, whoſe tents were neareſt. Upon examination, five or ſix ſmall holes were found on the back part of his head, and, on his body, ſtreaks like the marks of a whip. His ſcymetar, which lay near his head on the bed, had alſo holes in it, and part of the point was melted. The tent-pole appeared as if rotted.”

Meeraun had the character of a bloody and unrelenting prince; with whom the ſlighteſt jealouſy was ſufficient to bring death on its object. By his inſtigation, Khaujeh Hadee Khan, and Meer Cauzim Khan, were aſſaſſinated. He killed ſeveral women of his harem with his own hand, and would boaſt of the act; ſaying, “this was the true mode of clearing up doubts, and eaſing the mind of jealouſies.” With this ſavage ferocity, he procured the death of Ameena Begum, and Gooſeety Begum, the daughters of Mahabut Jung, whom he cauſed to be drowned; and among his papers was found a liſt of many perſons whom he had reſolved to cut off at the concluſion of the campaign; determined, as he ſaid, to rid himſelf of the refractory, and ſit down in comfort with his friends.

On the nineteenth, in the morning, the fate of Meeraun was diſcloſed by his ſervants to colonel Calliaud, the commander of the Engliſh army; who deſired that his death might be concealed from his troops, for fear they ſhould withdraw themſelves from the ſervice To effect this, the body being opened in the colonel's preſence, the bowels were taken out and buried on the ſpot; and the corpſe being ſtuffed, was dreſſed, as if alive, and placed upon an elephant; a report being at the ſame time given out, that Meeraun was indiſpoſed; but his death was ſoon diſcovered, and the carrying of his corpſe in this manner was regarded as a contrivance to cover ſome foul tranſaction. About this time, ſome changes took place among the Engliſh. Colonel Clive had returned to Europe, leaving Mr. Holwell in the government till the arrival of Mr. Henry Vanſittart, who was appointed to ſucceed him, from Madras. Mr. Amyatt, having received ſome ſlight, repaired to Calcutta, where colonel Calliaud was alſo ordered with him; and the command of the Engliſh army, at Patna, devolved upon major Carnac.

The nabob Meer Jaffier, inconſolable for the loſs of his ſon, ſecluded himſelf from ſociety; while the public affairs became neglected, and confuſion more or leſs pervaded every department of the government. The nabob, in this diſtreſs of mind, placed all his confidence in his ſon-in-law, Meer Coſſim Khan; and ſent him to negociate the public buſineſs at Calcutta: where, during his agency, he impreſſed the minds of the council of his own ſuperiority of talent and ability for governing, over that of Meer Jaffier, or his deceaſed ſon; both of whom he repreſented as having been guilty of every atrocity. Having finiſhed his embaſſy, he returned to the nabob; who, pleaſed at his ſucceſs, and not ſuſpicious of his treachery, ſhowed him more kindneſs than ever; and gave him the higheſt conſequence in his court, by making him his adopted ſon.

Mr. Vanſittart was by this time alſo arrived from Calcutta. To him Meer Coſſim had related the various neglects of the nabob in the affairs of his government, the fallen ſtate of the revenues and army, and the expences of the houſehold, owing to the rapacity of thoſe he improperly put in truſt. Mr. Vanſittart, who was unequalled for his judgment and abilities in ſtate affairs, perceived that Meer Coſſim Khan was, of all the relations and ſervants of the nabob, the moſt diſtinguiſhed in underſtanding; and he wiſhed to form ſome plan for the regulation of the declining provinces. It occurred to him, that Meer Coſſim Khan ſhould be entruſted with the adminiſtration of the government, as the deputy of his father-in-law, the real nabob. He laid his plan before the council for their advice and approbation, and the majority aſſented to its execution; but Mr. Amyatt, Mr. Ellis, Mr. Batſon, and major Carnac, diſapproved the meaſure. However, the ſtronger party prevailed in the cabinet; and in a very ſhort time the following TWELVE moſt extraordinary articles of IMPEACHMENT, were exhibited by the ſervants of the Engliſh Eaſt-India Company, againſt Meer Jaffier Khan, the ſoubahdar, nabob, or viceroy, of the Mogul emperor of Hindooſtan! The charges were: 1. That ſoon after his advancement to the nabobſhip, he had reſolved to reduce that power which raiſed him to the dignity. 2. That, to effect this, he aſſaſſinated or baniſhed every perſon of importance, whom he ſuſpected of being in the Engliſh intereſt. 3. That he negociated with the Dutch to introduce an armament for the expulſion of the Engliſh. 4. That he had in different inſtances been guilty of the deepeſt deceit and treachery towards the Engliſh, his benefactors and allies. 5. That at three different periods the Engliſh commander in chief had been baſely deſerted, both by the nabob and his ſon, when he and the troops were hazarding their lives in his ſervice. 6. That he meditated a ſecret and ſeparate treaty with Shah Aulum, the Mogul emperor Aulumgeer's ſon, and had intended to betray the Engliſh to him. 7. That the whole term of his government had been one uninterrupted ſeries of cruelty, tyranny, and oppreſſion. 8. That he meditated, and was near carrying into execution, an infamous treaty with the Mahrattas, which would have proved the total deſtruction of the country, if it had taken place. 9. That he threw every obſtruction in the way of the collection of the Engliſh tunkas, or aſſignments upon lands. 10. That he encouraged the obſtructions given to the free currency of the Engliſh ſiccas; by which the company ſuffered heavy loſſes. 11. That by his cruelties he had rendered it ſcandalous for the Engliſh to ſupport his government any longer; and, 12. That by his miſconduct he had brought the affairs of the company, as well as his own, into the utmoſt danger of ruin.

On the 13th of June 1760, Mr. Holwell wrote from Calcutta to Mr. Warren Haſtings, that, by expreſs, he had received intelligence of the murder of the princeſſes of Aliverdi Khan and Shah Ahmed, in a moſt inhuman manner, by Meer Jaffier's orders, in order to ſeize their treaſures. He was ſaid to have ſent a jemidar with one hundred horſe to Jefferaut Khan, to carry this bloody ſcheme into execution; with ſeparate orders to the jemidar, to put an end to their lives. He refuſed acting any part in the tragedy, and left it to the other; who carried them out by night in a boat, tied weights to their legs, and threw them overboard. They ſtruggled for ſome time, and held by the gunwale of the boat; but by ſtrokes on their heads, and cutting off their hands, they were at laſt forced off and drowned. In like manner it was ſaid, that many others of Surajah ul Dowlah's relations had periſhed; yet, when it was thought proper to replace Meer Jaffier again in the nabobſhip, in 1761, all theſe dead perſons *were ſaid to be alive*, excepting two. It muſt alſo be remembered, in behalf of the unfortunate Jaffier, that beſides the ſums exacted of him, by the Engliſh, at his acceſſion, he had ceded to them a large extent of territory, and granted them ſo many immunities in trade, that he had in a manner deprived himſelf of all reſources; and it was impoſſible for him to defray the neceſſary expences, without either extorting money from his ſubjects, or infringing the privileges he had ſo inconſiderately granted.

There were two accounts of this remarkable revolution, both publiſhed by authority, yet materially differing from one another. The firſt was given in a memorial drawn up at a conſultation at Fort William, November 10, 1760, where were preſent Henry Vanſittart, eſq. preſident; William Ellis, B. Sumner, William M'Guire, Henry Verelſt, and Henry Smyth, eſqrs. "We reſolved (ſays the governor) to give the nabob the next day (October 19, 1760) to reflect upon the letters I had delivered him, propoſing ſome meaſures for regulating theſe abuſes. I heard nothing from him all that day; but found by my intelligence that he had been in council at his old adviſers, whoſe advice, I was ſure, would be contrary to the welfare of the country and of the company. I therefore determined to act immediately on the nabob's fear. There could not be a better opportunity than the night of the 19th offered, it being the concluſion of the Gentoo feaſt, when all the principal people of that caſt would be pretty well fatigued with their ceremonies. Accordingly I agreed with colonel Caillaud, that he ſhould croſs the river with the detachment between three and four in the morning; and, having joined Coſſim Ali Khan and his people, march to the nabob's palace, and ſurround it juſt at day-break. Being extremely deſirous to prevent diſturbance or bloodſhed, I wrote a letter to the nabob, telling him, I had been waiting all the day in expectation that he would have ſettled the urgent affairs upon which I conferred with him yeſterday; but his having favoured me with no anſwer, plainly ſhowed that all I could repreſent to him for the good of his country would have no effect, as long as his evil counſellors were about his perſon, who would in the end deprive him of his government, and ruin the company's affairs. For this reaſon I had ſent colonel Caillaud with forces to wait upon him, and to expel thoſe bad counſellors, and place his affairs in a proper ſtate, and I would ſhortly follow. This letter I gave to the colonel, to ſend to the nabob at ſuch a time as he ſhould think moſt expedient. Meaſures were taken at the ſame time for ſeizing his three unworthy miniſters, and to place Coſſim Ali Khan in the full management of all the affairs, in quality of deputy and ſucceſſor to the nabob.

"The neceſſary preparations being made with all care and ſecrecy poſſible, the colonel embarked with the troops, joined Coſſim Ali Khan without the leaſt alarm, and marched into the court-yard of the palace juſt at the proper inſtant. The gates of the inner court being ſhut, the colonel formed his men without, and ſent the letter to the nabob, who was at firſt in a great rage, and long threatened that he would make what reſiſtance he could, and take his fate. The colonel forebore all hoſtilities, and ſeveral meſſages paſſed between him and the nabob. The affair remained in this doubtful ſtate for two hours, when the nabob, finding his perſiſting was to no purpoſe, ſent a meſſage to Coſſim Ali Khan, informing him that he was ready to ſend the ſeals and all the enſigns of dignity, provided he would agree to take the whole charge of the government upon him, to diſcharge all arrears due to the troops, to pay the uſual revenue to the emperor, to ſave his life and honour, and to give him an allowance ſufficient for his maintenance. All theſe conditions being agreed to, Coſſim Ali was proclaimed; and the old nabob came out to the colonel, declaring that he depended on him for his life. The troops then took poſſeſſion of all the gates; and the old nabob was told, that not only his perſon was ſafe, but his government too if he pleaſed, of which it was never intended to deprive him. He anſwered, that he had now no more buſineſs in the city, where he ſhould be in continual danger from Coſſim Ali Khan; and, if he was permitted to go and live at Calcutta, he ſhould be contented. Coſſim Ali Khan was now placed on the muſnud, and the people in general ſeemed much pleaſed with the revolution. The old nabob did not think himſelf ſafe, even for one night, in the city. Coſſim Ali Khan ſupplied him with boats, and permitted him to take away about ſixty of his family, with a *reaſonable* quantity of jewels. He begged that he might ſleep in his boat that night, which he accordingly did; and on the morning of the 22d of October, he ſet out for Calcutta, and arrived there on the 29th. He was met by a deputation from the council, and treated with every mark of reſpect due to his former dignity."

The ſecond account of this affair was not publiſhed till the 11th of March 1762, and was ſigned Eyre Coote, P. Amyatt, John Carnac, W. Ellis, S. Batſon, H. Verelſt. "In September 1760, (ſay they,) when there was not the leaſt appearance of a rupture or diſguſt between us and the nabob, but friendſhip and harmony ſubſiſting, Meer Coſſim Khan, his ſon-in-law, came down to Calcutta, and, having ſtaid a ſhort time, returned to Moorſhedabad. A few days after, Mr. Vanſittart went up to that city, on the pretence of a viſit to the nabob Meer Jaffier. Colonel Caillaud, with two hundred Europeans and ſome ſepoys, attended him; who, it was pretended, were going to join the army at Patna. When Mr. Vanſittart arrived at Moradbaug, the nabob paid him two viſits; at the laſt of which Mr. Vanſittart gave him three letters, propoſing the reformation of the abuſes in his government, inſiſted on his naming ſome perſon among his relations to take charge of the ſoubahſhip, and particularly recommended Coſſim Ali Khan, who was ſent for, and the nabob deſired to ſtay till he came: but the nabob, being greatly fatigued, was ſuffered to depart to his palace. The night and following day paſſed in concerting meaſures with Coſſim Ali how to put in execution the plan before agreed on in Calcutta, where a treaty was ſigned for this purpoſe. In conſequence of theſe deliberations, our troops croſſed the river next night; and being joined by Coſſim and his party, ſurrounded the nabob's palace. A letter from Mr. Vanſittart was ſent in to the nabob, demanding his compliance with what had been propoſed to him. To this the nabob returned for anſwer, 'that he never expected ſuch uſage from the Engliſh: that, while a force was at his gates, he would enter into no terms.' A meſſage was ſent in, that, if he did not directly comply, they ſhould be obliged to ſtorm the palace. Aſtoniſhed and terrified at this menace, he opened the gates, exclaiming, that 'he was betrayed; that the Engliſh were guilty of perjury and breach of faith; that he perceived their deſigns againſt his government; that he had friends enough to hazard at leaſt one battle in his defence;' but, although no oaths were ſacred enough to bind the Engliſh, yet, as he had ſworn to be their faithful friend, he would never ſwerve from his engagement, and rather ſuffer death than draw his ſword againſt them.' So ſuſpicious was he of being ſold, that he deſired to know what ſum of money his ſon-in-law Coſſim Ali Khan was to give for the ſoubahſhip, and he would give them half as much more to be continued. He hoped, however, if they intended to dethrone him, that they would not leave him to the mercy of his ſon-in-law, from whoſe treachery he feared the worſt; but wiſhed they would carry him from the city, and give him a place of ſafety in Calcutta. This laſt requeſt of the nabob was conſtrued in the light of a voluntary reſignation. Our troops took poſſeſſion of the palace; Meer Coſſim was raiſed to the muſnud; and the old nabob hurried into a boat with a few of his domeſtics and neceſſaries, and ſent away to Calcutta in a manner wholly unworthy of the high rank he ſo lately held, as was alſo the ſcanty ſubſiſtence allowed him for his maintenance at Calcutta by his ſon-in-law. Thus was Jaffier Ali Khan depoſed, in breach of a treaty founded on the moſt ſolemn oaths, and in violation of the national faith."

According to this account, the ſervants of the company, who were the projectors of the revolution, made no ſecret that there was a preſent promiſed them of twenty lacks of rupees from Meer Coſſim, who was deſirous of making the firſt act of his power the aſſaſſination of Jaffier, and was very much diſpleaſed when he found that the Engliſh intended giving him protection at Calcutta.

It could ſcarcely be ſuppoſed that Meer Coſſim, raiſed to the nabobſhip in the manner we have related, could be more faithful to the Engliſh than Meer Jaffier had been. Nothing advantageous to the intereſts of the company could indeed be reaſonably expected from ſuch a revolution. No ſucceſſor of Meer Jaffier could be more entirely in ſubjection than the late nabob had been, from his natural imbecility. This laſt conſideration had induced many of the council at firſt to oppoſe the revolution; and indeed the only plauſible pretence for it was, that the adminſtration of Meer Jaffier was ſo very weak, that, unleſs he was aided and even controuled by ſome perſons of ability, he himſelf muſt ſoon be ruined, and very probably the intereſts of the company along with him. Meer Coſſim, however, was a man of a very different diſpoſition from his father-in-law. As he knew that he had not been ſerved by the Engliſh out of friendſhip, ſo he did not think of making any return of gratitude; but, inſtead of this, conſidered only how he could moſt eaſily get rid of ſuch troubleſome allies. For a while, however, it was neceſſary for him to diſſemble, and to take all the advantage he could of the power of his allies whilſt it could be ſerviceable to him. By their aſſiſtance he cleared his dominions of invaders, and ſtrengthened his frontiers againſt them; he reduced, by means of the ſame aſſiſtance, the rajahs or independent Indian chiefs who had rebelled in the time of his predeceſſor, obliging them to pay the uſual tribute; by which means he repaired his finances, and thereby ſecured the diſcipline and fidelity of his troops. Having thus, by the aſſiſtance of the Engliſh forces, brought his government into ſubjection, he took the moſt effectual means of ſecuring himſelf againſt their power. As the vicinity of his capital, Muxadabad, to Calcutta, gave the Engliſh factory there an opportunity of inſpecting his actions, and interrupting his deſigns when they thought proper, he took up his reſidence at Mongheer, a place two hundred miles farther up the Ganges, which he fortified in the beſt and moſt expeditious manner he could. Being very ſenſible of the advantages of the European diſcipline, he reſolved to form his army on a new model. For this purpoſe he collected all the Armenian, Perſian, Tartar, and other ſoldiers of fortune, whoſe military character he ſuppoſed might ſerve to raiſe the ſpirits of his Indian forces, and abate their natural timidity. He alſo carefully collected every wandering European who had borne arms, all the ſepoys who had been diſmiſſed from the Engliſh ſervice, diſtributing them among his troops, in order to teach them the Engliſh exerciſe. He changed the faſhion of the Indian muſkets from matchlocks to firelocks; and, as their cannon were almoſt as deficient as their ſmall arms, he procured a pattern of one from the Engliſh, by which he ſoon formed a train of light artillery: and, having thus done every thing in his power to enable himſelf to withſtand the Engliſh by force of arms, he reſolved alſo to free his court from their emiſſaries, by impriſoning or putting to death every perſon of any conſequence in his dominions who had ſhown any attachment to their intereſt.

His next ſtep was to free himſelf from ſome of thoſe reſtraints which his predeceſſor Meer Jaffier, and even he himſelf, had been obliged to lay upon the trade of the country, in order to gratify the avarice of his European allies. At his acceſſion indeed he had ceded to the company a tract of land worth no leſs than 700,000l. annually, beſides 70,000l. a-year on other accounts. All this, however, was not ſufficient; the immunities granted them in trade were of ſtill worſe conſequence than even thoſe vaſt conceſſions. He knew by experience the diſtreſs which theſe immunities had brought upon his predeceſſor, and therefore determined to put an end to them. In purſuance of this reſolution, he began, in the year 1762, every where to ſubject the Engliſh traders to the payment of certain duties thoughout his dominions; and required that their diſputes, if beyond the limits of their own juriſdiction, ſhould be decided by his magiſtrates. This gave ſuch an alarm at Calcutta, that, in November 1762, the governor Mr. Vanſittart waited on him in perſon at Mongheer, in order to expoſtulate with him upon the ſubject. The nabob anſwered his remonſtrances in the following manner: "If (ſaid he) the ſervants of the Engliſh company were permitted to trade in all parts, and in all commodities, cuſtom-free, as many of them now pretend, they muſt of courſe draw all the trade into their own hands, and my cuſtoms would be of ſo little value, that it would be much more for my intereſt to lay trade entirely open, and collect no cuſtoms from any perſon whatever, upon any kind of merchandiſe. This would draw a number of merchants into the country, and increaſe my revenues by encouraging the cultivation and manufacture of a large quantity of goods for ſale, at the ſame time that it would effectually cut off the principal ſubject of diſputes which had diſturbed the good underſtanding between us, an object which I have more than any other at heart."

By theſe intimations Mr. Vanſittart was very much diſconcerted; nor indeed was it in any perſon's power to deviſe a plauſible anſwer. What the nabob had threatened was evidently in his power; and, though he had laid the trade entirely open, no reaſonable fault could have been found with him. The proceeding, however, tended evidently to deſtroy the private trade carried on by the gentlemen of the factory; and even to prejudice, as they ſaid, that of the company itſelf. Mr. Vanſittart therefore thought proper to ſubmit to certain regulations, by which the trade of the Engliſh was put under ſome reſtrictions.

This new agreement, being inſtantly put in execution on the part of the nabob, excited the utmoſt indignation at Calcutta. On the 17th of January 1763, the council paſſed a reſolution, diſavowing the treaty made by the governor, and affirming that he aſſumed a right to which he was by no means authorized; that the regulations propoſed were diſhonourable to them as Engliſhmen, and tended to the ruin of all public and private trade; and that the preſident's iſſuing out regulations independent of the council, was an abſolute breach of their privileges. They ſent orders therefore to all the factories, that no part of the agreement between the governor and nabob ſhould be ſubmitted to. Application was again made to Meer Coſſim to perſuade him to a third agreement; but, before the ſucceſs of this negociation could be known, hoſtilities commenced on the part of the Engliſh. By their troops in the factory of Patna, the city was ſuddenly attacked on the 25th of June 1763, and inſtantly taken, though it was defended by a ſtrong garriſon, and the fortifications had been newly repaired. The governor and garriſon fled out into the country on the firſt appearance of danger; but, perceiving that the victors took no care to prevent a ſurpriſe, he ſuddenly returned with a reinforcement from the country, retook the city, and either cut in pieces or drove into their fort all the Engliſh, who had been only four hours in poſſeſſion of the place. The Engliſh, diſheartened by this diſaſter, did not now think themſelves able to defend their fort againſt the Indians; for which reaſon they left it, with a deſign to retreat into the territories of a neighbouring nabob; but, being purſued by a ſuperior force, they were all either killed or taken.

This act of perfidy, for ſuch it certainly was, the nabob repaid by another, viz. ſlaughtering the deputies who had been ſent him by the council of Calcutta, to treat about a new agreement with regard to commercial affairs. They ſet out from Mongheer on the 24th of June, having been unable to bring Meer Coſſim to any terms; and, though he furniſhed them with the uſual paſſports, yet, as they were paſſing the city of Muxadabad, they found themſelves attacked by a number of troops aſſembled for that purpoſe on both ſides of the river, whoſe fire killed ſeveral gentlemen in the boats. Mr. Amyatt, the chief of the embaſſy, landed with a few ſepoys, whom he forbade to fire, and endeavoured to make the enemy's troops underſtand that he was furniſhed with the nabob's paſſports, and had no deſign of committing any hoſtilities; but, the enemy's horſe advancing, ſome of the ſepoys fired, notwithſtanding Mr. Amyatt's orders to the contrary. On this a general confuſion enſued, and Mr. Amyatt, with moſt of the ſmall party who attended him, were cut in pieces.

Theſe acts of treacherous hoſtility were ſoon followed by a declaration of war; and Meer Jaffier, notwithſtanding the numerous crimes formerly alleged againſt him, was now again proclaimed, by his perſecutors, nabob of Bengal. On this occaſion, the ſervants of the company were likened to the two brothers at the court of Delhi, who, "when they had ſet up one ſovereign, and found he did not ſuit their purpoſe, pulled him down, and ſet up another, like puppets in a ſhow." It was theſe anomalies that afterwards gave birth to a ſolemn inveſtigation of the company's tranſactions abroad, while they excited the utmoſt prejudices in the public mind at home.

The old nabob, thus newly reinſtated, was made to take the field in conjunction with major Adams. The whole force, however, at firſt conſiſted only of one regular regiment, a few of the company's troops, two battalions of European cavalry, ten companies of ſepoys, and twelve pieces of cannon. Theſe came to action with the enemy; and, having got the better in two ſkirmiſhes, cleared the country of them as far as Caſſimbuzar river, a branch of the Ganges, which lay between Calcutta and Muxadabad, or Moorſhedabad, the old capital of Bengal. The war continued to be carried on with uninterrupted ſucceſs on the part of the Engliſh; nor does it appear that all the pains taken by Meer Coſſim to diſcipline his troops, had made them in the leaſt more able to cope with the Europeans. The Engliſh were ſuffered to paſs the river without oppoſition; but an army of ten thouſand Hindoos were advantageoſly poſted between the river and the city. Theſe were entirely defeated, and major Adams puſhed on directly for the capital. In his way he found the enemy ſtrongly poſted with entrenchments fifteen feet high, and defended by a numerous artillery. This ſtrong poſt was taken by ſtratagem; a feint being made with a ſmall body of troops againſt that part where the enemy had collected their greateſt ſtrength. Thus the attention of the enemy was drawn entirely to that place, without regarding others, where no attack was apprehended. The greateſt part of the Engliſh army, however, had in the night-time marched round the Indian fortification, and by day-break made a furious aſſault on a place where there was only a ſlight guard. Theſe inſtantly fled; the entrenchments were abandoned; and Moorſhedabad, which was protected only by them, fell of courſe into the hands of the conquerors.

The defeated army fled without halting till they reached the brook of Oodwah, on the banks of which they again threw up ſtrong entrenchments. Meer Coſſim now ſent his women and treaſures for ſecurity to the fort of Rhotas, and prepared to march in perſon to Oodwah from Mongheer. As he was naturally prone to ſhed blood, he reſolved on the ſlaughter of ſeveral perſons, whom he had impriſoned on ſuſpicion of their fidelity. The principal of theſe were the rajahs Ramnarain, Raujeboolub, Ameed Ram, Futteh Sing, and ſeveral principal zemindars. All theſe he put to death; and it is ſaid, the firſt was drowned with a bag of ſand tied round his neck. The Engliſh captives taken at Patna, and ſeized in different places, were now confined more ſtrictly. At this time, Meerza Nujeef Khan, who had fled from the perſecution of his relation Sujah ul Dowlah, the Mogul vizier, came to offer his ſervices, with his followers; which Meer Coſſim gladly accepted, and ſent him to join the army at Oodwah. Theſe, confiding in the ſtrength of their works, were immerſed in ſloth and pleaſure, ſelf-ſecure from the attack of an enemy, but too cowardly to offer battle. Meerza Nujeef Khan ſhortly after his arrival at the camp, willing to deſerve the favour of Meer Coſſim, having ſelected a band of troops in whom he could confide, iſſued in the night from the entrenchments, and fording a piece of water in the rear of the Engliſh camp, where Meer Jaffier's tents were pitched, attacked him about day-break. Meer Jaffier fled to his boats; but his allies, coming ſpeedily to his aſſiſtance, repulſed Nujeef Khan; who, however, frequently alarmed them by ſimilar attacks. Theſe occaſioned the Engliſh to endeavour to explore the way by which he came upon them, but for ſome time in vain. At length, a deſerter from their camp, having obſerved the route of Nujeef Khan, purſued it; and, fording the lake, placed ſtakes to mark the paſſage. Reaching the camp of Jaffier and the Engliſh, he communicated the diſcovery he had made, and offered himſelf as the guide to ſurpriſe the enemy. Scaling-ladders being prepared on the night fixed for the attack, the grenadiers of the army, putting their cartouch-boxes on their heads, began to ford the lake. It was agreed, that, on their aſcending the entrenchments, a port-fire ſhould be lighted, as a ſignal to the camp, when an attack was alſo to be made on a bridge over the brook of Oodwah. The grenadiers, after a difficult march of near a mile up to the waiſt in water, gained the ſhore under the entrenchments. The guards, depending on the improbability of an enemy's croſſing the lake, were aſleep; and the Engliſh, mounting the walls by their ladders, entered the camp. At this moment, a trumpeter, awaking, diſcovered them; but was diſpatched by a bayonet before he could ſound an alarm. They lighted their port-fire, and ruſhed upon the ſleeping guards. At the ſame inſtant, the Engliſh from the camp attacked the bridge, and made a heavy diſcharge of cannon and howitzers. The grenadiers commenced a rapid firing within, with prodigious ſlaughter. The enemy were too much confuſed to reſiſt them, and every one tried only to effect his eſcape from between two fires, the Engliſh troops having now forced the bridge, and entered on that ſide. Malkaur and Sumroo had fled with their battalions on the firſt alarm, and ſuffered little loſs; but numbers of the other troops were killed by the fire of the Engliſh, and many drowned in croſſing the brook in their flight. Aſſud Oollah Khan, and Meerza Nujeef Khan, fled to the hills. All the plunder of the camp fell into the hands of the victors, with little loſs on their ſide.

The intelligence of this defeat plunged Meer Coſſim into deſpair. He privately haſtened to Mongheer, and was followed by his army the next day in great diſorder. At Mongheer, he remained a few days to ſecure his effects, and revive the exhauſted ſpirits of his troops. At this time Ali Ibrahim Khan adviſed him to releaſe the Engliſh priſoners, and permit them to join their friends, as a means of ſoftening their reſentment; and which perhaps might lead to a conference for peace; but Meer Coſſim thought his affairs not ſo deſperate as to compel him to an alternative ſo humiliating to the character of his ferocious mind. He therefore reſolved to march with all his forces to Patna, and leave their fate to the reſult of what ſhould happen. On his way, he put to death the two rich bankers, Juggutt Seet, and rajah Serroop Chund, and ſeized all their property. On his arrival near the city, he was overtaken by an expreſs, with intelligence that the enemy had marched by a different route, and taken Mongheer. His ſavage ſoul was not to be confined within him; he burſt into a paroxyſm of rage, and commanded Sumroo inſtantly to put the Engliſh priſoners to death. This unparalleled miſcreant, who profeſſed himſelf to be a Chriſtian, was of obſcure parentage in the electorate of Treves. He entered early as a common ſoldier into the ſervice of the French, taking for his *nom de guerre* Summer, which his comrades, from his ſaturnine complexion, turned into *Sombre*, and the Indians, by corruption, into *Sumroo.* At length he repaired to Bengal, and enliſted into one of the Swiſs companies then employed at Calcutta; but at the end of eighteen days deſerted to the French at Chandernagore, where he became a ſerjeant. Deſerting this poſt, he fled into the upper provinces, and was for ſome time a private trooper in the cavalry of Suffder Jung, father to Sujah ul Dowlah. This ſervice he quitted, and led a vagabond life in different provinces; till, in 1760, he joined the rebel fogedar of Purnea. Upon his being expelled from Bengal, Sumroo left him, and entered into the ſervice of Gregory, an Armenian, diſtinguiſhed by the title of Goorgeen Khan. From him he had the command of a battalion of ſepoys; and afterwards obtained a ſimilar poſt in the army of Meer Coſſim; who now ſelected him, on account of his being a *Chriſtian*, as a fit inſtrument for this bloody deed. The execrable aſſaſſin, having invited the Engliſh gentlemen to ſup with him, took the opportunity of borrowing their knives and forks, on pretence of entertaining them after the Engliſh manner. At night, when they arrived, he ſtood at ſome diſtance to give his orders; and, as ſoon as the two firſt gentlemen, Mr. Ellis and Mr. Luſhington, entered the room, the former was ſeized by the hair, his head pulled backward, and his throat cut by another. On this Mr. Luſhington knocked down the murderer with his fiſt, ſeized his ſword, wounded one, and killed two, before he himſelf was cut down. The other gentlemen, being next attacked, defended themſelves, and even repulſed the ſepoys, with plates and bottles. Sumroo then ordered thoſe on the top of the houſe to fire down on the priſoners; which they obeyed with reluctance, alleging that they could not think of murdering them in that manner, but, if he would give the priſoners arms, they would fight them; on which he knocked ſeveral of them down with bamboos. The conſequence was, that all the priſoners, amounting to about two hundred, were either ſhot or had their throats cut. Dr. Fullerton was the only perſon who eſcaped, having in his medical capacity attended upon the tyrant when indiſpoſed.

The morning after this inhuman maſſacre, doctor Fullerton was brought to the durbar in an Indian dreſs; when Meer Coſſim, addreſſing him, ſaid, "How can you juſtify treachery to friends? You received the Engliſh troops into your houſe, on pretence of indiſpoſition, to ſurpriſe my people." The doctor, with much fortitude, replied, "I fear not death; you have murdered my companions, and may kill me; but, I am innocent of the charge of treachery." Meer Coſſim then ſpoke kindly, and told him he might go to Calcutta, and apply to Mr. Vanſittart to grant a peace. Doctor Fullerton anſwered, "that after the maſſacre of Mr. Amyatt, and ſo many Engliſhmen, a reconciliation was impoſſible." Upon which, Meer Coſſim replied, that, "ſince he would not go to Calcutta, he might ſtay where he pleaſed." Dr. Fullerton made his eſcape to the Dutch factory, croſſed the river in a ſmall boat, and joined the Engliſh troops who were on the oppoſite ſide.

This inhumanity was far from being of any ſervice to the cauſe of Meer Coſſim. Major Adams marched without delay from Mongheer to Patna; and, as the place was but indifferently fortified, it could make only a feeble reſiſtance. The cannon of the Engliſh ſoon made a practicable breach, and in no longer time than eight days this great city was taken by ſtorm. Thus the nabob was deprived of all his fortified places, his army reduced to a ſmall body, and himſelf obliged to fly to Sujah ul Dowlah, nabob of Oude. Here he was kindly received, and an aſylum promiſed for his perſon, but admittance was refuſed to his army; nor would this prince conſent at any rate to make his country a ſeat of war. The Engliſh were now entire maſters of Bengal; for, though Meer Jaffier was proclaimed nabob, it is not to be ſuppoſed that he had any authority farther than what they pleaſed to allow him. Major Adams did not long ſurvive the conqueſt of Patna, which was taken on the 6th of November 1763; he died in the month of March 1764.

Meer Coſſim being thus driven out, an agent was ſent from Calcutta to Sujah ad Dowlah, propoſing an alliance with him, and the Mogul emperor Shah Aulum, who ſtill remained with his vizier, not being able to recover his capital. It ſoon appeared, however, that the friendſhip of the Engliſh was not what Sujah ad Dowlah and the Mogul emperor deſired. The vizier conſidered them as rapacious uſurpers, who, having got a footing in the country under pretence of commerce, could be ſatisfied with nothing leſs than the entire poſſeſſion of it, to the ruin of the natural inhabitants. In the beginning of February 1764, therefore, it was known that Sujah ul Dowlah had determined to aſſiſt Meer Coſſim in attempting to recover Bengal. The preſident and council on this wrote him, "that, though they heard ſuch a report, they could not believe it, conſidering the former connections which had ſubſiſted between him and the chiefs of the company, and were perſuaded he would not act in ſuch an unjuſt manner: but if it really was his intention to eſpouſe the cauſe of Meer Coſſim, they were reſolved to keep Bengal free from troubles, and carry the war into the dominions of Sujah ul Dowlah himſelf." To this the nabob replied, by enumerating the many favours conferred on the Engliſh by the Mogul emperors: "Notwithſtanding theſe, (ſays he,) you have interfered in the king's country, poſſeſſed yourſelf of diſtricts belonging to the government, and turned out and eſtabliſhed nabobs at pleaſure, without the conſent of the imperial court. Since you have impriſoned dependants on the court, and expoſed the government of the king of kings to contempt and diſhonour; ſince you have ruined the trade of the merchants of the country, granted protection to the king's rebellious ſubjects, injured the revenues of the imperial court, and cruſhed the inhabitants by acts of violence; and ſince you are continually ſending freſh people from Calcutta, and invading different parts of the royal dominions; to what can all theſe wrong proceedings be attributed, but to an abſolute diſregard to the court, and a wicked deſign of ſeizing the country to yourſelves? If theſe diſturbances have ariſen from your own improper deſires, deſiſt from ſuch behaviour in future; interfere not in the affairs of the government; withdraw your people from every part, and ſend them to their own country; carry on the company's trade as formerly, and confine yourſelves to commercial affairs."

The Engliſh council, ſeeing that neither the vizier nor the emperor would liſten to terms of accommodation, iſſued orders to major Hector Munro, who ſucceeded to the command of major Carnac, to march againſt the enemy's troops cantoned at Buxar. The vizier, informed of his march, detached a body of Mogul horſe to haraſs his line; but the main army remained in cantonments, ſtrongly defended by intrenchments, which the vizier hoped would ſecure him from the enemy till they ſhould be obliged to retire for freſh ſupplies. At length major Munro arrived, and encamped on the border of a moraſs, which now divided the two armies, who remained in ſight of each other inactive for two days. On the third, the vizier altered his reſolution, and reſolved to attack the enemy, taking upon himſelf the command of the Mogul cavalry. Sumroo and M. Gentil (M. Law having been long before taken priſoner by the Engliſh) formed the front line, with eight battalions of ſepoys, and eight field-pieces; to ſupport which, Sujah Koollee Khan was ſtationed in their rear with his own followers, about ſeven thouſand horſe and foot. The vizier took poſt at a diſtance on their right, and the miniſter Beny Bahadur occupied a ruined village on the bank of the Ganges, to their left. A ſharp firing of cannon and muſquetry commenced, with great ſlaughter on both ſides. The vizier haraſſed the enemy in flank, and the Afghan horſe, charging major Munro's cavalry, penetrated his line, which began to be confuſed from this attack and the cannonade of Sumroo's diviſion, which the Engliſh could not charge, owing to the moraſs which divided them in front. Major Munro detached a force to diſlodge Beny Bahadur from the village, which being effected, occaſioned ſome alarm in the vizier's army. At this inſtant, Sujah Koollee Khan, ſeeing Beny Bahadur engaged, anxious to have his ſhare in the action, quitted his ſtation in the rear of the battalions, and attempted to charge through the moraſs in their front, by this means obliging them to deſiſt from firing upon the enemy, leſt they ſhould injure their own friends. He gained the oppoſite bank, only to fall an immediate ſacrifice, with moſt of his followers who had the valour to accompany him, to the grape-ſhot of the Engliſh; and the ſurvivors fled upon the death of their chief. The party which had defeated Beny Bahadur, in purſuing his routed diviſion, entered the camp of the vizier, which was now thrown into utter confuſion. No one had time to regard his baggage, looking only for perſonal ſafety by flight; and the Mogul and Afghan cavalry, ſeeing all loſt, deſerted their leader, and began to plunder his tents. Sujah ul Dowlah, left almoſt alone, was obliged to follow the route of his army. All the baggage of the vizier and his chiefs, with a great treaſure belonging to the bankers and merchants in money and goods, fell a prey to the enemy; and the treacherous deſerters and camp-followers plundered each other afterwards. A great train of artillery, and numerous tents, were taken by the Engliſh. It is impoſſible to eſtimate the amount of the ſpoil, as the cantonments reſembled rather a populous city than a camp. Sujah ul Dowlah fled to Allahabad; leaving the emperor Shah Aulum behind him; and the prince, tired of being longer dependant on his miniſter, threw himſelf upon the protection of the Engliſh, who conducted him in ſafety to Benares.

Sujah ul Dowlah, thinking himſelf unſafe longer in his own dominions, on his arrival at Allahabad diſpatched confidential ſervants to his capitals of Lucknow and Fyezabad, to eſcort his women and effects at thoſe places to Burelli, the reſidence of Hafiz Rhamut, a Rohilla chief; where he alſo repaired with his mother and begum, who received from the benevolent hands of this eſteemed prince every comfort and alleviation which their diſtreſs required. Sujah ul Dowlah refuſed to liſten to any terms of accommodation with the Engliſh, thinking it would degrade his character in the empire; and, hoping to recover his loſſes by the aſſiſtance of the Afghans and Mahrattas, he ſtipulated with them for a numerous army; but, in order to gain time, he ſent his miniſter to Lucknow, inſtructing him to amuſe the enemy with negociations, which would keep up his authority in the province. The Engliſh in the mean while detached two battalions of ſepoys to Lucknow, and a force to beſiege the fortreſs of Chunar. The former, under major Stibbert, were ſucceſsful in their operations; but the latter failed in a night-attack, and ſuffered ſome loſs. This, and the preparations of Sujah ul Dowlah, cauſed general Carnac, who now ſuperſeded major Munro, to raiſe the ſiege, and march towards Allahabad. The Engliſh were here joined by Nujeef Khan, with his followers from Bundelcund; and he, being well acquainted with the fortreſs, pointed out the weakeſt part, which was ſoon breached by the cannon; when the garriſon ſurrendered, and the Engliſh marched on towards Corah, in purſuit of the vizier. An engagement, or rather a ſkirmiſh, took place in the neighbourhood of Corah, in which the Mahrattas were diſperſed by the Engliſh artillery, and fled acroſs the Jumna to their own territories. The vizier retreated to Ferokhabad, (now called Ferruckabad,) irreſolute how to act; when Ahmed Khan adviſed him rather to throw himſelf on the generoſity of the Engliſh, than waſte the remainder of his property on troops that would always deſert him in the face of danger.

The vizier, having conſidered the advice of Ahmed Khan, reſolved to embrace it; and, accordingly, ſet out for that purpoſe in a palanquin, with a few attendants. Previous to this however, he allowed Meer Coſſim, and the aſſaſſin Sumroo, to eſcape; nor could any conſideration ever induce him to give them up. When he approached the Engliſh camp, major Carnac advanced with rajah Shittabroy to meet him. Upon their appearing in ſight, the vizier alighted from his palanquin; and at meeting he and the major embraced. The major and the company then conducted their noble gueſt to their tents, where a collation was provided, and every aſſurance given of reconciliation and future friendſhip. The vizier, after taking refreſhments, retired to his own tents, at ſome miles diſtance from the Engliſh camp. Being now ſatisfied of the ſincerity of major Carnac, Sujah ul Dowlah ſent for his followers and equigage. Frequent viſits ſucceeded between them, and a treaty was ſpeedily concluded to the ſatisfaction of both parties. The Engliſh reſtored the province of Oude to the vizier, on condition of his paying fifty lacs of rupees (five hundred thouſand pounds) for the expences of the war, half in ready money, and half by a draft on the revenues; the vizier to have credit for what had been collected in Oude by the Engliſh. The province of Allahabad was ſettled on the emperor Shah Aulum, who was to reſide in the capital, and have a detachment of Engliſh troops for his protection, until they could replace him on the throne of his anceſtors, in the city of Delhi. The vizier, upon the concluſion of the treaty, endeavoured to raiſe the ſum immediately wanted by the Engliſh. He applied to his mother, begum, and all his relations, to aſſiſt him. The begum generouſly ſent him all her money, jewels, and plate, even to the noſe-ring, and whatever caſh and ornaments ſhe could collect among her attendants, ſaying, that the ſafety of Sujah ul Dowlah was her choiceſt treaſure. Sujah ul Dowlah, in return for this generous behaviour, ever after entruſted to her the ſavings of his revenues. Having paid all the money he could raiſe, he gave jewels in pledge for the remainder; and a ſolemn peace was concluded.

In February 1765, died Meer Jaffier Ali Khan, nabob of Bengal. The ſucceſſion was diſputed betwixt his eldeſt ſurviving ſon Nujem ul Dowlah, a youth about eighteen years of age, and a grandſon by his eldeſt ſon Miran, at that time only ſeven years old. As the Engliſh had aſſumed the abſolute ſovereignty of the province, it was debated in the council of Calcutta whether Meer Jaffier's ſon ſhould be allowed to ſucceed, according to the cuſtom of the country, or the grandſon, according to the Engliſh cuſtom. The point being carried in favour of Nujem, it was next debated on what terms he ſhould be admitted to the ſucceſſion. The late nabob, among other impoſitions, had obliged himſelf to ſupport an army of 12,000 horſe, and as many foot. It was alleged on this occaſion, that he had not fulfilled his engagement, that he had diſbanded moſt of the troops; that at beſt they were but an uſeleſs burden, having never anſwered any purpoſe in real ſervice, for which reaſon the company had been obliged to augment their military eſtabliſhment: it was therefore now judged expedient that the nabob ſhould ſettle a ſum, upwards of 800,000l. annually, on the company, to be paid out of the treaſury; that he ſhould alſo diſcard the prime miniſter Nundcomar, and receive in his place a perſon appointed by the council, who was to act in the double capacity of miniſter and governor to aſſiſt and inſtruct him. The council were alſo to have a negative upon the nomination of all the ſuperintendants and principal officers employed in collecting or receiving the revenues; that he ſhould take their advice, and have their conſent to ſuch nominations whenever they thought proper to interfere in them. He was alſo to receive their complaints, and pay a due attention to them, upon the miſbehaviour of any of the officers, who either were appointed already, or ſhould be in time to come.

With theſe extravagant requiſitions the young nabob was obliged to comply; though he had diſcernment enough to perceive that he was only a ſlave to the council of Calcutta. Though obliged by treaty to diſmiſs Nundcomar from the office of prime miniſter, he ſtill continued to ſhow him favour; until at laſt he was charged with carrying on a treaſonable correſpondence with Sujah ul Dowlah, for which the nabob was enjoined to ſend him to Calcutta to take his trial.

Theſe extraordinary powers, exerted by the council of Calcutta for ſuch a length of time, could not but induce their ſuperiors to circumſcribe them in ſome degree, by appointing others who ſhould act independently even of this council, and who might be ſuppoſed to be actuated by more upright and honourable principles than had hitherto been manifeſted in their conduct. The great character which lord Clive had already gained in the eaſt, juſtly marked him out as a proper perſon for adjuſting the affairs of Bengal. On the 3d of May 1765, he arrived at Calcutta, with full powers as commander in chief, preſident, and governor of Bengal. An unlimited power was alſo committed to a ſelect committee, conſiſting of his lordſhip and four gentlemen, to act and determine every thing themſelves, without dependence on the council. It was, however, recommended in their inſtructions, to conſult the council in general as often as it could be done conveniently; but the ſole power of *determining* in all caſes was left with them, until the delinquencies in Bengal ſhould be thoroughly ſettled. By theſe gentlemen a plan of reformation was inſtantly ſet on foot; by which, however, violent diſputes were occaſioned: but the committée, diſregarding theſe efforts, exerted their authority to the full extent, ſeldom even acquainting the council with their tranſactions, and never allowing them to give their opinion on any occaſion. Lord Clive now demanded from a deputation of the council, the preſents they had received in their corporate capacity from the nabob; but they refuſed, by retorting, "that, when his lordſhip ſhould pay to the company what ſums he had received from the father, they would willingly reſtore what had been given to them by the ſon." Theſe gentlemen in the ſame breath reſigned the company's ſervice; ſo that the noble governor could not enforce obedience to theſe commands.

Soon after this regulation of the company's affairs at Calcutta, lord Clive repaired to Allahabad, to pay his obeiſance to the emperor Shah Aulum. And here, by the ſuperior judgment and policy of his lordſhip, a legal claim was for the firſt time (A. D. 1765) derived to the Engliſh, of the important province of Bengal, and its dependencies, which the neceſſities of the emperor induced him to make over in perpetuity to the Engliſh, on condition of their undertaking the ſafe protection of his perſon, and ſecuring to him a ſufficient and liberal eſtabliſhment for his houſehold and attendants at Allahabad, where he agreed to fix his reſidence, until the Engliſh, with his other allies, could find a favourable opportunity to regain for him the poſſeſſion of his capital, and his remaining empire. On the other hand, an agreement to pay ANNUALLY ſix and twenty lacs of rupees, or four hundred and forty thouſand pounds, as the royal revenue for the province, was given under the ſeal of the company to the emperor. Lord Clive then returned to Calcutta, leaving general Smith to attend the emperor, but who was in fact his ruler; for the general reſided in the fortreſs, and his majeſty in the town; and the ſound of the imperial nobut, or Mogul band, being diſagreeable to general Smith, he forbade it to play; nor did the fallen emperor perſiſt after ſuch forbiddance. In this degraded condition he remained for ſeveral years; until, ſeeing no hopes of being reinſtated by the Engliſh, he threw himſelf on the friendſhip of the Mahrattas, who ſeated him on the throne of Delhi, as related in the former part of this article.

Thus the Eaſt-India company acquired the ſovereignty of a territory equal in extent to the moſt flouriſhing kingdom in Europe. By all this, however, they were ſo far from being enriched, that the diſorder of their affairs and the peculations of their ſervants attracted the attention of government, and warranted the Britiſh adminiſtration in depriving them of their territorial poſſeſſions, and ſubjecting the province of Bengal to the authority of the crown, and the juriſprudence of the parliament of Great Britain. For the many cogent reaſons of this tranſition, ſee the article ENGLAND, vol. vi. p. 744–753–766: and for the civil polity, various charters, and ſtatutes, whereby the Eaſt-India company has from time to time been governed, ſee the article COMPANY, vol. iv. p. 875–883.

Lord Clive, upon his return to Calcutta, immediately prepared to new-model all the inferior juriſdictions of the provinces he had thus obtained in perpetuity to the Engliſh, with a view of advancing the rentals, and increaſing thereby a great acquiſition of property to individuals, while it conſiderably advanced the revenues of the company. To give full ſcope to this new ſyſtem of increaſing the value of land, his lordſhip divided the provinces into ſeven diſtricts, at each of which an Engliſh council was appointed, to inſpect and controul the zemindars and farmers. But the plan was ſo novel, the advance ſo exorbitant, and the regulations ſo incompatible with the former uſages of the country, in which there had been no deviation ſince the acceſſion of the Mogul dynaſty, that a general conſternation prevailed throughout every diſtrict, and the lands went uncultivated. The diſtreſs which followed is unſpeakable. Plague and famine enſued; the horrors of inevitable death were pourtrayed in every countenance; and many of the firſt families among the Moguls and Hindoos periſhed in this calamity. See the article ENGLAND, vol. vi. p. 745–753.

We have already noticed, under the reign of Shah Aulum, the conqueſt of the Rohilla country by the vizier Sujah ul Dowlah, aſſiſted by an Engliſh army under the command of colonel Champion; an event which began with, and gave a ſtriking feature to, the adminiſtration of Mr. Haſtings. This project was formed by the vizier, in order to repair the loſſes he had ſuſtained by the war in ſupport of Meer Coſſim, as related above. The Rohilla country was inexhauſtible in its riches, of which the vizier had informed himſelf, while he and his family were afforded an aſylum at that court; and the ungrateful Sujah ul Dowlah, confident of ſucceſs in ſeizing the country, provided he could bring over the emperor and the Engliſh to ſupport him therein, reſorted to the ſure means of ſecuring their aid, by the proffer of money, and a liberal participation in the ſpoil. In the beginning of February 1774, he ſolicited the emperor to take the field, and join with him in the attack of the Rohillas; on which condition he promiſed to pay down immediately two lacs of rupees for the expence of preparation, ten thouſand rupees every marching day, and five thouſand each halting day. He agreed alſo to reſign half the conquered country to the royal diſpoſal, when he ſhould have ſatiſfied the Engliſh for their aſſiſtance. The emperor at firſt gave his aſſent; but his inclinations ſoon revolted at the idea of becoming a principal in ſo nefarious an expedition; and he is even ſaid to have informed the Rohillas privately of the plan laid for their deſtruction. He was notwithſtanding prevailed upon to march a ſhort diſtance; and, croſſing the Jumna, encamped at Shahdirruk, on the eaſtern bank, pretending to join Sujah ul Dowlah, and the Engliſh, who were already on their march. Upon his entering the camp, he received the two lacs of rupees ſtipulated, amounting to 20,000l. and alſo ſeventy-five thouſand rupees during his ſhort ſtay in the field; but ſuddenly feigning ſevere illneſs, he returned to the palace, and his further march was laid aſide. But the Engliſh were not quite ſo tender in conſcience; or not ſo unjuſt in principle as to receive the wages of Mammon, and perform nothing. They paſſed through all the ſlaughter of hot and cold blood, until the general engagement with the renowned Rohilla chief, Hafiz Rhamut; who being killed in the heat of action, the victors took poſſeſſion of the whole region of Rohilcund, except the ſmall diſtrict of Rampour, which was granted in jaghire to the ſurviving chief, Fyzoollah Khan, with the remnant of his wretched people. This people, however, in a few years, acquired new ſtrength; and after the death of Sujah ul Dowlah, their ſavage chief Gholaum Kaudir Khan, in 1788, revenged, as we have ſeen, upon the devoted head of Shah Aulum, the iniquities of his vizier and the Engliſh in the unprovoked Rohilla war: for more minute particulars of which war, ſee the article ENGLAND, vol. vi. p. 754.

The events which now followed, or rather reſulted from this prodigious increaſe of Britiſh territory in Hindooſtan, notwithſtanding the utmoſt endeavours of the Eaſt-India directors, and of the miniſtry in England, to counteract them, appear for a ſeries of years to have flowed from one undeviating ſtream of fraudulent confederacy, and ſanguinary oppreſſion. To a train of cruel and unjuſtifiable meaſures we are alone to attribute the Rohilla war, a laſting monument of diſgrace to this country; the infamous deſigns practiſed under colour of the company's authority, by Ragonaut Row, at the court of Poonah; the attempt made to involve the affairs of the emperor Shah Aulum at Delhi in ſtill deeper diſtreſs, by exciting Mahadjee Scindia to ſeize his few remaining territories, and divide them with the Engliſh; the bloody conteſt, which aroſe from this thirſt after dominion and power, with Hyder Ali, and his ſon, Tippoo Saheb, ſultan of the Myſore; the unprovoked perſecution and depoſition of Cheyt Sing, rajah of Benares; are enumerated among the cauſes aſſigned for the recall of the governor-general Haſtings, and for the impeachment which followed on his return to England. Theſe tranſactions occupied the attention and aſtoniſhment of mankind from the commencement of the adminiſtration of Mr. Haſtings to the termination of his authority in Bengal, in 1785. To prevent a repetition of ſuch bare-faced enormities for the future in India, which Mr. Pitt, in his memorable ſpeech in parliament, ſaid, "he conſidered in the moſt horrible and alarming point of view," it was reſolved to unite the high and important authorities of governor-general and commander-in-chief over Britiſh India, in one and the ſame perſon. The choice fell where univerſal approbation accompanied it, upon a ſoldier and a ſtateſman, the earl Cornwallis. His lordſhip entered upon this arduous office in 1786; and from his firſt arrival in India, he was unceaſingly employed in healing the diſtractions of the country, in promoting the bleſſings of peace, and protecting the rights of individuals, throughout every caſt and order of the community over which he was now to preſide In 1790, however, the peace of Bengal was again diſturbed by Tippoo Saheb, leagued with the French; againſt whoſe powerful army lord Cornwallis marched in perſon, aſſiſted by the immortal Abercromby, and general Meadows. The Myſorean war was continued with great obſtinacy and valour on both ſides, until February 1792; on the 7th of which month, the capital city of Seringapatam being cloſely inveſted, Tippoo ſolicited for peace on terms preſcribed by the Engliſh; and ſent two of his ſons as hoſtages to lord Cornwallis's camp, for the faithful performance of the articles then ſtipulated. But, as all theſe various tranſactions have been circumſtantially related in our Eighth Volume, we muſt beg to refer the reader to them, under the article ENGLAND, p. 756-766-771-776-783.

Earl Cornwallis was upon this occaſion advanced to the rank of a marquis; and, being deſirous of returning to England, was ſucceeded in the oſtenſible office he bore in India by ſir John Shore. This worthy baronet, purſuing the ſteps of his noble predeceſſor, contributed largely to the due adminiſtration of impartial juſtice, as well as to the extenſion of commerce, and the relations of amity and friendſhip throughout the vaſt regions of Hindooſtan, where the Britiſh traffic and name had acquired a predominating influence. But the reſtleſs ambition of republican France was now employed to undermine this promiſing aſpect of affairs; and the leaders in the directory were ſetting on foot various ſchemes for the recovery of their national influence in India, and for humbling the pride and power of England in that quarter of the globe. The frequent capture of Pondicherry, and the unreſiſted ſeizure of the factories of France, on the weſtern coaſt of Hindooſtan, and on the banks of the Ganges, convinced them that it was not from their colonies alone, thinly and remotely ſcattered, they could hope for ſuch efforts as might wreſt from England the dominion it had acquired. They therefore reſolved to form eſtabliſhments in the very heart of Hindooſtan, within the territories of the native princes themſelves, whoſe influence would protect their growth; and whoſe reſources and co-operation might powerfully aſſiſt them, on the occurrence of an opportune moment for attacking the Engliſh to advantage, in concert with the fleets and forces of their own country. With this view, a number of French emiſſaries were diſpatched to India, who found their way into different parts of the interior, where their firſt ſtep was to prove themſelves deſerving the confidence of the prince or chief they offered to ſerve, by diſciplining his troops, and giving him, in that reſpect, a decided advantage over the other rajahs. For this end regular battalions were formed, and inſtructed in European tactics; the clumſy Indian cannon were improved into ſerviceable field-artillery; founderies were eſtabliſhed for ordnance on the French improved principle; and jaghires, or aſſignments of territory, were granted for the ſupport of theſe newly-imported ſubjects, the commandants of which acquired an influence that generally directed the operations of the field. The firſt exertion of that influence, was to inſpire the prince they ſerved with a jealouſy of the Engliſh, and then to excite his ambition by the hope of conqueſt, and a proſpect of plunder; ſentiments always congenial to the mind of every Indian potentate. Thus eſtabliſhed in the principal courts of the Deccan, they only waited the hour, when France ſhould throw a few thouſands of her troops on any ſhore of the peninſula, to overwhelm the Britiſh poſſeſſions in Hindooſtan, with the ſame rapidity that has marked the inroads of that nation in almoſt every country of Europe.

Such was the growing ſtate of the French influence in India, when ſir John Shore returned to England, after exerting all the energies of his mind to oppoſe and repreſs it: but in vain. Sir John was now advanced to the dignity of the peerage, by the title of lord baron Teignmouth; and the marquis Cornwallis was re-appointed to ſucceed him in July 1797; but, the noble marquis reſigning ſoon after, the earl of Mornington was appointed governor-general, and commander-in-chief, of Britiſh India; where he arrived in April 1798. He ſoon diſcovered that the power and influence of the French had grown to an alarming height at the courts of ſeveral of the native princes; the perſon and capital of the nizam or ſoubahdar of the Deccan, were poſſeſſed by M. Raymond, at the head of fourteen thouſand diſciplined troops; and was prepared to lend every aſſiſtance to the ambitious projects of the French and Tippoo Saheb. Thus M. Raymond, in great force at Hyderabad, and having the whole of the nizam's reſources at his command in the Deccan, was prepared either to ravage the ſouthern provinces dependent on Bengal, or invade the northern circars of the Carnatic. See the article CIRCARS, vol. iv. p. 608. Tippoo, in the mean while, who then poſſeſſed the commodious port of Mangalore, on the coaſt of Malabar, was preparing to ruſh down the Ghauts, and overrun the province of Arcot, and the ſouthern diſtricts poſſeſſed by the Engliſh. It was about this time, that the daring project of Bonaparte to attack the Britiſh ſettlements in India through Egypt and Arabia, began to unfold itſelf. Of the views of Napoleon on India, the following letter is plainly illuſtrative:

> "Bonaparte, Member of the National Convention, General in Chief, to the moſt magnificent Sultaun, our greateſt Friend, Tippoo Saheb.
>
> "Head Quarters at Cairo, 7th Pluvoiſe, 7th year of the Republic, One and Indiviſible.
>
> "You have already been informed of my arrival on the borders of the Red Sea, with an innumerable and invincible army, full of the deſire of delivering you from the iron yoke of England. I eagerly embrace this opportunity of teſtifying to you, the deſire I have of being informed by you, by the way of Muſcat, and Mocha, as to your political ſituation; I would even wiſh you could ſend ſome intelligent perſon to Suez or Cairo, poſſeſſing your confidence, with whom I may confer.—May the Almighty increaſe your power, and deſtroy your enemies.
>
> (Signed) BONAPARTE."

India then lay fairly open to his ambitious views, either by tranſporting a force acroſs the Indian Ocean, proceeding by the way of Baſſora, or purſuing a route by the Black Sea, and traverſing the regions that intervene between the Caſpian and the Indus. Providentially, the glorious battle of Aboukir crippled the operations of the invader, though it could not compel him wholly to relinquiſh his daring enterprize. See the article ENGLAND, vol. vi. p. 790.

The thirſt for revenge, which ſeems to have preyed inceſſantly upon the mind of Tippoo, ſince his defeat by the Engliſh under lord Cornwallis, in 1792, betrayed his plans, and revealed, to the vigilant enquiries of the earl of Mornington, the various negociations he had ſet on foot. He had not only entered into a defenſive and offenſive alliance with France, but alſo invited the co-operation of the Porte, of Zeman Shah, chief of the Afghans, and of every Indian chieftain that could lead an army into the field. Theſe facts being unqueſtionably aſcertained, the new governor-general immediately decided on the line of conduct which his duty required of him: with a promptitude almoſt unexampled, he aſſembled his armies, provided ſupplies, brought into action the reſources of the ſtate, and anticipated on the enemy their meditated blow. In order to ſet every ſpring in motion, the governor-general left the preſidency of Bengal, and repaired in perſon to Madras, where his preſence, ſeconded by the cordial co-operation of the governor of that ſettlement, lord Clive, ſon and ſucceſſor of the firſt lord Clive, (and now earl of Powis,) produced the happieſt effect, in bringing the objects of the campaign to a ſucceſsful and ſpeedy iſſue.

By a rapid and unexpected march of the Britiſh troops, ſtationed in the northern circars, towards Hyderabad, the French commander was taken completely by ſurpriſe; whilſt the nizam, ſenſible of his danger from the overgrown power which he had foſtered in his capital, gladly co-operated with the Engliſh in the ſteps taken to reduce it. By a correſponding movement of the nizam's cavalry, and the Britiſh infantry and artillery, the French were completely ſurrounded; and on 22d of October, 1798, *fourteen thouſand* French ſepoys, little inferior in diſcipline to the native troops in the Engliſh ſervice, and commanded by one hundred and twenty-four French officers, laid down their arms, and ſurrendered at diſcretion. Theſe events were productive of new engagements, and gave birth to a ſubſidiary treaty, which was concluded on the firſt day of the enſuing September, between the Britiſh government and the nizam. The ſudden annihilation of ſo large an army as that which had exiſted under French leaders, induced the nizam earneſtly to ſolicit for his ſecurity an augmentation of the Britiſh troops; which requeſt was acceded to, and the ſubſidiary force increaſed to ſix thouſand effective men, with a due proportion of European artillery, to be maintained by the nizam. This treaty was confirmed in England, and received the warmeſt applauſe of the court of directors.

The next object of the earl of Mornington was to effect, if poſſible, the extermination of that revengeful ſultan of the Myſore, whoſe father and himſelf, in concert with the French, had ſeized every opportunity to wage implacable war againſt the Engliſh for nearly half a century; and now annex his productive territory, with the important fort and capital of Seringapatam, and the valuable ſea-port of Mangalore, to the Britiſh dominions. On this important ſervice, an army of eighteen thouſand Engliſh and native troops were without delay marched into the Myſore, under the command of general Harris and lieutenant-general Stuart; and, being joined by all the forces of the nizam from Hyderabad, the objects of the expedition were ſoon accompliſhed; Mangalore and Seringapatam were both taken, and the tyrant ſultan Tippoo Saheb killed in the ſack of the capital, as circumſtantially ſtated under the article ENGLAND, vol. vi. p. 791. But it will be proper here to notice, that Hyder Ali, the father of Tippoo, from a common ſepoy in the ſervice of the rajah of the Myſore, had riſen to the chief command in his army; and, on the rajah's death, he impriſoned his ſon, the rightful heir, and ſeized the government and treaſury, whereby he was enabled moſt liberally to reward the ſoldiers for maintaining and ſupporting him in theſe uſurped dominions. The death of Tippoo, and the conqueſt of the Myſore, now gave the Hindoo inhabitants of that province a moſt gratifying proof of the juſtice and clemency of the earl of Mornington, who reſtored to freedom the repreſentative of the depoſed rajah of Myſore, and who, from the hour of his birth, had been immured, by the uſurper, within the walls of a priſon. The Britiſh government likewiſe aſſigned to this prince an eſtabliſhment ſuitable to his rank, and inveſted him with a limited ſway over a conſiderable portion of his hereditary dominions. For theſe acts of ſignal merit, the noble governor-general was repaid by the gratitude of his country, the approbation of his ſovereign, and the bounty of his immediate employers, the Eaſt-India company: he was created a marquis, received the unanimous thanks of both houſes of parliament, and was voted an annuity of five thouſand pounds, for twenty years, by the court of proprietors of Eaſt-India ſtock, as a reward for his eminent ſervices.

The officers and ſoldiers, by whoſe invincible courage the ſtorm of Seringapatam was effected, found their reward among the immenſe treaſures of the ſultan, which every where abounded in this magnificent city. The treaſury was rich in ſpecie, while the merchandiſe, conſiſting of muſlins, ſhawls, and various coſtly articles of dreſs, was reckoned at the enormous amount of five hundred camel loads. The ſultan's throne, being too unwieldy to be carried, was broken up: it was conſtructed of a howdah upon a tiger, covered with ſheet-gold; the aſcent to it was by ſilver ſteps gilt, having ſilver nails, and all the other faſtenings of the ſame metal. The canopy was alike ſuperb, and decorated with a coſtly fringe of fine pearls ſet round it. It was valued at 60,000l. ſterling. The ſheet of gold with which it was covered was found to weigh 40,000 pagodas; the ſilver-work about it, the ſupporters of the canopy, and the fringe of pearls, were valued at 10,000 pagodas more. Every part of the howdah contained an Arabic ſentence, chiefly from the Koran, ſuperbly ſtamped, being raiſed and poliſhed in the moſt beautiful manner. A gold figure of a bird, covered over with precious ſtones, was ſcrewed to the roof of the canopy; its beak a large emerald, its eyes carbuncles, the breaſt covered with diamonds, and the wings, expanded as if hovering, completely lined with diamonds; on the back many large jewels were well and fancifully diſpoſed; the tail reſembled a peacock's, being ſtudded in the ſame manner; and the whole ſo arranged as to imitate the plumage, and ſo cloſely ſet that the gold was ſcarcely viſible.

Beſides theſe immenſe ſpoils, there were found on the works and in the arſenal upwards of two thouſand pieces of cannon, which had been caſt under the direction of French engineers, one half of which were braſs; beſides an abundance of ſtores of every deſcription. The depots of grain exceed all credibility, which proves that Tippoo was prepared for a long ſiege. The horſes, elephants, and camels, were delivered over to lieutenant-colonels Cloſe and Dallas, and captains Macauly and Montgomery: 3120 horſes, 99 elephants, and 175 camels, the ſultan's private property. This mighty conqueſt took place on the 4th of May, 1799.

The capture of Seringapatam was an event ſo wholly unexpected by the enemy, that it put the Britiſh government in full poſſeſſion of the writings and ſtate-papers of the fallen Tippoo Sultan. From theſe documents a diſcovery was made, which excited the poignant regret of the Indian government, while it impoſed on it a moſt painful, but neceſſary, duty. Indubitable proofs were obtained, that a ſecret correſpondence had ſubſiſted for a conſiderable time, between the old ally of the Engliſh, Mohammed Ali Khan, nabob of the Carnatic, the oumdat ul omrah his ſon, and Tippoo Sultan. The object of this correſpondence was the expulſion of the Engliſh, the deſtruction of every European government, and the re-eſtabliſhment of the banners of the prophet over the Carnatic, and all the countries of Hindooſtan. Some of the letters were written in an affected ſtyle of ambiguity, and ſome in cipher, the key to which was fortunately diſcovered among the papers of the ſultan. In theſe he was adviſed of the preciſe time when the Britiſh government intended to attack Pondicherry, and was admoniſhed to be circumſpect in his intercourſe with the native powers, particularly with the court of Poonah. This diſcovery, ſo unequivocal and complete, determined the governor-general, with the advice of his coadjutors in office, and particularly of lord Clive, to remove from the nabob the means of executing his perfidious intent, by aſſuming the adminſtration of the Carnatic, in the name of the Eaſt-India company. In conſideration, however, of the long friendſhip that had ſubſiſted between the company and the family that held the ſoubahdary, he propoſed to make an annual allowance to the nabob, ſo ample as to leave him no reaſon to complain of pecuniary loſs. But before any communication could be made to Mohammed Ali on this ſubject, the infirmities of old age, added to a ſudden fever, haſtened his death, and ſpared him the mortification of knowing that his cunning had over-reached itſelf, and that he had alienated, by his ingratitude and treachery, the confidence of his benefactors. It will here be recollected that he owed his exiſtence, as nabob of Arcot, entirely to the Engliſh, who ſupported him in oppoſition to the intrigues of the French governor Dupleix, who had ſet up Chunda Saheb, and entered into a war to ſupport him in the ſovereignty of the Carnatic, as related above. After ſuch a ſeries of ſervices as were rendered by the Engliſh to Mohammed Ali Khan, it exhibits a moſt ſhocking picture of Indian perfidy and ingratitude, that, when he had attained to more than fourſcore years, he ſhould, at the cloſe of a long and checquered life, when his evening was ſhutting in, ſerene, ſecure, and dignified, combine with his once mortal foe, to betray and deſtroy his moſt faithful friends. The Engliſh government, under theſe unpleaſing circumſtances, transferred the muſnud to Azem ul Dowlah, the eldeſt ſon of the late emir ul omrah, and ſecond ſon of the nabob Mohammed Ali Khan, and the lineal deſcendant of Anwarodean, the founder of the family, both by the male and female line. This ſelection gave general ſatisfaction. The new nabob gladly acceded to the terms that were offered; and he was immediately inveſted with the khelaut, or uniform of the ſoubahdary; and his ſubſequent conduct is ſaid to ſhow that he is not undeſerving of the elevation he has gained.

Foiled in his recent attempts to gain a footing in India, the indefatigable ruler of the French nation ſtill projected freſh ſchemes of conqueſt, and drew his hopes of future ſucceſs from a quarter which remained hitherto untried. The Mahrattas, the moſt powerful of all the tribes of Hindooſtan, held out the faireſt proſpect that had yet preſented itſelf to the mind of Bonaparte, for effecting the deſtruction of the Engliſh power in India. By the activity of his emiſſaries he ſoon opened a communication with Dowlat Rao Scindia; who, as we have ſeen, had ſucceeded his uncle Mahadjee Scindia as chief of that tribe of Mahrattas, and had alſo aſſumed the direction of the government at Delhi, and the care of the emperor's perſon. This chief had alſo entered into terms of amity with the Engliſh government, and expreſſed the utmoſt deſire to maintain their intereſts at the imperial court. Yet this ſame Dowlat Rao Scindia now gave open countenance to the French, introduced them in ſwarms at the capital of Delhi, and ſtationed them in the diſtricts and ſtrong-holds of the adjacent provinces. General M. Perron, with twenty thouſand French ſepoys, well armed, provided with excellent field-artillery, and regularly diſciplined, were cantoned at Coel, in the very heart of the Douab, only ten miles from the Britiſh advanced poſts, with the ſtrong fort of Allighur flanking their cantonment; imperial Delhi in their poſſeſſion, and only a few miles in their rear; and the important fortreſs of Agra, commanding the river Jumna, diſtant only one day's forced march. Such vicinage could not be reckoned ſafe, even by the ſolemn proteſtation of M. Perron, that he was the ſlave of the old blind emperor, and the obedient ſervant of Scindia. In fact, M. Perron exerciſed little leſs than ſovereign controul over ſome of the richeſt diſtricts of Hindooſtan; jaghires, or territorial aſſignments, to the annual amount or more than a million and a half ſterling, had been granted for the ſupport of what were called *Scindia's regular battalions*. M. Louis Bourquin, a ſubordinate French officer, was appointed governor of Delhi; the perſon of the emperor was entruſted to the ſuperintendance of M. Drugeon; colonel Haſſing, an officer in the ſervice of the French, commanded in Agra; whilſt general Perron fixed his head-quarters at Coel, the centre of this extenſive line of offenſive and defenſive operations. From a return obtained of Scindia's forces, it appeared that general Perron, at this time, (1803,) commanded thirty-nine regular battalions, five thouſand diſciplined cavalry, and poſſeſſed a train of two hundred and twenty-five pieces of cannon, excluſive of M. Feloze's brigade, conſiſting of eight battalions. Yet, with all this barefaced preparation for hoſtility, Scindia had the effrontery to declare his intentions were wholly pacific with reſpect to the Engliſh, and that his only view was to eſtabliſh and maintain the rights of the Mogul emperor.

Thus circumſtanced, the Britiſh government in India felt itſelf in a moſt embarraſſing predicament. To admit the further growth of this power would have been dangerous in the extreme; whilſt any attempt to compel Scindia to diſmiſs his French auxiliaries would certainly have induced a war; which, though juſtifiable, was nevertheleſs at that time highly inexpedient. The contiguity of this army was rendered ſtill more alarming, from the defenceleſs ſtate of the vizier's province of Oude; which, ſince the death of Sujah ul Dowlah, had fallen into total anarchy and confuſion. The zemindars, or landholders, paid their rent only when the ſword was ſuſpended over their heads; and the peaſantry, following the example of their landlords, became public robbers and plunderers. Merchandiſe paſſing, unleſs protected by a military eſcort, was liable to exactions from every petty zemindar through whoſe diſtrict it was conveyed; and travellers, armed for ſelf-preſervation, were obliged to journey in bodies through the country, to prevent the danger of being murdered. The troops in the ſervice of the vizier, whoſe duty it was to enforce the collections, and preſerve the police of the country, were become ſo licentious and diſaffected, that the marquis of Welleſley was earneſtly ſolicited to ſend a detachment of Engliſh troops to Lucknow, for the perſonal protection of the prince againſt *his own guards* in *his own capital.* This diſtracted ſituation of the fine and fertile province of Oude, preſented a moſt favourable and encouraging proſpect to Scindia and the French, to take immediate poſſeſſion of it, the firſt moment that even a ſhadow of pretence could be ſet up for commencing hoſtilities.

The intereſts of Great Britain, and of Oude, it will be ever painful to reflect, firſt became blended by that moſt ſhameful act of aggreſſion on the part of Sujah ul Dowlah, father of Aſoph ul Dowlah, the preſent vizier, in their having combined to ſeize the fair poſſeſſions of Hafiz Rhamut, in Rohilcund, without the ſmalleſt pretence of right, or even of offence on the part of the beneficent Hafiz; but who, on the contrary, when Sujah ul Dowlah had been driven to the laſt extremity by the Engliſh, in their war againſt Meer Coſſim, as circumſtantially related above, adminiſtered to all his wants, and afforded every comfort to the women of his houſehold, and ſafety to their attendants, till the perils and dangers which ſurrounded him ſhould be blown over. Then this confederated power cut his throat, and divided the ſpoil! After this wanton and wicked violation of all that can be called ſacred or upright in ſociety, the well-founded reſentment of the neighbouring rajahs was excited againſt Sujah ul Dowlah, and he was obliged to enter into a ſubſidiary treaty with the Engliſh for the protection of his own territory, whereby Oude became the barrier to the Britiſh ſettlements of Berar and Bengal.

It would be tedious to recite the different treaties that were made by lord Clive, Mr. Haſtings, lord Cornwallis, and ſir John Shore, with Sujah ul Dowlah, and afterwards with his ſon, Aſoph ul Dowlah, the preſent vizier of Oude; ſuffice it to obſerve, that they were all ſubſidiary treaties, calculated to meet the exigencies and preſſure of the times. Lord Cornwallis determined the ſubſidy to be paid by the nabob at a ſtipulated annual ſum, on terms more advantageous than had before exiſted. Sir John Shore (now lord Teignmouth) augmented the ſubſidy from fifty-five lacks, fifty-thouſand rupees, to ſeventy-ſix lacks of rupees, under an expreſs agreement that the company ſhould maintain a body of not leſs than ten thouſand troops in Oude; and, if ever it ſhould be neceſſary to augment the troops above the number of thirteen thouſand, the nabob was to be charged with the actual coſt of the exceſs above that number. This treaty was framed by lord Teignmouth, with a wiſe foreſight of the dangers likely to ariſe in Oude from the want of an efficient government, and the increaſed means of hoſtility which the French were every day preparing. He felt the expediency of providing againſt a failure of the reſources in Oude, which, from the condition of the country, was but too probable, by obtaining from the nabob a ceſſion, *in perpetuity*, to the Eaſt-India company, of the fort of Allahabad, with the ground adjacent, ſituated on the point of land where the rivers Jumna and Ganges unite their ſtreams, and command the navigation of both rivers. To theſe grants were alſo added the collection of the revenues, derived from the numerous Hindoo pilgrims, who annually reſort to Allahabad, to perform their ablutions at the conflux of the ſacred ſtreams.

What had been ſo long foreſeen, now actually happened. The reſources of the nabob's country continued to decline, the people acknowledged no law but that of violence, which they ſubmitted to, or inflicted, as their relative ſtrength enabled them. Such an order of things could not laſt; the Britiſh government, as much intereſted in the welfare of Oude as the nabob himſelf, and ſolemnly pledged by their treaty to maintain its tranquillity, as well as to defend it from all enemies, could not permit a country to lapſe into ruin, which would, in its fall, endanger all the Britiſh intereſts in India. It became therefore the duty of the governor-general to put the country in the beſt poſſible ſtate to reſiſt aggreſſion. With this view, a propoſal was made to the nabob, Aſoph ul Dowlah, by the Britiſh government, to commute the annual ſubſidy, which he was bound by treaty to pay to the company, *for a territorial ceſſion*, adequate to the amount of that ſubſidy; in which of courſe was to be included, the additional charges of defence that had unavoidably ariſen ſince the treaty of 1798, and which, at the time that treaty was concluded, had not eſcaped the prudent foreſight of lord Teignmouth, who wiſely provided for ſuch augmentation. This propoſal, not leſs advantageous to the nabob than to the Engliſh government, after a deal of diſcuſſion, was at length accepted; and it led to the celebrated treaty of Lucknow, concluded about the cloſe of the year 1801, which ceded, in perpetuity, to the India company, lands eſtimated to produce the ſum neceſſary to defray the military charges of defence. The territory, thus transferred to the India company, was rated at a valuation made by native officers of revenue in the ſervice of the nabob; and by this transfer, Aſoph ul Dowlah was exonerated from the payment of any future ſubſidy, and from all demands whatever on account of the defence of his country; which, thenceforward, the Engliſh government took upon itſelf, together with all the expences, as well contingent as permanent.

The diſtricts allotted to the Engliſh by this treaty, were thoſe which lay moſt diſtant from the nabob's capital; namely, the country of Rohilcund, and the Douab; or tract comprehended between the rivers Jumna and Ganges; thus conſtituting the Britiſh province a barrier between the nabob's reſerved territories and the French and Mahrattas. And thus Rohilcund, and the diſtricts ſo ſhamefully plundered by the vizier's father from the unfortunate Hafiz Rhamut, continued no longer in his family, but became the hereditary property of the Engliſh.

But, if ever there was a criſis in India which warranted ſuch a meaſure, on the ground of political neceſſity, that criſis had arrived, and rendered the aſſumption of the Douab, by the Britiſh government, indiſpenſibly neceſſary; not merely for the proſperity, but for the actual ſalvation, of the country, and of the Britiſh intereſts as inſeparably connected with that country. For ſcarcely had the definitive treaty of the peace of Amiens been ratified in Europe, and Pondicherry reſtored to the French, than the chief conſul diſpatched a fleet with troops to India; a number of young adventurers, of reſpectable parentage, who had received a perfect military-education in the ſchools of France, accompanied this expedition, not only to act as volunteers in re-garriſoning Pondicherry, but with the deſign of penetrating further into Hindooſtan, and incorporating themſelves among the principal native chiefs, for the purpoſe of ſtirring them up againſt the Engliſh. Their progreſs, however, was timely arreſted by an order of the marquis of Welleſley, who directed, "that every avenue into the interior of India ſhould be ſtrictly guarded, and not a Frenchman permitted to paſs the boundary of the ſettlements which had been reſtored to that nation."

The deep and artful ſchemes which had thus been planned by Bonaparte, when chief conſul of France, againſt our territorial poſſeſſions in India, now began to unfold themſelves, and ſhowed that the views of the French extended far beyond the limits of their own colony. The firſt act of M. Binot, the new governor, after his arrival at Pondicherry, was to detach M. Muller, a lieutenant of the 18th demi-brigade, to penetrate into the country of the rajah of Berar, in order to aſcertain the facilities for attacking Bengal from that quarter. This officer, however, before he could complete his miſſion, was made a priſoner of war; and about the ſame time, a document was obtained at Pondicherry, and tranſmitted by the government of Bengal to the ſecretary of ſtate, that clearly demonſtrated the mode by which the French intended to carry their deſigns into effect. M. Perron, as before obſerved, was ſtill in poſſeſſion of Delhi, and the perſon of the ſuperannuated emperor; the ſanction of this miſerable ſhadow of the departed authority of the Great Mogul, was to be made a plea with the natives of India for the French to commence a war againſt the Engliſh, under the pretext of aſſerting the ſovereign rights, and pecuniary claims, of that unhappy prince, to whom M. Drugeon, the French ſuperintendant of the palace, at that very time ſcarcely allowed ſufficient to ſupport exiſtence. But the projects of this inſidious enemy were counteracted by ſuperior wiſdom; and ultimately rendered abortive by the unexpected rupture of the peace of Amiens.

There cannot exiſt a doubt, that the prompt and politic precautions adopted by the government-general, muſt have completely diſconcerted the ſchemes of the chief conſul, who certainly intended, when matters were ripe for a new war with England, to direct his firſt operations againſt India. But a fortuitous and unexpected train of events, produced a rupture between the Engliſh and Mahrattas, which happily terminated in the total annihilation of the French force in India, and greatly diminiſhed the reſources and power of the principal feudatory chieftains of the Mahratta ſtates. The Peiſhwa, or repreſentative of the ſupreme power of the Mahratta confederation, to whom all the ſubordinate princes, whatever they performed, undoubtedly profeſſed allegiance, had, for a conſiderable time, been haraſſed by two rival factions, one headed by Scindia, the other by Holkar. Theſe chieftains contended for the privilege of exerciſing ſovereign ſway, in the capacity of nominal miniſter to their rightful monarch, but really with an intention to uſurp the paramount power of the ſtate. Great Britain was, at this juncture, in cloſe alliance with the Peiſhwa, as the legitimate head of the Mahratta nation; and, during the former Myſorean war, acted in concert with that prince to oppoſe the common enemy. The Peiſhwa being at length diſtreſſed by the violent encroachments of Holkar, who had gained an advantage over his rival, earneſtly beſought the Engliſh to preſerve his throne. This was a claim which juſtice could not refuſe, and which policy ſtrongly recommended. By ſtrengthening our alliance with the Peiſhwa, we gained advantages of the utmoſt importance to the Britiſh intereſts; the influence which the government might expect to acquire in the Mahratta councils, would thenceforward preponderate over that of the French, who hitherto maintained a deciſive aſcendency. The Engliſh would conſolidate their power on the coaſt of Malabar, ſhut the port of Surat, and raiſe thus a barrier againſt the enemy on that ſide of India where the hoſtile attempt which was in embryo, and of which the governor-general was ſeriouſly admoniſhed would certainly have been made. To the propoſal, therefore, of the Peiſhwa, our government acceded; and the negociations conſequent on this propoſal terminated in the treaty of Baſſeen, which was ratified on the laſt day of the year 1802.

By this treaty the Britiſh government engaged to ſupply a ſubſidiary force, conſiſting of ſix battalions, to ſupport thoſe rights of the Peiſhwa, which were never queſtioned by Scindia, by Holkar, or by any other chief or ſtate whatever. Aware of the propenſity which every native prince of India entertains, to aggrandize himſelf, when fortune places at his diſpoſal a force adequate to the purpoſes of aggreſſion, and apprehenſive that vindictive motives might inſtigate the Peiſhwa to hoſtilities againſt his former oppreſſors, the governor-general inſerted two clauſes in the treaty, reſtricting the Peiſhwa from uſing Britiſh influence, or employing Britiſh arms, in the proſecution of ambitious or unjuſtifiable objects. One of the articles expreſsly ſtipulates, that "the ſubſidiary force is not to be employed againſt any of the principal branches of the Mahratta empire;" and by the other, the Peiſhwa engages "not to commit any act of hoſtility or aggreſſion, againſt any of the principal branches of the Mahratta empire, or againſt any power whatever." The treaty, therefore, is not only in its nature innocent towards the other members of the Mahratta empire, but tends to impreſs them, and all the courts of India, with the determined reſolution of the Engliſh government, to repreſs every ſcheme of aggrandizement that might be formed againſt the rights and poſſeſſions of thoſe very chieftains, and of all other governments. The diſtricts which were appropriated by the Peiſhwa, for the payment of the ſubſidiary troops ſupplied by the Britiſh government, were thoſe to which no other ſtate had any claim; and theſe happened to be by far the moſt convenient for the Engliſh, being ſo ſituated as to prevent the French from penetrating, either clandeſtinely or by force, into Hindooſtan. So circumſpect was the governor-general to avoid giving any juſt cauſe of umbrage to the feudatory Mahratta chieftains, that, as ſoon as the treaty was ratified, Holkar and Scindia were ſeverally invited by the Britiſh government to become parties in this defenſive engagement; which held out to them the permanent and tranquil poſſeſſion of all their hereditary dominions, and even of thoſe countries which Scindia had acquired by conqueſt in Hindooſtan.

When the ratification of the treaty of Baſſeen was announced, in a letter from the Britiſh reſident at Poonah, to Scindia, dated the 9th of January, 1803, that chieftain expreſſed, in reply, his perfect ſatisfaction and acquieſcence in the defenſive alliance that had been concluded between the Britiſh government and the Peiſhwa; and even admitted the neceſſity of ſuch a co-operation, making a formal and public declaration, that "he had no intention to impede the performance of the arrangements lately concluded between the Peiſhwa and the Britiſh government; but that, on the contrary, he ſhould deſire to perfect the amity which then exiſted between the Peiſhwa, the Britiſh government, and his own ſtates." Yet, notwithſtanding this pacific declaration, Scindia maintained his menacing poſition, and continued to augment his forces. On the arrival in his camp of colonel Collins, the Britiſh miniſter, he perſiſted in evading explanation by every poſſible pretext. At length, on the occaſion of a formal audience, when cloſe preſſed for a categorical avowal of his projects, Scindia broke up the conference with this public declaration to the Britiſh miniſter—"You ſhall hereafter be informed whether we ſhall have peace or war." If any doubt had before exiſted of Scindia's hoſtile intentions, this inſolent menace, together with the junction of the army of the rajah of Berar, a prince whom Scindia had perſuaded to unite againſt the Engliſh, muſt have removed them. The more the Britiſh miniſter conceded, the more inſufferable became the arrogance of the Mahratta chieftains. The marquis of Welleſley, therefore, peremptorily called upon the confederate chieftains, if ſincere in what they profeſſed, to evince that ſincerity by the ſeparation of their armies on a certain day, and retiring to their reſpective territories. A refuſal to comply with this deſire, brought the matter to a criſis; negociation ceaſed, and the event was referred to the deciſion of the ſword.

The vaſt plan of operations to which the ſeveral armies of the Bengal, Madras, and Bombay, eſtabliſhments, were to be applied, was to commence by a general and combined attack, as nearly as poſſible at the ſame time, and before the periodical return of the rains, on the united army of the confederates in the Deccan; on Perron's eſtabliſhment in the Douab; and on every aſſailable point of the vaſt territories of Scindia, and the Berar rajah, in Hindooſtan. On the plains of Delhi, amidſt the mountains of the Deccan, on the ſhores of Cattack, and in the fertile province of Guzerat, were the banners of England at once to be diſplayed. To theſe great and various objects, therefore, four armies were in readineſs to march.

The force under the command of major-general (now ſir Arthur) Welleſley, which had occupied, during the negociation with the confederated chieftains, an advanced poſition in the Deccan, conſiſted of 16,823 men, and was deſtined to oppoſe the combined army under the command of Scindia, poſted at Julgong, near the foot of the Adjuntee Paſs. This army was ſupported by a force at Moodgul, a town about fourteen marches from Hydrabad, ſituated between the rivers Kiſtna and Tungebadra, under the command of major-general Campbell, which conſiſted of 4277 cavalry, 820 European, and 1935 native infantry, with its proportion of ordnance; it protected, effectually, the dominions of the nizam, as well as the poſſeſſions of the Engliſh within the peninſula, from the inſult or ſpoliation of the ſouthern Mahratta feudatories.

Colonel Murray, of the 84th regiment, was placed in the command of the force in Guzerat, amounting in the whole to 7352 men: part of which was diſpoſed in garriſoning Surat, Brodera, Cambaye, Kouah, Songhur, Purneah, and (eventually) Baroach; one portion of the remainder was ſtationed in front of the Guickwar's capital, in order to protect his dominion; and the other, of 2094 men, took a ſtrong poſition ſouth of the river Taptee, between Songhur and Surat, with the deſign, as opportunity ſhould occur, of annoying the enemy in that quarter.

On the eaſtern ſide of Hindooſtan, lieutenant-colonel Campbell, of the 74th regiment, was entruſted with the command of a ſelection of veteran troops from the armies of Bengal and Madras, conſiſting of 5216 men, which was deſtined for the conqueſt of the province of Cattack, part of the territories of the rajah of Berar; and for that purpoſe, was aſſembled at Ganjam, in the northern circars. If this acquiſition were made, the only maritime territory of the Mahratta ſtates on that ſide of the peninſula would be ſecured from all intercourſe with the French; a ſtrong barrier added to the Bengal frontier; and the intercourſe of that government and Madras ſecured from interruption.

The main body of the Bengal army was aſſembled under the commander-in-chief of the Britiſh forces in India (general Lake) at Cawnpour, in the north-weſtern frontier of the province of Oude, amounting, in its various details, to 10,500 men. In ſupport of this force, 3500 troops were aſſembled at Allahabad, and for the purpoſe of invading the diſtrict of Bundelcund; about 2000 men were alſo collected at Merzapour, to cover the city of Benares, and to guard the paſſes in that quarter; and various meaſures of defence, which our limits will not allow us to particulariſe, were adopted to protect the whole frontier of the Britiſh dominions in Bengal and Bahar, from Merzapour to Midnapour. In ſumming up the different details, it will be found, that the whole force employed againſt Scindia, and the rajah of Berar, in the beginning of Auguſt 1803, amounted to 54,913 men. Such armies ſet in motion nearly in the ſame time, from ſo many diſtant parts, embracing ſo wide a field of action, belonging to the ſame power, and directed againſt the ſame enemy, were never before ſeen in Hindooſtan, fully equipped for the field in the ſhort ſpace of four months.

It may here be proper to mention, that on the 6th of Auguſt, the very day on which general Welleſley was appriſed of colonel Collins having left the camp of Scindia, the nizam breathed his laſt, and was peaceably ſucceeded by his eldeſt ſon, Mirza Secunda Jehan, as ſoubahdar of the Deccan, who aſcended the muſnud on the following day. The preſervation of tranquillity at Hydrabad, at this important criſis, muſt be aſcribed, principally, to the poſition of the armies of general Welleſley and colonel Stevenſon, and of the force under general Campbell at Moodgul.

Upon information being conveyed to major-general Welleſley, then ſtationed with his forces at Walkee, within a ſhort diſtance of Ahmednagur, (a ſtrong fort belonging to Scindia, about eight miles from Poonah,) that the negociation with the confederated Mahratta chieftains was broken off, he immediately took the field; and two days after, (the 8th of Auguſt 1803,) proceeded towards Ahmednagur, the fortified town belonging to which was, on the ſame day, attacked and carried by eſcalade. On the 10th, batteries were opened againſt the fort, and on the 12th, it ſurrendered at diſcretion. The poſſeſſion of this fortreſs at once ſecured the communication with Poonah, and afforded a depôt for ſupplies of proviſions and military ſtores. Immediately upon its capture, general Welleſley proceeded to take poſſeſſion of the diſtricts dependant thereon, yielding an eſtimated annual revenue of 634,000 rupees, and placed them under the management of a Britiſh officer. General Welleſley then put a reſpectable garriſon into Ahmednagur, and moved towards the Godavery river, which he croſſed on the 24th of Auguſt. On the 29th, he arrived at Aurungabad.

In the mean time, the confederates had entered the territories of the nizam, by the Adjuntee Paſs, with a large body of cavalry, having paſſed between colonel Stevenſon's corps (which had moved eaſtward towards the Badowly Ghaut) and Aurungabad, and reached, unmoleſted, a ſmall fort called Jalnapour, the capital of a diſtrict of the ſame name, about forty miles eaſt of Aurungabad; but they no ſooner heard of general Welleſley having entered that city, than they immediately advanced to the ſouthward and eaſtward, with the intention, as it was believed, of croſſing the river Godavery, and advancing to Hydrabad. In this project, however, the enemy was fruſtrated by the judicious movements of general Welleſley, who continued to proceed to the eaſtward, along its left bank, which meaſure obliged him to return to Jalnapour, and afforded the Britiſh commander means to cover two valuable convoys in the road to the army from Moodgul. During theſe operations, colonel Stevenſon returned from the eaſtward on the 1ſt of September, and the next day attacked and ſtormed the fort of Jalnapour, from whence the enemy had previouſly retired to the northward. For ſeveral ſucceſſive days, this officer endeavoured to force the confederates to a general action, but without ſucceſs. His ſpirit and activity were, however, amply rewarded on the 9th, in the night of which he ſucceeded in beating up their camp.

The united Hindoo chieftains now determined on a change in their operations, and moved northward towards the Adjuntee Paſs, near which they were joined by a detachment of regular infantry ſubjected to French diſcipline, under the command of M. Pohlman, and of M. Dupont, conſiſting of ſixteen battalions, with a large and well-equipped artillery, in the whole amounting to 10,400 men. The whole of their force was now concentrated between Bokerdun and Jaſſierabad. On the 21ſt of September, the diviſions under general Welleſley and colonel Stevenſon, being united at Budnapour, it was determined that they ſhould move, ſeparately, towards the enemy, and attack him on the morning of the 24th. With this view, the two corps marched on the 22d, colonel Stevenſon by the weſtern route, and general Welleſley by that of the eaſt, round the hills between Budnapour and Jalna. Early on the morning of the 23d, the latter diviſion reached Naulnair, at which place intelligence was received, that the combined force of Scindia and Bhoonſla were encamped at about ſix miles diſtance from the ground which general Welleſley intended to occupy.

With that deciſion and promptitude which have ever diſtinguiſhed general Welleſley's military exploits, he immediately determined upon attacking the enemy, without waiting for the junction of colonel Stevenſon's corps on the following morning. Had he acted otherwiſe, the confederate chieftains, in purſuance of the defenſive ſyſtem they had adopted, would probably have withdrawn their guns and infantry in the courſe of the night of the 23d, and thus have eluded a general action, which was ſo much to be deſired. The meaſure of attack, therefore, was directed by prudence as well as courage.

Having provided for the ſecurity of the baggage and ſtores, general Welleſley moved on towards the army of the confederates, which he found encamped between and along the courſe of the two rivers Kaitna and Juah, towards their junction. Their line extended eaſt and weſt along the north bank of the Kaitna, which was ſteep and rocky, and impaſſable for guns, excepting cloſe to the villages. Their right, entirely of cavalry, was poſted near Bokerdun, and extended quite to their infantry, encamped in the neighbourhood of the fortified village of *Aſſye*. The Britiſh army had marched fourteen miles to Naulnair; thence to the enemy's camp was ſix; thus it was one o'clock in the afternoon before it came in view of the combined army of the confederates. Although general Welleſley's line of march brought him in front of the right of the enemy, he determined on attacking its left, where the infantry and guns were poſted. He accordingly moved round to the left flank, covering the Britiſh column of infantry by the Britiſh cavalry in the rear, and by the Myſore and the Peiſhwa's horſe on the right flank.

The Britiſh army croſſed the Kaitna, at a ford beyond the enemy's left, and were immediately formed in two lines of infantry, with the Britiſh cavalry as a reſerve in a third, in an open ſpace between the Kaitna and the Juah, where theſe rivers run nearly parallel. The Peiſhwa's and the Myſore cavalry were ſtationed to the ſouthward of the Kaitna, on the left flank of the Britiſh troops, and kept in check a large body of cavalry which had followed, though at a reſpectful diſtance, general Welleſley's route from the right of their own poſition. The firſt line conſiſted of the advanced pickets to the right, two battalions of ſepoys, and the 78th regiment; the ſecond, of the 74th regiment and two battalions of ſepoys; and the third, of the 19th dragoons, with three regiments of native cavalry; the whole amounting to about 4500 men. From the moſt accurate calculation that could be made, the enemy conſiſted of between thirty and forty thouſand, (of which a third was commanded by French or European officers,) and a train of more than one hundred pieces of ordnance. Under this vaſt diſproportion of force, the engagement began.

When the enemy diſcovered the intention of attacking him on the left, he changed the poſition of his infantry and guns, from the line along the Kaitna, and extended it from that river acroſs to the village of Aſſye, on the right of the Britiſh army: a ſecond line was formed nearly at right angles to the rear of the enemy's firſt line, with its left towards the village of Aſſye, and its rear to the Juah river, along the bank of which it extended in a weſterly direction from Aſſye. General Welleſley immediately attacked, and the Britiſh troops advanced under a heavy fire from the enemy's guns, the execution of which was terrible. The Britiſh artillery had opened upon the enemy at the diſtance of four hundred yards; but finding that it produced little or no effect, and that it could not advance on account of the number of men and bullocks that were diſabled, general Welleſley ordered the whole line to move on, leaving the guns behind: at the ſame time colonel Maxwell, with the Britiſh cavalry, was ordered to cover the right of the infantry as it advanced. By this prompt and ſpirited movement, the enemy was compelled to fall back on the ſecond line, in front of the Juah. In advancing, the right of the Britiſh firſt and ſecond lines ſuffered ſeverely from the fire of the guns on the left of the enemy's poſition near Aſſye. The 74th regiment was ſo thinned by the dreadful cannonade, that a body of the enemy's cavalry was tempted to charge it; but was charged in turn by colonel Maxwell, and puſhed with great ſlaughter into the Juah river. At length, the ſteady advance of the Britiſh troops completely overawing the enemy's line, it gave way in every direction, and the Britiſh cavalry, who had croſſed to the northward of the Juah river, charged the fugitives along its bank with the greateſt effect. At this moment ſeveral of the enemy's guns, which had been carried, but could not be ſecured on account of the weakneſs of general Welleſley's army, were turned againſt his rear by individuals who had been paſſed by the Britiſh line under the ſuppoſition that they were dead, and who had availed themſelves of this artifice (of throwing themſelves upon the ground, often practiſed by the native troops of India) to continue, for ſome time, a very heavy fire; nor could it be ſtopped till the commander-in-chief took the 78th regiment and the 7th of native cavalry, to effect this object. In this operation the general had his horſe ſhot under him. The enemy's cavalry alſo ſtill continued unbroken. Juſt then a part of the enemy's infantry, which had again formed, on a charge of the Britiſh cavalry, gave way, and retreated; leaving 1200 men dead on the field of battle, the whole country covered with the wounded, and in the poſſeſſion of the victors, ninety-eight pieces of cannon, their camp-equipage, ſeven ſtandards, a great number of bullocks and camels, and a quantity of ſtores and ammunition.

The loſs to the Britiſh army was on this occaſion very ſevere; it amounted to about 600 killed and 1500 wounded; colonel Maxwell was among the former. The action continued for more than three hours, during which the enemy's infantry fought with the moſt determined courage, and their artillery was ſerved with the utmoſt preciſion, ſteadineſs, and effect. Throughout the whole of this ſevere and brilliant action, the conduct of general Welleſley evinced a degree of ability, prudence, and undaunted bravery, ſeldom equalled and never ſurpaſſed; while the exemplary order, firmneſs, and alacrity, of the troops under his command, compelled an enemy of more than ſix times its number to fly before them, and abandon the whole of their guns, ſtores, and ammunition, to the conquerors.

The confederates, with the remains of their broken army, now moved to the weſtward, along the banks of the Taptee, with a view to take the route towards Poonah; in conſequence of which, general Welleſley determined not to deſcend the Adjuntee Ghaut, but to regulate his movements by thoſe of the enemy. But colonel Stevenſon was directed by him to continue his route to Burhampour and Aſſeerghur, the latter a hill-fort of great ſtrength, and denominated the key of the Deccan.

While general Welleſley was thus engaged, the moſt ſevere blows were received by the confederate chieftains, from the ſucceſſes of the other diviſions of the Britiſh force, in their operations againſt the provinces of Guzerat on the weſtern, and of Cattack on the eaſtern, ſide of the Indian peninſula.

In conformity to the general plan of the campaign, a proportion of the Bombay army had marched to Guzerat, whence lieutenant-colonel Woodington, with a ſtrong detachment, conſiſting of the 96th regiment and a proportion of European artillery and native infantry, marched on the 21ſt of Auguſt from Baroda, and arrived before Baroach on the 23d, of which fort the inveſtment immediately took place. A breach was reported to be practicable on the 29th, and the aſſault was given at three o'clock in the afternoon. The enemy oppoſed a vigorous reſiſtance to the ſtorming party; but were ſoon compelled to retreat, and to abandon the fort, which was carried with inconſiderable loſs on the part of the aſſailants; that of the enemy was nearly 600 in killed and wounded. Together with the town and fort of Baroach, the captors obtained poſſeſſion of the diſtrict of that name, which yields an annual revenue of eleven lacks of rupees. After this important ſervice, colonel Woodington proceeded to reduce the diſtrict of Champaneer, the only territory remaining to Scindia in the province. Little difficulty enſued in the accompliſhment of this deſign; and the judgment, ſpirit, and courage, diſplayed by the Bombay army, reflected the higheſt honour on its ſtate of diſcipline, and its gallant leader.

Nor was the progreſs of the Britiſh arms in the province of Cattack leſs diſtinguiſhed by merit or ſucceſs. The total number of troops deſtined for the reduction of this province, amounted to 4916 men, of which number 3041 formed the main body, which was to advance from Ganjam, under the command of lieutenant-colonel Harcourt, of the 12th regiment of foot, and who was appointed to the general command of all the forces employed upon this ſervice. Five hundred Bengal native volunteers were on their way, under captain Dick, to reinforce colonel Harcourt. A ſecond detachment of 521 native volunteers, four field-pieces, and a proportion of artillery-men and ſtores, were to embark from Calcutta, under captain Morgan, on the 13th of September, and to occupy Balaſore, a place belonging to the rajah of Berar, ſituated on the coaſt of the bay of that name, and diſtant about twenty-five miles from the river Subanreeka, which forms in that quarter the barrier between the Britiſh territories and the province of Cattack. Eight hundred and fifty-four men were placed under the command of lieutenant-colonel Ferguſon, at Jelaſore, a town ſituated on the Engliſh ſide of the Subanreeka, twenty miles from the ſea; and was deſigned to form a junction with the force at Balaſore, when the ſtate of the intermediate country, and the progreſs of the main diviſion from Ganjam, ſhould afford a favourable opportunity; and 1300, of which 800 were ſepoys, and 500 Bengal native volunteers, remained at Mednapour, a military ſtation in the Britiſh dominions, forty-five miles north of Balaſore, to ſupply the troops at Balaſore and Jelaſore, and at the ſame time to protect the company's territories againſt the incurſions of the rajah of Berar's predatory cavalry.

On the 14th of September, the troops under the command of colonel Harcourt took poſſeſſion of Munickpatam, a town in the Berar territory; and on the 18th encamped at Jaggernaut, where the bramins of the celebrated pagoda at that place put it under Britiſh protection. After leaving Jaggernaut, colonel Harcourt received little moleſtation from the enemy's troops, and he took poſſeſſion of Cattack without oppoſition. The detachment under captain Morgan was equally ſucceſsful at Balaſore and Sooring, a poſt twenty miles to the ſouthward of that town, both places being taken poſſeſſion of with little or no loſs, on the 21ſt of September and the 1ſt of October. Colonel Ferguſon, with his reſerve, moved from Jelaſore on the 23d of September, reached Balaſore on the 4th of October, and on the 10th proceeded to the ſouthward, to form a junction with colonel Harcourt.

The ſtorming and capture of the fort of Barabuttee, was the laſt exploit of colonel Harcourt in the Cattack. This fort is of great ſtrength, and has only one entrance by a narrow bridge, leading over a wet ditch twenty feet in depth, and varying in breadth, according to the ſituation of the baſtions, from thirty-five to one hundred and thirty-five feet. On the morning of the 14th of October, a battery of one twelve-pounder, two howitzers, and two ſix pounders, opened its fire upon the fort, about five hundred yards from its outward gate; by eleven o'clock in the forenoon, the enemy's guns were ſilenced, and moſt of their defences on the ſouth face were deſtroyed, where they now promiſed well for an aſſault, and lieutenant-colonel Clayton was ordered to ſtorm the fort. The party ſent on this ſervice, in paſſing the bridge, were expoſed to a heavy, but ill-directed fire of muſketry, and forty minutes elapſed before it ſucceeded in blowing open the wicket, the remaining part of the gate being ſtrengthened with great maſſes of ſtone. Having forced this obſtacle, although obliged to enter ſingly, and experiencing conſiderable reſiſtance in forcing two other gates, the Britiſh troops were completely victorious, and obtained poſſeſſion of the fort, which was immediately abandoned by the enemy, whoſe loſs was conſiderable. This ſucceſs brought the whole province of Cattack under the Britiſh dominion, an object, the value of which we have already ſtated; but which was conſiderably enhanced by having taken place at ſuch a momentous period of the war. By this conqueſt, the communication between the ſupreme government of Calcutta, Madras, Bombay, general Welleſley, and the reſidents at Poonah and Hydrabad, was opened; and the whole line of coaſt, from the mouth of the Hooghly to Pondicherry, under the protection of a Britiſh flag, preſented a hoſtile front to the fleets of France, with which country the war had juſt been renewed in India.

Having thus brought into one point of view all the tranſactions connected with the military operations againſt the confederated armies in the Deccan, and thoſe in the provinces of Guzerat in the weſtern, and Cattack on the eaſtern, ſide of the peninſula, it will now be our pleaſing taſk to revert to the tranſactions in the northern Hindooſtan, and to exhibit the reſult of the operations entruſted to the perſonal direction and command of general Lake. The variety and importance of the objects to which that great officer's exertions were to be excluſively directed, both in a military and political point of view, induced the governor-general, marquis Welleſley, to inveſt him with full diſcretionary powers, to conclude, upon the ſpot, whatever arrangements might appear to be neceſſary for the accompliſhment of that plan of operations, with the execution of which he was entruſted.

Veſted with this high authority, the commander-in-chief moved from the ſtation at Cawnpour, on the 7th of Auguſt, 1803, and arrived in the neighbourhood of Coel, with the main body of the Bengal army, on the 28th. On his march thither, he received advices from the Britiſh plenipotentiary to Scindia, informing him of the rupture with that chief, by the termination of the negociation: on this intelligence, general Lake conſidered himſelf warranted, as well as from the tenor of the governor-general's inſtructions, to enter the territories of that chieftain on the 29th, in order to attack M. Perron's army, then encamped at a ſhort diſtance from the fortreſs of Allygur. This poſition of the enemy was particularly advantageous. His front was completely covered by an extenſive ſwamp, which in ſome parts is not fordable; his right was protected by the fort of Allygur, and his left by ſome villages occupied by parties of his troops. M. Perron's force was eſtimated at about 15,000 horſe, of which from four to five thouſand were regular cavalry.

General Lake having determined on turning the left flank of M. Perron's force, the Britiſh troops were formed into two lines, and advanced to the attack ſupported by the infantry in three and four lines, as the confined nature of the ground would admit. The excellent front diſplayed by the Britiſh cavalry, and the determined countenance of the whole army, ſo completely over-awed M. Perron and his troops, that they retreated with ſuch rapidity, as to preclude the poſſibility of charging them with any effect. This precipitate retreat, although at the moment a ſource of vexation and diſappointment to the commander-in-chief, was yet, in its conſequences, eminently beneficial to the Britiſh intereſts, as M. Perron's military reputation received a ſhock from the events of that day, which it never recovered, and which was eventually the cauſe of the loſs to him of the confidence of his troops; the defection of many of his beſt officers; and finally, of the diſorganization and diſperſion of the French corps in India: at the ſame time that the reputation of the Britiſh troops, and of their undoubted ſuperiority, increaſed in the ſame proportion, in the opinion of the native powers, as that of M. Perron and his boaſted troops had diminiſhed.

The commander-in-chief, in conſequence of the action, being in poſſeſſion of Coel, encamped to the northward, between that town and the fort of Allygur, to the reduction of which he immediately applied himſelf. This place, one of the ſtrongeſt in this part of India, has ſingular advantages; it has a broad and deep ditch, with a fine glacis; and the country being, for a mile round, perfectly levelled, is expoſed in every direction to its guns. It has only one entrance, which is very intricate, and over a narrow cauſeway, under which the enemy had commenced mining; but fortunately had omitted to conſtruct a drawbridge, and thus the aſſailants were enabled to paſs the ditch on the cauſeway, and immediately to attack the body of the place. General Lake having made many attempts to induce the governor, M. Pedron, to ſurrender, but in vain, ordered a ſtorming party, under the command of the honourable colonel Monſon, on the morning of the 4th of September.

Colonel Monſon conducted the attack with the utmoſt gallantry and judgment. His party moved on at half-paſt four o'clock, under cover of a heavy fire from the Britiſh batteries, and arrived within one hundred yards of the fort, before it was diſcovered. As ſoon, however, as colonel Monſon ſaw he was perceived, he endeavoured, by puſhing on with the two flank-companies of the 76th, to enter the fort, along with the guard ſtationed outſide its gates behind a ſtrong breaſt-work, which covered the entrance. The colonel ſucceeded in paſſing the breaſt-work, but found the firſt gate ſhut: two ladders were immediately applied, on which major M'Leod, of the 76th regiment, and two grenadiers, attempted to mount, but they were forced to deſiſt, by a moſt formidable row of pikemen, who menaced every aſſailant with certain deſtruction A twelve-pounder was then brought up; but ſome time elapſed before it could be placed oppoſite to the gate, which was ſituated in an inconvenient direction, near the flank of a baſtion. Four or five diſcharges took place before any effect was produced, during which time (nearly twenty minutes) the ſtorming party were expoſed to a moſt ſevere and raking fire of grape, wall-pieces, and matchlocks. The principal loſs was here ſuſtained. Colonel Monſon was wounded by a pike, fired, it is ſuppoſed, from a gun; at the ſpot alſo fell four grenadier-officers, the adjutant of the 76th regiment, and lieutenant Turton, of the 4th native infantry. As ſoon as the firſt gate was blown open, the troops advanced in a circular direction, round a ſtrong baſtion of maſonry, along a narrow road, and through two gateways, which were eaſily forced, to a fourth gateway, leading into the body of the place; during which time they were much annoyed by a heavy croſs-fire in every direction. It was ſome time, attended with great difficulty and danger, before the twelve-pounder could be brought up, and when it arrived the gate could not be forced. Upon this occaſion, the perſonal gallantry of major M'Leod was again conſpicuous. In defiance of all oppoſition, he burſt open the wicket, and the party entered the fort with reſiſtleſs impetuoſity, and ſoon compelled the enemy to ſubmit. The commander, M. Pedron, was here taken priſoner, and ſome part of the garriſon ſurrendered; but far the greater proportion endeavouring, as is uſual in India, to eſcape in every direction, numbers leaped into the ditch, and were drowned. This affair, which was as brilliant as deciſive, laſted more than an hour, the beſieged having during that time offered a moſt gallant and vigorous defence. Their loſs was very great, amounting, in killed alone, to more than two thouſand.

The fall of Allygur was a circumſtance of conſiderable importance to the future proſecution of the war; it was the uſual place of reſidence of M. Perron, and the grand depôt of his warlike ſtores, a conſiderable quantity of which, and ſome tumbrils of treaſure, fell into the hands of the captors. The latter was divided, on the ſpot, among the ſtorming party, as the reward of their bravery. General Lake having garriſoned the fort, and applied a drawbridge to the gateway, the place may now be conſidered as impregnable to any native power. On the 7th of September, M. Perron applied to the commander-in-chief for permiſſion to proceed, with his family and property, to Lucknow, under Britiſh protection; he added, that he had reſigned his command in Scindia's army. This meaſure was probably in part owing to the ſurrender of Allygur; but M. Perron himſelf aſſigned as his motive, that he was about to be ſuperſeded by Scindia; and that the defection, treachery, and ingratitude, of his European officers, had convinced him, that further reſiſtance to the Britiſh arms was uſeleſs and ineffectual. General Lake complied with M. Perron's requeſt, and he was conducted (eſcorted by the general's own body-guard) to Lucknow, where, and upon his route, he was treated with every mark of reſpect and honour.

On the following day, the army advanced to Koorjah, a fort of ſome ſtrength, about thirty miles from Allygur, and which had been evacuated by its garriſon, on intelligence being received of the fall of that fortreſs. It was here that the commander-in-chief received advice of the ſurrender of lieutenant-colonel Conyngham, with five companies of ſepoys, and one gun, to a numerous body of the enemy's cavalry, commanded by M. Fleury, a French officer, at Shekoabad. This little force had only capitulated, after repeated attacks from a body far more numerous, and after having expended its ammunition. To counteract the impreſſion which this unpleaſant affair (ſlight as the loſs was in reality) might make upon the mind of the enemy, the commander-in-chief immediately detached a ſtrong body of cavalry, and a brigade of infantry, to beat up M. Fleury's quarters; but before theſe detachments could effect a junction with colonel Vandeleur, with whom they were to have co-operated, at Futtygur, the enemy had re-croſſed the Jumna, and afterwards diſperſed.

The main army, under general Lake, reached Secundra on the 9th of September; on the morning of the 10th, it made a ſhort march to the weſtward, and on that of the 11th reached its ground of encampment near the Jehna Nullah, about ſix miles from the city of Delhi. On the march, intelligence was received that Scindia's force, under M. Louis Bourquein, (who had ſucceeded M. Perron,) to the number of thirteen thouſand regular infantry, ſix thouſand horſe, and a conſiderable train of ordnance, had croſſed the Jumna in the night, for the purpoſe of attacking the Britiſh army.

The troops, much fatigued with a march of eighteen miles, had ſcarcely time to pitch their tents, when the enemy appeared in ſuch ſtrength, in front, as obliged the commander-in-chief to order the grand guard and advanced picquets to turn out, while he proceeded in perſon to reconnoitre with the whole of the cavalry, (three regiments,) and found the enemy drawn up in order of battle, and in full force. Their poſition was taken very judiciouſly on riſing ground, each flank covered by a ſwamp, beyond which their cavalry was poſted: their numerous artillery covered the front, which was further protected by a line of entrenchments, nor could they be attacked in any other direction. As the Britiſh cavalry advanced, the enemy began a moſt heavy and deſtructive cannonade. At this moment orders were ſent to the camp, to bring up the infantry and artillery; upon receiving which, the line was directed to fall in, and move to the front, by columns of grand diviſions from each battalion, while the camp was left ſtanding under the protection of the advanced picquets, and a part of the 17th regiment of native infantry. The whole of the Britiſh troops, who could be brought into action on this ever-memorable day, amounted to about four thouſand five hundred, of which number, the 27th of dragoons, the 76th of foot, and the artillery, were European alone.

Notwithſtanding the alacrity and expedition with which the Britiſh troops were got under arms, an hour elapſed before the infantry could join the cavalry, who were advanced two miles in front, and had already ſuffered a conſiderable loſs both in men and horſes: during this interval the commander-in-chief had a horſe ſhot under him.

Finding that it would be difficult to defeat the enemy in their preſent ſtrong poſition, general Lake, with the moſt conſummate judgment, determined on a feint, to cauſe them to quit their entrenchments, and advance on the plain. With this view the Britiſh cavalry was ordered to retire, both for the purpoſe of drawing the enemy into a purſuit, and to cover the advance of the infantry. This movement was performed with the greateſt order

der and ſteadineſs, until the moment when a junction was formed with the infantry, which, on a ſufficient interval being left for that purpoſe, advanced in front, forming one line; the cavalry, who had now faced about, being in a ſecond, about forty yards in the rear of the right wing; the whole of the Britiſh force then advanced towards the enemy, the gallant commander-in-chief leading it, at the head of the 76th regement.

As ſoon as the cavalry began to retire, the enemy, conceiving this movement to be a real retreat, immediately quitted their ſtrong poſition, and advanced with the whole of their guns, ſhouting and diſplaying every confidence in their future triumph. They halted, however, on the unexpected and ſteady advance of the Britiſh infantry; and then commenced a tremendous fire of round, grape, and chain, ſhot, which did terrible execution. In the mean while, the Britiſh line, led by general Lake, with undaunted bravery, and the utmoſt coolneſs, without taking their muſkets from their ſhoulders, moved on towards the enemy, until within a hundred paces of their line, which then commenced a general diſcharge from all their artillery. Orders were inſtantly given to charge the enemy with bayonets: the whole Britiſh line fired a volley; and, with their commander-in-chief at their head, ruſhed on with ſuch impetuoſity, as to force their opponents to give way, and fly in every direction. As ſoon as the Britiſh troops halted, after the charge, general Lake, with his accuſtomed judgment, ordered the line to break into columns of companies, to allow the cavalry to charge through the intervals with their galloper-guns, which completed the victory. The enemy was purſued to the banks of the Jumna, and vaſt numbers were driven into the river, and periſhed.

While theſe operations took place on the right, thoſe on the left, under major-general St. John, were equally ſucceſsful. The enemy left the whole of their artillery, ſixty-eight pieces of ordnance, and thirty-ſeven tumbrils laden with ammunition, in poſſeſſion of the Engliſh; twenty-four tumbrils blew up during the action, excluſive of which, many were loſt in the Jehna Nuilah and in the Jumna Two tumbrils, containing treaſure, were alſo taken on the field of battle. The loſs of the enemy was eſtimated at 3000 men, nearly equal to three-fourths of the whole Britiſh army! This celebrated action was fought within ſight of the minarets of the city of Delhi, from which it is uſually deſignated.

On the following day, the whole army encamped cloſe to the Jumna, oppoſite the city of Delhi. On the 14th of September it began to croſs the river: that day, M. Bourquien, who commanded the enemy's forces in the late action, and four other French officers, ſurrendered themſelves priſoners to general Lake; and on the 16th, the commander-in-chief paid his firſt viſit to the unfortunate Shah Aulum, in Delhi, to congratulate his majeſty on his releaſe from the degrading bondage in which he had been ſo long held, as noticed at p. 78. Immediately after the battle of the 12th, that ſovereign had ſent to the commander-in-chief, to expreſs his earneſt deſire of placing his perſon and authority under the protection of the Britiſh government, and had now directed his eldeſt ſon and heir apparent, the prince Mirza Akbar Shah, to conduct general Lake to his preſence. The prince arrived at the camp at half-paſt three in the afternoon, when the cavalcade was formed, and proceeded to the city of Delhi, where it arrived about ſun-ſet. The ſtreets of the city were crowded to ſuch a degree, that it was with difficulty the proceſſion could make its way to the palace; and even there freſh obſtacles awaited the cavalcade, from the numbers of people who thronged its various courts, eager to witneſs the deliverance of their ſovereign, and to hail with tranſport the generous victors.

At length the Britiſh chief was uſhered into the royal preſence, and found the unfortunate and venerable emperor, the deſcendant and repreſentative of the Tamerlanes, the Akbars, and the Aurungzebes, oppreſſed by the accumulated calamities of old age, degraded authority, extreme poverty, and loſs of ſight! His majeſty was ſeated under a canopy, ſcanty and tattered, all that remained to him of his former grandeur, with every external appearance of wretchedneſs and miſery.

It was the immediate object of general Lake, with united tenderneſs and reſpect, to ſoothe and comfort the royal ſufferer; to aſſure him of the future protection of the Britiſh government, which would immediately employ itſelf in the formation of a permanent arrangement, for the future maintenance of the dignity and comfort of his imperial majeſty, and of the royal family; and that the nobility and great omrahs of ſtate at his capital, whoſe fortunes had been deſtroyed by the uſurpation of Scindia, and the rapacity of the French adventurers, ſhould be reſtored to their poſſeſſions and revenues.

It is impoſſible to deſcribe the impreſſion which the conduct of the commander-in-chief, on this intereſting occaſion, made on the minds of the inhabitants of Delhi, and of all the muſſulmans in India, who had been made acquainted with the tranſactions of the memorable 16th of September, 1803. In the metaphorical language of the eaſt, the native writers who deſcribe this extraordinary ſcene have not ſcrupled to declare, that his majeſty Shah Aulum recovered his ſight from exceſs of joy. In addition to many other marks of the royal gratitude and favour, the emperor beſtowed upon his deliverer the ſecond title in the empire.

The reſult of general Lake's operations, equally judicious and ſpirited, at Coel, Allygur, and Delhi, were highly beneficial to the Britiſh intereſts in India; while the French officers, deprived of influence and authority, became the objects of the juſt indignation of the country they were endeavouring to enſlave, and found their beſt ſafety in the generoſity and protection of the victors, whoſe humane conduct and orderly deportment cauſed them to be regarded univerſally throughout the conquered provinces, as friends and deliverers. But theſe victories, great and important as they certainly were, would have loſt half their luſtre, and all their effect, had they not ſerved to enable the governor-general, marquis Welleſley, more effectually to extend his wiſe, juſt, and liberal, ſyſtem of policy, over ſo great a portion of the Indian peninſula. Already advantageouſly known throughout Aſia as the reſtorer of the ancient royal houſe of the Myſorean dominion; his raiſing from the duſt the venerable and unfortunate Mogul emperor, to enjoy, in his latter days, thoſe comforts, and even neceſſaries, of which he had ſo long ſuffered the privation, and the diſperſion or ſubjugation of the enſlavers of that ſovereign, eſtabliſhed the reputation for valour, clemency, and juſtice, of the Britiſh government throughout the eaſt. Its triumphs brought no terror, ſave to the tyrant:—and its alliance and friendſhip were conſidered by the native powers as the ſureſt pledges, to their ſeveral ſtates, of happineſs and tranquillity. Conſidering theſe events alſo in a view purely political, it will be remembered, that by their operation, the Mogul emperor being now firmly reſtored to his functions, and under the protection of the Britiſh government, no other power can avail itſelf of the weight and influence which his name muſt ever poſſeſs amongſt the Mogul and Mohammedan inhabitants of Hindooſtan.

The commander-in-chief, having made the neceſſary arrangements, at once for the ſecurity of Delhi, and the preſervation to the emperor of thoſe bleſſings of peace and independence to which he had been reſtored, proceeded in purſuit of the enemy towards Agra.

During theſe tranſactions, the force under colonel Powel, ſtationed near Allahabad, had formed a junction with the cavalry of the peiſhwa, commanded by Himmut Bahadur, his principal officer in the province of Bundelcund. This united army, amounting to near ſeventeen thouſand men, reached the banks of the river Cane on the 10th of October, and found the enemy's troops in conſiderable force, encamped on the other ſide, under the command of

Shumſhere Bahadur, who, though in fact an officer of the peiſhwa, had, from the imbecility of the court of Poonah, ſucceeded in making himſelf nearly independent in Bundelcund. After ſome petty ſucceſſes, colonel Powel croſſed the Cane on the 12th, and, having ſucceeded in forcing the enemy to a general engagement, entirely defeated him after a ſhort though ſharp conteſt. In conſequence of this event, the whole province was freed from the armies of Shumſhere Bahadur; and the numerous inhabitants of that valuable diſtrict became the friends and ſupporters of the Britiſh cauſe.

On the 2d of October general Lake reached the city of Matura, or Muttra, where he joined colonel Vandeleur, who had occupied it with his detachment. To the latter, ſome few days before, M. Dodernaigue and two other French officers, who had been detached by Scindia at the head of ſome regular battalions, to reinforce M. Perron in July, ſurrendered themſelves priſoners. At Matura alſo, colonel Vandeleur had poſſeſſed himſelf of one of M. Perron's principal founderies for caſting cannon.

In two days the whole army reached Agra, which was immediately ſummoned to ſurrender; but no anſwer was returned, owing, as it afterwards appeared, to the diſtruſt which the garriſon had conceived of their European officers, whom they had put into cloſe confinement. On a nearer view of the defences of the place, it was found that ſeven battalions of the enemy's regular infantry, with ſome ordnance, were encamped on the outſide of the fort, and occupied the town and the principal moſque of Agra, as well as ſome ravines which led through broken ground, from the Britiſh camp to the ditch on the ſouth ſide of the fort, and to the Delhi gateway. Theſe ravines general Lake determined to ſeize, and to diſlodge the enemy from the town, before he proceeded further againſt the fortreſs. Accordingly, after a long and ſevere conteſt on the morning of the 10th of October, both theſe objects were attained, although with conſiderable loſs in men and officers. The enemy were entirely defeated, having ſix hundred men killed, and loſing twenty-ſix guns, with ſeveral tumbrils of ammunition. The remainder of their battalions, to the number of 2500, agreed to ſurrender to general Lake; and marched into the Britiſh camp, priſoners of war, on the following morning. After ſome inſidious attempts of the garriſon in the fort to protract the period of negociation, and its treacherouſly firing upon the Britiſh force while it was actually depending, general Lake determined upon taking the place by ſtorm; accordingly the breaching-batteries were opened on the morning of the 17th, and, conſiderable impreſſion being made on the walls in the courſe of the day, the fort capitulated in the evening. At noon on the day following, the garriſon, conſiſting of five thouſand men, marched out, and the place was immediately occupied by the Britiſh troops. An immenſe quantity of ammunition and ſtores, and many guns, were found in the fortreſs, together with tumbrils containing treaſure to the value of twenty-four lacks of rupees, about 280,000l. By this important conqueſt, that of Delhi, and of Matura, one of the great propoſed objects of general Lake's operations was completely obtained; namely, of ſecuring the navigation of the river Jumna, by a line of poſts along its banks, and the co-operation and alliance of the independent chieftains in that quarter.

The attention of the commander-in-chief was now directed towards the purſuit of a force of the enemy, compoſed of fifteen of M. Perron's regular battalions, (thoſe which formed the detachment under M. Dodernaigue,) and of two which had eſcaped from the battle of Delhi, with a numerous and well-appointed train of artillery. This powerful body, during the ſiege of Agra, occupied a poſition about thirty miles in the rear of the Britiſh army; and it was now ſuppoſed that its object was to attempt the recovery of the important poſt of Delhi. To fruſtrate this deſign, and to deſtroy ſo formidable a force, general Lake moved from Agra on the 27th of October, and on the 29th took up his ground on the north-weſt of Futtypour Sikree. On the 30th, the army made a march of twenty miles, leaving their guns and baggage behind, properly protected, in order to gain upon the enemy. On the next day, another march of twenty miles was made, and the commander-in-chief encamped nearly on the ground which the enemy had quitted in the morning. Animated to the greateſt exertion by this intelligence, the purſuit became now much more eager; and general Lake determined to puſh on the whole of the cavalry, in the hope of delaying the enemy by a light engagement, until the Britiſh infantry ſhould come up; and alſo to take advantage of any confuſion which might ariſe in the attack upon the enemy's guns and baggage. With theſe views, the commander-in-chief, with the cavalry, proceeded in the purſuit at twelve o'clock the ſame night, and, having marched a diſtance of twenty-five miles in little more than ſix hours, came up with the enemy about ſeven o'clock the following morning, whoſe force amounted to about nine thouſand regular infantry, ſeventy-two guns, and from four to five thouſand horſe. Previouſly to this extraordinary march, the infantry were ordered to follow at three o'clock in the morning.

When the Britiſh troops reached the enemy, the latter appeared to be retreating in ſuch confuſion, that general Lake was induced to try the effect of an attack with cavalry alone. The enemy, however, whoſe operations were concealed by the clouds of duſt, raiſed by the movement of ſo large a body of horſe, ſucceeded in preventing for a period its rapid advance, by cutting through a large reſervoir of water, and thus rendering the road nearly impaſſable. In conſequence of which delay, they were enabled to take up a moſt advantageous poſition, having their right in front of the village of *Laſwaree*, and thrown back upon a rivulet, whoſe banks were ſteep and difficult of acceſs; their left upon the village of Mohaulpour, and their whole front concealed by high graſs, and protected by a powerful line of artillery. Not aware of this change in the enemy's diſpoſition, general Lake proceeded in his original intention, and directed the advanced guard, and the 1ſt brigade of cavalry, to move upon the point where the enemy had been obſerved in motion, but which proved to be the left of their new poſition. The remainder of the cavalry was ordered to attack in ſucceſſion, as ſoon as they could form after paſſing the rivulet.

In conſequence of this order, colonel Vandeleur, and major Griffiths, at the head of their corps, made a charge with the utmoſt gallantry and effect. The enemy's line was forced, and the cavalry penetrated into the village, and captured ſeveral guns; the ſucceſſive attacks of the other brigades of cavalry were conducted with the ſame ſpirit, and equal ſucceſs. But the fire from the enemy's remaining artillery was ſo galling, that it was found prudent to withdraw the cavalry out of its reach; which was effected with perfect order and ſteadineſs, ſome of the enemy's ordnance ſtill remaining in its poſſeſſion.

About noon on this ever-memorable day, the Britiſh infantry arrived on the banks of the rivulet. As reſt and refreſhment were abſolutely neceſſary, during the time that they halted for this purpoſe, the enemy ſent a meſſage to the commander-in-chief, offering to ſurrender their guns on certain conditions. Anxious to prevent the effuſion of blood, general Lake directed a reply to be written, in which he acquieſced in the propoſition, but limited them to one hour to execute its terms. In the mean while the following diſpoſition of the whole force was made for a general attack, ſhould the enemy allow the preſcribed time to elapſe.

The Britiſh infantry was formed into two columns on the left; the firſt, compoſed of the right wing, under major-general Ware, was deſtined to aſſault the village of Mohaulpour, and to turn the enemy's right flank, which, ſince the morning had been thrown back, leaving a conſiderable ſpace between it and the rivulet. The ſecond, under major-general St. John, was ordered to ſupport the firſt column. The third brigade of cavalry, under colonel Macan, was directed to ſupport the infantry; lieutenant-colonel Vandeleur, with the ſecond, was detached to the right of the Britiſh army, to watch the enemy's left, to avail himſelf of any confuſion in their line, and to attack them, ſhould they retreat. The firſt brigade of cavalry, under lieutenant-colonel Gordon, compoſed the reſerve, and was formed between the ſecond and third brigades. As many of the field-pieces as could be brought up, and the galloper-guns, formed four different batteries to ſupport the attack. It muſt here be obſerved, that ſince the morning the enemy had formed their infantry into two lines, with their right thrown back, the firſt line to the eaſtward, and covering Mohaulpour, and the ſecond to the weſtward of that village.

At the expiration of the time which general Lake had allowed the enemy, no reply having been received, the Britiſh infantry advanced to the attack, moving along the bank of the rivulet, through high graſs and broken ground, which afforded ſome cover. As ſoon as it became expoſed to the enemy's guns, the four Britiſh batteries commenced their fire, and continued to advance, notwithſtanding the vaſt ſuperiority of the enemy's artillery. The cannonade on both ſides was extremely ſevere, and maintained with the greateſt vigour and ſpirit. The artillery of the enemy was extremely well ſerved, and they threw grape from large mortars, as well as from guns of a very heavy calibre.

When the 76th regiment, which headed the attack, had arrived within one hundred and fifty paces of the enemy, it was ſo much expoſed, and men fell ſo faſt, that the commander-in-chief judged it preferable to proceed to the attack with that regiment, and as many of the native infantry as had cloſed the front, rather than wait till the remainder of the column, which had been much impeded in its advance, ſhould be able to form. As ſoon as this ſmall body of brave men arrived within reach of the enemy's canniſter-ſhot, a moſt tremendous fire opened upon them. The loſs ſuſtained was ſevere; and, under ſuch a cannonade, it was impoſſible to make a regular advance. The enemy's cavalry now attempted to charge, but was repulſed by the fire of this gallant body of Britiſh infantry; it rallied, however, at a ſhort diſtance, and aſſumed ſo menacing an aſpect, that the commander-in-chief ordered it to be charged in its turn, by the Britiſh horſe, which was executed with the utmoſt gallantry and ſucceſs, by the 29th regiment of dragoons, under the command of captain Wade, major Griffiths being at that inſtant unfortunately killed by a cannon-ſhot. The remainder of the infantry arrived in time to join in the attack of the enemy's reſerve, which was formed in the rear of their firſt line.

About this time general Ware fell dead, by a cannon-ſhot; which event, from the courage and ſkill which always diſtinguiſhed that gallant officer, may well be regarded as a public loſs. The command of his column devolved upon colonel Macdonald; who, though wounded, executed its important duties at this trying moment in the moſt exemplary manner.

The enemy oppoſed a vigorous reſiſtance to the laſt, and did not abandon their poſition until they had loſt all their guns. Even then their left wing endeavoured to retreat in good order, but they were broken in upon by lieutenant-colonel Vandeleur's diviſion of cavalry, which cut ſeveral of them to pieces, and drove the reſt in priſoners, with the whole of the enemy's baggage.

The loſs ſuſtained by the Britiſh troops, in the achievement of this complete victory, was ſevere, amounting to nearly two hundred killed, in which number were included ſeveral valuable officers, and nearly ſeven hundred wounded. Of the enemy, two thouſand were made priſoners, and by far the greater number of the remainder were deſtroyed upon the field of battle. There remained in the poſſeſſion of the Britiſh troops, after the battle, the whole of the enemy's baggage and camp-equipage; all their elephants, camels, and bullocks; ſeventy-two pieces of cannon, ſerviceable, and in excellent order; and a vaſt quantity of ammunition. Three tumbrils, laden with treaſure, were likewiſe the fruits of the victory; and 5000 ſtand of arms, which had been thrown down by the enemy were found in the field of battle.

Thus terminated, at four o'clock in the evening, of the 1ſt of November, 1803, the battle of Laſwaree, in which Britiſh valour and ſteadineſs were ſo eminently conſpicuous, and which completely ſubverted Scindia's hoſtile power and formidable reſources in Hindooſtan, and thoſe of the French force in that quarter. Great part of the army had been under arms for ſixteen hours, and had marched, in the courſe of two days and nights, a diſtance of more than ſixty-five miles! This great victory muſt, however, principally be attributed to the admirable ſkill, judgment, heroic valour, and activity, of general Lake, who thus at once conſummated his triumphs, and terminated his campaign. During the heat of the action, he was expoſed to one of the moſt ſevere trials to which Providence has ever put human fortitude. On his horſe falling under him, pierced by ſeveral ſhot, his ſon (a moſt promiſing young officer, who conſtantly attended his father's perſon) diſmounted, and offered his horſe to the general, who at firſt refuſed; but, on his repeated ſolicitations, mounted, and major Lake mounted a horſe from one of the troops of cavalry: in a moment, a ſhot ſtruck the ſon, and wounded him ſeverely. At this inſtant, the commander-in-chief found it neceſſary to head the infantry in the advance, and to leave major Lake wounded on the field! A more affecting ſcene can hardly be preſented to the imagination. Our readers will rejoice, that at the cloſe of the battle, the moſt agonizing ſuſpence was terminated, by the general finding his ſon ſtill alive, and his wound not likely to prove mortal.

The operations of the Britiſh arms thus glorioſly concluded on the north-weſtern frontier of Oude, we ſhall now revert to the campaign in the Deccan, where we left general Welleſley eagerly following up his ſplendid victory at Aſſye. It will be remembered, that colonel Stevenſon had been detached, in the beginning of October, towards Burhampour and Aſſeergur, for the purpoſe of reducing thoſe places. The former was taken poſſeſſion of, without reſiſtance, on the 16th; and the following day he proceeded to Aſſeergur, whence the enemy's infantry precipitately retired on his approach, and which place, after ſome ineffectual attempts on the part of the garriſon to gain time by the uſual artifices of Indian negociation, conſented to ſurrender on terms indeed highly advantageous to the beſieged, but not leſs ſo to the victors, if it be conſidered, that this fortreſs was deemed by the enemy impregnable, and that its fall was of the utmoſt importance to a ſpeedy termination of the conteſt.

Whilſt colonel Stevenſon was thus ſucceſsfully employed, the unceaſing activity of general Welleſley was productive of freſh triumphs to the Britiſh arms, and of apprehenſion and diſmay to the enemy. On the 25th of October, the diviſion of the Britiſh army, commanded by him, re-aſcended the Adjauntee Ghaut, and marched to the ſouthward; intelligence being received, that the Berar rajah had paſſed the hills which form the frontier of the province of Candeiſh, and was proceeding towards the river Godavery. On the 29th, general Welleſley arrived at Aurungabad, where he learned that the rajah Bhoonſla had gradually advanced to the eaſtward, and was at that moment at Lackeegaun, about twenty miles north from Pulteim. The rajah, finding himſelf thus hotly purſued, endeavoured by various ſtratagems to elude the vigilance of the Britiſh commander. Between the nights of the 29th and 30th of October, he changed his camp five times. With a further view to diſtract general Welleſley's attention, he detached a body of 5000 horſe to intercept a valuable convoy of ſupplies for the Britiſh army, which was diſtant only a few days' march. But his deſign was penetrated and eluded by the ſagacity and activity of the Britiſh commander, who ſtill continued to watch and harraſs the army of the rajah, confiding in the ſtrength of the party under whoſe eſcort the convoy was placed, and the ſkill and bravery of its commander. Nor was he diſappointed: the convoy was attacked by the rajah's cavalry at Amber, but captain Baynes, who commanded the Britiſh detachment, repulſed it with conſiderable loſs, ſecured the whole of the ſupplies, and conducted them in triumph, a few days afterwards, to the Britiſh camp. This ſucceſs ſtill further increaſed the rajah's efforts to avoid a general engagement, by every means that activity and local knowledge could furniſh.

In the mean while, Scindia, who ſaw all his projects ſubverted, his French eſtabliſhment and alliance utterly deſtroyed, his provinces conquered, his fortreſſes in the Deccan ſubdued, and even his capital threatened by the victorious Britiſh, found that his beſt policy was to negociate. Accordingly, on the 11th of November, he ſent an ambaſſador to general Welleſley's camp at Jaum, to propoſe a treaty of peace.

That officer, well aware that to gain time, the uſual object of Mahratta ſubterfuge, was his purpoſe; yet, anxious to evince the ſincere wiſh of the Britiſh government for the reſtoration of tranquillity, received him with every demonſtration of reſpect and ſatisfaction. After various conferences, on the 23d of November, a ceſſation of arms was agreed upon, between Scindia and the Britiſh forces in the Deccan and province of Guzerat. The principal condition of this truce was, that the army of the former ſhould occupy a poſition forty miles to the left of Ellichpour, and that the Britiſh force ſhould not advance farther into the territories of Scindia.

While theſe negociations were on foot, the Berar rajah Bhoonſla had moved towards his own dominions, and general Welleſley had deſcended the mountains by Bajoorah, in order to co-operate with colonel Stevenſon in the reduction of the ſtrong fortreſs of Gawil Ghur, on which ſervice that officer had been detached after the fall of Aſſeergur. On the 28th of November, general Welleſley came up with the greater part of Bhoonſla's infantry, ſtrengthened by a conſiderable body of Scindia's regular horſe: and, as the latter had not fulfilled the conditions of the truce he had himſelf demanded with ſuch eagerneſs, general Welleſley reſolved, notwithſtanding the eager remonſtrances and proteſtations of Scindia's ambaſſador, (ſtill in the Britiſh camp,) to attack the enemy with all poſſible celerity.

General Welleſley immediately moved forward to Parterly, where he was joined by colonel Stevenſon's diviſion, and whence the confederates had retired, although their rear was ſtill diſcernible from a lofty tower near the ſpot. The extreme heat of the day, and the fatigue of the troops, diſinclined general Welleſley from a further purſuit of the enemy until the evening. But the Britiſh troops had not long halted, before large bodies of horſe were obſerved in front; and, upon advancing the picquets in conſequence, the whole army of the confederated Mahratta chiefs was diſtinctly perceived, formed in a long line of infantry, cavalry, and artillery, extending in front nearly five miles on the plains of Argaum.

General Welleſley, finding that the enemy was thus prepared for a general action, loſt not a moment in advancing with the whole of his army in one column;—the Britiſh cavalry leading, in a direction nearly parallel to that of the enemy's line. On a nearer approach to the confederated force, the Britiſh army was formed in two lines, the firſt of which was compoſed of the infantry, the ſecond of the horſe: the right wing was advanced, in order to preſs upon the left of the enemy; the Britiſh left was ſupported by the Myſore cavalry. On arriving very cloſe to the enemy's line, the 74th and 78th regiments were attacked by a large body of Perſians, which, after a deſperate conflict, thoſe gallant corps ſucceeded in totally deſtroying; and, Scindia's cavalry being at the ſame time repulſed with great loſs, by the 1ſt battalion of the 6th regiment, the whole line of the enemy gave way, and retreated with the utmoſt precipitation and confuſion, leaving in the poſſeſſion of the victors thirty-eight pieces of cannon and all their ammunition. The Britiſh cavalry immediately purſued, deſtroyed many of the fugitives, and captured the whole of their elephants and baggage. The loſs on the part of the Britiſh forces was very inconſiderable.

After this action, which, if not ſo brilliant, was certainly not leſs deciſive, than that of Aſſye, general Welleſley immediately moved towards Gawil Ghur in Berar, for the purpoſe of inveſting that fortreſs, conſidered to be one of the ſtrongeſt in India, and hitherto deemed by the natives to be impregnable. For this purpoſe, he arrived at Ellichpour on the 5th of December, and halted on the 6th, in order to ſettle the plan of the propoſed ſiege with colonel Stevenſon, and likewiſe to eſtabliſh an hoſpital for the wounded in the battle of Argaum.

The fort of Gawil Ghur is ſituated in a range of mountains, between the ſources of the Taptee and Poonah rivers. It ſtands on a lofty mountain in this range, and conſiſts of one complete inner fort, which fronts to the ſouth where the rock is moſt ſteep, and an outer fort, which covers the approach to it from the north by the village of Labada; all theſe walls are ſtrongly built, and fortified by ramparts and towers. The communications with the fort are through three gates: one to the ſouth, with the inner fort; one to the north-weſt, with the outer fort; and one to the third, with the north wall. The aſcent to the firſt is very ſteep, and is practicable only for men; that to the ſecond is by a road for the communications of the garriſon with the countries to the ſouthward, but the road paſſes round the weſt ſide of the fort, and is expoſed, for a conſiderable diſtance, to its fire; it is ſo narrow as to make it impracticable for regular approaches, and the rock is ſcarped on each ſide; this road alſo leads no farther than the gate. The communication with the northern gate is direct from the village of Labada, and here the ground is level with that of the fort; but the road leads through the mountains for about thirty miles from Ellichpour; and it was obvious, that the labour and difficulty of moving ordnance and ſtores thence to Labada, would be very great. Upon the moſt mature deliberation, however, the latter point of attack was determined upon; and as colonel Stevenſon had long been deſtined, and was indeed equipped, for that ſervice, his corps was directed to make the principal attack by Labada, and that under general Welleſley was to cover the operation of the ſiege, and, if poſſible, carry into effect attacks upon the ſouthward and weſtward.

On the 7th of December, both diviſions marched from Ellichpour; and, from that day till the 12th, the troops of colonel Stevenſon went through a ſeries of laborious ſervice, ſuch as had ſcarcely been ever witneſſed. The heavy ordnance were dragged up, over mountains and through ravines, for nearly thirty miles, by roads which it had been previouſly neceſſary for the troops to make for the purpoſe.

On the 12th at night, colonel Stevenſon erected two batteries, for braſs and iron guns, to breach the outer fort and the third wall; and one to clear and deſtroy the defences on the point of attack. A fourth batterry was opened by general Welleſley's diviſion, on the mountain, under the ſouthern gate, with a view to breach the wall near that gate, or at leaſt to divert and diſtract the enemy's attention. On the night of the 16th, the breaches of the outer wall of the fort were deemed practicable, and a ſtorming-party was ordered for the attack, at ten o'clock on the following morning, under the command of lieutenant-colonel Kenny. At the ſame time, two attacks were to be made from the ſouthward, the one on the ſouth gate, by a ſtrong detachment under lieutenant-colonel Wallace, and the other of a ſimilar force on the gate of the north-weſt, under lieutenant-colonel Chalmers. Theſe latter diſpoſitions were calculated ſolely to draw the enemy's my's attention from the real point of aſſault. At the appointed hour, the three parties moved forward; that under colonel Chalmers reached the north-weſt gate juſt as the enemy were attempting to eſcape through it, from the bayonets of the aſſailants under colonel Kenny. A dreadful ſlaughter enſued, and colonel Chalmers entered without difficulty. The wall in the inner fort, in which no breach had been made, was now to be carried: after ſome attempts upon the gate of communication between the inner and outward fort, a place was at length found at which it was poſſible to eſcalade the wall. Here captain Campbell, with the light infantry of the 94th regiment, fixed the ladders, ſcaled the wall, and opened the gate to the ſtorming-party, who were quickly maſters of the place; the garriſon was numerous, and numbers of it were ſlain.

By the ſucceſs of this timely, vigorous, and brilliant, enterpriſe, the war was brought to a ſpeedy concluſion. The rajah of Berar, awakened to a full ſenſe of his danger, determined upon an immediate and ſeparate peace, without waiting to conſult the wiſhes or opinion of his ally; and, without the loſs of a day, diſpatched an ambaſſador to the camp of general Welleſley, at Deogur, in the vicinity of his recent conqueſt; and the negociation for a treaty of peace immediately commenced, and was concluded and ſigned on the part of the Britiſh government, and the rajah of Berar, on the 17th of December, 1803.

On the part of the rajah it was agreed, Firſt, to renounce all adherence to the confederacy formed againſt the Britiſh government, between Scindia, himſelf, and other chiefs; and to engage to give no aſſiſtance to thoſe chiefs, ſhould they continue the war. Secondly, to cede to the company, *in perpetual ſovereignty*, the province of Cattack, including the fort and diſtrict of Balaſore; alſo all the territories, the revenues of which he had previouſly collected in conjunction with the nizam of the Deccan, together with all thoſe ſituated to the weſtward of the river Wurdah. And laſtly, to engage never to take, or retain in his ſervice, any Frenchman, or the ſubject of any European or American ſtate, the government of which might be at war with the Britiſh government; or any Britiſh ſubject, whether Indian or European, without the conſent of that government.

The Britiſh government agreed, that the forts of Nornullah and Gawil Ghur ſhould be reſtored to the rajah of Berar, together with the diſtricts dependant upon them; that the river Wurdah, from its ſource to the Godavery, ſhould be the boundary between the dominions of the nizam and the rajah of Berar; that no aid or countenance ſhould be given to any diſcontented relations or ſubjects of the rajah who might fly from, or rebel againſt, his authority; and finally, it was agreed, in order the more effectually to preſerve the relations of amity and good underſtanding between the contracting parties, that accredited miniſters from each government ſhould conſtantly reſide at the court of the other.

This treaty, ratified by the rajah of Berar on the 25th of December, and tranſmitted to Calcutta, was ſpeedily followed by one with Scindia. That reſtleſs prince, finding that no chance exiſted of gratifying his ambition and revenge at the expence of the Britiſh government; having exhauſted his reſources and expedients, and without an ally; ſent inſtructions to his ambaſſador, (who ſtill followed general Welleſley's army,) ſeriouſly to open negociations for a durable and definitive treaty of peace: to which meaſure that officer acceded. By his firmneſs and deciſive tone, the treaty was concluded in a few days; and on the 30th of December, 1803, a peace between the Britiſh government and Scindia was ſigned in the Engliſh camp at Surge Angengaum. Its principal conditions were as follow:

On the part of Scindia it was agreed, firſt, to cede to the company, *in perpetual ſovereignty*, all his forts, territories, and rights, in the Douab, together with all his forts, territories, rights, and intereſts, which lie to the northward of the dominions of the rajahs of Jeypour and Jodpour, and of the rajah of Gohud: ſecondly, to cede in like manner the fort and territory of Baroach, in Guzerat, and the fort and territory of Ahmednagur, in the Deccan, and likewiſe all the territories which belonged to him before the commencement of the war, which are ſituated to the ſouthward of the Adjuntee hills in the Deccan, including all the diſtricts between that range of mountains and the Godavery river: thirdly, to renounce for ever all claims upon the emperor Shah Aulum, and to engage never again to interfere with that monarch; and laſtly, not to take into pay any Frenchman, or the ſubject of any European or American ſtate, the government of which might be at war with the Britiſh government; or any Britiſh ſubject, whether European or Indian, without the conſent of that government.

On the other hand it was agreed, firſt, to reſtore to Scindia the fort of Aſſeergur, and the city of Burhampour, in the Deccan, and the forts of Dohud and Powan Ghur, with the territories in Candeiſh and Guzerat, appertaining to theſe forts: ſecondly, to allow Scindia, under the protection of the Britiſh government, to retain certain lands, which he had long held in his family, by gift from the kings of Hindooſtan; and that certain other lands, ſituated in the provinces conquered by the Engliſh, in Hindooſtan, which were held in jaghire by perſons belonging to the family of the late Mahadjee Scindia, ſhould remain in the poſſeſſion of thoſe perſons; and further, to prevent any individual from incurring loſs or ſuffering diſtreſs by this arrangement, that the company ſhould either pay penſions, or grant lands in jaghire, to ſuch other perſons as Scindia ſhould name, provided the ſum to be paid did not exceed ſeventeen lacks of rupees by the year: thirdly, to reſtore to Scindia certain lands and villages, ſituated in the peiſhwa's dominions, and lately taken poſſeſſion of by the Britiſh government or its allies, and which the family of Scindia had long held as a perſonal eſtate: laſtly, Scindia was invited to partake of the benefits of the ſubſidiary treaties exiſting between the Britiſh government and the peiſhwa and nizam; and it was ſtipulated, that for the future, accredited miniſters from each government ſhould conſtantly reſide at the court of the other.

The treaty was ratified by Scindia, and returned to general Welleſley for tranſmiſſion to the ſeat of government. On the 15th of January, 1804, that with the rajah of Berar was ratified by the governor-general in council; and, on the 13th of February, that with Scindia was alſo ratified by the marquis Welleſley, who immediately cauſed the complete reſtoration of peace with the Mahratta princes to be proclaimed with the uſual forms, throughout the Britiſh empire in India. Thus, in little more than four months from the commencement of hoſtilities, was this formidable and alarming Mahratta war, upholden and inflamed by the French, brought to a happy and glorious termination. The celebrated battles of Delhi, Aſſye, Laſwaree, and Argaum, will be remembered as long as the records of Britiſh magnanimity remain. In theſe engagements we ſeverely experienced the effect of European diſcipline, manifeſted by the deſtructive fire from the improved artillery, and the obſtinate defence made by the regular battalions formed under French officers. In fact, every action demonſtrated, too forcibly, the progreſs which the French had made in teaching the natives of India the art of war, for the purpoſe of overthrowing the Britiſh empire in Hindooſtan. The infantry ſtood till the Engliſh bayonets came to their breaſts; the artillery-men ſerved their guns without receding an inch, till they fell under the wheels of their own cannon; the cavalry charged to the very muzzles of the Engliſh firelocks! There is not, perhaps, in the records of human carnage, a more deſperate engagement recounted than that which was fought between the Britiſh army commanded by ſir Arthur Welleſley, and the Mahrattas, aided by the French regular battalions, on the plain of Aſſye, an event which has eſtabliſhed for ever the invincible character of Engliſhmen in the hearts of the chiefs and princes of Hindooſtan.

The thanks of both houſes of parliament were voted to the governor-general, and the commanders, officers, and ſoldiers, of the ſeveral armies, which had ſhared in the glory of the conteſt. His majeſty was alſo further pleaſed to create general Lake a peer of the realm, and general Welleſley a knight of the Bath.

The fair proſpect, which the termination of the war with Scindia, and the rajah of Berar, gave of general and permanent tranquillity throughout India, ſuffered a ſhort interruption from the aggreſſion of Holkar, the chieftain already noticed as the rival of Scindia, over whom the former had gained an advantage, previous to hoſtilities with the Engliſh. Jeſwunt Rao Holkar was an illegitimate ſon of one of the principal Mahratta chieftains, and had uſurped the hereditary rights of his legitimate brother Caſhee Rao; and, being of an active diſpoſition, directed his efforts to extend his territories and increaſe his wealth by dint of arms; which, regardleſs of right or juſtice, he turned indiſcriminately on thoſe princes whoſe poſſeſſions promiſed him the richeſt booty. Whilſt war ſubſiſted between the Engliſh and the confederated chieftains, he profeſſed himſelf well inclined to both parties, yet employed his time in plundering both; he laid the city of Aurungabad, the capital of the nizam, under a heavy contribution, collected tribute from the rajahpout princes, enforced exactions from ſome diſtricts belonging to Scindia; and when, on the concluſion of peace with Scindia, this freebooter was required to deſiſt from his predatory incurſions, and invited to participate in the general amneſty, he replied at firſt in evaſive, and afterwards in inſolent, terms of defiance. His folly and raſhneſs ſoon met their reward. Emboldened by a firſt and partial ſucceſs over a ſmall detachment that had penetrated into the province of Malwa, he advanced to the Jumna, which he croſſed in perſon with his cavalry, and fixed his camp, leaving his infantry and artillery to proſecute their hoſtile operations on the weſtern bank of the river.

On the 29th of January, 1804, the commander-in-chief, in conformity with his inſtructions, required the immediate evacuation of the poſt thus occupied by Holkar; and ſtated that he ſhould be left in the unmoleſted enjoyment of his authority, provided he retired into his own domains, and abſtained from all further exactions of tribute from the allies of the Eaſt-India company. To this requiſition a reply was returned on the 27th of February in amicable terms, and an aſſurance was given that vaqueels (ambaſſadors) ſhould be ſent to negociate a treaty. On the 16th of March they arrived, and propoſed on his part, terms of a nature ſufficiently extenſive. They demanded "that he ſhould be permitted to collect the *choute*, (a fourth part of the revenues,) agreeably to the cuſtom of his anceſtors; that the ancient poſſeſſions formerly held by the family, ſuch as Etawah, &c. (aſſigned to the company by the vizier of Oude, under the treaty of Lucknow in 1801,) twelve pergunnahs in the Douab, and a pergunnah in Bundelcund, ſhould be ceded to him; that the country of Hurriana, which was alſo formerly in the poſſeſſion of the family, ſhould be given up; and that the territory then occupied by him ſhould be guaranteed, and a treaty concluded with him on terms ſimilar to that ſigned with Scindia." Theſe propoſitions were inſtantly rejected, and the offer of peace again made, ſolely on the condition that he ſhould withdraw his troops within his own dominions. Several communications afterwards took place, all of them on his part evaſive of this propoſal. The laſt, about the 4th of April, ſtated that he was about to viſit Agimere, a province belonging to Scindia; whence, after having performed ſome devotional duties aſſigned as the cauſe of his journey thither, he ſhould commence his march home. At Agimere he levied conſiderable contributions, and even made an attempt to poſſeſs himſelf of the fort. This tranſaction, therefore, combined with the information afforded by the miniſters of Scindia, compelled the commander-in-chief at once to reſolve upon war.

It appears, that, ſubſequent to the peace concluded between Scindia and the Company, Holkar earneſtly preſſed that chief to aid him in his hoſtile deſigns. Scindia, averſe to any renewal of a war in which he had already ſuffered ſo much, ſteadily refuſed all co-operation, and expreſſed his own deſire to be at peace; complaining at the ſame time of the injury which had been committed upon him by the attack at Agimere. Holkar, in juſtification of his conduct, alleged, that the rajah of Jodpour (with whom he intended to leave his family "*when he commenced his operations againſt the Engliſh*") was unwilling to take upon himſelf that charge, unleſs the fort and province of Agimere were firſt made over to him, and inſiſted that Scindia could not do otherwiſe than forgive a ſtep neceſſary to that war which was to be waged for the independence of the Mahratta empire.

With ſuch indubitable reaſons for military and deciſive operations, all heſitation would have been dangerous and blameable. On the 16th of April, therefore, orders were iſſued to the commander-in-chief for operations in Hindooſtan and the Deccan; a notification of which was conveyed by major Malcolm to Scindia.

The principal poſſeſſions occupied by the followers of Jeſwunt Rao Holkar in the Deccan, were the fort and territory of Chandore, about one hundred and thirty miles north of Poonah, and the forts of Dhoorb and Galnah; a territory was alſo held under his authority in Candeiſh, together with a few diſtricts intermixed with the dominions of the nizam. The ſiege of Chandore and Galnah, as the occupation of them would at once deprive the enemy of all his poſſeſſions in the Deccan, was naturally reſolved upon. To the march of an army for that purpoſe, the waſted country between Poonah and Chandore preſented many difficulties; and an apprehenſion was entertained, that, unleſs hoſtilities were poſtponed until the rainy ſeaſon, no effective operations could take place in the Deccan. Major-general Welleſley, however, adverſe to every idea of procraſtination, placed the troops under his command in a ſtate fit for immediate ſervice.

The diſpoſition made with a view to hoſtilities againſt Holkar, was as follows: The principal corps was to aſſemble at Aurungabad, under the command of lieutenant-colonel Wallace of his majeſty's 19th dragoons, four regiments of native cavalry, two regiments of European infantry, the 74th and 94th; and ſix battalions of ſepoys, with a battering train, and a proportion of artillery in pioneers; leaving a reſerve at Poonah of four battalions of ſepoys, at Hydrabad of two battalions, and a garriſon of one battalion in Ahmednagur.

In the judgment of the commander-in-chief, the advance of troops into Guzerat, againſt the domains of Holkar in Malwa, was likely to be attended with great advantage; and meaſures were therefore adopted for reinforcing the troops in that quarter. Colonel Murray was the officer who received inſtructions relative to that branch of the ſervice. At the ſame time Scindia was directed to employ his ſtrength in the reduction of ſuch parts of the poſſeſſions of Holkar as might be moſt acceſſible to his army. Lieutenant-colonel Ball was ſtationed with a detachment of troops near Canoon, a town about ninety miles ſouth-weſt of Delhi, to oppoſe any irruption into the recently-acquired territory of the company in that direction. A detachment was alſo formed under lieutenant-colonel Monſon for the defence of Jeypour, which began its march towards Jeynagur on the 18th of April. On the morning of the 23d, Holkar commenced a precipitate retreat towards the ſouthward. We ſhould here obſerve, that general Welleſley, having received inſtructions from the governor-general to proceed to Fort William on the public ſervice, now reſigned the military powers intruſted to him.

After a reſt of two days, upon the further advance of colonel Monſon with his detachment, followed by general

ral Lake with the main army, Holkar again reſumed his precipitate retreat; which he continued till he reached Corah, a place ſo diſtant from the troops which followed, that he was neceſſarily ſecured from an inſtant attack. About ſeventy miles north-eaſt of Corah ſtood the fortreſs of Rampour, for the attack of which lieutenant-colonel Don was ſelected. At the head of three battalions of native infantry, one regiment of native cavalry, with heavy ordnance and field-artillery, that place was carried on the 16th of May, 1804. The attack was commenced before day-break. Lieutenant-colonel Don determined to aſſail the gateways. He did not, however, take a poſition oppoſite to it, leſt by ſuch a movement his intention ſhould be betrayed. Major Doveton's regiment was left within the camp, with orders, as ſoon as the attack commenced, to move down in the direction which the fugitives would naturally take, and to intercept them in their flight. The detachment under lieutenant-colonel Don moved forward without diſcovery, till within two hundred and fifty yards of the gateway, when a picquet of the Jonk battalion fired. The garriſon, however, was ſtill not alarmed, nor did any diſcharge of muſquetry or artillery take place till the troops were within a hundred yards of the paſſage. A number of men were then ſeen running along the top of the glacis, endeavouring to gain the gateway; upon whom a heavy fire was immediately opened on the part of the Britiſh, which fruſtrated their intention. The gates were then blown open, and the town entered. The fugitives, taking the direction which had been foreſeen, were of courſe intercepted. The enemy's force was from one thouſand to eleven hundred men, of whom near fifty were deſtroyed in paſſing through the gateways, and little ſhort of three hundred in the flight towards the plain. A conſiderable number of guns, with powder, ſhot, &c. were taken in the fort. Lieutenant Boileau was ſlightly wounded, and ſome loſs was ſuſtained of natives.

On the ſecond of July was aſſaulted the important fortreſs of Hinglais-Ghur; a place, in the language of the country, deemed wholly impregnable. At half-paſt two, a party from lieutenant-colonel Monſon's detachment, compoſed of the 2d battalion 2d regiment, ſix ſix-pounders, and a part of lieutenant Lucan's cavalry, the whole under the command of major Sinclair, advanced to the attack. The fire from the fortreſs was in the courſe of an hour entirely ſilenced, the walls were then eſcaladed, and the place carried without the loſs of an officer. Hinglais-Ghur had been poſſeſſed by the family of Holkar for fifty years. It is ſurrounded by a natural ravine two hundred and fifty feet in breadth, and two hundred in depth, the ſides being perpendicular, on the inner ſide of which ſtood the walls of the fort.

In addition to the importance of the place itſelf, was the poſſible practicability of communicating with colonel Murray, at that time on his march from Guzerat towards Ougein. With a view to a junction, and in the hope of procuring ſupplies, colonel Monſon advanced about fifty miles from the Mokundra paſs. It was his firſt intention, if poſſible, to give battle to the troops under the perſonal command of Holkar; finding himſelf, however, in great want of proviſions, and learning that colonel Murray intended to fall back on the Myhie river, he judged it prudent to retire again to the paſs. It was upon this march that intelligence was received of an attack having been made by Holkar on lieutenant Lucan, who it was ſtated had himſelf with ſeveral ſirdars been taken priſoners. On the morning of the 10th of July, Holkar's cavalry appeared in ſight. So formidable was their number, that a demand was made requiring the ſurrender of the guns and ſmall arms of the Britiſh detachment. This requiſition was ſcornfully rejected; and Holkar in vain attempted to make an impreſſion upon the firmneſs of colonel Monſon's ſmall army. Conſiderable difficulties were ſuſtained in the retreat, and the different corps drew back in much diſorder to Agra, which they all reached by the 31ſt of Auguſt. No united attack, however, was made by the enemy after the 28th.

We now proceed to the operations ſubſequent to the march from Cawnpour, in September, 1804, under the commander-in-chief, general Lake. After colonel Monſon's retreat, Jeſwunt Rao Holkar advanced to Matura, and took poſſeſſion of that city, which is ſituated about thirty miles from Agra, whither general Lake arrived on the 22d. Having united his whole force at Secundra, he on the 1ſt of October marched againſt the troops of Holkar at Matura, which was abandoned by the enemy on the 3d. Upon the 8th, Holkar detached his infantry and guns to attack the city of Delhi; which was fortunately entered by colonel Byrne, in time for its defence. On the 7th a heavy cannonade was opened againſt the place, but it did little injury; the walls, however, being much out of repair, and a breach being deemed practicable, it was thought neceſſary to check the progreſs of the aſſailants by a ſortie: two hundred men were therefore ſelected from the 2d battalion of the 14th regiment, and one hundred and fifty from captain Harriot's corps. Lieutenant Roſe, who commanded the party, led them inſtantly againſt the enemy's battery; poſſeſſed himſelf of their guns, and ſpiked them. A ſiege was ſuſtained of nine days. On the 14th of the month a general aſſault was attempted, which entirely failing, the enemy on the 15th abandoned their attempt, and retreated.

The commander-in-chief, having completed his ſupplies at Matura, on the 17th of October reached Delhi. Holkar with his cavalry immediately paſſed the Jumna, acroſs which general Lake purſued him, taking the left bank of that river with the reſerve under lieutenant-colonel Don, three regiments of dragoons, three of native cavalry, and the European mounted artillery. Major-general Frazer, with the remainder of the infantry, two regiments of native cavalry, and the park of artillery, at the ſame time took the right bank of the Jumna from Delhi.

This movement was combined with a view to compel both the infantry and the cavalry of the Mahrattas to riſk an action. The infantry and artillery of Holkar had at this period reached the fortreſs of Deig, where they were protected by the guns of that place. Their force amounted to twenty-four battalions of infantry, a large body of horſe, and one hundred and ſixty pieces of ordnance. Major-general Frazer found the enemy very ſtrongly entrenched, the left wing of their force extended to Deig, and a large jeel of water covering the whole of their right and front. The attack was delayed till the morning of November the 13th. At three o'clock a circuit was made to the left round the jeel, ſo as to open upon the right flank of the enemy. A large village which protected them was inſtantly carried. Major-general Frazer, following up his ſucceſs, marched down on their line, and ſeized the whole of their guns and howitzers: he, however, whilſt at the head of the troops, received ſo ſerious a wound as to compel him to be carried off the field. Colonel Monſon then aſſumed the command, and completed the victory; the enemy was driven under the fort, which commenced a heavy fire. The loſs of the Britiſh army was in conſequence very conſiderable; the whole, however, of the infantry, with the ordnance, under the command of Hernaut Dada, the chief officer of Holkar, fell into their hands. Two thouſand of the enemy were killed or drowned in their efforts to eſcape; and eighty-ſeven pieces of ordnance were captured. The rajah of Burtpour violated on this occaſion his alliance with the Eaſt-India company. The troops in the fortreſs which fired upon the Britiſh were the rajah's. The gallant general Frazer, having ſuffered amputation, unfortunately died on the 24th of November.

While Holkar's infantry was thus deſtroyed, general Lake in the mean while continued to purſue the main body of his cavalry: a march of four hundred and fourteen miles had been performed in eighteen days. On the 17th of November the whole force of the enemy's cavalry was ſurpriſed near the city of Ferruckabad; a diſtance of fifty-eight miles, was overcome in a march of twenty-four hours, and a complete victory obtained. Holkar himſelf with difficulty eſcaped, and fled with a very ſmall body of retainers.

The fortreſs of Deig was now inveſted; and its out-work having been carried by aſſault, it was afterwards evacuated without further reſiſtance. The fugitives, compoſed of the rajah of Burtpour's battalions, and his garriſon, with the remainder of Holkar's infantry, appeared generally to have taken the direction of Burtpour. The Britiſh army therefore immediately marched for that ſtrong-hold, and attempted to ſtorm the place on the 9th of January 1805; but without ſucceſs. The fortreſs was expoſed to no leſs than five aſſaults, under the immediate direction of the commander-in-chief lord Lake; in every one of which our troops were repulſed with conſiderable loſs. The rajah, who had ſhut himſelf up in it, propoſed conditions, which the commander-in-chief did not think it proper to accede to. The conditions propoſed by him, were, to pay all the expences of the war, and to give, beſides, three lacks to be diſtributed among the troops. Theſe advantageous offers were rejected, in conſequence of a determination to proceed againſt him with the utmoſt rigour, on account of his treachery to the company, he being one of its moſt ancient and favoured allies. The inſtructions of the governor-general were, that nothing leſs than an unconditional ſurrender ſhould be accepted.

It does not, however, appear that the reduction of Burtpour was a taſk of ſuch eaſy accompliſhment. The rajah, who defended it, had accumulated in that fortreſs every thing that was moſt dear to him—his family, his treaſure; and had expreſſed an intention of blowing up both them and himſelf, ſhould the Engliſh obtain a footing in the place. This important fortreſs is ſituated in a ſmall, but one of the higheſt cultivated diſtricts in India, the inhabitants of which are all of the ſame tribe, and connected either by conſanguinity or other relations with each other. The force with which lord Lake ſat down before the town did not exceed twelve thouſand men; and the works were of ſo great extent, that he was not enabled to maſk more than one quarter of them. All the other parts of the garriſon had communication with the open country, and the adherents of the rajah were ſingularly brave and faithful. Theſe circumſtances are ſufficient to account for the obſtinacy of the defence; and our loſs in the various aſſaults upon Burtpour, is eſtimated at three thouſand men, of whom one hundred and five were officers. During the laſt attack of the Engliſh on the above fort, a number of old guns were brought forward, on the firſt firing of which no leſs than five of them burſt, killed twenty men, and wounded ſeveral others. The troops were ſtruck with a ſudden panic, and the artillery corps refuſed to do their duty; Holkar flew to the ſpot, attended by the Killadar, and harangued the garriſon with great firmneſs and ſpirit. This meaſure had the deſired effect; and the troops returned to the charge with redoubled vigour. It is probable that this ſingle circumſtance contributed more than any other to ſave the place.

At length the rajah of Burtpour, after repelling all the aſſaults which had been made upon him, propoſed conditions, to which general lord Lake thought fit to accede. The terms upon which peace was granted to him were ſettled on the 10th of April, 1805, and ſubſequently ratified by the governor-general. The articles, among other particulars, ſtipulated, "that he ſhould remain in poſſeſſion of his fortreſs of Burtpour; that he ſhould pay twenty lacks to the army; that the fort of Deig, and a diſtrict for three miles round it, ſhould be ceded to the company; and that he ſhould reſtore all the territory conferred upon him at the time he profeſſed to be the ally of the Engliſh.

With this reduction of Holkar's power and confederacy, the permanent tranquillity of India, and the proſperity of our poſſeſſions in Hindooſtan, appear, for the firſt time, to be fixed on a firm baſis. But, as a meaſure of prudence, our troops continued to occupy commanding poſitions, until the various ſtipulations which had been made for the general benefit of all the ſtates of India were finally completed; a neceſſary precaution, in a country where a ſpirit of rapacious aggrandizement prevails among the native princes, over every other ſentiment or conſideration. Holkar himſelf, though diſcomfited, was ſtill in a ſituation to give trouble; it became, therefore, neceſſary for the general weal to purſue him; and, ſo ſoon as the favourable ſeaſon returned, lord Lake made arrangements for that purpoſe. Separate detachments of Engliſh troops took different routes; but the Mahratta chief was proportionably active and vigilant. Lord Lake, however, laid his plans with judgment, and followed them up with ſuch celerity, that Holkar, without being permitted time to breathe, was chaſed to the very banks of the Hyphaſis, and was on the point of falling into the power of his purſuers, when a negociation commenced, which ſaved the fugitive from impending ruin, and tied his hands from further miſchief.

After the completion of theſe arduous and important ſervices, the marquis Cornwallis was to ſucceed marquis Welleſley as governor-general; and he had even arrived in India; but died at Gazepour, in the province of Benares, before he was able to reach the head-quarters, on the 5th of October, 1805. Sir George Barlow then filled this important office, until 1807, when lord Minto, the preſent governor-general, ſucceeded; and has thus far conducted his adminiſtration in harmony and peace.

And now, wholly expelled from the luxuriant ſhores of India, and from their faſt hold at the court of Golconda, *the country of diamonds*, it was the fate of the humbled French officers, who ſurvived the ſeveral actions, to return to Paris, foiled in all their great and mighty deſigns of obtaining for Bonaparte an enlarged dominion in Hindooſtan. The active mind of Napoleon, however, as yet victorious and triumphant in all his gigantic ſtrides, except againſt the Engliſh, readily ſuggeſted to his partiſans a freſh ſcheme for eventually ſecuring a large portion of that deſirable country, for ever abounding in wealth and riches. This was to be accompliſhed by means of an embaſſy to the court of Perſia, to entangle that monarch in a projected deſcent upon Hindooſtan, by the ſame route which Alexander and Ghengis Khan made their victorious way, and bore down all before them. In conſequence of this embaſſy, Juſſut Bey was diſpatched by the Perſian king, in company with a French officer, to Paris, in the month of September 1807, to foſter and mature this new alliance. The reſult has not hitherto produced any active operations; and, in order to counteract theſe inſidious meaſures, his excellency ſir Harford Jones was with all poſſible expedition diſpatched to the Perſian court, as ambaſſador from the king of Great Britain, to urge the more honourable principle of ſtill maintaining the relations of amity and peace. Both nations are on the tip-toe of expectation; and much will of courſe depend on the good ſenſe and diſcernment of the Perſian monarch. By advices which reached England from Bengal in April 1809, ſir Harford Jones had ſafely landed from the Nereide frigate at Buſheer, in the Perſian Gulf, and had been received with every mark of reſpect and diſtinction. Whatever the events may be which are to follow, the reader will find them faithfully recorded under the article Persia.

With reſpect to the vaſt advantages gained for the public during the adminiſtration of marquis Welleſley, the ſecurity obtained for the continuance of general tranquillity, the complete expulſion of the French from India, and the barrier, to all appearance inſurmountable, which the treaty of Baſſen, and the ſubſequent arrangements, have raiſed againſt their return by way of the Deccan, but one opinion can be held. They form a rock on which the Britiſh eſtabliſhments in Hindooſtan will raiſe their pre-eminent character, and repoſe in ſecurity, amidſt the ſtorms of faction, and the turbulence of rival ſtates.

## RELIGION AND MYTHOLOGY OF THE ABORIGINAL INHABITANTS OF HINDOOSTAN.

It is a lamentable fact, that the aborigines of India, or race of Hindoos, are even at the preſent day IDOLATERS. And notwithſtanding the great progreſs of Iſlamiſm, induced by the example, and enforced by the laws, of their Mogul conquerors, for eight hundred years paſt, and in ſpite of their intercourſe with ſo many enlightened nations, and the utmoſt exertions of the Chriſtian miſſionaries, there are ſtill to be found at leaſt fifty idolatrous Hindoos to one perſon of any other faith in their country. And it is extraordinary, that, ſo far from being ſolicitous to make proſelytes to their religion, if a foreigner were to requeſt the indulgence of being admitted to worſhip their gods, his propoſal would be rejected with contempt. Yet they neither hate, deſpiſe, pity, nor perſecute, any of thoſe who follow a different perſuaſion.

But, howſoever general the worſhip of idols is every where found among the Hindoos, there is not the ſmalleſt doubt but their religion was originally pure, and their faith and adoration directed, as they ought, to the Supreme Being. This ſeems abundantly evident from various paſſages of their Vedas, and other Indian ſcriptures; as well as from the mild and exemplary character of this people throughout all their caſts; and from communications made with various learned perſons among their different ſects, who profeſs to adore and believe in the one only true GOD; although they bend before thoſe molten images, which were only at firſt intended, as they ſay, to convey to unlettered minds the divine attributes of the Almighty Power and Perfection. To enquiries made by Chriſtian miſſionaries among the Hindoo prieſts, "why they did not inſtruct their people to direct their adoration *mentally* to the Supreme Being, of whoſe exiſtence and over-ruling power they profeſſed themſelves to be convinced;" they anſwered, "that God was a Being without ſhape, incomprehenſible, of whom no preciſe idea could be formed; but that their proſtration before idols, being viſible, and capable of impreſſing ſolemnity and awe, would inſtil piety and devotion into the minds of the people, which God would receive, and conſider as adoration offered to himſelf. Beſides, heaven is a palace with many doors of admiſſion into it; and the Supreme Being could never intend that all the nations of the earth were to enter by one and the ſame gate. See p. 35 of this article.

It is, however, too obvious, that the common people, whoſe underſtandings are exerciſed in no higher purſuits than thoſe of their reſpective callings; and the worldly-minded and groſs among the higher caſts, who have little ambition but that of acquiring worldly riches; have no chance for ſpiritual reflections, but naturally fix their attention upon external objects, making unto themſelves gods of wood and ſtone, of copper and braſs, of ſilver and gold. Before theſe they proſtrate themſelves, offer up their incenſe, and perform various ſacrifices; whence to pollute theſe images, or violate their ſanctuaries, is conſidered as the higheſt inſult that can be offered to a Hindoo. To revenge ſuch a ſacrilege, they value not their lives, but will encounter almoſt ſingle-handed a hoſt of foes, and meet death in every ſhape and form. This fact was ſtrikingly verified by the prieſt of Sumnaut, who led Mahmood's army to periſh in the deſert for inſulting his god, as noticed in p. 11 of this volume; and alſo by the narrow eſcape of colonel Heron from the defile of Natam, after plundering the temple of Coilgoody of its idols, as mentioned in p. 86; where he himſelf, and his army, muſt inevitably have periſhed, had not another officer appeaſed the wrath of the Hindoos by reſtoring to them their ſtolen gods.

Sir William Jones, in the firſt volume of the Aſiatic Reſearches, has given the outline of the Hindoo mythology, with figures of their principal deities, in order to aſſimilate them with the gods and goddeſſes of the ancient Greeks; and demonſtrate that the religious ceremonies of the two nations had the ſame origin. The ſcheme of the Indian mythology he introduces thus:

"It muſt always be remembered, that the *learned* Indians, as they are inſtructed by their own books, acknowledge only One Supreme Being, whom they call BRAHME, or the Great One, in the neuter gender: they believe his eſſence to be infinitely removed from the comprehenſion of any mind but his own; and they ſuppoſe him to manifeſt his power by the operation of his divine ſpirit, whom they name *Viſhnu*, the Pervader, and *Narayan*, or Moving on the Waters, both in the maſculine gender, whence he is often denominated the *Firſt Male*; and by this power they believe that the whole order of nature is preſerved and ſupported. But the *Vedantis*, unable to form a diſtinct idea of brute matter independent of mind, or to conceive that the work of Supreme Goodneſs was left a moment to itſelf, imagine that the Deity is ever preſent to his work, and conſtantly ſupports a ſeries of perceptions, which, in one ſenſe, they call *illuſory*; though they cannot but admit the *reality* of all created forms, as far as the happineſs of creatures can be affected by them. When they conſider the Divine Power exerted in *creating*, or in giving exiſtence to that which exiſted not before, they call the Deity *Brahma*, in the maſculine gender alſo; and when they view him in the light of *Deſtroyer*, or *Changer* of forms, they give him a thouſand names, of which *Siva*, *Iſwara*, *Rudra*, *Heri*, *Sambhu*, and *Mahadeva*, or *Maheſa*, are the moſt common. The firſt operations of theſe three Powers are variouſly deſcribed in the different Puranas by a number of allegories, and from them we may deduce the Ionian philoſophy of *primeval water*, the doctrine of the Mundane Egg, and the veneration paid to the *Nymphæa lotos*, or water lily, which was anciently revered in Egypt, as it is at preſent in Hindooſtan, Tibet, and Nepal.

"That *water* was the primitive element, and firſt work of the Creative Power, is the uniform opinion of the Indian philoſophers; but, as they have a particular account of the creation, as well as of the general deluge, it can never be admitted that their whole ſyſtem aroſe from traditions concerning the flood only, and muſt appear indubitable, that their doctrine is in part borrowed from the opening of *Biraſit*, or Geneſis; than which a ſublimer paſſage, from the firſt word to the laſt, never flowed, or will flow, from any human pen. But the Moſaic account of the creation is conſiderably diminiſhed by the Indian paraphraſe of it, with which Menu begins his deſcription of the formation of the univerſe. "This world (ſays he) was all darkneſs, undiſcernable, undiſtinguiſhable, altogether as in a profound ſleep; till the ſelf-exiſtent inviſible God, making it manifeſt with five elements and other glorious forms, perfectly diſpelled the gloom. He, deſiring to raiſe up various creatures by an emanation from his own glory, firſt created the *waters*, and impreſſed them with a power of motion: by that power was produced a golden egg, blazing like a thouſand ſuns, in which was born *Brahma*, ſelf-exiſting, the great parent of all rational beings. The waters are called *nara*, ſince they are the offspring of Nera, or Iſwara; and thence was *Narayana* named, becauſe his firſt *ayana*, or moving, was on them. That which is, the inviſible cauſe, eternal, ſelf-exiſting, but unperceived, becoming maſculine *from neuter*, is celebrated among all creatures by the name of *Brahma*. That God, having dwelled in the Egg through revolving years, Himſelf meditating on Himſelf, divided it into two equal parts; and from thoſe halves formed the heavens and the earth, placing in the midſt the ſubtil ether, the eight points of the world, and the permanent receptacle of waters." From this eternally-exiſting Great Firſt Cauſe, ſprung the two Eſſences, *Viſhnu* and *Siva*; and thus the Hindoo triad or triple godhead was formed.

"Very reſpectable natives (continues the learned preſident) have aſſured me, that one or two miſſionaries have been abſurd enough, in their zeal for the converſion of the Gentiles, to urge, 'that the Hindoos were even now almoſt Chriſtians, becauſe their Brahma, Viſhnu, and

and Siva, were no other than the Chriſtian Trinity;' a ſentence in which we can only doubt whether folly, ignorance, or impiety, predominates. The three powers, *creative*, *preſervative*, and *deſtructive*, which the Hindoos expreſs by the triliteral word *O'm*, were groſsly aſcribed by the firſt idolaters to the *heat*, *light*, and *flame*, of their miſtaken divinity the Sun; and their wiſer ſucceſſors in the Eaſt, who perceived that the Sun was only a created thing, applied thoſe powers to its Creator; but the Indian Triad, and that of Plato, which he calls the Supreme Good, the Reaſon, and the Soul, are infinitely removed from the holineſs and ſublimity of the doctrine which pious Chriſtians have deduced from texts in the Goſpel. This tenet of our church, cannot, without profaneneſs, be compared with that of the Hindoos, which has only an apparent reſemblance to it, but a very different meaning."

The ſcheme of the Hindoo Triad is thus ingeniouſly laid down by Mr. Paterſon, in the eighth volume of the Aſiatic Reſearches:

| BRAHMA | VISHNU | SIVA. |
|---|---|---|
| | Emblematical of | |
| Creation | Preſervation | Deſtruction. |
| | Theſe are referred to | |
| Matter | Space | Time. |
| | And painted | |
| Red | Blue | White. |
| To repreſent ſubſtance. | To repreſent the apparent colour of ſpace. | In contraſt to the black night of eternity. |

*Brahma* is ſaid to mean literally in Sanſkrit, "*wiſdom of God.*" He is repreſented with a crown upon his head, and with four hands: in one he holds a ſceptre; in another the Vedas, or Indian Scriptures; in a third a ring, or circle, as an emblem of eternity; and the fourth is empty, being ready to aſſiſt and protect his creatures. His goddeſs or wife Sereſwati, (for the gods of the Triad have all wives,) is the patroneſs of invention, of harmony, and eloquence. She is conſidered as the fountain of ſcience and wiſdom; the *Minerva* of India; and is uſually repreſented with a muſical inſtrument in her hand; and is ſuppoſed to have invented the Devanagry letters, and the Sanſkrit language, in which the ſacred laws of the Hindoos were conveyed to mankind. Under her auſpices the muſical modes are ſuppoſed to be demi-gods or genii; and an original *Raga*, or god of the mode, is ſuppoſed to preſide over the ſix Indian ſeaſons; each Raga is attended by five *Ragnies*, or nymphs of harmony; each has eight ſons, or *genii*, of the ſame divine art; and to each Raga and his family is appropriated a diſtinct ſeaſon, in which alone his melody can be ſung, or played, at preſcribed hours of the day and night. The mode of *Dipaca*, or Cupid the Inflamer, is ſuppoſed to be loſt; and a tradition is current in Hindooſtan, that a muſician who attempted to reſtore it was conſumed by fire from heaven. This goddeſs has a ſacred feſtival, in which the profeſſors of learning and ſcience offer up their incenſe, their pens, and their books.

*Viſhnu* is repreſented with a crown on his head, and four arms; bearing in each hand a ſymbol of his preſerving and regenerating quality. The lotus, or waterlily, typifies fecundity; the Sanc'ha, preſervation and growth; the mace, power over the enemies of created matter; the diſcus, univerſal ſupremacy on the earth. One of his names, in his preſerving quality, is *Hary*, or *Heri*. The conſort of Viſhnu is named Lechemy; and is the goddeſs of felicity and beauty, of proſperity and plenty. She is alſo named Pedma, Camala, and Sri, or Sris; and is conſidered as the *Ceres* of the Hindoos.

*Siva* is repreſented with a creſcent on his head, to ſhow the lapſe of time by the phaſes of the moon. A ſerpent forms his necklace, to denote the meaſure of time by the annual courſe of the ſun through the zodiac. A chain of human ſkulls decorates his breaſt, to ſhow the extinction of the generations of mankind, over which he preſides. He holds a trident in one hand, ſynonymous with the ſcythe of Time, and an hour-glaſs in the other, to denote that, when the hour cometh, death and diſſolution, as to the preſent ſtate, are inevitable. The name of his goddeſs is *Cali*, the *deſtroyer*. But ſir William Jones deſcribes her by the names of *Parvati*, *Durga*, and *Bhavani*. In ſome of her properties he likens her to the Olympian Juno; in others to Pallas, armed for war; both ſlew demons and giants with their own hands. She is the *Proſerpine* of the Hindoos. The viſible manifeſtations of Siva upon the earth, are reckoned at one thouſand and eight.

The *Vahans*, or vehicles of the three gods of the Triad, were allegorically aſſigned as the attributes of purity, truth, and juſtice; the firſt was typified by the *Swan*, clothed with unſpotted whiteneſs, riding in triumph amidſt the waters; the pure element ſacred to Brahma.

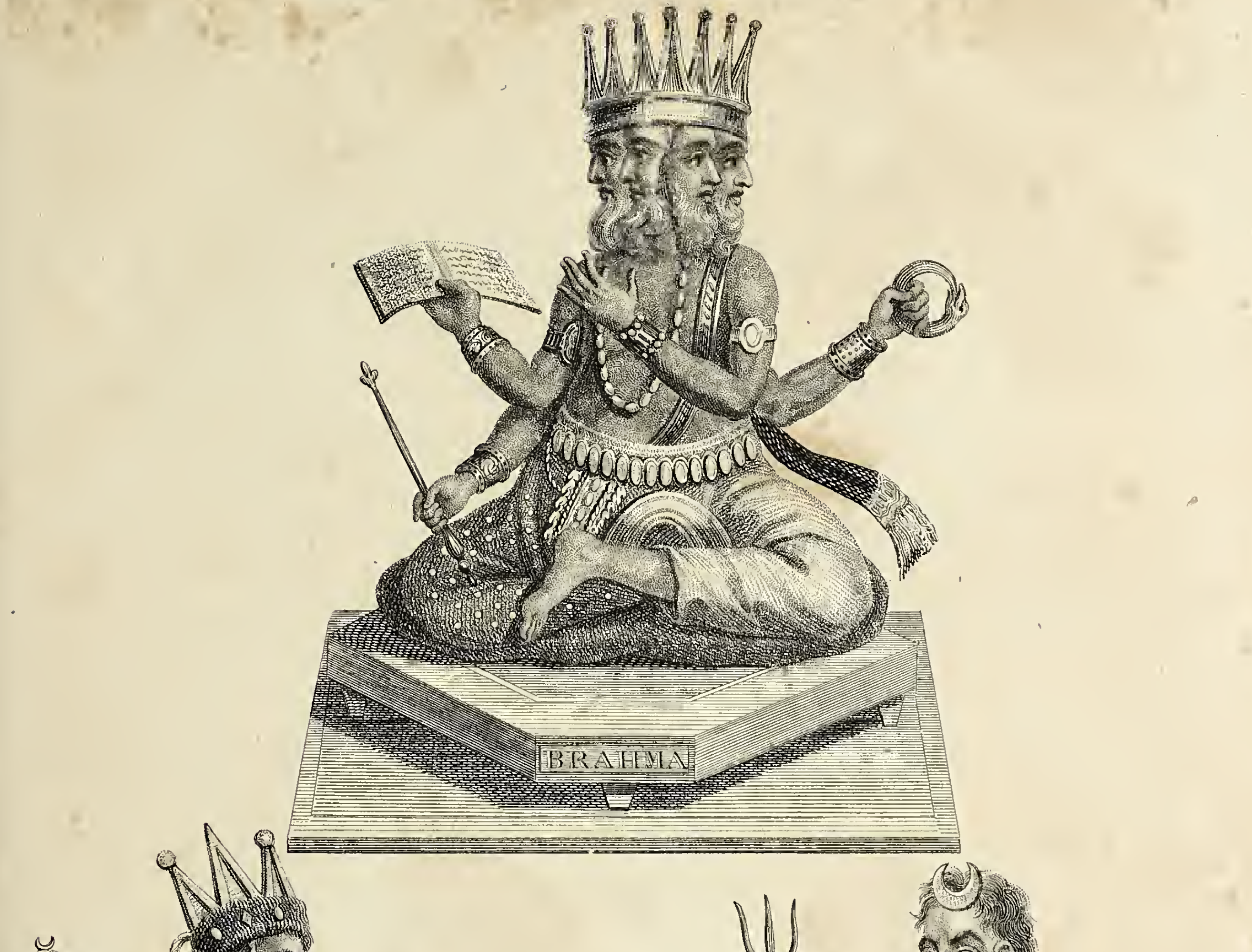
Garuda and Aruna are two brothers. Aruna is the *dawn*, the morning twilight, which precedes the Sun: Garuda is the dazzling full blaze of day, the type of truth, and the celeſtial *Vahan* of Viſhnu.

Juſtice, typified by the ſacred Bull, is the *Vahan* of Siva. The Bull, whoſe body is *Parameſwara*, and whoſe every joint is a virtue; whoſe three horns are three *Vedas*; whoſe tail ends where *Adherma*, or injuſtice, begins.

Such are the three gods of the Hindoo religion, which form their Triad. But it was not long before a ſchiſm broke out among the different prieſts; juſt as we find it among enthuſiaſts of every ſect and country. The followers of Viſhnu and Siva invented new ſymbols, each to aſcribe to their reſpective divinity the higher attribute of creation. The contention for pre-eminence ended in the total ſuppreſſion of the worſhip of Brahma, and the temporary ſubmiſſion of Viſhnu to the ſuperiority of Siva. But this did not laſt long; the ſects raiſed endleſs wars againſt each other; hordes of armed fanatics, under the titles of Vaiſhnavas and Saivas, enliſted themſelves as champions of their reſpective faith; the latter devoted their lives in ſupport of the ſuperiority of Siva; and the former were no leſs zealous for the rights of Viſhnu. Hence temples reared their venerable heads throughout Hindooſtan, dedicated to one or the other of theſe two gods; but not a ſingle fabric recognized the ſacred name of Brahma.

The annihilation of the ſect, and worſhip of Brahma, is allegorically deſcribed in the *Caſic'hand* of the *Scanda Puran*, where the three powers are mentioned as contending for precedency. Viſhnu, at laſt, acknowledges the ſuperiority of Siva; but Brahma, on account of his perſiſting in his ſupreme authority, had one of his heads cut off by Siva, and his *puja* aboliſhed. From that period Siva is ſaid to have aſſumed *five* heads. The intent of this Indian legend is evidently to magnify the ſect of Siva above thoſe of Brahma and Viſhnu; and if, inſtead of the *Devatas* themſelves, who are deſcribed as the actors in this allegorical account, we ſubſtitute the contending ſects, the fable will appear not deſtitute of foundation in hiſtorical fact.

The *Vaiſhnavas*, in order to appropriate the creative principle to Viſhnu, make Brahma, whom they acknowledge as the immediate agent of creation, to derive his origin from a *lotos*, which ſprang out of the navel of Viſhnu whilſt ſleeping upon the vaſt abyſs of primeval waters; thus Viſhnu becomes ſuperior to Brahma, as being the *cauſe*, firſt, of his exiſtence, and ſecondly, of all created things through his agency. The *Argha* is a veſſel of copper uſed by the *Brahmins* in their *puja*; its ſhape is intended to repreſent the univerſal Mother, but in the centre of it is an oval riſing emboſſed, and by this the Vaiſhnavas aſſert is meant the navel of Viſhnu, from which all things originally ſprang; and, by the myſtic union of theſe two principles of production, they intended to deſcribe



J. Chapman, Sculp.

*The Gods of the Indian Triad.*

London, Published June 24, 1809, by J. Wilkes.

ſcribe them as identically one. The *Saivas*, on the contrary, inſiſt, that this Omphalic riſing is meant as the emblem of the *Ling*; hence Siva's title of *Arghanath*, and in the Agama, *Argha-Iſa*, both meaning the Lord of the ſacred Veſſel *Argha*. Viſhnu is alſo repreſented in the tenth Avatar as the deſtroying power, thus aſcribing to him the attribute of Siva.

All the ſects, however, appear to believe in the ten viſible manifeſtations of Viſhnu upon the earth. He is ſuppoſed to have aſſumed a viſible form nine ſeveral times ſince the creation; the laſt of theſe about five thouſand years ago; and he is expected once more to appear in the world, for the tenth and laſt time. Theſe manifeſtations took place in the following order:

Firſt, when he aſſumed the figure of a fiſh, in order to recover, from the bottom of the ocean, the books of the ſacred law, which had been ſtolen by a giant or demon, while Brahma ſlept.

Second, when he took on him the form of a tortoiſe, for the purpoſe of removing the mountain Mairoo, and upſetting it in the ſea of milk, to enable the Daivers to obtain from it the potion of immortality which, in that ſtate, it was thenceforward to yield.

Third, when he became a wild boar, in order to tear up the foundations of the earth, that he might reach the feet of Siva.

Fourth, when he was born into the world as a prince, and took the name of Rama; in this ſtate, he encountered the great giant of Yail-Lunga, or Ceylon. This giant or demon is repreſented with ten heads and twenty arms; but neither the wiſdom nor the ſtrength which theſe allegorically indicate could prevent the final extirpation of his race from that iſland. Viſhnu's image as Rama is always attended by another of an ape, whoſe numerous tribe was of eſſential ſervice to him in the accompliſhment of this exploit.

Fifth, when he was again born as a warrior. His father, on this occaſion, was a celebrated prophet; and his mother one of the tutelary intelligences. The object of this appearance, was the annihilation of ſeven arbitrary, uſurping, and cruel, monarchs.

Sixth, when in the form and character of a prieſt, he extirpated the religions of the two nations called the Pooliver and Saumauner; and propagated his own worſhip throughout India.

Seventh, when in the form of a being, half lion and half human, he tore out the entrails and drank the blood of the mighty, but cruel, giant Eeraunien.

Eighth, when he appeared as a dwarf Brahmin; and, by ſtratagem, wreſting the government of the world out of the hands of the giant Bailee, he trod that monſter into the earth.

Ninth, when he was born as an infant, in the houſe of a ſhepherd, who educated him; after which he performed great exploits under the name of Criſhna.

The tenth and laſt viſible manifeſtation has not yet been made; but it is to be exhibited under the form of an immenſe animal, partly horſe, and partly elephant; as a ſymbol of the power and might with which he will proceed to judge the earth, and puniſh the wicked. This figure is finely ſculptured in many of his temples; and may be ſeen moſt curiouſly carved in one of the Hindoo pillars or columns, in our article ARCHITECTURE, vol. ii. p. 67, Plate II.

In the mean while the worſhippers of Siva, in order to gain a firm footing among the votaries of pleaſure, who are always the moſt numerous, introduced the doctrines of the eternity of matter. In order to reconcile the apparent contradiction of aſſigning the attribute of *creation* to the principle of *deſtruction*, they aſſerted, that the diſſolution and deſtruction of bodies was not real, with reſpect to matter, which was indeſtructible itſelf, although its modifications were in a conſtant ſucceſſion of mutation; that the power which continually operates theſe changes, muſt neceſſarily unite in itſelf the attributes of creation and apparent deſtruction; that this power, and matter, are two diſtinct and co-exiſtent principles in nature; the one agent, the other patient; the one *male*, the other *female*; and that creation was the effect of the myſtic union of theſe ſexual principles. The hieroglyphic of this myſtical union was worſhipped under a variety of names; and thus the attribute of creation was wreſted from Brahma, by the followers of Siva, to adorn and characterize their favourite deity.

This voluptuous ſymbol ſeems to have been a popular worſhip, for a great length of time. Two ſects, however, ſprang out of it: the one perſonified the whole univerſe, and the diſpenſations of providence in the regulation thereof, into a goddeſs; this ſect retained the female ſymbol only, and denominated themſelves *Sacta*, as worſhippers of the *Sacti*, or female influence excluſively, which they called *Pracriti*; and which we, from the Latin, term *Nature*.

The other ſect inſiſted, that there was but one eternal firſt cauſe; that every thing exiſting, derived its exiſtence from the ſole energy of that firſt cauſe, (*Niranjen.*) Hence aroſe the tribe of Deiſts in India.

In order to expreſs their ideas of the abſolute independence of this ſupreme power upon any extra co-operation, they took for their ſymbol the male parts, unconnected with that of the female. A third ſect now aroſe, to reconcile the idea of the unity of the godhead with that of the exiſtence of matter and ſpirit; they, therefore, contended, that the union of thoſe two principles was ſo myſteriouſly intimate as to form but *one being*, which they repreſented by a figure half male and half female, and denominated Hara-Gauri, and Ardhanari Iſwara. It is poſſible that the groſs idea of obſcenity was not originally attached to theſe ſymbols; and it is likely, that the inventors themſelves might not have foreſeen the diſorders which this worſhip was to occaſion amongſt their followers. Obſcene mirth became the principal feature of the popular ſuperſtition, intermingled with libidinous rites and bloody ſacrifices. It was now that the *lingam*, or figure exhibiting the contact of the ſexes, too groſs to deſcribe, became the favourite and diſtinguiſhing inſignia of the votaries of Siva; and in ſuch high veneration was this diſguſting image held, that it ſoon found a place both within and without the temples of Siva; whilſt his prieſts cauſed the figure to be caſt in miniature, and ſold among their followers, in ſmall caſes of gold, ſilver, or braſs, according to the means of the purchaſers; who on certain feſtivals ſtill wear them expoſed around their necks or arms.—See Kinderley's Hindoo Literature.

Theſe ſcandalous fabrications of the prieſts, working upon the ignorance and ſimplicity of their votaries, too obviouſly ſhow the road by which idol-worſhip, with all its abominations, found its way ſo univerſally among this extraordinary people. For, that it was not ſo in their earlier days, or at the primeval formation of their mythology, may be ſeen from their own record of the univerſal deluge, as recounted in the *Bhagavet*, from which it is literally tranſlated by ſir William Jones; and forms the firſt *Purana*, entitled *Matſya*, when Viſhnu made his firſt viſible manifeſtation on the earth, in the form of a fiſh.

"Deſiring the preſervation of herds, and of Brahmans, of genii and virtuous men, of the Vedas, of law, and of precious things, the lord of the univerſe aſſumes many bodily ſhapes; but, though he pervades, like the air, a variety of beings, yet he is himſelf unvaried, ſince he has no quality ſubject to change. At the cloſe of the laſt *Calpa*, or renovation of the earth, there was a general deſtruction occaſioned by the ſleep of Brahma; whence his creatures in different worlds were drowned in a vaſt ocean. Brahma, being inclined to ſlumber, deſiring repoſe after a lapſe of ages, the ſtrong demon Hayagriva came near him, and ſtole the Vedas which had flowed from his lips. When Heri, the preſerver of the univerſe, diſcovered this deed of the prince of Danavas, he took the ſhape of a minute fiſh, called *ſap'hari*. A holy king, named Satyavrata, then reigned; a ſervant of the ſpirit which moved on the waves, and ſo devout, that water was his only ſuſtenance. He was the child of the Sun, and, in the preſent Calpa, is inveſted by Narayan in the office of Menu, by the name of *Sraddhadeva*, or the God of Obſequies. One day, as he was making a libation in the river Critamala, and held water in the palm of his hand, he perceived a ſmall fiſh moving in it. The king of Dravira immediately dropped the fiſh into the river, together with the water which he had taken from it; when the ſap'hari thus pathetically addreſſed the benevolent monarch: "How canſt thou, O king, who ſheweſt affection to the oppreſſed, leave me in this river-water, where I am too weak to reſiſt the monſters of the ſtream, who fill me with dread?" He, not knowing who had aſſumed the form of a fiſh, applied his mind to the preſervation of the ſap'hari, both from good nature and from regard to his own ſoul; and, having heard its very ſuppliant addreſs, he kindly placed it under his protection in a ſmall vaſe full of water; but, in a ſingle night, its bulk was ſo increaſed, that it could not be contained in the jar, and thus again addreſſed the illuſtrious prince: "I am not pleaſed with living miſerably in this little vaſe; make me a large manſion, where I may dwell in comfort." The king, removing it thence, placed it in the water of a ciſtern; but it grew three cubits in leſs than fifty minutes, and ſaid, "O king, it pleaſes me not to ſtay vainly in this narrow ciſtern; ſince thou had granted me an aſylum, give me a ſpacious habitation." He then removed it, and placed it in a pool, where, having ample ſpace around its body, it became a fiſh of conſiderable ſize. "This abode, O king, is not convenient for me, who muſt ſwim at large in the waters: exert thyſelf for my ſafety; and remove me to a deep lake." Thus addreſſed, the pious monarch threw the ſuppliant into a lake, and, when it grew of equal bulk with that piece of water, he caſt the vaſt fiſh into the ſea. When the fiſh was thrown into the waves, he thus again ſpoke to Satyavrata: "Here the horned ſharks, and other monſters of great ſtrength, will devour me; thou ſhouldeſt not, O valiant man, leave me in this ocean." Thus repeatedly deluded by the fiſh, who had addreſſed him with gentle words, the king ſaid, "Who art thou, that beguileſt me in that aſſumed ſhape? Never before have I ſeen or heard of ſo prodigious an inhabitant of the waters, who, like thee, haſt filled up, in a ſingle day, a lake an hundred leagues in circumference. Surely, thou art *Bhagavat*, who appeareſt before me; the great *Heri*, whoſe dwelling was on the waves; and who now, in compaſſion to thy ſervants, beareſt the form of the natives of the deep. Salutation and praiſe to thee, O firſt male, the lord of creation, of preſervation, of deſtruction! Thou art the higheſt object, O ſupreme ruler, of us thy adorers, who piouſly ſeek thee. All thy deluſive deſcents in this world give exiſtence to various beings; yet, I am anxious to know for what cauſe that ſhape has been aſſumed by thee. Let me not, O lotos-eyed, approach in vain the feet of a deity, whoſe perfect benevolence has been extended to all; when thou haſt ſhown us to our amazement the appearance of other bodies, not in reality exiſting, but ſucceſſively exhibited." The lord of the univerſe, loving the pious man, who thus implored him, and intending to preſerve him from the ſea of deſtruction, cauſed by the depravity of the age, thus told him how he was to act. "In ſeven days from the preſent time, O thou tamer of enemies, the three worlds will be plunged in an ocean of death; but, in the midſt of the deſtroying waves, a large veſſel, ſent by me for thy uſe, ſhall ſtand before thee. Then ſhalt thou take all medicinal herbs, all the variety of ſeeds; and, accompanied by ſeven ſaints, encircled by pairs of all brute animals, thou ſhalt enter the ſpacious ark, and continue in it, ſecure from the flood, on one immenſe ocean, without light, except the radiance of thy holy companions. When the ſhip ſhall be agitated by an impetuous wind, thou ſhalt faſten it with a large ſea-ſerpent on my horn; for I will be near thee; drawing the veſſel, with thee and thy attendants. I will remain on the ocean, O chief of men, until a night of Brahma ſhall be completely ended. Thou ſhalt then know my true greatneſs, rightly named the ſupreme Godhead; by my favour, all thy queſtions ſhall be anſwered, and thy mind abundantly inſtructed." Heri, having thus directed the monarch, diſappeared; and Satyavrata humbly waited for the time which the ruler of our ſenſes had appointed. The pious king, having ſcattered toward the eaſt the pointed blades of the graſs *darbha*, and turning his face toward the north, ſat meditating on the feet of the god, who had borne the form of a fiſh. The ſea, overwhelming its ſhores, deluged the whole earth; and it was ſoon perceived to be augmented by ſhowers from immenſe clouds. He, ſtill meditating on the command of Bhagavat, ſaw the veſſel advancing, and entered it with the chiefs of Brahmans, having carried into it the medicinal creepers, and conformed to the directions of Heri. The ſaints thus addreſſed him: "O king, meditate on Ceſava; who will, ſurely, deliver us from this danger, and grant us proſperity." The god, being invoked by the monarch, appeared again diſtinctly on the vaſt ocean in the form of a fiſh, blazing like gold, extending a million of leagues, with one ſtupendous horn; on which the king, as he had before been commanded by Heri, tied the ſhip with a cable made of a vaſt ſerpent, and, happy in his preſervation, ſtood praiſing the deſtroyer of Madhu. When the monarch had finiſhed his hymn, the primeval Bhagavat, who watched for his ſafety on the great expanſe of water, ſpoke aloud to his own divine eſſence, pronouncing a ſacred Purana, which contained the rules of the Sanchya philoſophy; but it was an infinite myſtery, to be concealed within the breaſt of Satyavrata; who, ſitting in the veſſel with the ſaints, heard the principle of the ſoul, the Eternal Being, proclaimed by the preſerving power. Then Heri, riſing together with Brahma from the deſtructive deluge, which was abated, ſlew the demon Hayagriva, and recovered the ſacred books. Satyavrata, inſtructed in all divine and human knowledge, was appointed in the preſent Calpa by the favour of Viſhnu; and he who ſhall devoutly hear this important allegorical narrative, will be delivered from the bondage of ſin."

And from Mr. Kinderley's tranſlation of their "WORSHIP OF THE SUPREME BEING," taken from one of their ſacred books, it is evident that the Hindoos were not always idolaters. The tranſlation is as follows:

"As in all languages the letter A is at the head of the alphabet; ſo is the all-wiſe God at the head of all the worlds.

"Though one ſhould be intimately acquainted with the whole circle of ſciences, and maſter of the reſpective principles on which the moſt abſtruſe of them are founded; yet, if this knowledge be unaccompanied by the humble worſhip of the omniſcient God, it ſhall prove altogether vain and unprofitable.

"Thoſe, who with devout hearts draw near to the adorable feet of the Supreme Being, ſhall aſcend to that ſtate, which is above all the worlds, and there enjoy incorruptible happineſs.

"The praiſe or cenſure of this world ſhall not affect thoſe who worſhip, and ſincerely ſeek the glory of, the true God.

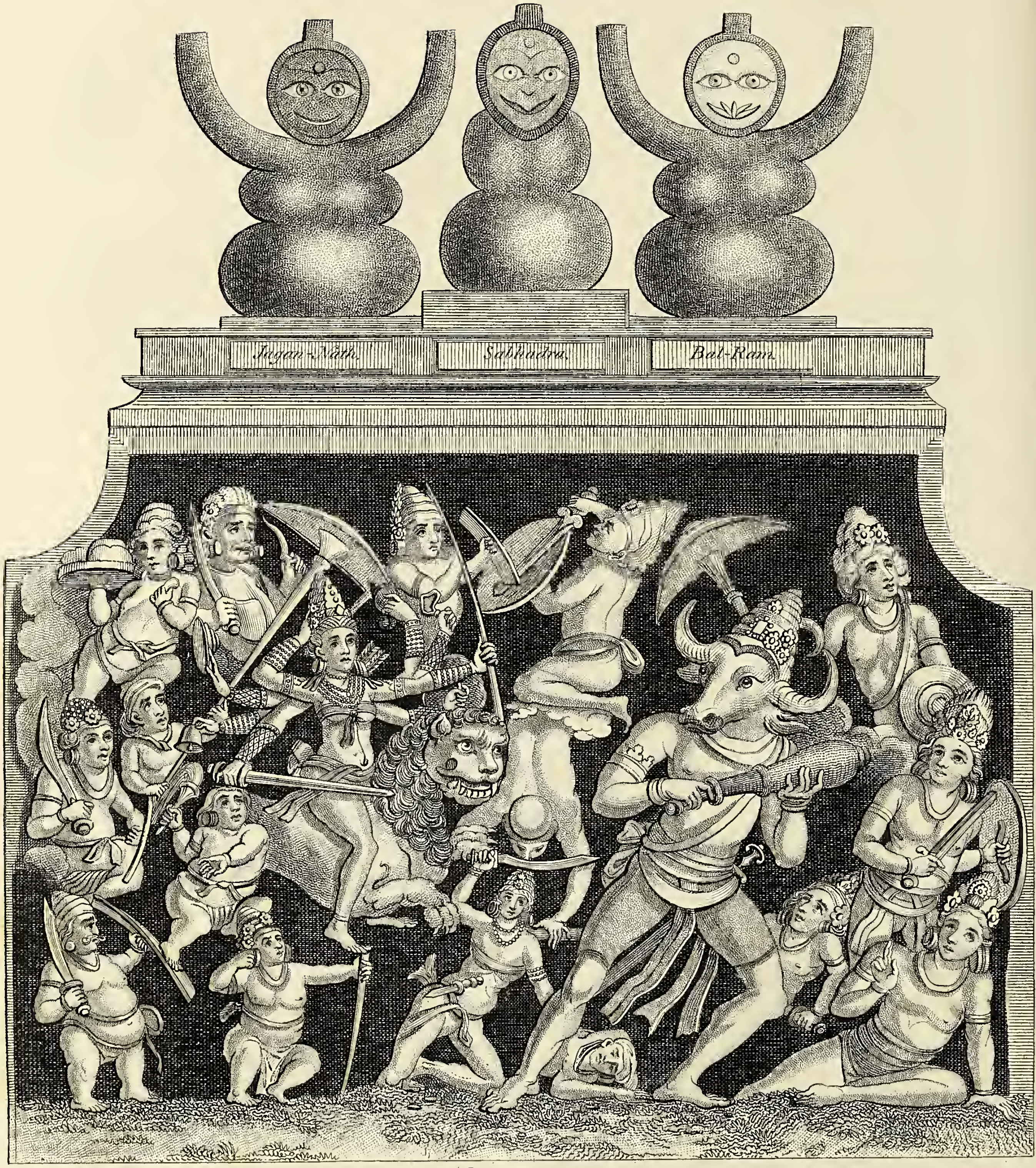
"Thoſe who uniformly mortify the five ſenſes, of ſight, hearing, taſte, ſmell, and feeling, ſhall for ever enjoy bliſs unperiſhable.

"Thoſe only who in prayer humbly approach the feet of that Being, to whom nothing is equal, ſhall eſcape the ordinary cares and troubles of the mind: and only thoſe, who ſerve that Being, whoſe benevolence is boundleſs as the ocean, ſhall paſs over and quit the ſea of mortal exiſtence.

"Thoſe who refuſe to bend their ſtubborn necks to the Being, who poſſeſſes the eight attributes; though they live, yet are they as dead as corpſes.

"The eight attributes are—infinite wiſdom; omniſcience; omnipotence; perfect beatitude; an univerſal name;

the


Jagan-Nath.
Sabhadra.
Bal-Ram.

J. Chapman, Sc.

*Victory of Cali over the Giant Mahish Asura;*
*With the Idols of the Temple of Jagan-Nath.*

London Published Aug. 12. 1809. by J. Wilkes.

the pervading (and being the ſoul of) all nature; ſupremacy in dignity; the ſovereign controul of all events."

From the foregoing paſſages we diſcover no tendency to idolatry, or even a notion of falſe gods; which we ſhall hereafter confirm by our extracts from the Vedas; and, as their authority is unimpeachable, ſo the evidence they afford in behalf of the true religion is not to be denied. It is therefore to the baneful influence of the prieſts, who degraded the divine attributes of the Deity into ſubordinate gods, and into genii or demons of various viſible forms, and preſcribed to them numberleſs rites and ceremonies with which an ignorant and infatuated people were ready enough to conform, that we are to attribute the idolatry of the Hindoos. That this abomination aroſe out of the diſputes between the prieſts and ſects of Viſhnu and Siva for pre-eminence, appears pretty certain; and yet it is curious to remark, that, wherever the intereſts of theſe prieſts appear to have been combined for the increaſe of offerings, they would ſtifle all animoſity, and league together for their mutual advantage. A ſtronger proof of this fact cannot be given than what is afforded by the prieſtcraft of the Hindoo temple of *Jagan-Nath*, commonly called *Jagarnaut*. This pagoda is a famous reſort for pilgrims of all ſects; and it has been ſo contrived as to be revered by all. It is become a converging point, moſt eligibly ſituated for the purpoſe near Chilka Lake in the Bay of Bengal, and province of Oriſſa, where all the contending parties unite in harmony with each other. What ſhould be the ſecret ſpring of this concurrence of ſentiment in ſects, otherwiſe ſo irreconcilable to each other? The wonder will ceaſe when we come to reflect that the principal idol of this temple exhibits a form ſo extraordinary, that its figure reſembles nothing "in the heavens above, or in the earth beneath, or in the waters under the earth."

This idol is ſo contrived, that while it manifeſts the triad, it can, by tranſpoſing or ſhifting the two outſide figures, one of which is named *Jagan-Nath*, and the other *Bal-Ram*, give pre-eminence either to Viſhnu or to Siva, as the worſhip of the devotees might occaſionally require; keeping *Subhadra*, the female principle or *Sacti*, in the centre. It was undoubtedly a maſter-ſtroke of policy, in the founders of this temple, to preſent, as an object of worſhip, the perſonification of the triliteral ſymbol, which is held in reverence alike by all the ſectaries; and at the ſame time to give it a title by which each ſect might apply to the object of its own particular adoration. The intention of the foundation was evidently to render the temple a place of pilgrimage open to all ſects alike, and to draw an immenſe revenue from the multifarious reſort of devotees with their offerings. The ornaments and apparel with which they at different times cover the image conceal the real figure from the multitude, and give it an air of myſtery, which they knew would ſtrongly operate upon weak and ſuperſtitious minds. Jagan-Nath and Bal-Ram have both the ſame form, to ſhow their identity in the triad; and their faces have the reſpective colours of Viſhnu and Siva. This triliteral idol, in the unattired ſtate, is ſhown in the annexed Engraving. This temple is made the rallying point for the three great ſects. It is upon this principle, that Jagan Nath and Bal-Ram appear ſometimes with the attributes of Ganeſa, to ſhow that it is one and the ſame Deity who is worſhipped under ſo many names and forms. The eyes of the idol Jagan-Nath are formed of two brilliant carbuncles, or oriental rubies; thoſe of Bal-Ram are two large coſtly diamonds; thoſe of Subhadra are two tranſparent oriental topazes of the moſt reſplendent yellow. Thus, on entering the temple, the eyes of theſe triliteral gods appear to dart fire and flame in every direction, and in every degree of luſtre; which is artificially aſſiſted by the rays of the ſun falling upon them through apertures conſtructed for that purpoſe; and by the gems having no opaque or ſolid body behind them, but admitting the rays of light to paſs entirely through the ſolid heads of the idols.

When the Vaiſhnavas ſeparated themſelves from the Saivas, they introduced a new ſymbol of the Sun, under the name of *Criſhna*, as a contraſt to the horrid rites of *Cali*, which had diſguſted them. Criſhna, being an incarnation of Viſhnu, is depicted with the ſame characteriſtic complexion of dark azure, to identify the Deity in the ſymbol. Hence, in the foregoing idol, Chriſhna, as Parameſwara, is Jagan-Nath, or Lord of the Univerſe; his half brother is Bal-Ram, (a terreſtrial appearance of Siva;) and Subhadra is a form of the goddeſs Devi.

The *Earth* is perſonified by a Cow, the cow of plenty; and, as the planets were conſidered by the Hindoos to be ſo many habitable Earths, it was natural to deſcribe them by the ſame hieroglyphic; and as the Sun directs their motions, furniſhes them with light, and cheriſhes them with his genial heat, Criſhna, the ſymbol of the Sun, was pourtrayed as a herdſman, on the banks of the Yamuna, where he obtained a great victory over the ſerpent Calya Naga, which had poiſoned the air, and deſtroyed the herds in that region. This allegory may be explained upon the ſame principle as the expoſition given of the deſtruction of the ſerpent Python by the arrows of Apollo. It is the Sun which, by the powerful action of its beams, purifies the air, and diſperſes the noxious vapours of the atmoſphere.

Next to Criſhna, they hold in moſt reverential eſteem the god *Carticeya*, which is the ſuppoſed *Mars* of India. He is repreſented as a warrior with ſix faces: he is armed with arrows and ſpears, and appears riding upon a peacock. The worſhip of Carticeya takes place on the laſt day of Cartica, as preparatory to military expeditions, which ought to commence, according to Menu, in the month Agrahayana, the Sun being thought more propitious at that period for ſuch undertakings.

The god *Indra*, is the Emblem of the Viſible Heavens; and is deſcribed, like *Argus*, covered with numerous eyes. To account for this extraordinary appearance, the Hindoo legend ſtates, that Indra, having ſeen the beautiful wife of a certain Riſhi, was anxious to be more intimate with her; but the watchful huſband prevented the intercourſe, by arriving juſt in time to ſave the honour of his wife. The enraged ſaint uttered an imprecation, and wiſhed that the god might be covered all over with repreſentations of the thing which had been the object of his deſires; the curſe took immediate effect. The god, full of ſhame, repented; and, by his entreaties, at laſt prevailed on the holy man to mitigate the curſe, by changing the marks of his ſhame to as many eyes. The rainbow is the bow of Indra. The water-ſpout is the trunk of his elephant; thunder, lightning, and rain, and every phenomenon of the atmoſphere, belong to the department of this god. His heaven is a manſion of ſenſual delights and enjoyment.

The Hindoos have eight repreſentations of female figures, of which each is a *Sacti*, or female power, with the ſame attributes and *vehicle*; Maheſwari is the Sacti of Maheſa, or Siva; Brahmi, or Brahmani, of Brahma; Narayani, of Narayena; Aindri, of Indra; Caumari, of Carticeya; Varahi, of Viſhnu, in the *Varaha Avatar*; Naraſinhi, of Viſhnu, in the *Naraſinha Avatar*; and Aparajita, a form of Bhavani, the female principle.

The image of the goddeſs *Anna Purna Devi*, is repreſented ſitting on a throne. She is of a ruddy complexion, attired in a robe of various dies, with a creſcent on her forehead; ſhe is the goddeſs of plenty, and is bent by the weight of her full breaſts; Bhava, or Siva, as a child, is playing before her, with a creſcent on his forehead; ſhe looks at him with pleaſure, and ſatisfies his hunger; all good is united in her; her other names are Annada, Bhavani, and Bhagavati.

*Varcona*, is the god of the ſeas and waters, and is generally repreſented as riding on a crocodile.

*Vayoo*, is the god of the winds, and rides on an antelope, with a ſabre in his right hand.

*Agny*, is the god of fire; has four arms, and rides on a ram.

The Sun is generally called Sour, or Surya, whence the ſect who pay him particular adoration, are called *Souras.* Their poets and painters, according to ſir William Jones, deſcribe his car as drawn by ſeven green horſes; but Mr. Foſter informs us, that in the temple of Bis Eiſhuar at Benares, there is an ancient ſculpture repreſenting this god ſitting in a car drawn by a horſe with twelve heads. The Sun is often ſtyled King of the Stars and Planets. The name of his goddeſs is *Sangia,* who is ſuppoſed to be the mother of the river Jumna.

*Chandara,* or the Moon, is alſo repreſented ſitting in a car, but drawn by antelopes, and holding a rabbit in the right hand.

*Ganes,* is the god of wiſdom, or, as he is ſometimes called, of prudence and policy. He is worſhipped previouſly to the commencement of any enterpriſe. He is repreſented in a human form, but with an elephant's head, as a ſymbol of ſagacity; and is attended by a rat, which is conſidered by the Hindoos as an ingenious and provident animal, ſimilar in forecaſt to the *ant* in England; and hence the rat is nurtured by all orders with particular attention. Few books are begun without the words, *Salutation to Ganes*; and he is firſt invoked by the Brahmins, who conduct the trial by ordeal, or perform the ceremony of the *homa,* or ſacrifice to fire.

*Vreehaſpata* is the god of literature; and his attendants, the Veedyadharis, are beautiful young nymphs.

*Veck-rama,* is the god of victory. It is ſaid to have been the cuſtom to ſacrifice a horſe to him, by letting him looſe in a foreſt, and not again ſubjecting him to any work.

*Fame,* as perſonified in Hindooſtan, has ſeveral names; and is repreſented as a ſerpent with a variety of tongues.

*Darma Deva,* is the god of virtue, repreſented by the figure of a white bull.

*Virſavana,* is the god of riches, repreſented riding on a white horſe. He is likewiſe called Viteſa, Cuvera, and Paulaſtya. He is ſuppoſed to be borne through the ſky in a ſplendid car, named Puſhpaca: to preſide over the northern regions, and to be the chief of the Yakſhas and Rakſhas, two ſpecies of good and evil genii.

*Dhan-wantary,* is the god of medicine.—"When life hath taken its departure, though Dan-wantary were thy phyſician, what could he do?"

*Yam Rajah,* or Darham Rajah, ſeems to hold the ſame offices with the Hindoos, that Pluto and Minos held with the Greeks. He is judge of the dead, and ruler of the infernal regions. He bears a ſceptre in his hand, and rides on a buffalo. He was begot by Sour, or the Sun, on a daughter of Biſoo-karma, great architect of the heavenly manſions, and patron of artificers. Darham Rajah's aſſiſtants are *Chiter* and *Gopt.* The former has the care of reporting the good, the latter, the bad, actions of mankind. And, that theſe may be always known, two genii attend as ſpies on every one of the human race; the ſpy of Chiter on the right, and that of Gopt on the left. As ſoon as any one dies, the Jambouts, or meſſengers of death, convey his ſoul to Darham's tribunal, where his actions are proclaimed, and ſentence paſſed upon him. But Darham Rajah has no power over the ſouls of thoſe holy men, whoſe lives have been ſpent in piety and benevolence, unbiaſſed by the hope of reward or the dread of puniſhment. Theſe are conveyed by genii to the upper regions of bliſs, and are afterwards admitted to *Moukt,* ſupreme happineſs, or abſorption in the univerſal ſpirit, "though not ſuch as to deſtroy *conſciouſneſs* in the divine eſſence."

The god of *love,* has many epithets deſcriptive of his powers; but the moſt uſual one is *Kama-diva,* or "the god of deſire." In the argument of a hymn to this deity, publiſhed at Calcutta, ſir William Jones informs us, "that, according to the Hindoo mythology, he was the ſon of Maya, or the attracting power; that he was married to Retty, or affection; and that his boſom-friend is Vaſſant, the ſpring: that he is repreſented as a beautiful youth, ſometimes converſing with his mother, or conſort, in the midſt of gardens and temples; ſometimes riding by moon-light on a parrot, attended by dancing girls, or nymphs, the foremoſt of whom bears his colours, which are a fiſh on a red ground: that his favourite place of reſort is a large tract of country round Agra, and principally the plain of Muttra, where Criſhen alſo and the nine Gopia uſually ſpend the night with muſic and dance: that his bow is of ſugar-cane, or flowers; the ſtring, of bees; and that his five arrows are each pointed with an Indian bloſſom, of a heating quality." When Tanjore was taken by the Engliſh, a curious picture was found, repreſenting the god of love riding on an elephant, whoſe body was compoſed of the figures of ſeven young women, entwined in ſo whimſical but ingenious a manner, as to exhibit the true ſhape of that enormous animal.

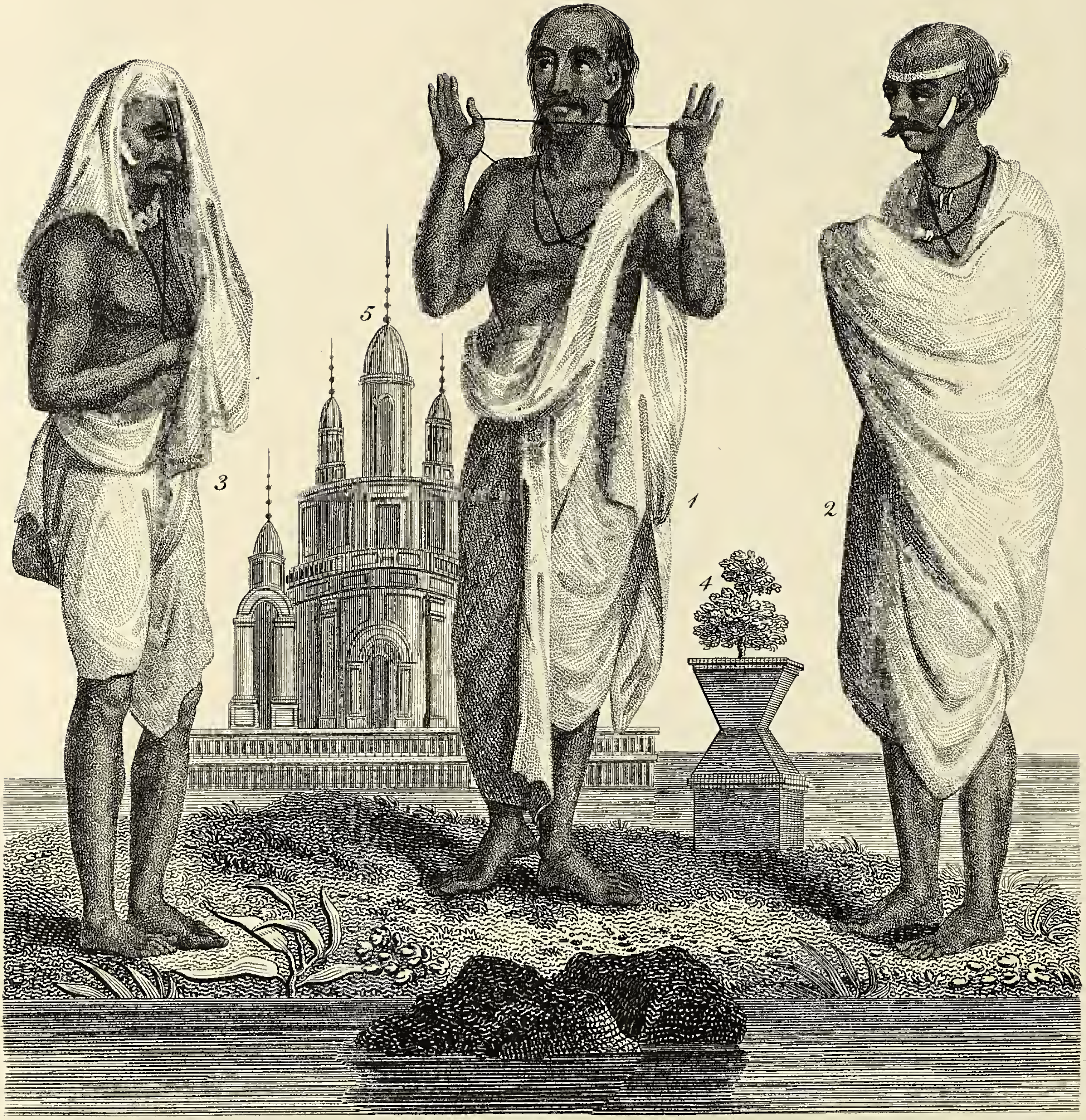
*Nared,* the ſon of Bramha, is the Hermes, or Mercury, of the Hindoos. He is repreſented as a wiſe legiſlator; great in arts and arms. His actions are the ſubject of a Purana. The law-tract, ſuppoſed to have been revealed by Nared, is at this hour cited by the Pundits or lawyers of Hindooſtan.

The groſs idol of *Lingam,* much reſembles the Phallus of the Egyptians. A lamp is kept conſtantly burning before it. As the Hindoos depend on their children for performing thoſe ceremonies to their manes, which they believe tend to mitigate puniſhment in a future ſtate, they worſhip Lingam to obtain fecundity. Huſbands, whoſe wives are barren, ſend them to worſhip Lingam at the temples; and it is ſaid, that the wives take pretty good care that their errand ſhall be productive of the deſired effect.

The Hindoos, like the Greeks and Romans, have their demi-gods, who drink a beverage called Amrut; and their aërial ſpirits, that occupy the ſpace in which the globe revolves. Every mountain, wood, and river, has its genii and guardian deity. *Nullus enim locus ſine genio eſt, qui per anguem plerumque oſtenditur.* Serv. in Æneid.—The Greeks aſcribed the diſeaſes to which frail mortality is expoſed, to ſome angry god, or evil genius, that is perpetually endeavouring to deſtroy the repoſe and happineſs of man: it is remarkable that the creed of the Hindoos is the very ſame at this day.

The wars of the Indian gods and goddeſſes againſt the demons and giants, form an intereſting legend among the ancient tales of the Brahmins, and tend undeniably to prove that the mythology of the ancient Egyptians, Ethiopians, Greeks, and Romans, had all a common origin with that of the Hindoos. The ſtory of theſe wars is finely expreſſed in ſculpture, of a vaſt ſize, on many of the walls in the interior of their temples. Among a number of theſe ſculptures which are found at Mahabalipooran, or place of the Seven Pagodas, ſituated about thirty-eight miles to the ſouthward of Madras, in a temple dedicated to Siva, the curious traveller is ſtruck with a moſt ſpirited repreſentation of the victory of Cali or Durga, wife of Siva, over the giant Mahiſh A'Sura, or Yam-rajah, as exhibited in the annexed Engraving. Cali is here finely depicted, riding upon a fierce *ſingam,* or lion, attended by a group of warriors, male and female, with ſeveral *dwarfs,* to render her defeat of a tremendous giant the more extraordinary. She bears all her proper emblems in her numerous hands, very correctly ſculptured; but, the lion probably not being known to the ſculptor, he has formed the mane rather like an artificial covering, than curling hair. The Yam-rajah, or giant, is drawn of a prodigious ſize, characterized by the head of the Indian buffalo, the moſt treacherous and deſtructive of all their wild animals. For its figure and hiſtory, ſee the article Bos, vol. iii. p. 225.—The object of Cali in this combat, appears to be the reſcue of a young princeſs, whom the attendants of the Yam-rajah were carrying off to gratify his luſtful appetite. She faints, and lies at his

feet.



J. Chapman, Sculp.

1, A principal Brahmin or Brahmana. 2, Brahmin of the Vishnu Sect.
3, Brahmin of the Siva Sect. 4, The Tulsee Plant, held in high veneration
by all Hindoos. 5, Their Pagoda or Temple.

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feet. A female attendant of Cali lays a protecting hand upon her; while, with her uplifted ſword in the other, ſhe aims a blow to lame the giant. This hand is caught in the critical moment by an attendant of the Yam-rajah, who, according to the legend, is inſtantly run through by Cali; when all cloſe upon the giant, and cut him in pieces. The title borne by Cali in this enterpriſe, was *Durga*, or Durgati Naſimi, "the remover of difficulties."

## CASTS OR TRIBES OF THE HINDOO PRIESTS AND PEOPLE.

The permanent ſeparation of the people into *caſts* and *claſſes*, with *hereditary* profeſſions aſſigned to each, is among the moſt remarkable inſtitutions of Hindooſtan. The four original CASTS or tribes are, the Brahmin, or *Brachmana*; the Khatri, or, according to the Sanſkrit, *Cſhatriga*; the Vhyſe, or *Vaiſya*; and the Soodera, or *Sudra*. Theſe are now ſeparated into two parties, or ſects; the one called the Viſhnu-Bukht or ſect, and the other the Siva-Bukht or ſect; that is, the followers of Viſhnu, and the followers of Siva. The former diſtinguiſhed themſelves by painting the forehead with a horizontal line or band; and the latter with a perpendicular one.

Beſide theſe four *caſts*, there is an adventitious tribe or caſt, called in the Sanſkrit *Chandalas*, and on the coaſt of Coromandel *Pariars*; who are employed in the meaneſt offices, and have no reſtrictions with regard to diet. Their number, compared with that of any other caſt, is inconſiderable, and ſeems evidently to conſiſt of thoſe perſons that have been expelled their caſts, which is a puniſhment inflicted for certain offences. Were a Hindoo of any of the other caſts to touch a Chandala, even by accident, he muſt bathe himſelf, and change his raiment. He would refrain from the productions of the earth, if he knew that they had been cultivated by a Chandala. A Chandala cannot enter a temple, or be preſent at any religious ceremony. He has no rank in ſociety, and cannot ſerve in any public employment. Hence the puniſhment of *expulſion*, which is ſuppoſed in its conſequences to extend even to another life, becomes more terrible than that of death.

Mr. Colebrooke, in the fifth volume of the Aſiatic Reſearches, has favoured the public with a literal tranſlation, from the Sanſkrit, of the origin of theſe caſts; which he ſtates to be as follows:—"In the *firſt* creation by Brahma, Brahmanas proceeded, with the Veda, from the mouth of Brahma. From his arms Cſhatriyas (Khatris) ſprung; ſo from his thigh, Vaiſyas: from his foot Sudras, were produced: all with their females. The Lord of creation, viewing them, ſaid "What ſhall be your occupations?" They replied, "We are not our own maſters, O God! command us what to undertake."

"Viewing and comparing their labours, he made the firſt tribe ſuperior over the whole. As the firſt had great inclination for the divine ſciences, (Brahmeveda,) therefore he was Brahmana. The protector from ill (Cſhate) was Cſhatrya; him whoſe profeſſion (Veſa) conſiſts in commerce, which promotes ſucceſs in war, for the protection of himſelf and of mankind; and in huſbandry, and attendance on cattle, called Vaiſya. The other ſhould voluntarily ſerve the three preceding tribes, and therefore he became a Sudra: he ſhould humble himſelf at their feet."

According to this original inſtitution, the bounden duty of the Brahmin is peace, ſelf-reſtraint, patience, rectitude, devotion, and learning. The duties of the Khatri are, magnanimity, glory, generoſity, and princely conduct. The duty of the Vhyſe is, to cultivate the land, to tend the cattle, to buy and ſell, and in all things uphold fair dealing. The duty of the Sudra is, ſervitude, and fidelity to all his employers.

"A man being contented with his own particular lot and ſituation obtaineth perfection.—A man by following the duties which are appointed by his birth, doeth no wrong.—A man's own calling ought not to be forſaken."

"Only the Brahmins may read the Vedas; the Khatries may hear them read; but the other caſts may only hear the *Saſtras*, or Commentaries on the Vedas."—Thus, in common language, in Hindooſtan, the four original caſts are termed the *ſacerdotal*, the *military*, the *commercial*, and the *ſervile*.

The inviolability of a Brahmin prieſt, is a fixed principle among the Hindoos; and to deprive him of life, either by direct violence, or by cauſing his death in any mode, is a crime which admits of no expiation. All Brahmins are not prieſts; yet all prieſts are Brahmins. Thoſe who are not of the order of the prieſthood, whether followers of Viſhnu or of Siva, may ſerve, but not in menial offices. They often act as ſecretaries, and ſuperintendants, to perſons of high rank; and as factors to bankers and merchants. There are inſtances of Brahmins being prime miniſters, not only to Hindoo princes, but even to Mohammedans; being preferred for their literary knowledge, complacency of manners, and rigid application. The firſt inſtance of the kind is recorded by Feriſhta, in the following words: "It is univerſally allowed, that Kangoh, in 1350, was the firſt Brahmin who accepted an office in the ſervice of a Muſſulman prince. Before him, the Brahmins never condeſcended to engage in public affairs, but paſſed their lives in the duties of religion, and ſtudy of the ſciences; indifferent to fortune, and eſteeming the ſervice of princes as hurtful to virtue, and hazardous to their eternal welfare. If, as phyſicians, aſtronomers, moraliſts, or hiſtorians, they ſometimes aſſociated with the rich or powerful, they yet would never wear the chain of ſervitude on their necks, though courted by gifts and high favours. However, ſince Kangoh's acceptance of employment, the direction of finance has been committed generally to Brahmins, by all the princes of the Deccan."

Some of the Brahmins are known to bear arms; but none of theſe can be admitted into the prieſthood; and, in their appearance, they are only diſtinguiſhed from the other Hindoos by the mark on their forehead. They abſtain from animal food; and meet with reſpect from the other caſts, though not in ſo great a degree as the prieſts. But thoſe who are of the prieſthood, confine their attention to the performance of religious ceremonies, to the ſervice of the temples, to ſtudy, and to the education of youth.

The prieſts never carry weapons of any kind, nor is it admiſſible to employ them, even in their own defence. They are patiently to ſubmit to violence, and leave it to God and the laws to avenge them. Yet they claim a pre-eminence in rank, even to their princes, or *rajahs*; becauſe they are chiefly of the ſecond, or Khatri, caſt. Some of the princes are however Brahmins; which always adds to their reſpectability and dignity. A rajah will receive, and taſte with reſpect, the food prepared by a Brahmin, but a Brahmin dare not eat of any thing that may have been touched by one of another caſt. In the adminiſtration of juſtice, the puniſhment of a Brahmin for any crime is milder, and in general of a leſs diſgraceful nature, than that of any other caſt for the ſame offence; and they have deſcended to the moſt minute circumſtances, in order to preſerve that deference and reſpect which they have eſtabliſhed as their due: and on which the following rules are founded:

"If a Brahmin commit a crime deſerving of a capital puniſhment, the magiſtrate ſhall, to prevent his committing a ſimilar crime in future, ſentence him to perpetual impriſonment.—There is no crime in the world ſo great as that of murdering a Brahmin; and therefore no magiſtrate ſhall ever deſire the death of a Brahmin, or cut off one of his limbs.

"Whatever orders ſuch Brahmins as are Pundits ſhall deliver to the Ryuts from the Saſtra, the Ryuts ſhall acknowledge and obey.

"If a Sudra give much, and frequent, moleſtation to a Brahmin, the magiſtrate ſhall put him to death.

"If a Brahmin go to wait on a prince, the ſervants and *derbans* ſhall not obſtruct his entrance, but give him a ready admiſſion.

"If a Brahmin be paſſenger in a boat, he ſhall not pay any thing to the waterman; and he ſhall enter and leave the boat before any other of the paſſengers. And in making way on the road, all are obliged to yield to the Brahmins."

The dreſs appointed for the Brahmins is a ſhort robe, which reaches not below the knee; over their ſhoulders is thrown a looſe mantle; and on their breaſt hangs, from the left ſhoulder, the *zennar*, or ſacerdotal ſtring, which is made of a peculiar kind of perennial cotton, called *nerma*; and is compoſed of a certain number of threads of a fixed length. That worn by the Khatri caſt has fewer threads than that worn by the Brahmin; and the third caſt, or Vhyſe, have fewer ſtill. The fourth, or Sudra caſt, as we have obſerved, are not permitted to wear it at all. The elder Brahmins preſerve their beards, long and venerable; but their heads, like the other Hindoos, are ſhaven, and only one long lock is left behind.

The functions of royalty devolve without exception on the Khatri caſt; and the poſſeſſions and authority of their rajahs are hereditary, deſcending in the line of legitimate *male* primogeniture. But, as the right of blood deſcends only to *this* degree, in default thereof the prince may adopt any one of his kinſmen to be his ſucceſſor; and who, from the time of his adoption, obtains the rights and the appellation of his ſon.

The younger branches of the families of rajahs generally ſerve in a military capacity, and have ſometimes lands given them, which they hold by a feudal tenure, called *jaghire*.

All commercial tranſactions are committed wholly to the Vhyſe, vulgarly called Bannians.

The Sudra caſt is by far more numerous than all the other caſts together, and compriſes the artiſan, and the labourer of every kind. The mechanics and artiſans are again divided into as many claſſes as there are profeſſions. Ninety-eight ſubdiviſions of the different caſts, have been reckoned by De la Croze, who has given an account of their names, and different employments. All follow the profeſſions of their fathers, as a common obligation. None can quit the claſs he belongs to, nor be admitted, nor ought he to marry, into another: and hence probably that reſemblance that ſome have pretended to obſerve in each claſs, as if compoſing one great family.

The cheerful reſignation of the Sudra to his inferior ſtate in ſociety, with the impoſſibility of riſing above it, beſides the effect of education, may be aſcribed to the influence of his religion. He is taught by it to believe that he is placed in the ſphere he now moves in, by way of trial, or for offences committed in a former life; and that, by piety and reſignation, he will enjoy greater happineſs in another.

Though the ſubordinate caſts enjoy greater liberty with reſpect to diet than the Brahmins, yet they ſcrupulouſly refrain from what is forbidden them, and will not partake of what may have been provided by any inferior caſt, or different religion. They may eat fiſh and fleſh, but not of all kinds indifferently; but to abſtain from them is conſidered a virtue.—"Thoſe who have forſaken the killing of all; thoſe whoſe houſes are a ſanctuary to all; they are in the way to heaven."

No Hindoo of any of the four caſts is allowed, by his religion, to taſte any intoxicating liquor; it is only drunk by ſtrangers, dancers, players, and Chandalahs, or outcaſts.

Of the principal *mixed* claſſes, which have ſprung from intermarriages of the four original caſts, Mr. Colebrooke, in the fifth volume of the Aſiatic Reſearches, has given the following enumeration:

1. *Murd'habhiſhicta*, from a Brahmana, or Brahmin, by a girl of the Cſhatrya or Khatri claſs: his duty is the teaching of military exerciſes. The ſame origin is aſcribed in the great D'herma-purana to the Cumbhacara, Cumar, or potter, and the Tantravaya, Tanti, or weaver: but the Tantravaya, according to the Jatimali, ſprung from two mixed claſſes, begotten by a man of the Manibandha on a woman of the Manicara tribe.

2. *Ambaſht'ha*, or *Vaidya*, commonly called *Baidya*, whoſe profeſſion is the ſcience of medicine, was born of a Vaiſya or Vhyſe woman, by a man of the ſacerdotal claſs. The ſame origin is given by the D'herma-purana to the Canſacara, or brazier, and to the Sanc'hacara, or worker in ſhells. Theſe again are ſtated, in the Tantra, as ſpringing from the intermarriages of mixed claſſes; the Canſacara from the Tamracuta and the Sanc'hacara; alſo named Sanchadareca, from the Rajaputra and Gandhica: for Rajaputras, (rajahpouts,) not only denote Cſhatriyas or Khatris, as ſons of kings, but is alſo the name of a mixed claſs, and of a tribe of fabulous origin, according to the Rudra-Yamala Tantra: "The origin of Rajaputras is from the Vaiſya on the daughter of an Ambaſht'ha." Again, "thouſands of others ſprang from the foreheads of cows kept to ſupply oblations."

3. *Niſhada*, or *Paraſava*, whoſe profeſſion is catching fiſh, was born of a Sudra woman by a man of a ſacerdotal claſs. The name is given to the iſſue of a legal marriage between a Brahmana and a woman of the Sudra claſs. It ſhould ſeem that the iſſue of other legal marriages in different claſſes, were deſcribed by the names of *mixed claſſes*, ſpringing from intercourſe between the ſeveral tribes. This, however, is liable to ſome queſtion; and ſince ſuch marriages are conſidered as *illegal* in the preſent age, it is not material to purſue them. According to the D'herma-purana, from the ſame origin as the Niſhada ſprings the Varajivi, commonly called *Baraiya*, or aſtrologer. In the Tantra, that origin is given to the Brahmeſudra, whoſe profeſſion is to make the ſeats uſed on ſome religious occaſions. Under the name of Varajivi is deſcribed a claſs ſpringing from the Gopa and Tantravaya, and employed in cultivating betel. The profeſſion of aſtrology, or, at leaſt, that of making almanacs, is aſſigned, in the Tantra, to degraded Brahmanas, thus: "Brahmanas, falling from their tribe, became kinſmen only of the twice-born claſs: to them is aſſigned the profeſſion of aſcertaining the lunar and ſolar days."

4. *Mahiſhya* is the ſon of a Cſhatriya by a woman of the Vaiſya tribe. His profeſſion is muſic, aſtronomy, and attendance on cattle.

5. *Ugra* was born of a Sudra woman by a man of the military claſs. His profeſſion, according to Menu, is killing or confining ſuch animals as live in holes: but, according to the Tantra, he is an encomiaſt or bard. The ſame origin is attributed to the Napita, commonly called Naya, or barber; and to the Maudaca, or confectioner. In the Tantra, the Napita is ſaid to be born of a Cuverina woman by a man of the Patticara claſs.

6. *Carana* or Caran, from a Vaiſya by a woman of the Sudra claſs, is an attendant on princes, or ſecretary. The appellation of Cayaſt'ha, or Cait, is in general conſidered as ſynonymous with Carana; and accordingly the Carana tribe commonly aſſumes the name of Cayaſt'ha: but the Cayaſt'has of Bengal have pretenſions to be conſidered as true Sudras, which the Jatimala ſeems to authorize; for the origin of the Cayaſt'ha is there mentioned, before the ſubject of mixed tribes is introduced, immediately after deſcribing the Gopa as a true Sudra. One, named Bhutidatta, was noticed for his domeſtic aſſiduity; therefore the rank of Cayaſt'ha was by the Brahmins aſſigned to him. From him ſprung three ſons, Chitrangada, Chitraſena, and Chitragupta; they were each employed in attendance on princes. The D'herma-purana aſſigns the ſame origin to the Tambuli, or betel-ſeller, and to the Tanlica, or areca-ſeller, as to the Carana, or Carans.

The ſix before enumerated are begotten in the *direct* order of the claſſes. Six are begotten in the *inverſe* order.

7. *Suta*, begotten by a Cſhatriya on a woman of the prieſtly claſs. His occupation is managing horſes, and driving cars. The ſame origin is given, in the Purana,

to the Carmacara and Tailica claſſes, if the authority of the Tantra prevails.

8. *Magadha*, born of a Cſhatriya girl by a man of the commercial claſs, has, according to the Saſtra, the profeſſion of travelling with merchandiſe; but, according to the Purana and Tantra, is an encomiaſt. From parents of thoſe claſſes ſprung the Gopa or Gop, if the Purana may be believed; but the Tantra deſcribes the Gopa as a true Sudra, and names Gopajivi, or Goaria-Gop, a mixed claſs, uſing the ſame profeſſion, and ſpringing from Tantravaya Manibandha claſſes.

9, and 10. *Vaideha*, and *Ayogava*. The occupation of the firſt, born of a Brahmeni, or Brahmin girl, by a man of the commercial claſs, is waiting on women; the ſecond, born of a Vaiſya woman by a man of the ſervile claſs, has the profeſſion of a carpenter.

11. *Cſhattri*, or *Cſhatta*, ſprung from a ſervile man by a woman of the military claſs, is employed in killing and confining ſuch animals as live in holes. The ſame origin is aſcribed by the Purana to the Carmacara, or ſmith, and the Daſa, or mariner. The one is mentioned in the Tantra without ſpecifying the claſſes from which he ſprung; and the other has a different origin, according to the Saſtra and Tantra.

12. All authorities concur in deriving the *Chandala* from a Sudra father and Brahmeni mother. His profeſſion is carrying out corpſes, and executing criminals; and officiating in other abject employments for public ſervice.

A third ſet of Hindoo claſſes originate from the intermarriages of the firſt and ſecond ſet; a few only have been named by Menu; and, excepting the Abhira, or milkman, they are not noticed by the other authorities. But the Purana names other claſſes of this ſet.

A fourth ſet is derived from intercourſe between the ſeveral claſſes of the ſecond ſet; of theſe alſo few have been named by Menu; and one only of the fifth ſet, ſpringing from intermarriages of the ſecond and third ſet; and another of the ſixth ſet, derived from intercourſe between claſſes of the ſecond and fourth ſet. Menu adds to theſe claſſes four ſons of outcaſts.

The Tantra enumerates many other claſſes, which are placed in lower ſets, and aſcribes a different origin to ſome of the claſſes in the third and fourth ſets. Theſe differences, however, appear to be rather fanciful; and, except the mixed claſſes named by Menu, the reſt ſeem to be terms for profeſſions rather than claſſes; and they ſhould be conſidered as denoting companies of artiſans, rather than diſtinct races. The mode in which Amera Sinha mentions the mixed claſſes, and the profeſſions of artiſans, ſupports this conjecture.

However, the Jatimala expreſsly ſtates the number of forty-two mixed claſſes, ſpringing from the intercourſe of a man of inferior claſs with a woman of ſuperior claſs. Though, like other mixed claſſes, they are included under the general denomination of Sudra, they are conſidered as moſt abject, and moſt of them now experience the ſame contemptuous treatment as the abject mixed claſſes mentioned by Menu. According to the Rudrayamala, the domeſtic prieſts of twenty of theſe claſſes are degraded. "Avoid," ſays the Tantra, "the touch of the Chandala, and other abject claſſes; and of thoſe who eat the fleſh of kine, often utter forbidden words, and perform none of the preſcribed ceremonies; they are called *Molechcha*, and, going to the region of Yavana, have been named *Yavanas*.

"Theſe ſeven, the Rajaca, Ceermacara, Nata, Baruda, Caiverta, and Medabhilla, are the laſt tribes. Whoever aſſociates with them undoubtedly falls from his claſs; whoever bathes or drinks in wells or pools which they have cauſed to be made, muſt be purified by the five productions of kine; whoever approaches their women, is doubtleſs degraded from his claſs.

"For women of the Nata and Capala claſſes, for proſtitutes, and for women of the Rajaca and Napata tribes, a man ſhould willingly make oblations, but by no means dally with them."

According to the Rudrayamala, the Nata and Natica are diſtinct; but the profeſſions are not diſcriminated in that Tantra. If their diſtinct occupations, as dancers and actors, are accurately ſupplied, dramas muſt be of very early date.

The *Pundraca*, and *Pattaſutracara*, or feeder of ſilkworms, and ſilk-twiſter, deſerve particular notice; for it has been ſaid, that ſilk was the produce of China ſolely until the reign of the Greek emperor Juſtinian, and that the laws of China jealouſly guarded the excluſive production. The frequent mention of ſilk in the moſt ancient Sanſkrit books, might not, indeed, fully diſprove that opinion; but the mention of a Hindoo claſs, whoſe occupation it is to attend ſilk-worms, may be ſafely admitted as proof, if the antiquity of the Tantra be eſtabliſhed. The Tantras are certainly referred to in very ancient compoſitions.

How far every individual is bound, by original inſtitutions, to adhere rigidly to the profeſſion of his claſs, may merit ſome notice. The regular means of ſubſiſtence for a *Brahmana*, or Brahmin, are, aſſiſting in all ſacrifices, teaching the Vedas, and receiving gifts; for a *Cſhatriya*, or Khatri, bearing arms; for a *Vaiſya*, merchandiſe, attending on cattle, and agriculture; for a *Sudra*, ſervile attendance on the higher claſſes. The moſt commendable are, reſpectively for the four claſſes, teaching the Veda, defending the people, commerce, or keeping herds or flocks, and ſervile attendance on the learned and virtuous prieſts.

A Brahmin, unable to ſubſiſt by his duties, may live by the profeſſion of a ſoldier; if he cannot get a ſubſiſtence by either of theſe employments, he may apply to tillage, and attendance on cattle, or gain a competence by traffic, avoiding certain commodities. A Cſhatriya, in diſtreſs, may ſubſiſt by all theſe means; but he muſt not have recourſe to the higheſt functions. In ſeaſons of diſtreſs, a further latitude is given. The practice of medicine, and other learned profeſſions, painting and other arts, work for wages, menial ſervice, alms, and uſury, are among the modes of ſubſiſtence allowed to the Brahmana and Cſhatriya. A Vaiſya, unable to ſubſiſt by his own duties, may deſcend to the ſervile acts of a Sudra. And a Sudra, not finding employment by waiting on men of the higher claſſes, may ſubſiſt by handicrafts; principally following thoſe mechanical occupations, as joinery and maſonry; and practical arts, as painting and writing; by following of which he may ſerve men of ſuperior claſſes; and, although a man of a lower claſs is in general reſtricted from the acts of a higher claſs, the Sudra is expreſsly permitted to become a trader or a huſbandman.

Beſides the particular occupations aſſigned to each of the mixed claſſes, they have the alternative of following that profeſſion which regularly belongs to the claſs from which they derive their origin *on the mother's ſide*; thoſe, at leaſt, have ſuch an option, who are born in the *direct* order of the claſſes, as the Murd'habiſhicta, Ambaſht'ha, and others. The mixed claſſes are alſo permitted to ſubſiſt by any of the duties of a Sudra; that is, by menial ſervice, by handicrafts, by commerce, or by agriculture. Hence it appears that almoſt every occupation, though regularly it be the profeſſion of a particular claſs, is open to moſt other claſſes; and that the limitations, far from being rigorous, do, in fact, reſerve only one peculiar profeſſion, that of the Brahmana, which conſiſts in teaching the Veda, and officiating in religious ceremonies.

The regular claſſes were ſufficiently numerous; but the ſub-diviſions of claſſes have further multiplied diſtinctions to an endleſs variety. The ſubordinate diſtinctions may be beſt exemplified from the Brahmana and Cayaſt'ha; becauſe ſome of the appellations, by which the different races are diſtinguiſhed, will be familiar to moſt readers acquainted with India.

The Brahmanas of Bengal are deſcended from five prieſts, invited from Canyacubja, by Adiſura, king of Gaur, who is ſaid to have reigned about three hundred years before Chriſt. Theſe were Bhatta Nerayna, of the family of Sandila, a ſon of Caſyapa; Dacſha, alſo a deſcendant of Caſyapa; Vedagarva, of the family of Vatſa; Chandra, of the family of Saverna, a ſon of Caſyapa; and Sri Herſhu, a deſcendant of Bhavadwaja. From theſe anceſtors have branched no fewer than a hundred and fifty-ſix families, of which the precedence was fixed by Ballala Sena, who reigned in the twelfth century of the Chriſtian æra. One hundred of theſe families ſettled in Varendra, and fifty-ſix in Rara. They are now diſperſed throughout Bengal, but retain the family diſtinctions fixed by Ballala Sena. They are denominated from the families to which their five progenitors belonged, and are ſtill conſidered as Canyacubja Brahmanas.

At the period when theſe prieſts were invited by the king of Gaur, ſome Sareſwata Brahmanas, and a few Vaidicas, reſided in Bengal. Of the Brahmanas of Sareſwata none are now found in Bengal; but five families of Vaidicas are extant, and are admitted to intermarry with the Brahmanas of Rara.

Among the Brahmanas of Varendra, eight families have pre-eminence, and eight hold the ſecond rank. Among thoſe of Rara, ſix hold the firſt rank. The diſtinctive appellations of the ſeveral families are borne by thoſe of the firſt rank; but in moſt of the other families they are diſuſed; and Serman, or Serma, the addition common to the whole tribe of Brahmins is aſſumed. For this practice, the prieſts of Bengal are cenſured by the Brahmins of Mit'hila, and other countries, where that title is only uſed on important occaſions, and in religious ceremonies. In Mithila the additions are fewer, though diſtinct families are more numerous: no more than three ſurnames are in uſe in that diſtrict, Thacura, Miſra, and Ojha; each appropriated in any families.

The Cayaſt'has of Bengal claim deſcent from five Cayaſt'has who attended the prieſts invited from Canyacubja. Their deſcendants branched into eighty-three families; and their precedence was fixed by the ſame prince Ballala Sena, who alſo adjuſted the family rank of other claſſes.

In Benga and Decſhina Rara, three families of Cayaſt'has have pre-eminence; eight hold the ſecond rank. The Cayaſt'has of inferior rank generally aſſume the addition of Daſa, common to the tribe of Sudras, in the ſame manner as other claſſes have ſimilar titles common to the whole tribe. The regular addition to the name of Cſhatriya is Verman; to that of a Vaiſya, Gupta; but the general title of Deva is commonly aſſumed; and, with a feminine termination, it is alſo borne by women of other tribes.

Theſe diſtinctions of the ancient Hindoo families are important in regulating their intermarriages. Genealogy is made a particular ſtudy; and the greateſt attention is given to regulate the marriages according to eſtabliſhed rules, particularly in the firſt marriage of the eldeſt ſon. The principal points to be obſerved are, not to marry within the prohibited degrees; nor in a family known by its name to be of the ſame primitive ſtock; nor in a family of inferior rank: nor even in an inferior branch of an equal family; for within ſome families gradations are eſtabliſhed. Thus, among the Culina of the Cayaſt'has, the rank has been counted from thirteen degrees; and in every generation, ſo long as the marriage has been properly aſſorted, one degree has been added to the rank. But, ſhould a marriage be contracted in a family of a lower degree, an entire forfeiture of ſuch rank would be incurred. In their ſtrictneſs on theſe occaſions, as well as in their pride of ſhowing a remote and uncontaminated pedigree, they ſeem to imitate the practice of the Jews.

### THE VEDAS, OR HINDOO SCRIPTURES.

So ſingularly unſucceſsful had been every reſearch after the original ſcriptures of the Hindoos, that even ſo late as when the Engliſh had formed their eſtabliſhment at Calcutta, it was doubted whether the Vedas were extant, or whether they had not been irrecoverably loſt through the lapſe of time. It was believed too, that, if a Brahmin really poſſeſſed the Hindoo ſcriptures, his religious prejudices would nevertheleſs prevent his imparting any knowledge of them. Theſe doubts were not finally abandoned, until colonel Polier obtained, from Jeypour, a tranſcript of what purported to be a complete copy of the Vedas, and which, from their curioſity and value, he generouſly depoſited in the Britiſh Muſeum. About the ſame time, ſir Robert Chambers collected, at Benares, ſeveral fragments of the Vedas; and ſir William Jones was ſucceſsful in procuring valuable portions of them, and in tranſlating ſeveral curious paſſages, mentioned in his valuable works. But the indefatigable H. T. Colebrooke, eſq. has been ſtill more fortunate, in collecting, at Benares, (which was ſoon diſcovered to be the great repoſitory of Hindoo ſcience and literature,) the text and commentary of a large portion of their ſacred books; and from whoſe valuable paper, in the eighth volume of the Aſiatic Reſearches, we have been enabled to collect the following extracts.

The original Veda is believed, by the Hindoos, as noticed above, to have been revealed from the mouth of Brahma, and to have been preſerved by tradition, until it was arranged in its preſent order by a ſage, who thence obtained the ſurname of Vyaſa, or Vedavyaſa; that is, "compiler of the *Vedas*." He diſtributed the Indian ſcriptures into four parts, entitled *Rich*, *Yajuſh*, *Saman*, and *At'harvana*; each bearing the common denomination of *Veda*.

It was at firſt generally underſtood that there were but *three* Vedas; for Ameraſinha notices only three Vedas; and mentions the *At'harvana*, without giving it the ſame denomination. It is, however, probable, that ſome portion at leaſt of the At'harvana is as ancient as the compilation of the three others; its name, like theirs, being anterior to Vyaſa's arrangement of them. The *Itihaſa*, and *Puranas*, conſtitute a fifth Veda. But it appears, that the *Rich*, *Yajuſh*, and *Saman*, are the three principal portions of the Veda; that the *At'harvana*, or fourth, is next in eſtimation; and that the *Itihaſa* and *Puranas* are reckoned a kind of ſupplement to the ſcriptures, and, as ſuch, conſtitute a fifth Veda; but perhaps ſomewhat apocryphal.

The true reaſon, why the three firſt Vedas are often mentioned without any notice of the fourth, muſt be ſought in the difference of their uſe and purport. Prayers, employed at ſolemn rites, called *Yajnyas*, are placed in the three principal Vedas: thoſe, which are in proſe, are named *Yajuſh*; ſuch as are in metre, are denominated *Rich*; and ſome, which are intended to be chanted, are called *Saman*; and theſe names, uſed for diſtinguiſhing different portions of the Vedas, are anterior to their ſeparation in Vyaſa's compilation. But the *At'harvana*, not being uſed at the religious ceremonies above-mentioned, and containing prayers employed at luſtrations, at rites for conciliating the deities, and as imprecations on enemies, is of courſe only referred to on theſe occaſions. Different ſchools too, in proceſs of time, admitted different variations, even in works which appear under the ſame title. This is accounted for by their commentators, who relate the following ſtory, taken from Puranas, and other authorities. Vyaſa, having compiled and arranged the ſcriptures, theogonies, and mythological poems, taught the ſeveral Vedas to as many diſciples: viz. the *Rich* to Paila; the *Yajuſh* to Vaiſampayana, and the *Saman* to Jaimini; as alſo the *At'harvana* to Sumantu, and the *Itihaſa* and *Puranas* to Suta. Theſe diſciples inſtructed their reſpective pupils, who, becoming teachers in their turn, communicated the knowledge to their own diſciples; until, at length, in the progreſs of ſucceſſive inſtruction, ſo great variations crept into the text, or into the manner of reading or reciting it, and into the no leſs ſacred precepts for its uſe and application, that eleven hundred different ſchools of ſcriptural knowledge aroſe.

The ſeveral *Sanhitas*, or collections of prayers in each Veda, as received in theſe numerous ſchools, conſtituted the *Sachas*, or branches of each Veda. Tradition, preſerved in the Puranas, reckons ſixteen *Sanhitas* of the *Rigveda*; eighty-ſix of the *Yajuſh*; or, including thoſe which branched from a ſecond revelation of this Veda, a hundred and one; and not leſs than a thouſand of the *Samaveda*; beſides nine of the *At'harvana*. But treatiſes on the ſtudy of the Veda reduce the *Sachas* of the *Rich* to five; and thoſe of the *Yajuſh*, including both revelations of it, to eighty-ſix.

It may be proper to remark, that each Veda conſiſts of two parts, denominated the *Mantras*, and the *Brahmanas*; or prayers, and precepts. The complete collection of the hymns, prayers, and invocations, belonging to one Veda, is entitled its *Sanhita*. Every other portion of Hindoo ſcripture is included under the general head of divinity, *Brahmana*. This compriſes precepts, which inculcate religious duties; maxims, which explain thoſe precepts; and arguments, which relate to theology. But, in the preſent arrangement of the Vedas, the portion, which contains paſſages called *Brahmanas*, includes many which are ſtrictly prayers, or *Mantras*. The theology of the Hindoo ſcripture, comprehending the argumentative portion entitled *Vedanta*, is contained in tracts denominated *Upaniſhads*; ſome of which are portions of the Brahmana, properly ſo called; others are found only in a detached form; and one is a part of a Sanhita itſelf. The *Sanhita* of the firſt Veda contains *mantras*, or prayers; which, being for the moſt part encomiaſtic, bear the name of RIGVEDA. On examining theſe voluminous compilations, a ſyſtematical arrangement is readily perceived. Succeſſive chapters, and even entire books, compriſe hymns of a ſingle author; invocations, addreſſed to the ſame deities, hymns relating to like ſubjects, and prayers intended for ſimilar occaſions, are for greater convenience generally claſſed together.

In a regular peruſal of the Veda, which is enjoined to all prieſts, and which is much practiſed by Mahrattas and Telingas, the ſtudent is required ſpecially to notice the author, ſubject, metre, and purpoſe, of each *mantra*, or invocation. To underſtand the meaning of the paſſage, is thought leſs important. The inſtitutors of the Hindoo ſyſtem have indeed recommended the ſtudy of the ſenſe; but they have inculcated with equal ſtrenuouſneſs, and more ſucceſs, attention to the *name* of the Riſhi, or perſon by whom the text was firſt uttered, the deity to whom it is addreſſed, or the ſubject to which it relates, and alſo its rhythm or metre, and its purpoſe, or the religious ceremony at which it ſhould be uſed. The practice of modern prieſts is conformable with theſe maxims. Like the Koran among the Mohammedans, and the Bible among Chriſtians, the Veda is put into the hands of children in the firſt period of their education; and continues afterwards to be read by rote, for the ſake of the words, often without the ſmalleſt comprehenſion of the ſenſe.

The perſon, to whom any divine paſſage was revealed, or by whom its uſe and application was firſt adopted, is called the *Riſhi* of that mantra. He is therefore conſidered as the author of ſuch prayer; but it is an article of the Hindoo creed, that the *Vedas* were compoſed by no human author. It muſt be underſtood, therefore, that, in affirming the primeval exiſtence of their ſcriptures, they deny theſe works to be the original compoſition of the editor VYASA, but believe them to have been gradually revealed to inſpired writers.

The deities mentioned in the Vedas appear to be various and numerous; but, according to ancient annotations on the Hindoo ſcripture, thoſe numerous names are all reſolvable into different titles of only three deities, and ultimately of one God. The *Nig'hanti*, or gloſſary of the Vedas, concludes with three liſts of names of deities: the firſt compriſing ſuch as are deemed ſynonymous with fire; the ſecond with air; and the third with the ſun. In the laſt part of the *Niructa*, it is twice aſſerted, that there are but three gods; "*Tiſra eva devatah.*" The further inference, that theſe intend but *one* deity, is ſupported by many paſſages in the Veda; and is very clearly and conciſely ſtated in the beginning of the index to the *Rigveda*, on the authority of the *Niructa*, and of the *Veda* itſelf: thus, in the Sanſkrit:

"Yaſya vácyam, ſa Rĭſhir; yá tén'óchyaté, ſá dévatá; yad acſhara-parimánám, tach ch'handó. Art'hépſava rĭſhayó dévatás ch'handóbhir abhyad'hávan. *Tiſra éva dévatáh*; cſhity-antarieſha-dyu-ſt'háná, agnir váyuh ſúrya ity: évam vyáhrĭtayah próctá vyaſtáh; ſamaſtánám prajápatir. O'ncára ſarvadévatyah, páraméſht'hyó va, bráhmó, daivó va, ád'hyátmicas. Tat tat ſt'háná anyás tad vibhútayah; carma prĭt'hacttwád d'hi prĭthag abhid'hána ſtutayó bhavanty: éc'aiva vá mahán átmá dévatá; ſa ſúrya ity áchacſhaté; ſa hi ſerva-bhút' átmá. Tad uctam rĭſhin'á: *Súryá átmá jagatas taſt'huſhas' ch'éti.* Tad vibhútayó' nyá dévatás. Tad apy étad rĭſhin' óctam; *Indram, Mitram, Varun'am, Agnim áhur iti.*"

Thus tranſlated: "The Riſhi [of any particular paſſage] is he, whoſe ſpeech it is; and that which is thereby addreſſed, is the deity [of the text:] and the number of ſyllables conſtitutes the metre [of the prayer.] Sages, (Riſhis,) ſolicitous of [attaining] particular objects, have approached the gods with [prayers compoſed in] metre. *The deities are only three*; whoſe places are, the earth, the intermediate region, and heaven; [namely] fire, air, and the ſun. They are pronounced to be [the deities] of the myſterious names ſeverally; and (Prajapati) the lord of creatures is [the deity] of them collectively. The ſyllable *O'm* intends every deity; it belongs to (Parameſhthi) him, who dwells in the ſupreme abode; it appertains to (Brahme) the VAST ONE; to (Deva) God; to (Adhyatma) the ſuperintending ſoul. Other deities, belonging to thoſe ſeveral regions, are *portions* of the [three] Gods; for they are variouſly named and deſcribed, on account of their different operations; but [in fact] there is only one deity, THE GREAT SOUL, (Mahan atma.) He is called the Sun; for he is the ſoul of all beings; [and] that is declared by the ſage; *The ſun is the ſoul of what moves, and of that which is fixed.* Other deities are portions of him; and that is expreſsly declared by the ſage: "*The wiſe call fire, Indra, Mitra, and Varuna.*"

Thus the ancient Hindoo religion, as founded on the Indian ſcriptures, recogniſes but one God; yet not ſufficiently diſcriminating the creature from the Creator.—However, to render the fact more ſufficiently obvious, we ſhall ſelect a few very ſtrong and curious paſſages, from different parts of the Vedas.

CREATION OF THE WORLD: from the *Rigveda*.—"Then was there no entity, nor nonentity; no world, nor ſky, nor ought above it; nothing, any where, in the happineſs of any one, involving or involved; nor water, deep and dangerous. Death was not; nor then was immortality; nor diſtinction of day or night. But THAT [the Supreme Being] breathed without afflation, ſingle with her who is ſuſtained within him. Other than him, nothing exiſted, [which] ſince [has been.] Darkneſs there was; [for] this univerſe was enveloped with darkneſs, and was undiſtinguiſhable [like fluids mixed in] waters; but that maſs, which was covered by the huſk, was [at length] produced by the power of contemplation. Firſt deſire was formed in his mind; and that became the original productive ſeed; which the wiſe, recogniſing by the intellect in their hearts, diſtinguiſh, in nonentity, as the bond of entity.

"Did the luminous ray of theſe [creative acts] expand in the middle? or above? or below? That productive ſeed, at once, became providence [or ſentient ſouls,] and matter [or the elements:] ſhe, who is ſuſtained within himſelf, was inferior; and he, who heeds, was ſuperior.

"Who knows exactly, and who ſhall in this world declare, whence and why this creation took place? The gods are ſubſequent to the production of this world; then who can know whence it proceeded? or whence this varied world aroſe? or whether it uphold [itſelf,] or not? He, who, in the higheſt heaven, is the ruler of this univerſe,

verſe, does indeed know; but not another can poſſeſs that knowledge.

"That victim, who was wove with threads on every ſide, and ſtretched by the labours of a hundred and one gods, the fathers, who wove and framed and placed the warp and woof, do worſhip. The [firſt] male ſpreads and encompaſſes this [web;] and diſplays it in this world and in heaven: theſe rays [of the creator] aſſembled at the altar, and prepared the holy ſtrains, and the threads of the warp.

"What was the ſize of that divine victim, whom all the gods ſacrificed? What was his form? what the motive? the fence? the metre? the oblation? and the prayer? Firſt was produced the *Gayatri* joined with fire; next the ſun *(Savitri)* attended by *Uſhnih*; then the ſplendid moon with *Anuſhtubh*, and with prayers; while *Vrihati* accompanied the elocution of *Vrihaſpati*. *Virati* was ſupported by the ſun and by water (Mitra and Varunda;) but the [middle] portion of the day and *Triſhtubh* were here the attendants of Indra; *Jagati* followed all the gods; and by that [univerſal] ſacrifice, ſages and men were formed."

The hundred and one gods, who are the agents in the framing of the univerſe typified by a ſacrifice, are, according to this commentator, the years of Brahma's life, or rather his afflations perſonified in the form of Angiras, &c. The ſeven ſages who inſtituted ſacrifices in imitation of the primeval type, are Marichi, and others. *Gayatri*, *Uſhnith*, &c. are names of metres, or of the various lengths of ſtanzas and meaſured verſes, in the Vedas. [The words between crotchets, were neceſſarily added by the tranſlator, to make the ſenſe obvious and uniform.]

From the WHITE YAJUR-VEDA.—"HE, prior to whom, nothing was born; and who became all beings; himſelf the lord of creatures, with a [body compoſed of] ſixteen members, being delighted by creation, produced the three luminaries [the ſun, the moon, and fire].

"To what God ſhould we offer oblations, but to him, who made the fluid ſky and ſolid earth, who fixed the ſolar orb (*ſwar*), and celeſtial abode (*naca*), and who framed drops [of rain] in the atmoſphere? To what God ſhould we offer oblations, but to him, whom heaven and earth mentally contemplate, while they are ſtrengthened and embelliſhed by offerings, and illuminated by the ſun riſen above them.

"The wiſe man views that myſterious [being]; in whom the univerſe perpetually exiſts, reſting on that ſole ſupport. In him, this [world] is abſorbed; from him, it iſſues; in creatures, he is twined and wove, with various forms of exiſtence. Let the wiſe man, who is converſant with the import of revelation, promptly celebrate that immortal being, the myſteriouſly-exiſting and various abode; he, who knows its three ſtates [its creation, continuance, and deſtruction], which are involved in myſtery, is father of the father. That [*Brahme*,] in whom the gods attain immortality, while they abide in the third [or celeſtial] region, is our venerable parent, and the providence which governs all worlds."

ON THE UNIVERSAL SOUL: from the *Aitareya Aranya*.—"Originally this [univerſe] was indeed SOUL only; nothing elſe whatſoever exiſted, active [or inactive.] HE thought, "I will create worlds:" thus HE created theſe [various] worlds; water, light, mortal [beings] and the waters. That "water," is the [region] above the heaven, which heaven upholds; the atmoſphere compriſes light; the earth is mortal; and the regions below are "the waters."

"HE thought, "Theſe are indeed worlds; I will create guardians of worlds." Thus HE drew from the waters, and framed, an embodied being, [or human form.] HE viewed him; and of that being, ſo contemplated, the mouth opened as an egg; from the mouth, ſpeech iſſued; from ſpeech, fire proceeded. The noſtrils ſpread; from the noſtrils, breath paſſed; from breath, air was propagated. The eyes opened; from the eyes, a glance ſprung; from that glance, the ſun was produced. The ears dilated; from the ears came hearkening; and from that, the regions of ſpace. The ſkin expanded; from the ſkin, hair roſe; from that, grew herbs and trees. The breaſt opened; from the breaſt, mind iſſued; and, from mind, the moon. The navel burſt; from the navel, came deglutition; from that, death. The generative organ burſt; thence flowed productive ſeed; whence waters drew their origin.

"Theſe deities, being thus framed, fell into this vaſt ocean; and to HIM they came with thirſt and hunger; and HIM they thus addreſſed: "Grant us a [ſmaller] ſize, wherein abiding we may eat food." HE offered to them [the form of] a cow; they ſaid, "That is not ſufficient for us." HE exhibited to them [the form of] a horſe; they ſaid, "Neither is that ſufficient for us." HE ſhowed them the HUMAN FORM; they exclaimed: "Well done! ah! wonderful!" Therefore man alone is [pronounced to be] well formed.

"HE bade them occupy their reſpective places. Fire, becoming ſpeech, entered the mouth. Air, becoming breath, proceeded to the noſtrils. The ſun, becoming ſight, penetrated the eyes. Space became hearing, and occupied the ears. Herbs and trees became hair, and filled the ſkin. The moon, becoming mind, entered the breaſt. Death, becoming deglutition, penetrated the navel; and water became productive ſeed, and occupied the generative organ.

"Hunger and thirſt addreſſed him, ſaying, Aſſign us [our places.] HE replied: You I diſtribute among theſe deities; and I make you participant with them. *Therefore is it, that to whatever deity an oblation is offered, hunger and thirſt participate with him.*

"HE reflected, Theſe are worlds, and regents of worlds: for them I will frame food. HE viewed the waters; from waters, ſo contemplated, form iſſued; and food is form, which was ſo produced.

"Being thus framed, it turned away, and ſought to flee. The [primeval] man endeavoured to ſeize it by ſpeech; but could not attain it by his voice: had he by voice taken it, [hunger] would be ſatisfied by naming food. He attempted to catch it by his breath; but could not inhale it by breathing; had he by inhaling taken it, [hunger] would be ſatisfied by ſmelling food. He ſought to ſnatch it by a glance; but could not ſurpriſe it by a look; had he ſeized it by the ſight, [hunger] would be ſatisfied by ſeeing food. He attempted to catch it by hearing; but could not hold it by liſtening; had he caught it by hearkening, [hunger] would be ſatisfied by hearing the name of food. He endeavoured to ſeize it by his ſkin; but could not reſtrain it by his touch; had he ſeized it by contact, [hunger] would be ſatisfied by touching food. He wiſhed to reach it by the mind; but could not attain it by thinking; had he caught it by thought, [hunger] would be ſatisfied by meditating on food. He wanted to ſeize it by the generative organ, but could not ſo hold it; had he thus ſeized it, [hunger] would be ſatisfied by emiſſion. Laſtly, he endeavoured to catch it by deglutition; and thus he did ſwallow it; that air, which is ſo drawn in, ſeizes food; and that very air is the bond of life.

"He [the univerſal ſoul] reflected "How can this [body] exiſt without me?" He conſidered by which extremity he ſhould penetrate. He thought, "If [without me] ſpeech diſcourſe, breath inhale, and ſight view; if hearing hear, ſkin feel, and mind meditate; if deglutition ſwallow, and the organ of generation perform its functions; then who am I?"

"Parting the ſuture [*ſiman*], HE penetrated by this route. That opening is called the ſuture *(vidriti)*, and is the road to beatitude *(nandana)*."—Hence the Hindoos believe, that the ſoul, or conſcious life, enters the body through the ſagittal ſuture; lodges in the brain; and may contemplate, through the ſame opening, the divine perfections. Mind, or the reaſoning faculty, is reckoned to be an organ of the body, ſituated in the heart.

“ Of that ſoul, the places of recreation are three; and the modes of ſleep, as many: this (pointing to the right eye) is a place of recreation; this (pointing to the throat) is [alſo] a ſituation of enjoyment; this (pointing to the heart) is [likewiſe] a region of delight.

“ Thus born [as the animating ſpirit], he diſcriminated the elements, [remarking] “ What elſe [but him] can I here affirm [to exiſt];” and he contemplated this [thinking] perſon, the vaſt expanſe, [exclaiming] It have I ſeen. Therefore is he named IT-SEEING (*idam-dra*): IT-SEEING is indeed his name: and him, being IT-SEEING, they call, by a remote appellation, INDRA; for the gods generally delight in the concealment of their name. The gods delight in privacy.

“ This [living principle] is firſt, in man, a fœtus, or productive ſeed, which is the eſſence drawn from all the members [of the body]: thus the man nouriſhes himſelf within himſelf. But, when he emits it into woman, he procreates that [fœtus]: and ſuch is its *firſt birth*.

“ It becomes identified with the woman; and, being ſuch as is her own body, it does not deſtroy her. She cheriſhes his ownſelf, thus received within her; and, as nurturing him, ſhe ought to be cheriſhed [by him]. The woman nouriſhes that fœtus: but he previouſly cheriſhed the child, and further does ſo after its birth. Since he ſupports the child before and after birth, he cheriſhes himſelf: and that, for the perpetual ſucceſſion of perſons; for thus are theſe perſons perpetuated. Such is his *ſecond birth*.

“ This [ſecond] ſelf becomes his repreſentative for holy acts [of religion]: and that other [ſelf], having fulfilled its obligations, and completed its period of life, deceaſes. Departing hence, he is born again [in ſome other ſhape]: and ſuch is his *third birth*.

“ This was declared by the holy ſage: Within the womb I have recogniſed all the ſucceſſive births of theſe deities. A hundred bodies, like iron chains, hold me down: yet, like a falcon, I ſwiftly riſe. Thus ſpoke Vamadeva, repoſing in the womb: and, poſſeſſing this [intuitive] knowledge, he roſe, after burſting that corporeal confinement; and, aſcending to the bliſsful region of heaven, [*ſwarga*, place of celeſtial bliſs,] he attained every wiſh, and became immortal. *He became immortal.*

“ What is this ſoul? that we may worſhip him. Which is the ſoul? Is it that by which [a man ſees]? by which he hears? by which he ſmells odours? by which he utters ſpeech? by which he diſcriminates a pleaſant or unpleaſant taſte? Is it the heart [or underſtanding]? or the mind [or will]? Is it ſenſation? or power? or diſcrimination? or comprehenſion? or perception? or retention? or attention? or application? or haſte [or pain]? or memory? or aſſent? or determination? or animal action? or wiſh? or deſire?

“ All thoſe are only various names of apprehenſion. But this [ſoul, conſiſting in the faculty of apprehenſion,] is Brahma; he is Indra; he is (Prajapati) the LORD OF CREATURES: theſe gods are HE; and ſo are the five primary elements, earth, air, the etherial fluid, water and light: theſe, and the ſame joined with minute objects and other ſeeds [of exiſtence], and [again] other [beings] produced from eggs, or borne in wombs, or originating in hot moiſture, or ſpringing from plants; whether horſes, or kine, or men, or elephants, whatever lives, and walks or flies, or whatever is immoveable [as herbs and trees]: all that is the eye of intelligence. On *intellect* [every thing] is founded: the world is the eye of intellect; and intellect is its foundation. Intelligence is (*Brahme*) THE GREAT ONE.

“ By this [intuitively] intelligent ſoul, that ſage aſcended from the preſent world to the bliſsful region of heaven; and, obtaining all his wiſhes, became immortal. *He became immortal.*

“ May my ſpeech be founded on underſtanding: and my mind be attentive to my utterance. Be thou manifeſted to me, O ſelf manifeſted [intellect]! For my ſake, [O ſpeech and mind!] approach this *Veda*. May what I have heard be unforgotten: day and night may I behold this, which I have ſtudied. Let me think the reality: let me ſpeak the truth. May it preſerve me; may it preſerve the teacher: me may it preſerve: the teacher may it preſerve; *may it preſerve the teacher*.”

ON THE FIRST MAN.—“ This [variety of forms] was, before [the production of body], ſoul, bearing a human ſhape. Next, looking around, that [primeval being] ſaw nothing but himſelf; and he, firſt, ſaid “ I am I.” Therefore, his name was “ I:” and, thence, even now, when called, [a man] firſt anſwers “ It is I,” and then declares any other name which appertains to him.

“ Since he, being anterior to all this [which ſeeks ſupremacy], did conſume by fire all ſinful [obſtacles to his own ſupremacy], therefore does the man, who knows this [truth], overcome him who ſeeks to be before him.

“ He felt dread; and, therefore, man fears, when alone. But he reflected, “ Since nothing exiſts beſides myſelf, why ſhould I fear?” Thus his terror departed from him; for what ſhould he dread, ſince fear muſt be of another?

“ He felt not delight; and, therefore, man delights not, when alone. He wiſhed [the exiſtence of] another; and inſtantly he became ſuch as is man and woman in mutual embrace. He cauſed this, his own ſelf, to fall in twain; and thus became a huſband and a wife. Therefore, was this [body ſo ſeparated], as it were an imperfect moiety of himſelf: for ſo Yajnyawalcya has pronounced it. This blank, therefore, is completed by woman. He approached her; and, thence, were human beings produced.”

DEFINITION OF BRAHME, in the *neuter*; from the *Black Yajur-Veda*.—“ Bhrigu, the offspring of Varuna, approached his father, ſaying, ‘ Venerable [father]! make known to me Brahme.’ Varuna propounded theſe: namely, food [or body], truth [or life], ſight, hearing, mind [or thought], and ſpeech: and thus proceeded: “ That, whence all beings are produced; that, by which they live when born; that, towards which they tend; and that, into which they paſs, do thou ſeek; [for] that is Brahme.”

“ He meditated [in] devout contemplation; and, having thought profoundly, he recogniſed *food* [or body] to be Brahme: for all beings are indeed produced from food; when born, they live by food; towards food they tend; they paſs into food. This he comprehended; [but, yet unſatisfied,] he again approached his father Varuna, ſaying, ‘ Venerable [father]! make known to me Brahme.’ Varuna replied, “ Seek the knowledge of Brahme by devout meditation: Brahme is profound contemplation.”

“ Having deeply meditated, he diſcovered *breath* [or life] to be Brahme; for all theſe beings are indeed produced from breath; when born, they live by breath; towards breath they tend; they paſs into breath. This he underſtood: [but] again he approached his father Varuna, ſaying, ‘ Venerable [father]! make known to me Brahme.’ Varuna replied, “ Seek him by profound meditation: Brahme is that.”

“ He meditated in deep contemplation, and diſcovered *intellect* to be Brahme: for all theſe beings are indeed produced from intellect; when born, they live by intellect; towards intellect they tend; and they paſs into intellect. This he underſtood: [but] again he came to his father Varuna, ſaying, ‘ Venerable [father]! make known to me Brahme.’ Varuna replied, “ Inquire by devout contemplation: profound meditation is Brahme.”

“ He thought deeply; and, having thus meditated [with] devout contemplation, he knew *Ananda* [or felicity] to be Brahme: for all theſe beings are indeed produced from pleaſure; when born, they live by joy; they tend towards happineſs; they paſs into felicity.

“ Such is the ſcience which was attained by Bhrigu, taught by Varuna, and founded on the ſupreme etherial ſpirit. He who knows this, reſts on the ſame ſupport; is endowed with [abundant] food; and becomes [a blazing fire], which conſumes food: great he is by progeny, by cattle, and by holy perfections; and great by propitious celebrity.

“Bow to Brahme. Salutation unto thee, O air! Even thou art Brahme, preſent [to our apprehenſion.] Thee I will call “preſent Brahme:” thee I will name “the right one:” thee I will pronounce “the true one.” May THAT [Brahme, the univerſal being entitled air] preſerve me; may that preſerve the teacher: propitious be it.”

OF BRAHMA, in the *maſculine*.—“Brahma was firſt of the gods, framer of the univerſe, guardian of the world. He taught the knowledge of God, which is the foundation of all ſcience, to his eldeſt ſon At'harva. That holy ſcience, which Brahma revealed to At'harvan, was communicated by him to Angir, who tranſmitted it to Satyavaha, the deſcendant of Bharadwaja: and this ſon of Bharadwaja imparted the traditional ſcience to Angiras.

“Saunaca, or the ſon of Sunaca, a mighty houſeholder, addreſſing Angiras with due reſpect, aſked “What is it, O venerable ſage, through which, when known, this univerſe is underſtood?”

“To him the holy perſonage thus replied: “Two ſorts of ſcience muſt be diſtinguiſhed; as they, who know God, declare: the ſupreme ſcience, and another. This other is the Rigveda, the Yajurveda, the Samaveda, the Atharvaveda. But the ſupreme ſcience is that, by which this unperiſhable [nature] is apprehended, inviſible [or imperceptible as is that nature]: not to be ſeized; nor to be deduced; devoid of colour; deſtitute of eyes and ears; without hands or feet, yet ever variouſly pervading all: minute, unalterable; and contemplated by the wiſe for the ſource of beings.

“As the ſpider ſpins and gathers back [its thread]; as plants ſprout on the earth; as hairs grow on a living perſon: ſo is this univerſe, here, produced from the unperiſhable nature. By contemplation, the vaſt one germinates; from him, food [or body] is produced; and thence, ſucceſſively, breath, mind, real [elements], worlds, and immortality ariſing from [good] deeds. The omniſcient is profound contemplation, conſiſting in the knowledge of him, who knows all: and, from that, the [manifeſted] vaſt one, as well as names, forms, and food, proceed: and this is TRUTH.”

INVOCATION TO THE SUN; by a *Brahmin Prieſt*.—“This excellent praiſe of thee, O ſplendid Sun! is offered up to thee. Be gratified by this my ſpeech: approach this craving mind, as a fond man ſeeks a woman. May that Sun (Puſhan), who contemplates, and looks into, all worlds, be our protector.”—“Let us meditate on the adorable light of the Divine Ruler (Savitri): may it guide our intellects. Deſirous of food, we ſolicit the gift of the ſplendid Sun, who ſhould be ſtudiouſly worſhipped. Venerable men, guided by the underſtanding, ſalute the divine Sun with oblations and praiſe.”

Sayan'acharya, the Hindoo commentator, conſiders this paſſage to admit of two interpretations: “the light, or Brahme conſtituting the ſplendour, of the Supreme Ruler, or Creator of the univerſe,” or “the light, or orb, of the ſplendid ſun.”

CONSECRATION OF A KING.—The ceremony is performed by pouring on his head, while ſeated on a throne, water mixed with honey, clarified butter, and ſpirituous liquor, as well as two ſorts of graſs, and the ſprouts of corn. The manifold advantages derived to the crowned head by virtue of this ceremony, are thus ſtated:—“Well knowing all the [efficacy of conſecration], Janamejaya, ſon of Paricſhit, declared; “Prieſts, converſant with this ceremony, aſſiſt me, who am likewiſe apprized [of its benefits], to celebrate the ſolemn rite. Therefore, do I conquer [in ſingle combat]; therefore, do I defeat arrayed forces with an arrayed army: neither the arrows of the gods, nor thoſe men, reach me: I ſhall live the full period of life; I ſhall remain maſter of the whole earth.”

“By this great inauguration, ſimilar to that of the god Indra, Tura, ſon of Cavaſha, conſecrated Janamejaya, ſon of Paricſhit; and, therefore, did Janamejaya, ſon of Paricſhit, ſubdue the earth completely, all around, and traverſe it every way, and perform a ſacrifice with a horſe as an offering.—Concerning that ſolemn ſacrifice, this verſe is univerſally chanted: “In Aſandivat, Janamejaya bound [as an offering] to the gods, a horſe fed with grain, marked with a white ſtar on his forehead, and bearing a green wreath round his neck.”—Here ſeems to be derived the Indian ſuperſtition of ſacrificing the noble animal, the horſe.

INAUGURATION OF ANGA.—“By this great inauguration, ſimilar to that of the god Indra, Udamaya, ſon of Atri, conſecrated Anga; and, therefore, did Anga ſubdue the earth completely all around, and traverſe it every way, and perform a ſacrifice with a horſe as an offering. He, perfect in his perſon, thus addreſſed [the prieſt, who was buſy on ſome ſacrifice:] “Invite me to this ſolemn rite, and I will give thee [to complete it,] holy man! ten thouſand elephants and ten thouſand female ſlaves.”

“On that ſubject theſe verſes are every where chanted: “Of the cows, for which the ſons of Priyamed'ha aſſiſted Udamaya in the ſolemn rite, this ſon of Atri gave them, [every day] at noon, two thouſand each, out of a thouſand millions. The ſon of Virochana [Anga] unbound and gave, while his prieſt performed the ſolemn ſacrifice, eighty thouſand white horſes fit for uſe.

“The ſon of Atri beſtowed in gifts ten thouſand women adorned with necklaces, all daughters of opulent perſons, and brought from various countries. While diſtributing ten thouſand elephants in Avachatruca, the holy ſon of Atri grew tired, and diſpatched meſſengers to finiſh the diſtribution.”

INAUGURATION OF THE GREAT KING BHARAT, OR BHARATA.—“By this great inauguration, ſimilar to that of the god Indra, Dirg'hatamas, ſon of Mamata, conſecrated Bharata, the ſon of Duhſhanta; and, therefore, did Bharata, ſon of Duhſhanta, ſubdue the earth completely all around, and traverſe it every way, and perform repeated ſacrifices with horſes as offerings.

“On that ſubject too, theſe verſes are every where chanted. “Bharata diſtributed, in Maſhnara, a hundred and ſeven thouſand millions of black elephants with white tuſks, and decked with gold.

“A ſacred fire was lighted for Bharata, ſon of Duhſhanta, in Sachi'guna, at which a thouſand Brahmanas ſhared a thouſand millions of cows apiece.

“Bharata, ſon of Duhſhanta, bound ſeventy-eight horſes [for ſolemn rites] near the Yamuna; and fifty-five in Vritrag'hna on the Ganga.

“Having thus bound a hundred and thirty-three horſes fit for ſacred rites, the ſon of Duhſhanta became pre-eminently wiſe, and ſurpaſſed the prudence of [every rival] king.

“This great achievement of Bharata, neither former nor latter perſons [have equalled;] the five claſſes of men have not attained his feats, any more than a mortal [can reach] heaven with his hands.”

TRIAL OF SKILL AMONG BRAHMINS.—“Janaca, a king paramount, or emperor of the race of Videhas, was celebrating, at great expence, a ſolemn ſacrifice, at which the Brahmanas of Curu and Panchala were aſſembled; and the king, being deſirous of aſcertaining which of thoſe prieſts was the moſt ſkilled and eloquent theologian, ordered a thouſand cows to be made faſt in his ſtables, and their horns to be gilt with a preſcribed quantity of gold. He then addreſſed the prieſts: “Whoever, among you, O venerable Brahmanas, is moſt ſkilled in theology, may take the cows.” The reſt preſumed not to touch the cattle; but Yajnywalcya bade his pupil Samaſravas drive them to his home. He did ſo; and the other prieſts were indignant that he ſhould thus arrogate to himſelf ſuperiority. Aſwala, who was the king's officiating prieſt, aſked him, “Art thou, O Yajnyawalcya! more ſkilled in theology than we are?" He replied, "I bow to the moſt learned: *but I was deſirous of poſſeſſing the cattle.*"—A very early and ſtriking inſtance of prieſtcraft among the Brahmins.

Yajnyawalcya then, having ſecured the cows, aſks the reſt of his antagoniſts, whether they have any queſtion to propoſe, or are deſirous that he ſhould propoſe any? They remain ſilent, and he addreſſes them as follows: "Man is indeed like to a lofty tree; his hairs are the leaves, and his ſkin the cuticle. From his ſkin flows blood, like juice from bark; it iſſues from his wounded perſon, as juice from a ſtricken tree. His fleſh is the inner bark; and the membrane, near the bones, is the white ſubſtance of the wood. The bones within are the wood itſelf; and marrow and pith are alike. If then a felled tree ſpring anew from the root; from what root does mortal man grow again, when hewn down by death? Do not ſay, from prolific ſeed; for that is produced from the living perſon. Thus, a tree, indeed, alſo ſprings from ſeed; and likewiſe ſprouts afreſh [from the root] after [ſeemingly] dying; but, if the tree be torn up by the root, it doth not grow again. From what root, then, does mortal man riſe afreſh, when hewn down by death? [Do you anſwer] He was born [once for all?] No; he is born [again;] and [I aſk you] What is it, that produces him anew?" The prieſts, thus interrogated, being unacquainted with the firſt cauſe, yielded the victory to Yajnyawalcya. He accordingly gives a brief indication of the firſt cauſe, as intended by his queſtion: "Brahme, who is *intellect*, with [the unvaried perception of] *felicity*, is the beſt path [to happineſs] for the generous votary, who knows him, and remains fixed [in attention."]

SCRIPTURAL DISQUISITION.—"Prachinaſala ſon of Upamanyu, Satyayajnya iſſue of Puluſha, Indradyumna offspring of Bhallavi, Jana deſcendant of Sarcaracſhya, and Vudila ſprung from Aſwataraſwa, being all perſons deeply converſant with holy writ, and poſſeſſed of great dwellings, meeting together, engaged in this *diſquiſition*: "What is our ſoul? and who is Brahme?"

"Theſe venerable perſons reflected, "Uddalaca, the ſon of Aruna, is well acquainted with the univerſal ſoul: let us immediately go to him." They went: but he reflected, "Theſe great and very learned perſons will aſk me; and I ſhall not [be able] to communicate the whole [which they inquire:] I will at once indicate to them another [inſtructor."] He thus addreſſed them: "Aſwapati, the ſon of Cecaya, is well acquainted with the univerſal ſoul; let us now go to him."

"They all went; and, on their arrival, [the king] cauſed due honours to be ſhown to them reſpectively; and, next morning, civilly diſmiſſed them; [but, obſerving that they ſtaid, and did not accept his preſents,] he thus ſpoke: "In my dominions, there is no robber; nor miſer; no drunkard; nor any one neglectful of a conſecrated hearth; none ignorant; and no adulterer, nor adultereſs. Whence [can you have been aggrieved?"] [As they did not ſtate a complaint, he thus proceeded;] "I muſt be aſked, O venerable men! [for what you deſire."] [Finding, that they made no requeſt, he went on;] "As much as I ſhall beſtow on each officiating prieſt, ſo much will I alſo give to you. Stay then, moſt reverend men." They anſwered: "It is indeed requiſite to inform a perſon of the purpoſe of a viſit. Thou well knoweſt the univerſal ſoul; communicate that knowledge unto us." He replied; "To-morrow I will declare it to you." Perceiving his drift, they, next day, attended him, bearing [like pupils] logs of firewood. Without bowing to them, he thus ſpoke:

"Whom doſt thou worſhip as the ſoul, O ſon of Upamanyu?" "Heaven," anſwered he, "O venerable king!" "Splendid is that [portion of the] univerſal ſelf, which thou doſt worſhip as the ſoul; therefore, in thy family, is ſeen [the juice of the acid aſclepias] drawn, expreſſed, and prepared, [for religious rites;] thou doſt conſume food [as a blazing fire;] and doſt view a [ſon or other] beloved object. Whoever worſhips this for the univerſal ſoul, ſimilarly enjoys food, contemplates a beloved object, and finds religious occupations in his family. But this is [only] the head of the ſoul. Thy head had been loſt," added the king, "hadſt thou not come to me."

"He now turned to Satyayajnya, the ſon of Pueuſha, ſaying; "Whom doſt thou worſhip as the ſoul, O deſcendant of Prachinayoga?" "The ſun," anſwered he, "O venerable king!" "Varied is that [portion of the] univerſal ſelf, which thou doſt worſhip as the ſoul; and, therefore, in thy family, many various forms are ſeen; a car yoked with mares, and treaſure, together with female ſlaves, ſurround thee; thou doſt conſume food, and contemplate a pleaſing object. Whoever worſhips this, for the univerſal ſoul, has the ſame enjoyments, and finds religious occupations in his family. But this is only the eye of ſoul. Thou hadſt been blind," ſaid the king, "hadſt thou not come to me."

"He next addreſſed Indradyumna, the ſon of Bhallavi: "Whom doſt thou worſhip as the ſoul, O deſcendant of Vyaghrapad." "Air," replied he, "O venerable king!" "Diffuſed is that portion of the univerſal ſelf, which thou doſt worſhip as the ſoul; numerous offerings reach thee; many tracts of cars follow thee: thou doſt conſume food; thou vieweſt a favourite object. Whoever worſhips this, for the univerſal ſoul, enjoys food, and contemplates a beloved object: and has religious occupations in his family. But this is only the breath of ſoul. Thy breath had expired," ſaid the king, "hadſt thou not come to me."

He then interrogated Jana, the ſon of Sarcaracſhya: "Whom doſt thou worſhip as the ſoul, O ſon of Sarcaracſhya?" "The ethereal element," ſaid he, "O venerable king!" "Abundant is that univerſal ſelf, whom thou doſt worſhip as the ſoul; and, therefore, thou likewiſe doſt abound with progeny and wealth. Thou doſt conſume food; thou vieweſt a favourite object. Whoever worſhips this, for the univerſal ſoul, conſumes food, and ſees a beloved object; and has religious occupations in his family. But this is only the trunk of ſoul. Thy trunk had corrupted," ſaid the king, "hadſt thou not come to me."

"He afterwards inquired of Vudila, the ſon of Aſwataraſwa: "Whom doſt thou worſhip as the ſoul, O deſcendant of Vyagrapad?" "Water," ſaid he, "O venerable king!" "Rich is that univerſal ſelf, whom thou doſt worſhip as the ſoul; and, therefore, art thou opulent and thriving. Thou doſt conſume food; thou vieweſt a favourite object. Whoever worſhips this, for the univerſal ſoul, partakes of ſimilar enjoyments, contemplates as dear an object, and has religious occupations in his family. But this is only the abdomen of the ſoul. Thy bladder had burſt," ſaid the king, "hadſt thou not come to me."

"Laſtly, he interrogated Uddalaca, the ſon of Aruna. "Whom doſt thou worſhip as the ſoul, O deſcendant of Gotama?" "The earth," ſaid he, "O venerable king!" "Conſtant is that univerſal ſelf, whom thou doſt worſhip as the ſoul: and, therefore, thou remaineſt ſteady, with offspring and with cattle. Thou doſt conſume food; thou vieweſt a favourite object. Whoever worſhips this, for the univerſal ſoul, ſhares like enjoyments, and views as beloved an object, and has religious occupations in his family. But this forms only the feet of the ſoul. Thy feet had been corrupt and lame," ſaid the king, "hadſt thou not come to me."

"He thus addreſſed them [collectively:] "You conſider this univerſal ſoul, as it were an individual being; and you partake of diſtinct enjoyment. But he, who worſhips, as the univerſal ſoul, that which is known by its [manifeſted] portions, and is inferred [from conſciouſneſs,] enjoys nouriſhment in all worlds, in all beings, in all ſouls: his head is ſplendid, like that of this univerſal ſoul; his eye is ſimilarly varied; his breath is equally diffuſed; his trunk is no leſs abundant; his abdomen is alike full; and his feet are the earth; his breaſt is the altar; his hair is the ſacred graſs; his heart, the houſehold fire; his mind, the conſecrated flame; and his mouth, the oblation.

"The food, which firſt reaches him, ſhould be ſolemnly offered: and the firſt oblation, which he makes, he ſhould preſent with theſe words: 'Be this oblation to breath efficacious.' Thus breath is ſatisfied; and, in that the eye is ſatiate; and, in the eye, the ſun is content; and, in the ſun, the ſky is gratified; and, in the ſky, heaven and the ſun, and whatever is dependant, become replete: and after that, he himſelf [who eats] is fully gratified with offspring and cattle; with vigour proceeding from food, and ſplendour ariſing from holy obſervances.

"But whoever makes an oblation to fire, being unacquainted with the univerſal ſoul, acts in the ſame manner, as one who throws live coals into aſhes: while he, who preſents an oblation, poſſeſſing that knowledge, has made an offering in all worlds, in all beings, in all ſouls. As the tip of dry graſs, which is caſt into the fire, readily kindles; ſo are all the faults of that man conſumed. He, who knows this, has only preſented an oblation to the univerſal ſoul, even though he knowingly give the reſidue to a Chandala. For, on this point, a text is [preſerved:] 'As, in this world, hungry infants preſs round their mother; ſo do all beings await the holy oblation: *they await the holy oblation*.'"

From the preceding extracts, we conceive it will unqueſtionably appear, that the real doctrine of the whole Hindoo ſcripture is the unity of the Deity, in whom the univerſe is comprehended: and the ſeeming polytheiſm, which it exhibits, offers the elements, and the ſtars and planets, as gods. The three principal manifeſtations of the divinity, with other perſonified attributes and energies, and moſt of the other gods of the Hindoo mythology, are indeed mentioned in the Vedas; but not as objects of worſhip. That ſhameful practice, ſo degrading to man, and offenſive to God, ſeems indeed to have been introduced by the Vaiſhnavas, Saivas, and Sactas. The inſtitutions of the Vedas are anterior to the time of Budd'ha, whoſe theology ſeems to have been borrowed from the ſyſtem of Capila, or frequent regeneration of the earth. The overthrow of this ſect did not reſtore the religious ſyſtem inculcated in the Vedas. Moſt of what is there taught is now obſolete; and, in its ſtead, new orders of religious devotees have been inſtituted, and new forms of religious ceremonies have been eſtabliſhed. Rituals founded on the Puranas, and obſervances borrowed from the Tantras, have, in a great meaſure, antiquated the inſtitutions of the Vedas; and little prevails now but the ſacrificing of animals before the idols of Cali; and the adoration of Rama, and Criſhna, and Jagan-Nath, as related above.

## RITES, CEREMONIES, AND SACRIFICES, OF THE HINDOOS.

In proportion as the ſects and claſſes of religious have been multiplied in Hindooſtan, ſo have their ſuperſtitious rites and ceremonies been augmented and increaſed; inſomuch that the prieſt who attends to all the preſcribed duties of his calling, in ablutions, oblations, and ſacrifices, has ſcarcely time for repoſe from the labours of the ſacerdotal office. The narrow limits preſcribed to us for the compilation of this article, admits not of our entering into half the myſtical abſurdities with which theſe rites abound. Suffice it that we mention a few of thoſe which appear to have the moſt influence in faſhioning the character of this people, and in ſhowing the wretched ſtate of idolatry into which they are fallen.

A Brahmin, riſing from ſleep, is enjoined to rub his teeth with a withe or twig of the fig-tree, pronouncing theſe words: "Attend, lord of the foreſt! Soma, king of herbs and plants, has approached thee: mayeſt thou and he cleanſe my mouth with glory and good auſpices, that I may eat abundant food." The following formula is alſo uſed upon this occaſion: "Lord of the foreſt! grant me life, ſtrength, glory, ſplendour, offspring, cattle, abundant wealth, virtue, knowledge, and intelligence." If a proper withe cannot be found, or on certain days, when the uſe of it is forbidden, he muſt rinſe his mouth twelve times with water.

The duty of bathing in the morning, and at noon if he be a houſeholder, and in the evening alſo, if he belong to an order of devotion, is inculcated by pronouncing the ſtrict obſervance of it as no leſs efficacious than a rigid penance in expiating ſins; and, the bath being particularly enjoined as a ſalutary ablution, he is permitted to bathe in his own houſe, but without prayers, if the weather, or his own infirmities, prevent his going forth: or he may abridge the ceremonies, and uſe fewer prayers, if a religious duty, or urgent buſineſs, require his early attendance.

Firſt ſipping water, and ſprinkling ſome before him, the prieſt recites the three ſubjoined ſentences, while he performs an ablution, by throwing water eight times on his head, or towards the ſky; and concludes it by caſting water on the ground, to deſtroy the demons who wage war with the gods. O waters! ſince ye afford delight, grant us preſent happineſs, and the rapturous ſight of the Supreme God. Like tender mothers, make us here partakers of your moſt auſpicious eſſence. We became contented with your eſſence, with which ye ſatisfy the univerſe. Waters! grant it unto us. Having thus completed his ablution, the Brahmin puts on his mantle after waſhing it, and proceeds to worſhip the riſing ſun.

This ceremony is begun by tying his lock of hair on the crown of his head, while he recites the Gayatri, holding a bunch of *cuſa* graſs (Poa cynoſuroides) in his left, and three blades of the ſame graſs in his right, hand; or wearing a ring of that graſs on the third finger of the ſame hand. Thrice ſipping water, and touching with his wet hand, his feet, head, breaſt, eyes, ears, noſe, and navel; or his breaſt, navel, and both ſhoulders, only, (according to another rule;) he again ſips water three times, pronouncing to himſelf the expiatory text which recites the creation. If he happen to ſneeze, or ſpit, he muſt not immediately ſip water, but firſt touch his right ear, in compliance with the maxim, "After ſneezing, ſpitting, blowing his noſe, ſleeping, putting on apparel, or dropping tears, a man ſhould not immediately ſip water, but firſt touch his right ear."—"Fire," ſays Paraſara, "water," the Vedas, "the ſun, moon, and air, all reſide in the right ears of Brahmanas. Ganga is in their right ears, ſacrificial fire in their noſtrils; at the moment when both are touched, impurity vaniſhes."—The ſipping of water is a requiſite introduction to all rites; without it, ſays the Samba Purana, all acts of religion are vain.

After theſe ablutions, he proceeds to worſhip the ſun; ſtanding on one foot, and reſting the other againſt his ankle-bone or heel, looking towards the eaſt, with uplifted hands, open before him, he pronounces the following ſentences:—"The rays of light announce the ſplendid fiery ſun, beautifully riſing to illumine the univerſe."—"He riſes, wonderful, the eye of the ſun, of water, and of fire, collective power of gods; he fills heaven, earth, and ſky, with his luminous net; he is the ſoul of all which is fixed or locomotive."—"That eye, ſupremely beneficial, riſes pure from the eaſt; may we ſee him a hundred years; may we live a hundred years; may we hear a hundred years."—"May we, preſerved by the divine power, contemplating heaven above the region of darkneſs, approach the deity, moſt ſplendid of luminaries."

Preparatory to any act of religion, ablutions muſt be again performed in the form above preſcribed for the midday bath; the practice of bathing at noon is likewiſe enjoined as requiſite to cleanlineſs, conducive to health, and efficacious in removing ſpiritual as well as corporeal defilements: it muſt, nevertheleſs, be omitted by one who is afflicted with diſeaſe; and a healthy perſon is forbidden to bathe immediately after a meal, and without laying aſide his jewels, and other ornaments. If there be no ſuch impediment, he may bathe with water drawn from a well, from a fountain, or from a baſon of a cataract; but he ſhould prefer water which lies above ground, chooſing a ſtream rather than ſtagnant water, a river in preference to a ſmall brook, a holy ſtream before a vulgar river; and, above all, the water of the Ganges. In treating of the bath, authors diſtinguiſh various ablutions, properly and improperly ſo-called; ſuch as rubbing the body with aſhes, which is named a bath ſacred to fire; plunging into water, a bath ſacred to the regent of this element: ablutions accompanied by the prayers, "O waters! ſince ye afford delight, &c." which conſtitute the holy bath: ſtanding in duſt raiſed by the treading of cows, a bath denominated from wind or air; ſtanding in the rain during day-light, a bath named from the ſky or atmoſphere. The ablutions, or bath properly ſo called, are performed with the following ceremonies:

After bathing and cleanſing his perſon, and pronouncing as a vow, "I will now perform ablutions," he who bathes muſt invoke the holy rivers; "O Ganga, Yamuna, Saraſwati, Satadru, Marudviaha, and Jiyiciya! hear my prayers: for my ſake be included in this ſmall quantity of water with the holy ſtreams of Paruſhti Aſieni, and Vitaſta." He muſt alſo utter the radical prayer, conſiſting of the words "Salutation to Narayana." Upon this occaſion, a prayer extracted from the Padma Purana is often uſed, with this ſalutation, called the radical text; and the ceremony is at once concluded by taking up the earth, and pronouncing the ſubjoined prayers: "Earth, ſupporter of all things, trampled by horſes, traverſed by cars, trodden by Viſhnu! whatever ſin has been committed by me, do thou, who art upheld by the hundred-armed Criſhna, incarnate in the ſhape of a boar, aſcend my limbs, and remove every ſuch ſin."

The text extracted from the Padma Parana follows: "Thou didſt ſpring from the foot of Viſhnu, daughter of Viſhnu, honoured by him; therefore preſerve us from ſin, protecting us from the day of our birth even unto death. The regent of air has named thirty-five millions of holy places in the ſky, on earth, and in the ſpace between; they are all compriſed in the daughter of Jahnu. Thou art called ſhe who promotes growth among the gods: thou art named the lotos; able, wife of Prithu, bird, body of the univerſe, wife of Siva, nectar, female cheriſher of ſcience, cheerful, favouring worlds; merciful, daughter of Jahnu, conſoler, giver of conſolation. Ganga, who flows through the three worlds, will be near unto him who pronounces theſe pure titles during his ablution."

As an expiation of the ſin of eating with men of very low tribes, or of coveting or accepting what ſhould not be received, the Brahmin plunges into water, at the ſame time reciting a formula fitted to the occaſion. One who has drunk ſpirituous liquors, is to traverſe water up to his throat, and drink as much expreſſed juice of the moon-plant as he can take up in the hollow of both hands, while he meditates the triliteral monoſyllable, and then plunge into water, reciting the following prayer: "O, Rudra! hunt not our offſpring and deſcendants; abridge not the period of our lives; deſtroy not our cows; kill not our horſes; ſlay not our proud and irritable folks; becauſe, holding oblations, we always pray to thee."

Theſe ceremonies are uſually concluded with an oblation of water, and the following prayer: "Gods, benevolent genii, huge ſerpents, nymphs, demons, wicked beings, ſnakes, birds of mighty wing, trees, giants, and all who traverſe the ethereal region, genii who cheriſh ſcience, animals that live in water, or traverſe the atmoſphere, creatures that have no abode, and all living animals which exiſt in ſin, or in the practice of virtue; to ſatisfy them is this water preſented by me." Finally, the prieſt wrings his lower garment, pronouncing this text: "May thoſe who have been born in my family, and have died, leaving no ſon nor kinſman bearing the ſame name, be contented with this water which I preſent, by wringing it from my veſture." Then, placing his ſacrificial cord over his left ſhoulder, ſipping water, and raiſing up his arms, he makes a circuit towards the ſouth, pronouncing theſe words: "I follow the courſe of the ſun;" (and, offering water from the hollow of his hand, ſays,) "Salutation to ſpace; to the regents of ſpace, to Brahma, to the earth, to ſalutary herbs, to fire, to ſpeech, to the lord of ſpeech, to the pervader, and to the mighty Deity."

The next daily duty of a Brahmin prieſt, is the performance of the five great ſacraments. Theſe conſiſt in the ſtudy of the Veda, the ſacraments of the manes, of deities, and of ſpirits, and of various ceremonies, which muſt be celebrated at different periods, as ſituations and circumſtances ſhall require.

The ſacrament of deities conſiſts in oblations to fire, with prayers addreſſed to various divinities; and it is excluſive of the offerings of perſumes and flowers before idols. Firſt, the prieſt ſmears with cow-dung a level piece of ground four cubits ſquare, free from all impurities, and ſheltered by a ſhed. Having bathed and ſipped water, he ſits down with his face towards the eaſt, and places a veſſel of water with cuſa-graſs on his left; then dropping his right knee, and reſting on the ſpan of his left hand, he draws with a root of cuſa-graſs a line one ſpan, or twelve fingers, long, and directed towards the eaſt. From the neareſt extremity of this line, he draws another at right angles to it, twenty-one fingers long, and directed towards the north. Upon this line he draws three others, parallel to the firſt, equal to it in length, and diſtant ſeven fingers from each other. The firſt is made a yellow line, and is ſacred to the earth; the ſecond is red, and ſacred to fire; the third black, and ſacred to Brahma the creator; the fourth blue, and ſacred to Indra the regent of the firmament; the fifth white, and ſacred to Soma. He next gathers up the duſt from the edges of theſe lines, and throws it away towards the north-eaſt, ſaying, "What was [herein] bad, is caſt away:" and he concludes by ſprinkling water on the ſeveral lines.

Having thus prepared the ground for the reception of the ſacrificial fire, he takes a lighted ember out of the covered veſſel which contains the fire, and throws it away, ſaying, "I diſmiſs far away carnivorous fire: may it go to the realm of Yama, bearing ſin [hence."] He then places the fire before him, ſaying, "Earth! Sky! Heaven!" and adding, "This other [harmleſs] fire alone remains here; well knowing [its office,] may it convey my oblation to the gods." He then denominates the fire according to the purpoſe for which he prepares it, ſaying, "Fire! thou art named [ſo and ſo;"] and he concludes this part of the ceremony by burning a log of wood, one ſpan long, and ſmeared with clarified butter.

If any profane word have been ſpoken during the ceremony, atonement muſt now be made by pronouncing this text: "Thrice did Viſhnu ſtep, and at three ſtrides traverſed the univerſe: happily was his foot placed on the duſty [earth."] The meaning is: Since the earth has been purified by the contact of Viſhnu's foot, may ſhe (the earth ſo purified) atone for any profane word ſpoken during this ceremony.

If oblations be made of rice mixed with milk, curds, and butter, this is the proper time for mixing them; and the prieſt afterwards proceeds to name the earth in the following prayer, which he pronounces proſtrate, reſting both hands on the ground: "We adore this earth; this auſpicious and moſt excellent earth: Do thou, O fire! reſiſt [our] enemies. Thou doſt take [on thee] the power [and office] of other [deities."]

With blades of cuſa-graſs held in his right hand, he muſt next ſtrew leaves of the ſame graſs on three ſides of the fire, arranging them regularly, ſo that the tip of one row ſhall cover the roots of the other. He begins with the eaſtern ſide, and at three times ſtrews graſs there, to cover the whole ſpace from north to ſouth; and in like manner diſtributes graſs on the ſouthern and weſtern ſides. He then bleſſes the ten regions of ſpace; and, riſing a little, puts ſome wood on the fire, with a ladle-full of clarified butter, while he meditates in ſilence on Brahma the lord of creatures.

Among the numerous ceremonies of oblations to fire, the ſacrifice to the nine planets appears deſerving of notice. This conſiſts of nine oblations of clarified butter, with the following prayers:

1. "The divine Sun approaches with his golden car, returning alternately with the ſhades of night, rouſing mortal and immortal beings, and ſurveying worlds: May this oblation to the ſolar planet be efficacious."

2. "Gods! produce that [Moon] which has no foe, which is the ſon of the ſolar orb, and became the offspring of ſpace for the benefit of this world; produce it for the advancement of knowledge, for protection from danger, for vaſt ſupremacy, for empire, and for the ſake of Ingra's organs of ſenſe. May this oblation to the lunar planet be efficacious."

3 "This gem of the ſky, whoſe head reſembles fire, is the lord of waters, and repleniſhes the ſeeds of the earth: May this oblation to the planet Mars be efficacious.

4. "Be rouſed, O fire! and thou, [O Bud'ha!] perfect this ſacrificial rite, and aſſociate with us; let this votary and all the gods ſit in this moſt excellent aſſembly. May this oblation to the planet Mercury be efficacious."

5. "O Vrihaſpati, ſprung from eternal truth, confer on us abundantly that various wealth which the moſt venerable of beings may revere; which ſhines glorioully amongſt all people, which ſerves to defray ſacrifices, which is preſerved by ſtrength. May this oblation to the planet Jupiter be efficacious."

6. "The lord of creatures drank the invigorating eſſence diſtilled from food; he drank milk and the juice of the moon-plant. By means of ſcripture, which is truth itſelf, this beverage thus quaffed became a prolific eſſence, the eternal organ of univerſal perception, Indra's organs of ſenſe, the milk of immortality, and honey to the manes of anceſtors. May this oblation to the planet Venus be efficacious."

7. "May divine waters be auſpicious to us for accumulation, for gain, and for refreſhing draughts; may they liſten to us, that we may be aſſociated with good auſpices. May this oblation to the planet Saturn be efficacious."

*Aſcending node*, ☋.—"O Durva, which doſt germinate at every knot, [Agroſtis linearis, Kœnig.] at every joint, multiply us through a hundred, through a thouſand, deſcents. May this oblation to the planet of the aſcending node be efficacious."

*Deſcending node*, ☊.—"Be thou produced by dwellers in this world to give knowledge to ignorant mortals, and wealth to the indigent, or beauty to the ugly. May this oblation to the planet of the deſcending node be efficacious."

At the ſtated hours of public worſhip, the people reſort from all quarters to their temples or pagodas. Like the prieſts, they begin their devotions by performing their ablutions, which is done at the tank, either to be found in front of the building, or, in very great temples, in the centre of the firſt court. Leaving their ſlippers, or ſandals, on the border of the tank, they are admitted to a periſtile or veſtibule, oppoſite to the building which contains the idols, where they obſerve great reverence; and whilſt the Brahmins perform the ceremonies of the *Pooja*, or worſhip, the dancing-women occaſionally dance in the court, ſinging the praiſes of their gods to the ſounds of various muſical inſtruments.

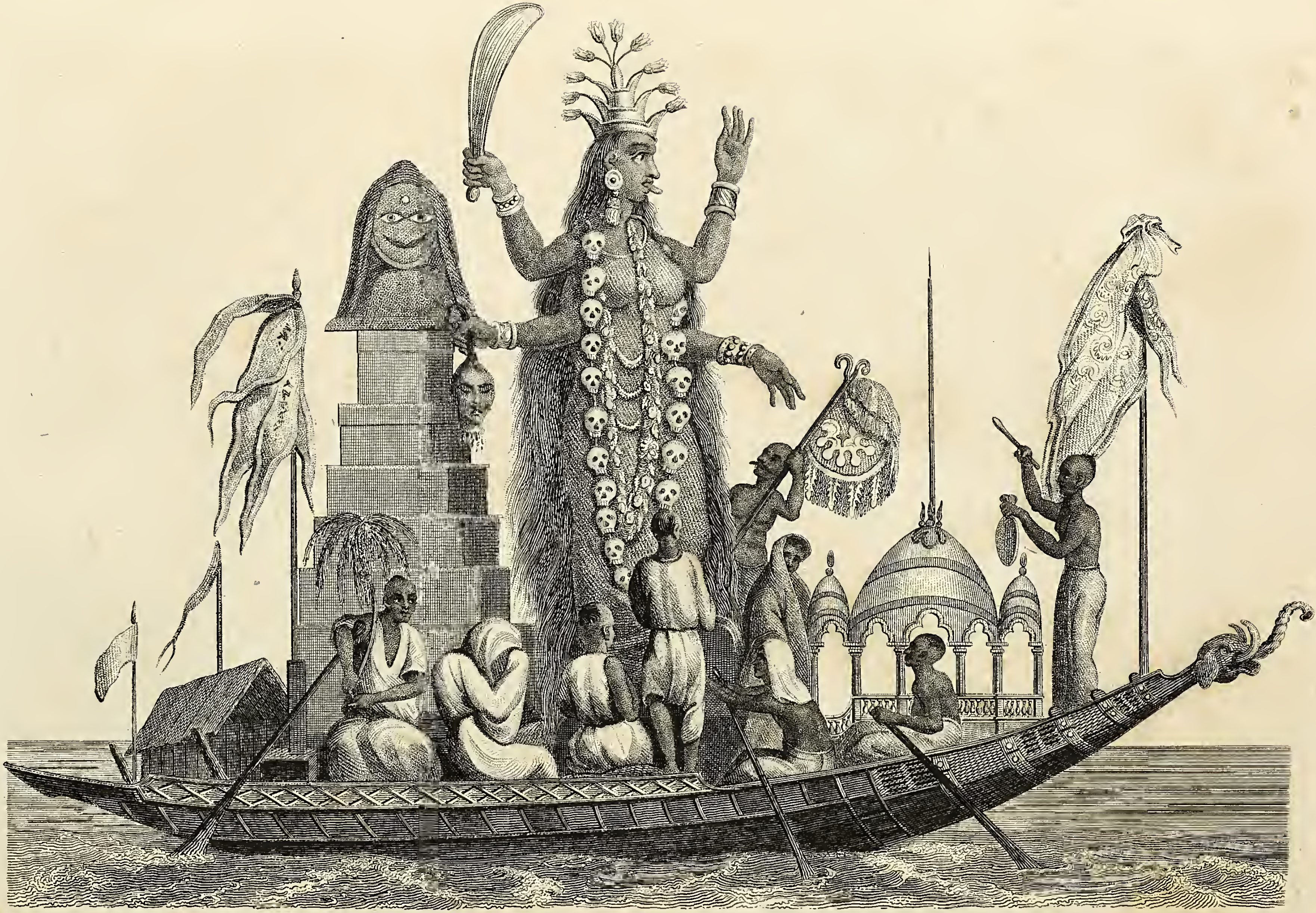
Pooja, or private worſhip, may likewiſe be performed at home, before the houſehold images. Thoſe who are to aſſiſt at it, begin by bathing themſelves. They likewiſe waſh the room or place deſtined for the ceremony; and then ſpread it with a new mat, or with a carpet that is only uſed for that purpoſe. On this they place *the throne* of the idol, which is moſt commonly made of wood richly carved and gilt, though ſometimes of gold or ſilver. The things neceſſary for the Pooja are laid upon the mat; conſiſting of a bell of metal; a conch-ſhell, [Murex tritonis Linn.] as a trumpet; a cenſer filled with benzoin, ſugar, and other articles, which are kept conſtantly burning, by being occaſionally renewed. Flowers ſeparately and in garlands are ſcattered upon the mat. The idol is put into a large metal vaſe; and being waſhed, by pouring water firſt on the head, is wiped clean, dreſſed, and placed on its throne. Cups, and plates of gold, ſilver, or other metals, are ſpread before it, ſome filled with rice, others with different ſorts of fruits, with dry ſweetmeats, and portions of cow's milk. The worſhippers repeat certain prayers with great ſolemnity, and then conclude with hymns or verſes in praiſe of the god whom the idol repreſents.

The Brahmin, who performs the ceremony, occaſionally rings the bell, and blows the ſhell. He gives the *tiluk*, or mark on the forehead, to the idol, by dipping his right thumb in ſome ſubſtance that has been mixed with water, and prepared for that purpoſe. If the mark be a perpendicular one, he begins at the top of the noſe, and advances upwards. But the colour, the ſize, and ſhape, of the *tiluk*, depend on the tribe and ſect the worſhippers may be of; ſome tribes being marked with vermilion, others with turmeric, and ſome with the duſt of the white ſandalwood, &c. A Brahmin generally marks all the perſons preſent in the ſame manner, which ſerves to keep the caſts and ſects more ſtrictly ſeparated. The fruit and other articles of food which were ſpread before the idol, are after the ceremony divided amongſt the people; and the idol is then carefully wrapped up, and, with the throne and other utenſils uſed in the ceremony, kept in a ſecure place until another Pooja or public worſhip be performed.

Indeed the ceremony at the temples, after a long adoration and proſtration before the idols, appears chiefly to conſiſt of collecting donations for their ſupport,—or rather for the maintenance of the prieſts, and the enrichment of their reſpective eſtabliſhments,—and in conſuming a large portion of ſacrifice, adapted to the number, and rank, and liberal diſpoſition, of the worſhippers; the higher orders of whom having firſt partaken, the reſidue is diſtributed to the poor. At Jagan-Nath, one of the principal temples of reſort, as noticed above, it is aſſerted, in the Ayeen Akbery, that at every grand Pooja, or feſtival, the quantity of victuals offered to the idol is ſufficient to feed twenty thouſand perſons.

One of the principal ceremonies attending the ordinances of the temples, is that of performing ablutions on their idols; a rite equally ſtrict with that of the Brahmins in performing ablutions on themſelves. It is ſaid that the prieſts of Jagan-Nath waſh their triple god privately ſix times every day, and dreſs him up every time in freſh clothes and ornaments; after which fifty-ſix ſuperintending Brahmin prieſts adminiſter before him, each preſenting him with a diſh of hallowed food. They uſually take only *one* of the perſons of the triad at a time, for performing the public ablution; previouſly proclaiming to the ſect who worſhip him, the day and hour in which he will vouchſafe to make this public manifeſtation of his glory. He is then placed on a carriage of enormous dimenſions, capable of containing two hundred perſons, and drawn to the ſacred Ganges in proceſſion, by the devotees, by means of a cable of great length and ſtrength; and often, while the cumbrous vehicle is paſſing along, zealous votaries will fling themſelves under the wheels, to gain a death that is to enſure a happy immortality.—See Pennant's Hindooſtan, vol. ii. p. 136.

In like manner the gods and goddeſſes who bear rule reſpectively in all the Hindoo pagodas, have their poojahs of ablution, or grand feſtivals of public manifeſtation, on the ſacred rivers, where many hundred thouſands of their deluded worſhippers attend them, deeming it the happieſt of omens for future proſperity, ſhould they get near enough to touch only the hem of the outer garment of their god; in which ſtruggle many of them frequently periſh; but without pity or commiſeration; for it is ſuppoſed that the party muſt have approached the god without the neceſſary purification; or otherwiſe, that, from the great



J. Chapman, Sc.

Ceremony of Washing the Goddeſs Cali, and the Idol Jagan-Nath.

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great virtue and purity of the defunct, it was the pleaſure of the idol that his ſoul ſhould be transferred into a higher order of human beings, or perhaps among the aerial genii.

Mr. Solvyns, in his book of Coſtumes of India, publiſhed at Calcutta, in Bengal, has given a plate of the grand feſtival of "waſhing the goddeſs Cali," decked out in various emblems of the deſtructive power of Siva, her conſort. From that plate the annexed engraving has partly been taken. In this form of Cali ſhe has only four arms. In her upper hand, on the right ſide, ſhe holds the knife of ſacrifice; and in the one beneath ſhe holds by the lock the head of a human ſacrifice, which has juſt been made a voluntary offering to her. Her other hands are held forth empty, but ſtained with blood, and with her tongue protruded, to ſhow her deſire of further ſacrifices. The ſkulls hung round her neck are emblematic of one of the attributes of Siva, her lord; at the ſame time that they denote her delight in the blood of human beings. The bloſſoms on her crown are thoſe of the Egyptian lotus, the emblem of purity; ſhowing that none are to approach her but with great purity of mind and body; and that every human ſacrifice muſt be a *voluntary offering*, waſhed and purified for this expreſs occaſion!

One of the principal ceremonies in domeſtic life, among the higher orders of the Hindoos, is the ritual of marriage. The religion of Brahma inculcates marriage as a moſt important duty; and parents are ſtrictly enjoined to marry their children before the expiration of their eleventh year at the lateſt. Polygamy is allowed, but not always practiſed, unleſs there be no proſpect of a legitimate heir by the firſt wife; and, as it is an object of the higheſt conſequence with the Hindoos to leave behind them a repreſentative, who may perform the uſual ceremonies for the advancement of their ſouls, ſhould the marrying a ſecond wife, and their ſacrifices to the procreative idol Lingam, prove ineffectual, they commonly adopt a ſon from among their relations.

The Hindoos being extremely ſcrupulous with reſpect to the virginity of their brides, is the reaſon that they marry ſo extremely young, although conſummation is deferred till the parties arrive at the age of puberty; nor will they marry a woman with whom thoſe ſymptoms have appeared, to which the ſex is by nature ſubjected. Inſtances frequently occur, of a man far advanced in life being married to a child of eight or ten years of age; and a widow cannot marry again, even if her huſband ſhould die, before ſhe has attained the age proper to be admitted to his bed.

The Hindoo women are not entitled to any inheritance. If a man dies without male iſſue, his fortune deſcends to his adopted ſon; or, if he has none, to his neareſt kinſman, who is obliged to maintain the women and children that belonged to, and were maintained by, the deceaſed. And, if there ſhould even be no property, that duty falls upon thoſe who enjoy the right of inheritance. All orphans are received into the family of the neareſt of kin to the deceaſed's father, who is obliged by the law to bring them up in the ſame manner as his own children; to marry the girls, and place the ſons in the profeſſions of their fathers.

When a Hindoo has no children of his own, and reſolves to adopt a child, he aſſembles his relations and thoſe of the boy who is to be adopted. A large braſs plate is placed on the floor, upon which the child ſtands, alone, if ſufficiently old; if not, he is held by a Brahmin. The huſband and wife then ſay, with a loud voice, "Having no ſon of our own, we wiſh to adopt the child who is now before you. We chuſe him to be our ſon; and henceforward he has, and is to enjoy, the ſame right to our fortune, as if he were really begotten by, and born of, us; nor is he to expect any thing from his natural parents. In confirmation of which we ſhall proceed to make our vows, if you who are preſent have nothing to object." A ſign of approbation being then made by thoſe who aſſiſt at the ceremony, the huſband and wife drink ſome water mixed with ſaffron, and pour what remains on the child's feet. An atteſtation of the tranſaction is then made out, and ſigned in the preſence of the company. Should the perſons who have adopted the boy have afterwards children of their own, the adopted ſon ſtill retains his right of inheritance as the eldeſt, and is the firſt to be provided for in marriage; and, far from repenting of what they have done, they are taught to believe, that this favour of the gods is to be aſcribed to the ſtranger whom they had introduced into their houſe.

The marriage ceremonies are both tedious and expenſive. Although the match be previouſly agreed on by the parents, the father of the boy goes with much formality, and demands the girl for his ſon. The anſwer is returned with equal ceremony; and, many preliminary forms being obſerved, the day of marriage is fixed. It is always celebrated at the houſe of the bride. Beſides the uſual rooms for receiving viſitors, a large area is covered, and formed into a *pandal*, or great temporary hall, which is lined with white linen, or chintz, and hung round and decorated with garlands of flowers. The bride's father fills a veſſel with honey, curds, and clarified butter, which he covers with another veſſel, and preſents it to the bridegroom, exclaiming three times, "Take the *mad'huparca*." The bridegroom accepts it; places it on the ground; and looks into it, ſaying, "I take thee with the aſſent of the generous ſun; with the arms of both ſons of *Aſwini*; with the hands of the cheriſhing luminary." He then mixes it, ſaying, "May I mix thee, O venerable preſent! and remove whatever might be hurtful in the eating of thee." He taſtes it three times, ſaying, "May I eat that ſweet, beſt, and nouriſhing, form of honey; and may I thus become excellent, ſweet-tempered, and well nouriſhed, by food." After eating until he be ſatisfied, and after ſipping water, he touches his mouth and other parts of his body with his hand, ſaying, "May there be ſpeech in my mouth; breath in my noſtrils; ſight in my eye-balls; hearing in my ears; ſtrength in my arms; firmneſs in my thighs: may my limbs and members all remain unhurt, together with my ſoul."

While the bridegroom is welcomed with theſe ceremonies, the bride bathes during the recital of the following texts. Three veſſels of water are ſeverally poured on her head, with three different prayers. 1. "Love! I know thy name. Thou art called an intoxicating beverage. Bring [the bridegroom] happily. For thee was framed the inebriating draught. Fire! thy beſt origin is here. Through devotion wert thou created. May this oblation be efficacious." 2. "Damſel! I anoint this thy generative organ with honey, becauſe it is the ſecond mouth of the Creator: by that thou ſubdueſt all males, though unſubdued; by that thou art lively, and doſt hold dominion. May this oblation be efficacious." 3. "May the primeval ruling ſages, who framed the female organ, as a fire that conſumeth fleſh, and thereby framed a procreating juice, grant the prolific power, that proceeds from the three-horned [bull] and from the ſun. May this oblation be efficacious."

The bride and bridegroom are now to be ſeated at one end of the pandal or hall, under a kind of canopy, with their faces to the eaſt. The bride is placed on the left hand of the bridegroom, and a certain number of Brahmins ſtand on each ſide of them. The relations and gueſts ſit round the room on the floor, which is ſpread with new mats, covered with carpets, and theſe generally likewiſe covered with white linen. Chairs are unknown, but in the poſſeſſions of Europeans; and to have a ſeat elevated above the level of the floor, is a mark of diſtinction and ſuperiority, due only to thoſe who are intitled to ſit on the muſnud or throne, or on ſofas, &c.

A particular circle for performing the ſacrifice is marked out by the Brahmin in the centre of the room, with flowers diſtributed on the floor in various figures. If thoſe who are to be married be of the Viſhnu ſect, the

Brahmin who preſides at the ceremony invokes Viſhnu and Letchimy to be propitious to them; or, if they be followers of Siva, he calls upon Siva and Gouri. The altar is then lighted; and, whilſt the Brahmin reads paſſages from the ſacred writings, he occaſionally throws into the fire bits of ſandal-wood, benzoin, ſugar, and other articles. The principal Brahmin then calls out to the father of the bride, who takes her hand, and joins it with that of the bridegroom; then, invoking ſome of the gods, he calls on them to witneſs, that he gives his daughter to be the wife of ſuch a one, naming his ſon-in-law. A matron then binds their hands together with cuſa-graſs, amidſt the ſound of cheerful muſic. The Brahmin hereupon gives the *taly*, or gold ornament that married women wear round the neck, into the hand of the bridegroom, by whom it is tied round the neck of the bride, and ſhe is thenceforward his married wife. Grand proceſſions are made through the town. The young married couple ſit in the ſame palankeen, attended by their relations and friends, ſome in palankeens, others on horſes and elephants; and ſo great is ſometimes their oſtentation, that they will, at ſuch ceremonies, borrow or hire numbers of thoſe animals.

The nuptial rejoicings laſt ſeveral days. The evenings are ſpent in diſplaying fire-works and illuminations, and in ſeeing dancers, who accompany the dance by ſongs ſuitable to the occaſion. The whole concludes with preſents to the Brahmins and principal gueſts, and alms to the poor. The preſents to the gueſts generally conſiſt in ſhawls, and pieces of muſlin, or other cloths. Theſe ceremonies are of courſe more or leſs pompous, according to the rank and means of the parties. But all pride themſelves on being as ſumptuous as they can.

When the bride appears to have arrived at the age of puberty, various ceremonies are again uſed. The parents receive compliments of congratulation, and the marriage is conſummated. But in the ſexual connexion the greateſt decency is obſerved. While under thoſe monthly viſitations that are peculiar to the ſex, ſhe quits her huſband's bed, retires to a ſeparate apartment, nor even eats in ſociety, until ſhe have bathed and fully purified herſelf.

When ſhe becomes pregnant; when ſhe paſſes the ſeventh month without accident; and when ſhe is delivered of her child; there are, at each of thoſe epochs, ceremonies to be performed, and thankſgivings made to the gods. On the tenth day after the birth of the child, the relations are aſſembled to aſſiſt at the ceremony of giving it a name. The Brahmins proceed to examine the planets; and if they be found unfavourable, the ceremony is deferred, and ſacrifices performed to avert misfortune. When a fit moment is diſcovered, they fill as many pots with water as there are planets, and perform a ſacrifice to their honour. They then ſprinkle the head of the child with water taken from the pots; a Brahmin gives it ſuch a name as he may think the beſt adapted to the time and circumſtances; and the ceremony is concluded with prayers, preſents to the Brahmins, and alms to the poor.

It is the duty of all mothers to ſuckle their own children, nor can it be diſpenſed with but in caſes of ſickneſs or infirmity. When a boy arrives at a fit age to receive the ſtring, which the Hindoos of the three firſt caſts wear round their bodies, freſh ceremonies are performed, and preſents given to the Brahmins.

On the practice of immature nuptials, it may be remarked, that it ariſes from ſeveral laudable motives, as well as from a ſenſe of duty incumbent on a father, who conſiders as a debt the obligation of providing a ſuitable match for his daughter. This notion, which is ſtrongly inculcated by Hindoo legiſlators, is forcibly impreſſed on the minds of parents. The numerous reſtrictions in the aſſortment of matches, alſo impoſe on parents this neceſſity of embracing the earlieſt opportunity of affiancing their children to fit companions. The intermarriages of different claſſes, formerly permitted with certain limitations, are now wholly forbidden. The prohibited degrees extend to the ſixth of affinity; and even the bearing of the ſame family-name is a ſufficient cauſe of impediment.

The moſt ſolemn of the domeſtic ceremonies in uſe among the Hindoos, is that of performing the obſequies of the dead. Burning the body ſeems to be the univerſal practice; which they appear to have followed from the remoteſt antiquity; and which, indeed, the ſtrange and numerous rites which they on theſe occaſions perform, ſufficiently manifeſt.

A dying man, when no hopes of life remain, is uſually laid upon a bed of cuſa-graſs, where the Brahmin ſprinkles him with ſacred water from the Ganges, and marks his forehead with clay. Soon as he expires, the body is waſhed, and ſtrewed over with flowers; a bit of tutanag, another of gold, a gem of any kind, and a piece of coral, are thruſt into his mouth; and bits of gold put in both noſtrils, both eyes, and both ears. A cloth perfumed with fragrant oil is then thrown over the corpſe, which is now to be carried, preceded by fire and food, to ſome choſen ſpot in the foreſt, or near water, where the funeral pile is to be prepared.

After waſhing the corpſe, clothing it in clean apparel, and rubbing it with perfumes, ſuch as ſandal-wood, ſaffron, or aloe-wood, the relations of the deceaſed place the corpſe ſupine with its head towards the north, (or reſupine, if it be the body of a woman,) on the funeral pile, which is now decorated with ſtrung and unſtrung flowers. A prieſt, or a relation of the deceaſed, taking up a lighted brand, muſt ſay: "May the gods with flaming mouths burn this corpſe!" He then walks thrice round the pile with his right hand towards it, and ſhifts the ſacerdotal ſtring or cord to his right ſhoulder. Then looking towards the ſouth, and dropping his left knee to the ground, he applies the fire to the pile, near the head of the corpſe, ſaying, "*Namó! Namah!*" while the attending prieſts recite the following prayer: "Fire! thou wert lighted by him—may he therefore be re-produced from thee, that he may attain the region of celeſtial bliſs. May this offering be auſpicious." While the pile is burning, the relations of the deceaſed take up ſeven pieces of wood a ſpan long, and cut them ſeverally with an axe over the fire-brands, (after walking each time round the funeral pile,) and then throw the pieces over their ſhoulders upon the fire, ſaying, "Salutation to thee who doſt conſume fleſh." The body of a young child under two years old muſt not be burnt, but buried: it is decked with wreaths of flowers, and carried out by the relations, who bury it in a clean ſpot, ſaying, "*Namó! Namah!*" while a prieſt chants the ſong of Yama.

After the body of the deceaſed has been burnt, all who have touched or followed the corpſe muſt walk round the pile, keeping their left hands towards it, and taking care not to look at the fire. They then walk in proceſſion, according to ſeniority, to a river or other running water; and, after waſhing and again putting on their apparel, they advance into the ſtream. They then aſk the deceaſed's brother-in-law, or ſome other relation able to give the proper anſwer, "Shall we preſent water?" If the deceaſed were a hundred years old, the anſwer muſt be ſimply, "Do ſo:" but if he were not ſo aged, the reply is, "Do ſo, but do not repeat the oblation." Upon this they all ſhift the ſacerdotal ſtring to the right ſhoulder, and looking towards the ſouth, and being clad in a ſingle garment without a mantle, they ſtir the water with the ring-finger of the left hand, ſaying, "Waters, purify us." With the ſame finger of the right hand they throw up ſome water towards the ſouth; and, after plunging once under the ſurface of the river, they rub themſelves with their hands. An oblation of water muſt be next preſented from the joined palms of the hands, naming the deceaſed and the family from which he ſprung, and ſaying, "May this oblation reach thee." If it be intended to ſhow particular honour to the deceaſed, three offerings of water are made.

After finiſhing theſe libations to ſatisfy the manes of the deceaſed, they quit the river, and ſhift their wet clothes for other apparel; they then ſip water without ſwallowing it, and, ſitting down on the turf, alleviate their ſorrow by the recital of the following or other ſuitable moral ſentences, refraining at the ſame time from tears and lamentation:

"Fooliſh is he who ſeeks permanence in the human ſtate, unſolid like the ſtem of the plantain-tree, tranſient like the foam of the ſea."—"When a body, formed of five elements, to receive the reward of deeds done in its own former perſon, reverts to its five original principles, what room is there for regret?"—"The earth is periſhable, the ocean, the gods themſelves paſs away: how ſhould not that bubble, mortal man, meet deſtruction?"—"All that is low muſt finally periſh; all that is elevated muſt ultimately fall; all compound bodies muſt end in diſſolution, and life is concluded with death."—"Unwillingly do the manes of the deceaſed taſte the tears and rheum ſhed by their kinſmen; then do not wail, but diligently perform the obſequies of the dead."

After theſe ceremonials, the neareſt of kin of the deceaſed gathers his aſhes, and performs an offering on the occaſion. He ſhifts the ſacerdotal ſtring to his right ſhoulder, turns his face towards the ſouth; ſprinkles the bones and aſhes with cow's milk; and, uſing a branch of the *Sami*, or Butea tree, inſtead of tongs, firſt draws out from the aſhes whatever remain of the bones of the head, and afterwards of the other bones ſucceſſively; ſprinkles them with perfumed liquids, and with clarified butter made of cow's milk; and puts them into a caſket made of the leaves of the *Palaſa*: this he places in a new earthen veſſel, covers it with a lid, and ties it up with thread. Chooſing ſome clean ſpot where encroachments of the river are not to be apprehended, he digs a deep hole, and ſpreads cuſa-graſs at the bottom of it, and over the graſs a piece of yellow cloth; he places thereon the earthen veſſel containing the bones and aſhes of the deceaſed, covers it with a lump of mud, together with thorns, moſs, and mud; and plants a tree in the excavation, or raiſes a mound of maſonry, or makes a pond, or erects a ſtandard. He, and the reſt of the kinſmen, then bathe in their clothes, which concludes the ceremony.

The neareſt relation of the deceaſed is alſo bound to perform the offering or oblation of the funeral cakes. Raiſing a ſmall altar of earth, and marking lines over it, as practiſed for other oblations, he takes a cake in his hand, and, naming the deceaſed, ſays, "May this firſt funeral cake, which ſhall reſtore thy head, be acceptable to thee." He next offers an earthen veſſel full of tila and water near the funeral cake, and ſays, "May this veſſel of tila and water be acceptable to thee."

For principal perſons ten days of mourning are uſually obſerved; on each of which, funeral cakes, together with libations of water and tila, muſt be offered as on the firſt day. But the addreſs to the deceaſed varies each time. On the ſecond day the prayer is, "May this ſecond cake, which ſhall reſtore thy ears, eyes, and noſe, be acceptable." On the third day, "this third cake, which ſhall reſtore thy throat, arms, and breaſt." On the fourth, "thy navel and organs of execration;" on the fifth, "thy knees, legs, and feet;" on the ſixth, "all thy vitals;" on the ſeventh, "all thy veins;" on the eighth, "thy teeth, nails, and hair;" on the ninth, "thy manly ſtrength;" on the tenth, "May this tenth cake, which ſhall fully ſatisfy the hunger and thirſt of thy renewed body, be acceptable to thee." During this period, a pebble wrapt up in a fragment of the deceaſed's ſhroud, is worn by the heir ſuſpended on his neck. To that pebble, as a type of the deceaſed, the funeral cakes are offered.

If the mourning laſt three days only, ten funeral cakes muſt be nevertheleſs offered, three on the firſt and third days, and four on the ſecond; if it laſts no more than one day, ten oblations muſt be made at once.

Concerning the practice of Hindoo wives burning themſelves alive on the funeral pile of their deceaſed huſbands, much has been ſaid and written. It at preſent prevails moſt in the Mahratta dominions, and in the remote countries of the ancient rajahs, where inſtances of the kind are frequently to be met with, particularly in families of high diſtinction. In the territories belonging to the Engliſh, it has, from motives of humanity, been every where repreſſed; and now rarely happens there, unleſs it be done ſecretly, or before thoſe who have ſufficient authority to prevent it, can be timely apprized. The Hindoo ritual rather recommends than requires it; as it only ſays: "It is *proper* for a woman to burn herſelf with her huſband's corpſe;" and future bleſſings are promiſed as a reward for doing ſo. But, in caſe the widow ſhould prefer to live, ſhe is enjoined to obſerve inviolable chaſtity, to cut off her hair, and not to deck herſelf with jewels, or any other ornament. There are, nevertheleſs, ſome particular caſes in which it is expreſsly forbidden. A woman is not to burn, if ſhe be with child; or if her huſband died at a diſtance from home, unleſs ſhe can procure his girdle and turban to be placed on the funeral pile. Theſe the diſconſolate widow will at any riſque of expence or life often endeavour to obtain; and ſuch is the influence of cuſtom, that a woman of the higheſt birth, brought up with the care and delicacy ſuitable to her rank, and poſſeſſing that timidity and gentleneſs of manners natural to her ſex, and for which the women of Hindooſtan are ſo eminently diſtinguiſhed, will undergo this awful ſacrifice with as much fortitude and compoſure, as were ever exhibited by any hero or philoſopher of antiquity.—The ritual laid down for this ceremony is as follows:

"Having firſt bathed, the devoted widow, dreſſed in two clean garments, and holding ſome cuſa-graſs, ſips water from the palm of her hand. Bearing cuſa and tila on her hand, ſhe looks towards the eaſt or north, while the Brahmana utters the myſtic word *O'm*. Bowing to Nerayana, ſhe next declares: 'On this month, ſo named in ſuch a Pacſha, on ſuch a *tit'hi*, I (naming herſelf and her family), that I may meet Arundhati, and reſide in Swarga; that the years of my ſtay may be numerous as the hairs on the human body; that I may enjoy with my huſband the felicity of heaven; and ſanctify my paternal and maternal progenitors, and the anceſtry of my huſband's father; that, lauded by the Apſaraſes, I may be happy with my lord through the reigns of fourteen Indras; that expiation be made for my huſband's offences, whether he have killed a Brahmana, broken the ties of gratitude, or murdered his friend; thus I aſcend my huſband's burning pile. I call on you, ye guardians of the eight regions of the World! Sun, and Moon! Air, fire, æther, earth, and water! My own ſoul! *Yama!* Day, night, and twilight! And thou, conſcience, bear witneſs. I follow my huſband's corpſe on the funeral pile.'

"Having repeated the Sancalpa, ſhe walks thrice round the pile; and the Brahmana utters the following Mantras: '*O'm!* Let theſe women, not to be widowed, good wives, adorned with collyrium, holding clarified butter, conſign themſelves to the fire. Immortal, not childleſs nor huſbandleſs, excellent, let them paſs into fire, whoſe original element is water.' '*Om!* Let theſe wives, pure, beautiful, commit themſelves to the fire with their huſband's corpſe." '

Mr. Holwell, in his Mythology and Coſmogony of the Gentoos, or Hindoos, gives the following very particular account of a ceremony of this kind, of which he was a ſpectator. "At five of the clock in the morning of the 4th of February, 1742-3, died Rhaam Chund Pundit, of the Mahratta tribe, aged twenty-eight years. His widow, aged between ſeventeen and eighteen, as ſoon as he expired, diſdaining to wait the term allowed her for reflection, immediately declared to the Brahmins and witneſſes preſent her reſolution to burn. As the family was of no ſmall conſideration, all the merchants of Coſſimbuzaar, and her relations, left no arguments uneſſayed to diſſuade her from it. Lady Ruſſell, with the tendereſt humanity, ſent her ſeveral meſſages to the ſame purpoſe; the infant ſtate of her children, (two girls and a boy, the eldeſt not four years of age,) and the terrors and pain of the death ſhe ſought, were painted to her in the ſtrongeſt and moſt lively colouring; ſhe was deaf to all; ſhe gratefully thanked lady Ruſſell, and ſent her word, ſhe had now nothing to live for, but recommended her children to her protection. When the torments of burning were urged, ſhe, with a reſolved and calm countenance, put her finger into the fire, and held it there a conſiderable time; ſhe then, with one hand, put fire in the palm of the other, ſprinkled incenſe on it, and fumigated the Brahmins. The conſideration of her children left deſtitute of a parent, was again urged to her. She replied, *He that made them, will take care of them.* She was at laſt given to underſtand, ſhe ſhould not be permitted to burn; this, for a ſhort ſpace, ſeemed to give her deep affliction: but ſoon recollecting herſelf, ſhe told them, death was in her power, and that, if ſhe was not allowed to burn, according to the principles of her caſt, ſhe would ſtarve herſelf. Her friends, finding her thus peremptory and reſolved, were obliged at laſt to aſſent.

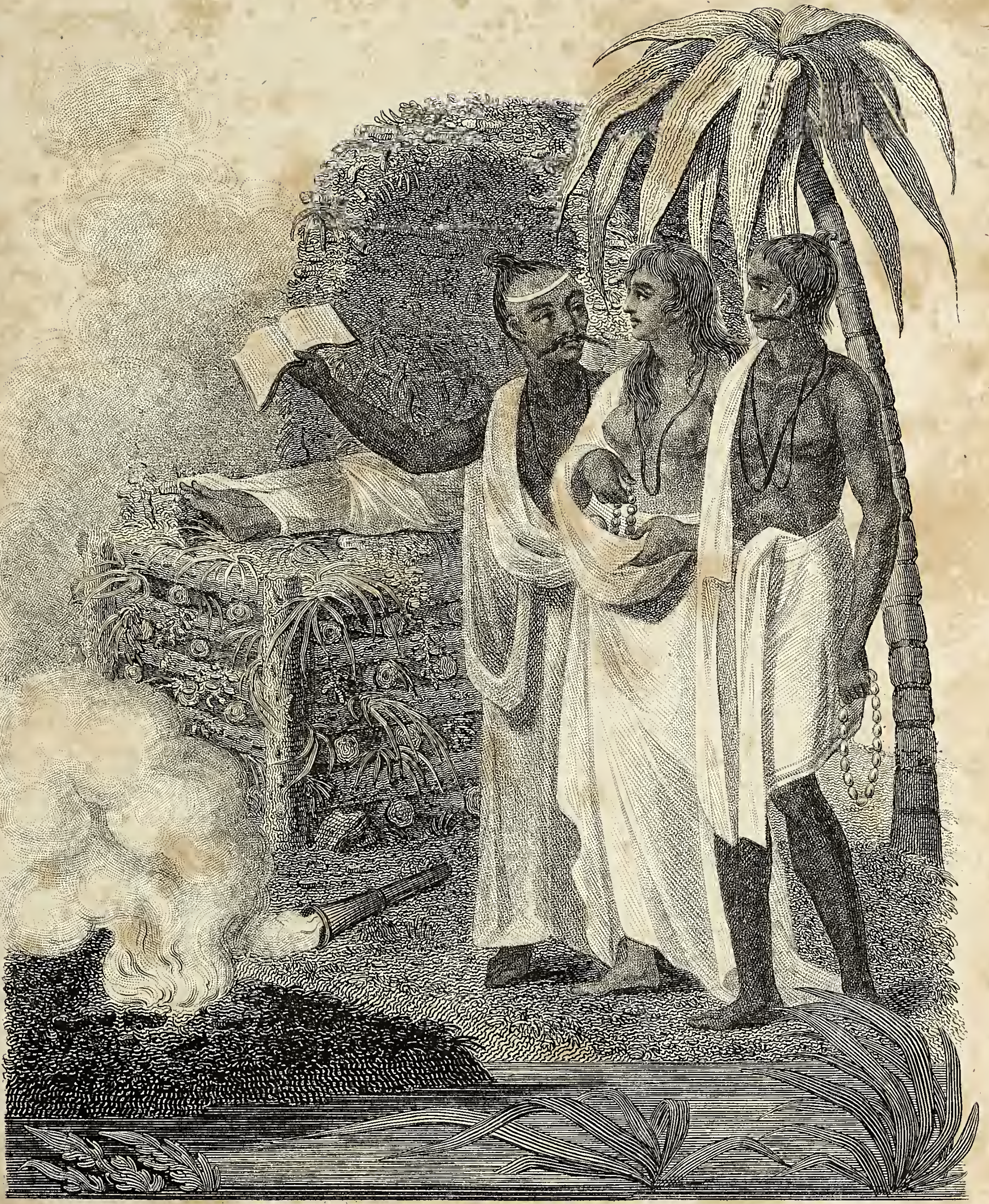
“The body of the deceaſed was carried down to the water ſide early the following morning; the widow followed about ten o'clock, accompanied by three principal Brahmins, her children, parents, and relations, and a numerous concourſe of people.

“The order of leave for her burning did not arrive from Hoſſeyn Khan, fogidar of Moorſhedabad, until after one; and it was then brought by one of the ſoubah's own officers, who had orders to ſee that ſhe burnt voluntarily. The time they waited for the order was employed in praying with the Brahmins, and waſhing in the Ganges; as ſoon as it arrived, ſhe retired and ſtayed for the ſpace of half an hour in the midſt of her female relations, amongſt whom was her mother; ſhe then diveſted herſelf of her bracelets and other ornaments, and tied them in a cloth, which hung like an apron before her; and was conducted by her female relations to one corner of the pile. On the pile was an arched arbour formed of dry ſticks, boughs, and leaves, open only at one end to admit her entrance; in this the body of the deceaſed was depoſited, his head at the end oppoſite to the opening. At the corner of the pile to which ſhe had been conducted, the Brahmins had made a ſmall fire, around which ſhe and the three Brahmins ſat for ſome minutes; one of them gave into her hand a leaf of the *bale-tree*, (the wood commonly conſecrated to form part of the funeral pile,) with ſundry things on it, which ſhe threw into the fire; one of the others gave her a ſecond leaf, which ſhe held over the flame, whilſt he dropped three times ſome *ghee* or butter on it, which melted, and fell into the fire; (theſe two operations were preparatory ſymbols of her approaching diſſolution by fire;) and, whilſt they were performing this, the third Brahmin read to her ſome portions of the Veda, and aſked her ſome queſtions, to which ſhe anſwered with a ſteady and ſerene countenance; but the noiſe was ſo great we could not underſtand what ſhe ſaid, although we were within a yard of her. Theſe over, ſhe was led with great ſolemnity three times round the pile, the Brahmins reading before her; when ſhe came the third time to the ſmall fire, ſhe ſtopped, took her rings off her toes and fingers, and put them to her other ornaments: here ſhe took a ſolemn majeſtic leave of her children, parents, and relations; after which, one of the Brahmins dipped a large wick of cotton in ſome ghee, and gave it ready lighted into her hand, and led her to the open ſide of the arbour; where all the Brahmins fell at her feet. After ſhe had bleſſed them, they retired weeping. By two ſteps ſhe aſcended the pile, and entered the arbour; on her entrance ſhe made a profound reverence at the feet of her huſband, and advanced and ſeated herſelf by his head; ſhe looked, in ſilent meditation, on his face, for the ſpace of a minute, then ſet fire to the arbour in three places; obſerving that ſhe had ſet fire to leeward, and that the flames blew from her, ſhe roſe and ſet fire to windward, and reſumed her ſtation. Enſign Daniel with his cane ſeparated the graſs and leaves on the windward ſide, by which means we had a diſtinct view of her as ſhe ſat. With what a dignity and undaunted countenance ſhe ſet fire to the pile the laſt time, and aſſumed her ſeat, can only be conceived; for words cannot convey a juſt idea of her. The pile being of combuſtible matters, the ſupporters of the roof were preſently conſumed, and it tumbled upon her.”

Bernier, in his Travels through India, gives a ſingular inſtance of the burning of a fair widow, whom no perſuaſions could move from this horrid act of ſelf-devotion. We ſtate the account in the ingenious writer's own words: “When I was paſſing from Amadevad to Agra, over the lands of the rajahs that are in thoſe parts, there came news to us in a burrough where the caravan reſted under the ſhade, (ſtaying for the cool of the evening to march on in their journey,) that a certain woman was then upon the point of burning herſelf with the body of her huſband. I preſently roſe, and ran to the place where it was to be done, which was a great pit, with a pile of wood raiſed in it, whereon I ſaw laid a dead corpſe, and a woman, which at a diſtance ſeemed to me pretty fair, ſitting near it on the ſame pile, beſides four or five Brahmins putting the fire to it from all ſides; five women of a middle age, and well enough dreſſed, holding one another by the hand, and dancing about the pit, and a great crowd of people, men and women, looking on. The pile of wood was preſently all on fire, becauſe ſtore of oil and butter had been thrown upon it; and I ſaw at the ſame time through the flames, that the fire took hold of the clothes of the woman, that were imbrued with well-ſcented oils, mingled with powder of ſandal and ſaffron. All this I ſaw, but obſerved not that the woman was at all diſturbed; yet it was ſaid, that ſhe had been heard to pronounce with great force theſe two words, *five, two*, to ſignify, according to the opinion of thoſe that hold the ſoul's tranſmigration, that this was the fifth time ſhe had burnt herſelf with the ſame huſband, and that there remained but two times for perfection; as if ſhe had at that time this remembrance, or ſome prophetical ſpirit. But here ended not this infernal tragedy. I thought it was only by way of ceremony, that theſe five women ſung and danced about the pit; but I was altogether ſurpriſed, when I ſaw that, the flame having taken hold of the clothes of one of them, ſhe caſt herſelf with her head foremoſt into the pit; and that after her another, being overcome by the flame and ſmoke, did the like. And my aſtoniſhment redoubled afterwards, when I ſaw that the remaining three took one another again by the hand, continued their dance, without any apparent fears; and that at length they precipitated themſelves one after the other into the fire, as their companions had done. It troubled me ſufficiently that I knew not what that meant; but I learnt ſhortly after that theſe had been five ſlaves, who having ſeen their miſtreſs extremely afflicted at the ſickneſs of her huſband, and heard her promiſe that ſhe would not ſurvive him, but burn herſelf with him, were ſo touched with compaſſion and tenderneſs towards this their prieſteſs, that they engaged themſelves in a promiſe to follow her in her reſolution, and to burn themſelves with her.”

A very circumſtantial narrative of a ſimilar kind, is given by Donald Campbell, of Barbreck, eſquire, while reſident at Tanjore, in 1794. He ſtates the whole of the ceremony, of which he was an eye-witneſs, to have been as follows:

“The place fixed upon for this tragic ſcene, was a ſmall iſlet on the bank of one of the branches of the river Cavery, about a mile to the northward of the fort of Tanjore. When I came to the ſpot, I found the victim, who appeared to be not above ſixteen, ſitting on the ground, dreſſed in the Gentoo manner, with a white cloth wrapped round her, ſome white flowers like jeſſamins hanging round her neck, and ſome of them hanging from her hair. [Theſe were the lotos, or water-lily: Nymphæa lotus, Linn.]



*A Woman going to burn on the funeral pile*
*of her Husband.*

London, Published as the Act directs, Feb. 16 - 1811.

Linn.] There were about twenty women ſitting on their hams round her, holding a white handkerchief, extended horizontally over her head, to ſhade her from the ſun, which was exceſſively hot, it being then about noon.

"At about twenty yards from where ſhe was ſitting, and facing her, there were ſeveral Brahmins buſy in conſtructing a pile with billets of fire-wood: the pile was about eight feet long and four broad. They firſt began by driving ſome upright ſtakes into the ground, and then built up the middle to about the height of three feet and a half with billets of wood. The dead huſband, who, from his appearance, ſeemed to be about ſixty years of age, was lying cloſe by, ſtretched out on a bier made of bamboo canes. Four Brahmins walked in proceſſion three times round the dead body, firſt in a direction contrary to the ſun, and afterwards other three times in a direction with the ſun, all the while muttering incantations; and at each round or circuit they made, they untwiſted, and immediately again twiſted up, the ſmall long lock of hair which is left unſhaven at the back of their heads. Some other Brahmins were in the mean time employed in ſprinkling water out of a green leaf, rolled up like a cup, upon a ſmall heap of cakes of dry cow-dung, with which the pile was afterwards to be ſet on fire. An old Brahmin ſat at the north-eaſt corner of the pile upon his hams, with a pair of ſpectacles on, reading, I ſuppoſe, the Shaſter, or their ſcriptures, from a book compoſed of cajan leaves.

"Having been preſent now nearly an hour, I inquired when they meant to ſet the pile on fire: they anſwered in about two hours. As this ſpectacle was moſt melancholy, and naturally ſtruck me with horror, and as I had only gone there to aſſure myſelf of the truth of ſuch ſacrifices being made, I went away towards the fort. After I was gone about five hundred yards, they ſent ſome one to tell me they would burn immediately; on which I returned, and found the woman had been moved from where ſhe was ſitting to the river, where the Brahmins were bathing her. On taking her out of the water they put ſome money in her hand, which ſhe dipped in the river, and divided among the Brahmins; ſhe had then a yellow cloth rolled partially round her. They put ſome red colour, about the ſize of a ſixpence, on the centre of her forehead, and rubbed ſomething that appeared to me to be clay. She was then led to the pile, round which ſhe walked three times as the ſun goes; ſhe then mounted it at the north-eaſt corner, without any aſſiſtance; and ſat herſelf down on the right ſide of her huſband, who had been previouſly laid upon the pile. She then unſcrewed the pins which faſtened the jewels or ſilver rings on her arms: after ſhe had taken them off, ſhe ſhut them, and ſcrewed in the pins again, and gave one to each of two women who were ſtanding: ſhe unſcrewed her earrings and other toys with great compoſure, and divided them among the women who were with her. There ſeemed to be ſome little ſquabble about the diſtribution of her jewels, which ſhe ſettled with great preciſion; and then, falling gently backwards, pulled a fold of yellow cloth over her face, turned her breaſt towards her huſband's ſide, and laid her right arm over his breaſt; and in this poſture ſhe remained without moving.

"Juſt before ſhe lay down, the Brahmins put ſome rice in her lap, and alſo ſome into the mouth and on the long grey beard of her huſband: they then ſprinkled ſome water on the head, breaſt, and feet, of both, and tied them gently together round the middle with a ſlender bit of rope: they then raiſed as it were a little wall of wood lengthways on two ſides of the pile, ſo as to raiſe it above the level of the bodies; and then put croſs pieces ſo as to prevent the billets of wood from preſſing on them: they then poured on the pile, above where the woman lay, a potful of ſomething that appeared to me to be oil: after this they heaped on more wood, to the height of about four feet above where the bodies were built in; ſo that all I now ſaw was a ſtack of fire-wood. One of the Brahmins, I obſerved, ſtood at the end of the pile next the woman's head, was calling to her through the interſtices of the wood, and laughed ſeveral times during the converſation. Laſtly, they overſpread the pile with wet ſtraw, and tied it on with ropes.

"A Brahmin then took a handful of ſtraw, which he ſet on fire at the little heap of burning cakes of cow-dung; and, ſtanding to windward of the pile, he let the wind drive the flame from the ſtraw till it catched the pile. Fortunately, at this inſtant, the wind roſe much higher than it had been any part of the day, and in an inſtant the flames pervaded the whole pile, and it burnt with great fury. I liſtened a few ſeconds, but could not diſtinguiſh any ſhrieks; and in a very few minutes the pile became a heap of aſhes.

"During the whole time of this proceſs, which laſted from firſt to laſt above two hours before we loſt ſight of the woman by her being built up in the middle of the pile, I kept my eyes almoſt conſtantly upon her; and I declare to God that I could not perceive, either in her countenance or limbs, the leaſt trace of either horror, fear, or heſitation."

The moſt recent account tranſmitted to England of a ſacrifice of this nature, is from an Engliſh officer, dated Surat, June 30, 1808, in the following words:

"Yeſterday the ceremony of a Brahmin woman burning herſelf with the body of her deceaſed huſband, took place at Phooltarah, a village about two miles from Surat, on the banks of the Taptie. I went there very early, and arrived at the ſpot long before any preparations were made for the approaching ſolemnity. At length twelve ſlight poles were fixed as uprights in the ground, round which a wall of jewarrie-ſtalks was placed, as was a roof alſo of the ſame ſtalk, forming a ſhed of ſix or ſeven feet ſquare, and about ſix feet high, with a ſmall door-way facing the river. A platform or bed was then formed of billets of wood, ſix feet long, and between two and three feet wide, and two feet high. This was the funeral pile. In a ſhort time after, the body of the deceaſed arrived, preceded by tomtoms, or drums, and followed by the widow, ſurrounded by Brahmins, and attended by her ſon, a youth about eighteen years of age. The deceaſed was an old man with grey hairs; the woman appeared about forty. She ſat down before the door of the pile, and, after performing a few ceremonies, ſhe attended the body of her huſband to the river, where ſhe performed various ablutions. The Brahmins all this time, as well as at her firſt arrival at the pile, occaſionally proſtrated themſelves at her feet, as to a ſuperior being. At her return from the river, ſhe ſat down near the opening of the pile, and the body of her huſband was placed beſide her. The body was then uncovered, on which ſhe, with one of the moſt expreſſive ſmiles I ever ſaw, bowed her head towards his face. The body of the deceaſed was then carried into the incloſure, and placed lengthways on the funeral pile. She then went through various myſteries and ceremonies, too intricate for me to underſtand; but, among others, ſhe poured *ghee* ſeveral times on the ſacred fire which was placed before her, when her ſon took ſome of the aſhes and put them in her mouth, which ſhe ſwallowed. She then drank three ſeparate times of conſecrated water. On returning the loote to one of the officiating Brahmins, he found a little left, which he ſwallowed with great avidity; ſhe then received a few rupees at two different times from her ſon, and preſented them as offerings to the prieſts. Three female relations were then allowed to approach her; they threw themſelves at her feet, and ſeemed imploring for ſomething: ſhe touched all their foreheads, and gave each ſome blades of graſs, rice, and flour; and they departed.

She was then decorated with a necklace of camphire, and bracelets of the ſame—as alſo a wreath forming a turban, indicative of her throwing off the nature of womankood, and aſſuming that of the man; all theſe myſteries being concluded, ſhe aroſe and prepared to walk round the pile ſeven times. The firſt round two Brahmins offered to ſupport her; ſhe, in an audible voice, declined their aſſiſtance; and went round firm and determined. This ceremony being completed, ſhe entered the incloſure, and ſeated herſelf on the pile in an upright poſture, and placed the head of her deceaſed huſband in her lap. Ghee, in large quantities, had been previouſly poured on her head and garments; pieces of camphire, cow-dung, plantain graſs, rice, flour, &c. were then ſtrewed over the body of the dead man. Billets of wood were then placed by the officiating Brahmins in a pyramidical form around her, and a few bundles of very dry bruſhwood were placed at the top near her head; the ſacred fire was then given by one of the Brahmins to her ſon, who preſented it to his mother. The chief Brahmin remained in converſation with her ſon a quarter of an hour, during which period ſhe held the torch in her hand; a leaf of the Shaſter was alſo carried in; and as the Brahmin did not bring it out again, I ſuppoſe that this was alſo placed on the pile. The Brahmin then took leave of her, and when he came to the door (as if anxious that an European ſhould be a witneſs of her ſetting fire to the pile with her own hands,) he ſuffered me to approach, when immediately I ſaw her bow her head on that of her huſband, and on raiſing it, ſet fire to the bruſhwood above her. It did not burn ſo quick as was expected, during which time ſhe ſat as compoſed as if ſhe had no intereſt in the affair. The Brahmins cloſe to me, ſeeing this, threw ſome fire on the pile, and in two ſeconds the whole was a complete conflagration."

The firſt example we have on record of this extraordinary kind of religious ſuicide, is related of a conteſt between the wives of Ceteus, an Indian officer, upwards of two thouſand years ago, which of them ſhould have the privilege of being burned on her huſband's funeral pile: It is thus ſtated:

"The conteſt was ſtrong between the two wives of Ceteus, who had been ſlain in battle, which ſhould have the diſtinguiſhing privilege of burning on her huſband's funeral pile, (for to one only it is permitted to make this bloody ſacrifice.) One pleaded her priority of conjugal attachment; the other objected her rival's pregnancy, and that ſhe could not conſiſtently with the laws deſtroy her infant with herſelf. The reaſoning of the younger wife being admitted, the elder retired with the ſtrongeſt marks of dejection and deſpondency; as if ſhe had been found guilty of ſome great offence. But the other, rejoicing in her victory, approached the pile crowned with garlands, and clothed in all bridal array. She was led forth by her neareſt relations, who ſang hymns in celebration of her virtues. She then diſtributed the ornamental parts of her dreſs, which was very rich and much adorned with jewels, among her ſurrounding friends. Having taken her laſt farewell, ſhe was conducted up the pile by her own brother, and thus finiſhed her life heroically, amid the ſhouts and acclamations of an immenſe crowd of ſpectators. All the troops under arms marched thrice round the pile, while the combuſtibles were lighting up; and ſhe, embracing her huſband's dead body, expreſſed no ignoble fears or apprehenſions as the flames aproached her. This heroine excited the pity of ſome ſpectators; whilſt others broke forth into extravagant praiſes of her fortitude: but ſome of the Greeks, who were preſent, reprobated ſuch practices as barbarous and inhuman."

The doctrine of the metempſychoſis, or tranſmigration of ſouls, unqueſtionably added fuel to theſe ſacrifices. Their notions were of courſe not very ſpiritualized; and the ideas entertained of a future ſtage of exiſtence, generally correſponded with their fervent hopes in preſent lives; and thus theſe unenlightened people could have no more exalted conceptions of futurity, than as a ſtate, in which they were to enjoy every delight of their heart in an enlarged degree, and an uninterrupted fruition. It was therefore natural to conceive, that what had contributed highly to their gratifications on earth, muſt do the ſame in their future exiſtence. Hence thoſe friends, thoſe relations and domeſtics, who had been beſt beloved by the deceaſed party, and moſt uſeful to him on earth, would alſo be able to continue their ſervices, and to contribute to his happineſs, in his new life. Thus followed a deſire and readineſs on moſt occaſions in beloved wives, or favourite ſlaves, voluntarily to deprive themſelves of that life, which was now become uſeleſs here, by the demiſe of their lord; but which might continue to be ſerviceable to him where he was gone; ſo that it became a matter of ſhame and reproach, not to be willing to pay this laſt tribute of reſpect and duty. From hence then a very fair and probable origin may be traced of an immolation of wives to the manes of their huſbands; an immolation partly voluntary, and partly forced; in which a diverſity of rites and cuſtoms were obſeved, according to the different ſentiments and religious uſages of the nations among whom it prevailed. But whether theſe practices firſt took their riſe in India, and were diffuſed from thence; or whether they were copied by the Indians from other nations, is equally immaterial, and difficult to determine at this diſtance of time; as it is alſo, at what period the practice of wives burning in India might commence. However it is pretty clear, that ſuch a practice could not have prevailed before the Indians had departed from the purity of their ancient faith and doctrines; and had fallen much from their fame for wiſdom and knowledge; or at leaſt till their Brahmins uſed that knowledge to the purpoſes of gaining an undue influence over the minds of the vulgar. The firſt actual example recorded is certainly that of the wife of Ceteus mentioned above, in the age ſucceeding that of Alexander the Great; but then it is declared at that time to have been done according to a very ancient cuſtom or law of that country.

The Hindoos generally erect a chapel on the ſpot where one of theſe ſacrifices has been performed; either as an endowment to pray for the ſoul of the deceaſed, or as a trophy of her heroic virtue.

With reſpect to the bloody ſacrifices of animals, and even of the human ſpecies, by the hand of the ſuperſtitious Hindoos, ſeveral diſtinguiſhed writers have endeavoured to caſt a veil over this ſhocking department of their religious ceremonies. Without commenting on the benevolent motives of ſuch writers, or offering the ſmalleſt criticiſm upon ſo affecting a ſubject, we ſhall only ſelect a few paſſages from the *Rudhiradhyaya*, or "Sanguinary Chapter" of the Hindoo ritual, as lately tranſlated from the Sanſkrit, by W. Blaquire, eſq. in the fifth volume of the Aſiatic Reſearches. From theſe extracts every reader will be enabled to judge for himſelf, how far the Hindoos are implicated, *at the preſent day*, in the moſt vile of the Gentile or Heathen rites.

"The ceremonies and rules to be obſerved in ſacrifices, being duly attended to, are productive of the divine favour. Birds, tortoiſes, alligators, fiſh, nine ſpecies of wild animals, buffaloes, bulls, he-goats, ichneumons, wild boars, rhinoceroſes, antelopes, guanas, rein-deer, lions, tigers, men, and blood drawn from the offerer's own body, are looked upon as proper oblations to the goddeſs Chandica, [a form of Cali,] the Bhairavas, &c. It is through ſacrifices that princes obtain bliſs, heaven, and victory over their enemies.

"The pleaſure which the goddeſs receives from an oblation of the blood of fiſh and tortoiſes, is of one month's duration, and three from that of a crocodile. By the blood of the nine ſpecies of wild animals, the goddeſs is ſatisfied nine months, and for that ſpace of time continues propitious to the offerer's welfare. The blood of the wild bull and guana give pleaſure for one year, and that of the antelope and wild boar for twelve years. The ſarabha's blood ſatisfies the goddeſs for twenty-five years: this is repreſented as an animal of a very fierce nature, ſaid to have eight feet. The buffalo's and rhinoceros's blood for a hundred; and that of the tiger, an equal number. That of the lion, rein-deer, and the *human ſpecies*, produces pleaſure which laſts a thouſand years. The fleſh of theſe, ſeverally, gives the goddeſs pleaſure for the ſame duration of time as their blood. Now attend to the different fruits attending an offering of the fleſh of a rhinoceros or antelope, as alſo of the fiſh called *rohita*.

"The fleſh of the antelope and rhinoceros pleaſes the goddeſs five hundred years; and the rohita fiſh and Bardhrinaſa give my beloved (i. e. the goddeſs Cali) delight for three hundred years. A ſpotleſs goat, who drinks only twice in twenty-four hours, whoſe limbs are ſlender, and who is the prime among a herd, is called a *Bardhrinaſa*, and is reckoned as the beſt of *Havyas*, (i. e. offerings to the Deities;) and *Cavyas*, (i. e. offerings to deceaſed progenitors.)

"By a human ſacrifice, Devi is pleaſed one thouſand years; and by a ſacrifice of *three men*, one hundred thouſand years. By human fleſh, Camachya, Chandica, and Bhairava, who aſſume my ſhape, are pleaſed one thouſand years. An oblation of blood which has been rendered pure by holy texts, is equal to ambroſia; the head and fleſh alſo afford much delight to the goddeſs Chandica. Let, therefore, the learned, when paying adoration to the goddeſs, offer blood, and the head; and, when performing the ſacrifice to fire, make oblations of fleſh.

"The performance of the ſacrifice with a *chandrahaſa*, or *catri*, (two weapons of the axe kind,) is reckoned the beſt mode; and with a hatchet or knife, or ſaw, or a ſangcul, the ſecond beſt; and the beheading with a hoe, or a *bhallac*, (an inſtrument of the ſpade kind,) the inferior mode.

"Let the ſacrificer repeat the word *Cali* twice; then the words *Devi Bajreſwari*; then *Lawha Dandayai, Namah!* which words may be rendered, 'Hail, Cali, Cali! Hail, Devi! goddeſs of thunder; Hail, iron-ſceptered goddeſs!' Let the ſacrificer then name the particular deity to whom the ſacrifice is made, and the purpoſe for which it is performed; and by the above text immolate the victim, whoſe face is to be towards the north; or elſe let the ſacrificer turn his own face to the north, and the victim's to the eaſt. The veſſel in which the blood is to be preſented, is to be, according to the circumſtances of the offerer, of gold, ſilver, copper, braſs, or leaves ſewed together; or of earth, or of tutenag, or of any of the ſpecies of wood uſed in ſacrifices. Human blood muſt always be preſented in a metallic or earthen veſſel; and never on any account in a veſſel made of leaves, or ſimilar ſubſtances.

"The offering a horſe, except at the Aſwamedha ſacrifice, is wrong; as alſo offering an elephant, except at the Gaja Madhu: let, therefore, the ruler of men obſerve never to offer them except on thoſe occaſions. And on no account whatſoever, let him offer them to the goddeſs Devi, uſing the wild bull called *chanrara* as a ſubſtitute for the horſe, when the occaſion requires one.

"Let not a Brahmin ever offer a lion or a tiger, or his own blood, or ſpirituous liquors, to the goddeſs Devi. If a Brahmin ſacrifices either a lion, a tiger, or a man, he paſſes but a ſhort time in this world, attended with miſery and misfortune. If a Brahmin offer his own blood, his guilt is equal to that of the ſlayer of a Brahmin; and if he offers ſpirituous liquors, he is no longer a Brahmin.

"Let not a Cſhectree offer an antelope; if he does, he incurs the guilt of a Brahmin-ſlayer. Where the ſacrifice of lions, of tigers, or of the human ſpecies, is required, let the firſt three claſſes act thus: having formed the image of the lion, tiger, or human ſhape, with butter, paſte, or barley-meal, let them ſacrifice the ſame as if a living victim, the axe being firſt invoked by the text, *Nomo, &c.*

"When a buffalo is preſented to Devi, Bhaivaree, or Bhairavi, let the ſacrificer uſe the following Mantra in invoking the victim: 'In the manner that thou deſtroyeſt horſes, in the manner that thou carrieſt Chandica, deſtroy my enemies, and bear proſperity to me, O buffalo! O ſteed of death, of exquiſite and unperiſhable form, produce me long life and fame. Salutation to thee, O buffalo!'

"Let him then addreſs the *charga*, (axe,) calling it *guha jata*, i. e. the cavern-born, and beſprinkle it with water, ſaying, "Thou art the inſtrument uſed in ſacrifices to the gods and anceſtors. O axe! of equal might with the wild rhinoceros, cut aſunder my evils. O, cavern-born! ſalutation to thee again and again."

"At the ſacrifice of an antelope, the following Mantra is to be uſed: "O antelope! repreſentative of Brahma, the emblem of his glory, thou, who art even as the four vedas, and learned, grant me extenſive wiſdom and celebrity."

"At the ſacrifice of a ſarabha, let the following Mantra be uſed: "O eight-footed animal! O ſportful native of the Chandra Bhaga mountains! thou eight-formed, long-armed, animal; thou who art called Bhairava; ſalutation to thee again and again! Aſſume the terrific form under which thou deſtroyeſt the wild boar, and in the ſame manner deſtroy my enemies."

"At the ſacrifice of a lion: "O Heri, who, in the ſhape of a lion, beareſt Chandica, bear my evils, and avert my misfortunes. Thy ſhape, O lion! was aſſumed by Heri, to puniſh the wicked part of the human race; and under that form, by truth, the tyrant Hiranya Caſipu was deſtroyed."

"Now attend to the particulars relative to the offering of human blood! Let a human victim be ſacrificed at a place of holy worſhip, or at a cemetery where dead bodies are burned. Let the oblation be performed in the part of the cemetery called *Heruca*, or at a temple of Camachya, or on a mountain. The human victim is to be immolated in the eaſt diviſion, which is ſacred to Bhairava: and the blood is to be preſented in the weſt diviſion, which is denominated *Heruca*.

"Having immolated a human victim, with all the requiſite ceremonies, at a cemetery, or holy place, let the ſacrificer be cautious not to caſt eyes upon the victim. On other occaſions alſo, let not the ſacrificer caſt eyes upon the victim immolated, but preſent the head with eyes averted. The victim muſt be a perſon of *good appearance*, and be prepared by ablutions, and requiſite ceremonies; ſuch as eating conſecrated food the day before, and by abſtinence from fleſh and venery; and muſt be adorned with chaplets of flowers, and beſmeared with ſandal-wood. Then, cauſing the victim to face the north, let the ſacrificer worſhip the ſeveral deities preſiding over the different parts of the victim's body; let the worſhip be then paid to the victim himſelf by his name.

"Let him worſhip Brahma in the victim's *Brahma Rhandra*, (i. e. cave of Brahma, cavity in the ſkull, under the ſpot where the *ſuturæ coronalis* and *ſagittalis* meet.) Let him worſhip the earth in his noſe, ſaying, '*Medinyaih namah*,' and caſting a flower; in his ears, *acaſa*, the ſubtle ether, ſaying, '*Acaſaya namah*;' in his tongue, *ſarvata mucha*, (i. e. Brahma Agni, &c. the regents of ſpeech, &c.) ſaying, '*Sarvata muchaya namah*;' the different ſpecies of light in his eyes, and Viſhnu in his mouth. Let him worſhip the moon on his forehead, and Indra on his right cheek, fire on his left cheek, death on his throat, at the tips of his hair the regent of the ſouth-weſt quarter, and Varuna between the eye-brows: on the bridge of the noſe let him pay adoration to wind, and on the ſhoulders to *Dhaneſwara*, (i. e. god of riches;) then worſhipping the *ſarpa rajah*, (i. e. king of ſerpents,) on the ſtomach of the victim, let him pronounce the following Mantra:

"O beſt of men! O moſt auſpicious! O thou who art an aſſemblage of all the deities, and moſt exquiſite! beſtow thy protection on me; ſave me, thy devoted; ſave my ſons, my cattle, and kindred: preſerve the ſtate, the miniſters belonging to it, and all friends; and, as death is unavoidable, part with (thy organs of) life, doing an act of benevolence. Beſtow upon me, O moſt auſpicious! the bliſs which is obtained by the moſt auſtere devotion, by acts of charity, and performance of religious ceremonies: and at the ſame time, O moſt excellent! attain ſupreme bliſs thyſelf. May thy auſpices, O moſt auſpicious!

keep me ſecure from Racſhaſas, Piſachos, terrors, ſerpents, bad princes, enemies, and other evils; and, death being inevitable, charm Bhagavati in thy laſt moments, by copious ſtreams of blood ſpouting from the arteries of thy fleſhy neck."

"Thus let the ſacrificer worſhip the victim, adding whatever other texts are applicable to the occaſion; as, O, my children! the victim is even as myſelf, and the guardian deities of the ten quarters take place in him: then Brahma, and all the other deities, aſſemble in the victim; and, be he ever ſo great a ſinner, he becomes pure from ſin; and, when pure, his blood changes to ambroſia, and he gains the love of *Mehadevi*, the goddeſs of the *Yog Niddra*; (i. e. the tranquil repoſe of the mind from an abſtraction of ideas;) who is the goddeſs of the whole univerſe, the very univerſe itſelf. He does not return for a conſiderable length of time in the human form, but becomes a ruler of the Gana Devatas, and is much reſpected by me myſelf. The victim who is impure from ſin, or ordure and urine, Camachya will not even hear named.

"The blind, the crippled, the aged, the ſick, the afflicted with ulcers, the hermaphrodite, the imperfectly formed, the ſcarred, the timid, the leprous, the dwarfiſh, and the perpetrator of *meha pataca*, (heinous offences, ſuch as ſlaying a Brahmin, drinking ſpirits, ſtealing gold, or defiling a ſpiritual teacher's bed,) one under twelve years of age, one who is impure from the death of a kinſman, &c. one who is impure from the death of *meha guru*, (father and mother,) which impurity laſts one whole year; theſe ſeverally are unfit ſubjects for immolation, even though rendered pure by ſacred texts.

"Let not the female, whether quadruped or bird, or a woman, be ever ſacrificed; where the victims of either the beaſts or birds creation are very numerous, the immolation of a female is excuſable; but this rule does not hold good as to the human ſpecies.

"Let not a Brahmin, or a Chandala, be ſacrificed; nor a prince; nor that which has been already preſented to a Brahmin, or a deity; nor the offspring of a prince, nor one who has conquered in battle; nor the offspring of a Brahmin, or of a Cſhettree; nor a childleſs brother, nor a father, nor a learned perſon, nor one who is *unwilling*, nor the maternal uncle of the ſacrificer. Thoſe not here named, and animals, and birds of unknown ſpecies, are unfit. If thoſe named are not forthcoming, let their place be ſupplied by a male aſs or camel. If other animals are forthcoming, the ſacrifice of a tiger, camel, or aſs, muſt be avoided.

"Let the head and blood of a human victim be preſented on the right ſide of Devi, and the ſacrificer addreſs her ſtanding in front. Let the head and blood of a goat be preſented on the left, and the head and blood of a buffalo in front. Let the head and blood of birds be preſented on the left, and the blood of a perſon's own body in front. Let the ambroſia, proceeding from the heads of carnivorous animals and birds, be preſented on the left hand, as alſo the blood of all aquatic animals. Let the antelope's head and blood, and that of the tortoiſe, rhinoceros, and hare, and crocodile, and fiſh, be preſented in front. Let a lion's head and blood be preſented on the right hand, and the rhinoceros's alſo; let not, on any account, the head or blood of a victim ever be preſented behind the Deity, but on the right, left, and in front. Let the conſecrated lamp be placed either on the right hand, or in front, but on no account on the left. Let incenſe be burnt on the left, and in front, but not on the right hand. Let perfumes, flowers, and ornaments, be preſented in front: with reſpect to the different parts of the circle, where to preſent the offerings, the mode already laid down may be obſerved. Let *madira* (ſpirituous liquors) be preſented behind, other liquids on the left.

"Let princes, miniſters of ſtate, counſellors, and venders of ſpirituous liquors, make human ſacrifices, for the purpoſe of attaining proſperity and wealth. If a human ſacrifice is performed without the conſent of the prince, the performer incurs ſin. In caſes of imminent danger or war, ſacrifices may be performed *at pleaſure*, by princes themſelves and their miniſters, *but by none elſe*.

"The day previous to a human ſacrifice, let the victim be prepared by the text *Manaſtac*, and three *Devi Gandha Suctahs*, and the texts *Wadrang*; and by touching his head with the axe, and beſmearing the axe with ſandal, &c. perfumes, and then taking ſome of the ſandal, &c. from off the axe, and beſmearing the victim's neck therewith. Then let the text *Ambe Ambice*, &c. and the *Rowdra* and *Bhairava* texts, be uſed, and Devi herſelf will guard the victim, who, when thus purified, malady does not approach him; nor does his mind ſuffer any derangement from grief and ſimilar cauſes, nor does the death or birth of a kinſman render him impure.

"Now liſten to the good and bad *omens* to be drawn from the falling of the head, when ſevered from the body. If the head falls towards the north-eaſt, or ſouth-weſt, the prince of the country; and offerer of the ſacrifice, will both periſh. If the human head, when ſevered from the body, falls in the following quarters, the following omens are to be drawn: If in the eaſt, wealth; if in the ſouth-weſt, power; if in the ſouth, terror; if in the weſt, profit; if in the north-weſt, a ſon; if in the north, riches.

"Liſten now to the omens to be drawn from the falling of the head of a buffalo, when ſevered from the body. If in the north, property; the north-eaſt, loſs; in the eaſt, dominion; ſouth-eaſt, wealth; the ſouth, victory over enemies; if in the ſouth-weſt, fear; if in the weſt, attainment of kingdom; if in the north-eaſt, proſperity: this rule, O Bhairava! holds good for all animals, but not for aquatic or oviparous creatures.

"If the heads of birds, or fiſhes, fall in the ſouth or ſouth-eaſt quarter, it indicates fear; and, if in any of the other quarters, proſperity. If a noiſe, proceeding from the chattering of the teeth of the victim's ſevered head, or ſnapping of the beak, is perceptible, it indicates alarm: If tears proceed from the eyes of a human victim's ſevered head, it indicates deſtruction to the prince.

"If tears proceed from the ſevered head of a buffalo at the time of preſenting it, it indicates that ſome foreign inimical prince will die. If tears proceed from the eyes of other animals, they indicate alarm, or loſs of health.

"If the ſevered head of a human victim ſmiles, it indicates increaſe of proſperity, and long life to the ſacrificer, without doubt; and, if it ſpeaks, whatever it ſays will come to paſs. If the ſound *hoonh* proceeds from the human victim's ſevered head, it indicates that the prince will die; if phlegm, that the ſacrificer will die. If the head utters the name of a deity, it indicates wealth to the ſacrificer within ſix months. If, at the time of preſenting the blood, the victim diſcharges fæces or urine, or turns about, it indicates certain death to the ſacrificer: if the victim kicks with his left leg, it indicates evil; but a motion of his legs in any other mode, indicates proſperity.

"The ſacrificer muſt take ſome blood between his thumb and third finger, and diſcharge it towards the ſouth-weſt on the ground, as an offering to the deities, accompanied by the Meha Cawſici Mantra. Let the victim offered to Devi, if a buffalo, be five years old; and if human, twenty-five. Let the Cawſici Mantra be uttered, and the ſacrificer ſay, *Eſha bali Sevaha*; "Myſterious praiſe to this victim."

"A prince *may ſacrifice his enemy*, having firſt invoked the axe with holy texts, by ſubſtituting a buffalo or goat, calling the victim by the name of the enemy throughout the whole ceremony. Having ſecured the victim with cords, and alſo with ſacred texts, let him ſtrike off the head, and preſent it to Devi, with all due care. Let him make theſe ſacrifices in proportion to the increaſe or decreaſe of his enemies, lopping off the heads of victims for the purpoſe of bringing deſtruction on his foes, infuſing, by holy texts, the ſoul of the enemy into the body of the victim, which will, when immolated, deprive the foe of life alſo.

"Let him firſt ſay, "O goddeſs of horrid form, O

Chandica! eat, devour, ſuch a one, my enemy. O conſort of fire! Salutation to fire! This is the enemy who has done me miſchief, now perſonated by an animal: deſtroy him, O Mahamari! Spheng! Spheng! eat, devour." Let him then place flowers upon the victim's head. The victim's blood muſt be preſented with the Mantra of two ſyllables.

"Let not any one preſent blood drawn from any part of the body below the navel, or from the back. Let not blood drawn from the lips, or chin, or from any limb, be preſented. Blood drawn from any part of the body, between the neck and navel, may be preſented; but violent inciſions for the purpoſe of obtaining it muſt not be made. Blood drawn from the cheeks, forehead, between the eyebrows, from the tips of the ears, the arms, the breaſts, and all parts between the neck and navel, as alſo from the ſides, may be preſented.

"Let not blood drawn from the ankles, or knees, or from parts of the body which branch out, be preſented; nor blood which has not been drawn from the body for the expreſs purpoſe of being offered. The blood muſt be drawn for the expreſs purpoſe of an oblation, and from a man pure in body and mind, and free from fear; it muſt be caught in the petal of a lotos, and preſented. It may be preſented in a gold, ſilver, braſs, or iron, veſſel, with the due form, and texts recited. The blood, if drawn by an inciſion made with a knife, axe, or *ſangcul*, gives pleaſure in proportion to the ſize of the weapon.

"The ſacrificer may preſent one-fourth of the quantity which a lotos petal will contain; but he muſt not give more on any account, nor cut his own body more than is neceſſary. He who willingly offers the blood of his body, and his own fleſh, the ſize of a grain of linſeed, maſha, tila, or mudya, with zeal and fervency, obtains what he deſires in the courſe of ſix months.

"Now attend to the fruits obtained by offering *the burning wick* of a lamp, placed upon the arms, ears, or breaſt, even for a ſingle moment. He who applies the ſame, obtains happineſs and great poſſeſſions; and for three calpas is even as the body of Devi herſelf; after which he becomes a ruler of the univerſe. When the wick of a lamp is applied burning to the body, the following text is to be uſed: "Hail! Goddeſs! ſalutation to thee, under the ſyllables *hong hong*. To thee I preſent this auſpicious luminary, fed with the fleſh of my body, enlightening all around, and expoſing to light alſo the inward receſſes of my ſoul."

INCANTATION.—On the autumnal Meha Navami, or when the moon is in the lunar manſion Scanda, or Biſhaca, let a figure be made, either of barley-meal or earth, repreſenting the perſon with whom the ſacrificer is at variance, and the head of the figure be ſtruck off; after the uſual texts have been uſed, the following text is to be uſed in invoking an axe on the occaſion: "Effuſe, effuſe blood; be terrific, be terrific; ſeize, deſtroy, for the love of Ambica, the head of this enemy."

"Having ſtruck off the head, let him preſent it. Water muſt be ſprinkled upon the meal or earthen victim, which repreſents the ſacrificer's enemy, uſing the text commencing with *Racta draibaik*, (i. e. by ſtreams of blood,) and marks muſt be made on the forehead with red ſanders; garlands of red flowers muſt be put round the neck of the image, and it muſt be dreſſed in red garments, and tied with red cords, and girt with a red girdle. Then, placing the head towards the north, let it be ſtruck off with an axe, and preſented, uſing the Scanda text. This is to be uſed at preſenting the head, if the ſacrifice is performed on the night of the Scanda Nacſhatra, or lunar manſion Scanda. The Viſacha Mantra is to be uſed on the night of the Viſacha manſion. Let the ſacrificer contemplate two attendants on the goddeſs, as having fiery eyes, with yellow bodies, red faces, long ears, armed with tridents and axes in their two right hands, and holding human ſkulls and vaſes in their two left. Let them be conſidered as having three eyes, and ſtrings of human ſkulls ſuſpended round their necks, with long, ſtraggling, frightful, teeth."

AGAINST FOES.—"Foes, enemies, and rivals, periſh around him who is converſant with theſe rites. That, which [moves] in the atmoſphere, is air (Brahme), around which periſh five deities, lightning, rain, the moon, the ſun, and fire.

"Lightning, having flaſhed, diſappears behind rain; it vaniſhes, and none knows [whither it is gone]. When a man dies, he vaniſhes; and none knows [whither his ſoul is gone]. Therefore, whenever lightning periſhes, pronounce this [prayer]: 'May my enemy periſh; may he diſappear, and none know [where he is].' Soon, indeed, none will know [whither he is gone].

"Rain, having fallen, [evaporates and] diſappears within the moon. The moon, at the conjunction, diſappears within the ſun. The ſun, when ſetting, diſappears in fire. Fire, aſcending, diſappears in air. Theſe ſame deities are again produced from this very origin. Fire is born of air; for, urged with force by the breath, it increaſes. Viewing it, pronounce [this prayer]: 'May fire be revived; but not my foe be reproduced: may he depart averted.' Therefore, does the enemy go far away.

"The obſervance [enjoined] to him [who undertakes theſe rites, is as follows]: Let him not ſit down earlier than the foe; but ſtand while he thinks him ſtanding. Let him not lie down earlier than the foe; but ſit while he thinks him ſitting. Let him not ſleep earlier than the foe; but wake while he thinks him waking. Though his enemy had a head of ſtone, ſoon does he ſlay him: *he does ſlay him*."

## LAWS, AND CIVIL POLITY, OF THE HINDOOS.

Like all the other inſtitutions appertaining to the people of Hindooſtan, the laws, civil and religious, have their peculiarities, which are no where elſe to be found. To the late indefatigable ſir William Jones, the public are indebted for a tranſlation, from the Sanſkrit, of *Inſtitutes of the Hindoo Law*; from whence the following particulars are ſelected; but ſince our plan is neceſſarily limited, and we can only give a mere outline, we beg to refer the inquiſitive reader to that curious work.

"The ſyſtem of civil and religious duties, (ſays ſir William Jones,) and of law in all its branches, which are ſet forth in this enquiry, the Hindoos firmly believe to have been promulgated by Menu, ſon or grandſon of Brahma; or, in other words, the firſt of created beings; and not the *oldeſt* only, but the *holieſt* of legiſlators. We are loſt in an inextricable labyrinth of aſtronomical cycles, *Yugas*, *Mahayugas*, *Calpas*, and *Menwantanas*, in attempting to calculate the time, when the firſt Menu, according to the Brahmins, governed this world, and became the progenitor of mankind, who from him are called *manarah*; nor can we, ſo clouded are the old hiſtory and chronology of India with fables and allegories, aſcertain the preciſe age when the Hindoo code was actually compoſed; but, from ſuch evidence as hath been procured, partly extrinſic and partly internal, it is really one of the oldeſt compoſitions exiſting. The dialect of Menu is obſerved in many paſſages to reſemble that of the Veda; whence it muſt at firſt view ſeem very probable, that the Hindoo laws were conſiderably older than thoſe of Solon or even of Lycurgus, although the promulgation of them, before they were reduced to writing, might have been coeval with the firſt monarchies eſtabliſhed in Egypt or Aſia. Sir William Jones makes the higheſt age of the Yajur Veda to be 1580 years before the birth of our Saviour, (which would make it older than the five books of Moſes,) and that of the Indian law about 1280 years before the ſame epoch. Whether *Menu*, or *Menus* in the nominative, and *Menos* in an oblique caſe, was the ſame perſonage with *Minos*, let others determine; but he muſt indubitably have been far older than the work which contains his laws; and, though perhaps he was never in Crete, yet ſome of his inſtitutes may well have been adopted in that iſland, whence Lycurgus, a century or two afterwards, may have imported them to Sparta. If *Minos* the ſon of Jupiter, whom the Cretans, from national vanity, might have made a native of their own iſland, was really the ſame perſon with *Menu*, the ſon of Brahma, we have the good fortune to reſtore, by means of Indian literature, the moſt celebrated ſyſtem of heathen juriſprudence; and this inſtitute might have been entitled, The Laws of Minos; but the paradox is too ſingular to be confidently aſſerted, and the geographical part of the book, with moſt of the alluſions to natural hiſtory, muſt indubitably have been written after the Hindoo race had ſettled to the ſouth of Himalaya. We cannot but remark, that the word *Menu* has no relation whatever to the *Moon*; and that it was the ſeventh, not the firſt, of that name, whom the Brahmins believe to have been preſerved in an ark from the general deluge; him they call the "Child of the Sun," to diſtinguiſh him from this great legiſlator; but they aſſign to his brother Yama the office (which the Greeks were pleaſed to confer on Minos) of judge in the ſhades below.

"Dara Shucuh was perſuaded, and not without reaſon, that the firſt Menu of the Brahmins could be no other perſon than the progenitor of mankind, to whom Jews, Chriſtians, and Muſſulmans, unite in giving the name of *Adam*; but whoever he might have been, he is highly honoured by name in the Veda itſelf, where it is declared, "that whatever Menu pronounced, was a medicine for the ſoul."

"It is the general opinion of the learned Pundits, that Brahma taught his laws to Menu in a hundred thouſand verſes, which Menu explained to the primitive world in the very words of the book tranſlated by ſir William Jones, where he names himſelf, after the manner of ancient ſages, in the third perſon; but, in a ſhort preface to the law tract of Nared, it is aſſerted, that "Menu, having written the laws of Brahma in a hundred thouſand *ſlocas* or couplets, arranged under twenty-four heads in a thouſand chapters, delivered the work to Nared, the ſage among gods, who abridged it for the uſe of mankind, in twelve thouſand verſes, and gave them to a ſon of Bhirgu, named Sumati, who, for greater eaſe to the human race, reduced them to four thouſand; that mortals read only the ſecond abridgment by Sumati, while the gods of the lower heaven, and the band of celeſtial muſicians, are engaged in ſtudying the primary code, beginning with the fifth verſe of the book now extant on earth; but that nothing remains of Nared's abridgment, except an elegant epitome of the ninth original title, On the Adminiſtration of Juſtice." Now, ſince theſe inſtitutes conſiſt only of two thouſand ſix hundred and eighty-five verſes, they cannot be the whole work aſcribed to Sumati, which is probably diſtinguiſhed by the name of the *Vriddah*, or ancient, *Manava*, and cannot be found entire; though ſeveral paſſages from it, which have been preſerved by tradition, are cited in this digeſt.

"The firſt order of duties herein laid down, conſiſt generally of abſtinence, chaſtity, innoxiouſneſs to all animated beings, a reſpectful behaviour to ſuperiors, a dutiful attention to parents, and application in acquiring and digeſting the doctrine of the Vedas. The ceremony of giving a name is to be performed on the tenth or twelfth day after the birth.

"The firſt part of a Brahmin's compound name, ſhould indicate holineſs; of a Cſhatrya's, power; of a Vaiſya's, wealth; and of a Sudra's, contempt. The ſecond part of the prieſt's name, ſhould imply proſperity; of the ſoldier's, preſervation; of the merchant's, nouriſhment; of the ſervant's, humble attendance.

"The names of women ſhould be delicately ſoft, clear, captivating the fancy, auſpicious, ending in long vowels, reſembling words of benevolence. The ceremony of tonſure, or preſerving the lock, muſt be performed by the firſt three claſſes in the firſt or third year after birth. In the eighth year, the child ſhould be inveſted with the mark of his claſs, or the ſacerdotal thread or cord; which for a Brahmin muſt be made of cotton, ſo as to be put on over his head, in three ſtrings; that of a Cſhatrya, of ſana thread only; that of a Vaiſya, of woollen thread. The inveſtiture of the ſacerdotal thread is conſidered as a ſecond birth; whence the appellation of *twice-born* is applied to the three higher claſſes. Amid theſe ſuperſtitious rituals, we are frequently ſurpriſed with maxims of the pureſt morality, inculcated in the moſt impreſſive terms, and capable of touching the feelings of the moſt wicked and irreligious.

"Let not a man be querulous, even though in pain; let him not injure another in deed or in thought; let him not even utter a word, by which his fellow-creature may ſuffer uneaſineſs; ſince that will obſtruct his own progreſs to future beatitude. The entrance of the ſacerdotal youth into the ſecond order, depends on the progreſs which he ſhall be found to make in his ſtudies."

The order of marriage is thus laid down: "The gift of a daughter, clothed only with a ſingle robe, to a man learned in the Veda, whom her father voluntarily invites and reſpectfully receives, is the nuptial rite called *Brahma*.

"The rite which ſages call *Daiva*, is the gift of a daughter, whom her father has decked in gay attire, when the ſacrifice is already begun to the officiating prieſt, who performs that act of religion.

"When the father gives his daughter away, after having received from the bridegroom one pair of kine, or two pairs, for uſes preſcribed by law, that marriage is termed *Arſha*.

"The nuptial rite, called *Prajapatya*, is when the father gives his daughter away with due honour, ſaying diſtinctly, 'May both of you perform together your civil and religious duties.'

"When the bridegroom, having given as much wealth as he can afford to the father and paternal kinſmen, and to the damſel herſelf, takes her voluntarily as his bride, that marriage is named *Aſura*.

"The reciprocal connection of a youth and a damſel with mutual deſire, is the marriage denominated *Gandharva*, contracted for the purpoſe of amorous embraces, and proceeding from ſenſual inclination.

"The ſeizure of a maiden by force from her houſe, while ſhe weeps and calls for aſſiſtance, after her kinſmen and friends have been ſlain in battle, or wounded, and their houſes broken open, is the marriage ſtyled *Racſhaſa*.

"When the lover ſecretly embraces the damſel, either ſleeping or fluſhed with ſtrong liquor, or diſordered in her intellect, that ſinful marriage, called *Piſacha*, is the eighth, and the baſeſt kind."

The huſband, having become a houſekeeper, muſt perform domeſtic religious rites, with the nuptial fire, the ceremonies of the five great ſacraments, and the obſequies performed at the new moon to the manes of departed anceſtors. This rite is held eſſential to the happineſs of the deceaſed; and we may readily conceive what a powerful effect this inſtitution muſt have on the population of the country; ſince a man who dies without legitimate male iſſue is deprived, together with his progenitors, of the advantages reſulting from its performance.

*On private morals*, much ſtrictneſs is inſiſted upon; and a variety of trivial obſervances are inculcated with ſeriouſneſs, and occaſionally interſperſed with ſublime reflections on the ſuperior efficacy of virtue over ceremonial.—"By falſehood, the ſacrifice becomes vain; by pride, the merit of devotion is loſt; by inſulting prieſts, life is forfeited; and by proclaiming a largeſs, its fruit is diminiſhed."

*On the duties of women*, the Hindoo legiſlator was much more ſevere than the Mohammedan prophet. In childhood muſt a female be dependent on her father; in youth, on her huſband; her lord being dead, on her ſons; if ſhe have no ſons, on the near kinſmen of her huſband; if he left no kinſmen, on thoſe of her father; if ſhe have no paternal kinſmen, on the ſovereign: *a woman muſt never ſeek independence*. No ſacrifice is allowed to women apart from their huſbands; no religious rite, no faſting: "as far only as a wife honours her lord, ſo far ſhe is exalted in heaven."

In the Hindoo law, Of what concerns Women, the paſſage relative to burning is as follows: "It is proper for a woman after her huſband's death to burn herſelf in the fire with his corpſe. Every woman who thus burns, ſhall remain in Paradiſe with her huſband three crore and fifty lacks of years, by deſtiny. If ſhe cannot burn, ſhe muſt in that caſe preſerve an inviolable chaſtity: if ſhe remains always chaſte, ſhe goes to Paradiſe." This then ſeems an original law, by which the matter of burning appears to be neither abſolutely compulſatory, nor yet entirely optional. It is proper; that is, it is a fit and becoming action; to the performance of which a great reward is annexed. But if female weakneſs and timidity prevail over reſolution, ſo that a woman cannot burn, it is not a matter to be paſſed over in ſilence; ſince ſhe muſt then perform another condition in order to be entitled to future happineſs; ſhe muſt preſerve an inviolable chaſtity. This ſeems the only condition which was to accompany a refuſal; and which, if performed, the woman was to ſuffer no degradation or diminution of character. But in proceſs of time a variety of circumſtances have been ingrafted on the ſimplicity of this ancient law. It has been determined, that a pregnant woman cannot burn, ſhe having no right to involve her child's death with her own; that the firſt choice belongs to the firſt wife, (for they take as many wives as they pleaſe;) upon whoſe refuſal only it devolves to the ſecond; that the anſwer is to be given in twenty-four hours, but not ſooner; that no advantage may be taken of the very firſt impreſſions of grief; and when once given, be it either way, it cannot be retracted. Sometimes the firſt wife refuſes and the ſecond burns; at others they both refuſe, and the worſe conſequence attending the refuſal now-a-days is, lying under an imputation and reproach of being wanting to their own honour and purification, and of not promoting the proſperity of their family. It often happens, that, if the firſt wife be childleſs and the ſecond have children, the latter puts in her claim of burning in preference to the former, that ſhe may have this opportunity of aggrandizing her children; ſince the truth is, that the children in this caſe are deemed more illuſtrious, are ſought in marriage by the more opulent and honourable of their caſt, and ſtand a better chance of being received into one of a ſuperior dignity. It is very certain that the Brahmins take the utmoſt pains to inſtil into the minds of females (for what cauſes are beſt known to themſelves) the higheſt ideas of the glory and honour of this voluntary ſacrifice; that they inſtruct them eagerly to embrace ſuch an opportunity of dying, as a peculiar bleſſing, which will place them immediately in the higheſt *boboon*, or ſphere of purification, without paſſing through the intermediate ones. Thus worked up by their prieſts from earlieſt infancy to an enthuſiaſtic notion of a death ſo advantageous and honourable to themſelves and families, it is no wonder, that ſo many Indian women have in all ages (and continue ſo to do at this day) eagerly coveted and heroically undergone this fiery trial.

"When the ſacerdotal houſekeeper, or father of a family, perceives his muſcles become flaccid, and his hair grey, and ſees *the child of his child*, let him then ſeek refuge in a foreſt. Departing from his houſe, taking with him pure implements, his water-pot and ſtaff, keeping ſilence, unallured by deſire of the objects near him, let him enter into the fourth order. Alone let him conſtantly dwell, for the ſake of his own felicity, obſerving the happineſs of a ſolitary man, who neither forſakes nor is forſaken; let him live without a companion. Let him have no culinary fire, no domicil; let him, when hungry, go to the town for food; let him patiently bear diſeaſe; let his mind be firm; let him ſtudy to know God, and fix his attention on God alone."

To this uſage we are in all probability to trace the origin of the *anchorite*. That the dereliction of thoſe ſocial duties, for the performance of which we were ſent into this world, ſhould ever have been conſidered as acceptable to the Creator, is a *ſignal*, though not a *ſingular*, inſtance of the perverſeneſs of the human intellect; yet, as this was interdicted to all except thoſe who had ſeen a *ſecond generation* of their deſcendants, the Hindoo ſyſtem will perhaps appear leſs expoſed to cenſure on this account than many others.

*The public law, relative to kings*, ſtates that "Kings are compoſed of eternal particles drawn from the ſubſtance of various deities; their power is unfettered by any legal reſtraint; but is to be guided and regulated by the advice of the Brahmins; who are to give the monarch inſtructions in every poſſible contingence of peace or war; with directions in the choice of a miniſtry, of ambaſſadors, of a metropolis, of a palace, of a queen, and of a chaplain." Strict attention to the conduct of his agents, generoſity to the learned, intrepidity in war, and abſtinence from oppreſſive exaction, are the virtues moſt warmly recommended.

The following are the taxes which compoſed the revenue of a Hindoo prince, in the ninth century before the Chriſtian æra: Cuſtoms were levied on the import and export of ſaleable commodities: a fiftieth part of the increaſe of cattle, gems, gold, and ſilver; of grain, a ſixth, an eighth, or a twelfth, of the increaſe, in proportion to the degree of exigency; and on other articles a ſixth of the increaſe, or profits. The ſacerdotal claſs was exempted from the payment of taxes.

With reſpect to the *judicature of the community at large*, the age of majority is fixed at *ſixteen*, for the male ſex; women always remaining under tutelage. In civil caſes, three witneſſes are required; but in certain circumſtances, where the deponent conceives that truth might lead to bad conſequences, he is permitted to ſubſtitute falſehood. In this early age, it is curious to find the expedient adopted of limiting by law the rate of intereſt; which is fixed at two per cent. per month from a prieſt, three from a ſoldier, four from a merchant, and five from a ſervant; with a very curious exception in favour of money lent on ſea-adventures; an exception which beſpeaks a nation long inured to commercial habits, and accuſtomed to foreign traffic. The criminal code is upon the whole diſtinguiſhed by the lenity of its enactments; and, in contradiſtinction to other offences, we find the crime of theft puniſhed more ſeverely in the higher claſſes than in the lower.

In the law of inheritance, the right of primogeniture is only acknowledged by a ſlender addition to the portion of the eldeſt ſon. On failure of heirs, the property of the deceaſed (unleſs a Brahmin) eſcheats to the ſovereign. Games of chance are proſcribed, and puniſhed by fine. The duties preſcribed for the performance of the commercial and ſervile claſſes, are as follow:

"Let the Vaiſya, having been girt with his proper ſacrificial thread, and having married an equal wife, be always attentive to his buſineſs of agriculture and trade, and to that of keeping cattle.

"Since the lord of created beings, having formed herds, and flocks, intruſted them to the care of the Vaiſya, while he intruſted the whole human ſpecies to the Brahmin and Cſhatya; never muſt a Vaiſya be diſpoſed to ſay, I keep no cattle; nor, he being willing to keep them, muſt they by any means be kept by men of another claſs.

"Of gems, pearls, and coral, of iron, of woven cloth, of perfumes, and of liquids, let him well know the prices both high and low.

"Let him be ſkilled likewiſe in the time and manner of ſowing ſeeds, and in the bad or good qualities of land; let him alſo perfectly know the correct modes of meaſuring and weighing, the excellence or defects of commodities, the advantages and diſadvantages of different regions, the probable gain or loſs on vendible goods, and the means of breeding cattle with large augmentation.

"Let him know the juſt wages of ſervants, the various dialects of men, the beſt way of keeping goods, and whatever elſe belongs to purchaſe and ſale.

“Let him apply the moſt vigilant care to augment his wealth by performing his duty; and with great ſolicitude let him give nouriſhment to all ſentient creatures.

“Servile attendance on Brahmins learned in the Veda, chiefly on ſuch as keep houſe, and are famed for virtue, is of itſelf the higheſt duty of a Sudra, and leads him to future beatitude.

“Pure in body and in mind, humbly ſerving the three higher claſſes, mild in ſpeech, never arrogant, ever ſeeking refuge in Brahmins principally, he may attain the moſt eminent claſs in another tranſmigration.”

The Indian legiſlator has marked with degradation the offspring produced by a promiſcuous connection between perſons of different claſſes, proportioned to the diſparity between their progenitors; and to each of the mixed tribes a particular occupation is aſſigned. Public executioners, thoſe who burn the dead, and thoſe who perform the meaneſt and moſt diſguſting offices for hire, are found in the mixed claſſes. The twice-born claſſes may alſo be degraded by neglecting their preſcribed duties; for we find ſeveral races of the military claſs enumerated, who, by their omiſſion of holy rites, have gradually ſunken to the loweſt of the four claſſes. In times of diſtreſs, the neceſſity of procuring ſubſiſtence juſtifies a greater latitude of employment for each claſs; and it is worthy of remark, that it is in conſequence of this law, that we find the Brahmins in poſſeſſion of a conſiderable portion of the commerce of Bengal at this day.

To excite to integrity and truth in all tranſactions through life, whether of a public or a private nature, the Indian legiſlator holds up to view the rewards afforded in their belief of the metempſychoſis; which doctrine divides all moral qualities into *goodneſs*, *paſſion*, and *darkneſs*.

“To the quality of goodneſs belongs every act, by which he hopes to acquire divine knowledge, which he is never aſhamed of doing, and which brings placid joy to his conſcience.

“Of the dark quality, as deſcribed, the principal object is pleaſure; of the paſſionate, worldly proſperity; but of the good quality the chief object is virtue; the laſt-mentioned objects are ſuperior in dignity.

“Souls, endued with goodneſs, attain always the ſtate of deities; thoſe filled with ambitious paſſions, the condition of men; thoſe immerſed in darkneſs, the nature of beaſts; this is the triple order of tranſmigration.”

The law of *Dherna*, which is that of *caption*, or *arreſt*, is very extraordinary, and has no where its prototype. The proceſs is ſaid to be confined to the Brahmin caſt; and is as follows:

“Any one who ſits *dherna* at another's door, or in his houſe, for the recovery of a debt, or for other purpoſe; the party ſitting takes with him ſome weapon or poiſon, and ſits down; nor does he eat himſelf, nor allow the party againſt whom he is ſitting, or his family, to eat; nor does he allow any perſon ingreſs into that perſon's houſe, nor egreſs from it; and, addreſſing himſelf in terms of the ſtrongeſt oaths to the people of the houſe, he ſays, “If any of thoſe of your houſe ſhall eat victuals, or go into your houſe, or go out of it, I ſhall either kill myſelf with this weapon, or ſwallow this poiſon;” and it does ſometimes happen that both theſe events take place; yet he who ſits in dherna is not to remove from it without the intreaty of thoſe on whom he is ſitting, or the order of the *Hakim*.”

In this ſituation, therefore, the Brahmin faſts; and by the rigour of the etiquette, which is rarely infringed, the object of his arreſt alſo faſts; and thus they both remain, until the inſtitutor of the dherna obtains ſatisfaction. In this, as he ſeldom makes the attempt without reſolution to perſevere, he rarely fails; for, if the party thus arreſted were to ſuffer the Brahmin ſitting in dherna to periſh by hunger, the ſin would for ever lie upon his head.

The practice of ſitting in dherna is not confined to male Brahmins only. The following inſtance, which happened at Benares in 1789, will at once prove and exemplify it:—Beenoo Bhai, the widow of a man of the Brahminical tribe, had a litigation with her brother-in-law Balkiſhen, which was tried by arbitration; and the trial and ſentence were reviſed by the court of juſtice at Benares, and again in appeal. The ſuit of Beenoo involved a claim of property and a conſideration of caſt, which her antagoniſt declared ſhe had forfeited. The deciſion was favourable to her, but not to the extent of her wiſhes; and ſhe reſolved therefore to procure by the expedient of the dherna, what neither the award of arbitration, nor the judicial deciſion, had granted.

In conformity to this reſolution, Beenoo ſat down in dherna on Balkiſhen; and he, after a perſeverance of ſeveral days, apprehenſive of her death, repaired with her to a Hindoo temple in Benares; where they both continued to faſt ſome time longer. Thirteen days had elapſed from the commencement of Balkiſhen's arreſt, when he yielded to the conteſt, by entering into a conditional agreement with Beenoo, that if ſhe could eſtabliſh the validity of her caſt, and, in proof thereof, prevail on ſome creditable members of her own tribe to partake with her of an entertainment of her providing, he would not only defray the expence of it, but would alſo diſcharge her debts. The conditions were accepted by Beenoo, who fulfilled her part of the obligation; and her antagoniſt, without heſitation, defrayed the charges of the entertainment; but the non-performance of his engagement to diſcharge her debts, induced Beenoo Bhai to inſtitute a ſuit againſt him; and the practice of the dherna, with the proofs of it, were thus brought forward to official notice.

The following inſtance is of later occurrence. In January 1794, Mohun Panreh, an inhabitant of a diſtrict in the province of Benares, ſat down in dherna before the houſe of ſome rajahpouts, for the purpoſe of obtaining the payment of *birt*, or a charitable ſubſiſtence to which he had a claim, and in this ſituation he deſtroyed himſelf by ſwallowing poiſon. Some of the relations of the deceaſed retained his corpſe for two days at the door of the houſe of the rajahpouts; who were thus compelled to forego taking ſuſtenance, in order to induce them to ſettle the birt on the heir of the deceaſed Brahmin, which they ſubmitted to.

Another practice, of a ſomewhat ſimilar nature, is called *erecting a koor*, or circular pile of wood, which is prepared ready for conflagration. Upon this, ſometimes a cow, and ſometimes an old woman, is placed by the conſtructors of the pile; and the whole is conſumed together. The object of this practice is to intimidate the officers of the government, or others, from importunate demands; as the effect of the ſacrifice is ſuppoſed to involve in great ſin the perſon whoſe conduct forces the conſtructor of the koor to this expedient.

An inſtance of this practice occurred in the province of Benares in 1788. Three Brahmins had erected a koor, upon which an old woman had ſuffered herſelf to be placed; and the object of temporary intimidation was fully attained by it. It cannot be unintereſting to know the cauſe which urged the three Brahmins to this deſperate reſource. Their own explanation was ſummarily this: That they held lands in partnerſhip with others, but that the public aſſeſſment was unequally impoſed upon them; as their partners paid leſs, whilſt they were charged with more than their due proportion; they therefore refuſed to diſcharge any part of the revenues whatever, and erected a koor to intimidate the government's officers from making any demands upon them. Their ſole object, as they explicitly declared, was to obtain an equal diſtribution of the public aſſeſſment between themſelves and their partners.

A woman, nearly blind from age, had in this inſtance been placed upon the koor; ſhe was ſummoned to appear before the Engliſh ſuperintendant of the province, but abſolutely refuſed to attend him; declaring that ſhe would throw herſelf into the firſt well rather than ſubmit. The ſummons was not enforced.

Theſe deſperate reſources, and in ſuch petty caſes, appear very oppoſite to that humanity and mildneſs of diſpoſition by which the learned author of the Inſtitutes affirms the inhabitants of this country to have been diſtinguiſhed in every age. It muſt however be admitted, that individuals in India, are often irritated by trifling provocations to the commiſſion of acts which no provocation can juſtify; and, without reference to the conduct of profeſſed depredators, examples may be produced of enormities ſcarcely credible.

In 1791, Soodiſhter Mier, a Brahmin, the farmer of land paying revenue, and tenant of tax-free land, in the province of Benares, was ſummoned to appear before a native officer, the deputy collector of the diſtrict where he reſided. He poſitively refuſed to obey the ſummons, which was repeated without effect; and after ſome time ſeveral people were deputed to enforce the proceſs, by compelling his attendance. On their approaching his houſe, he cut off the head of his deceaſed ſon's widow, and threw it out to them. His firſt intention was to deſtroy his own wife; but it was proved in evidence that, upon his indication of it, his ſon's widow requeſted him to decapitate her; which he inſtantly did.

Another Brahmin, named Baloo Paundeh, in 1793, was convicted of the murder of his daughter. His own account of the tranſaction will beſt explain it, and his motives; he ſtated, that about twelve year before the period of the murder, he, Baloo, and another man, were joint tenants and cultivators of a ſpot of ground, when his partner Baloo relinquiſhed his ſhare. In 1793 this partner again brought forward a claim to a ſhare in the ground; the claim was referred to arbitration, and a deciſion was pronounced in favour of Baloo. He conſequently repaired to the land, and was ploughing it, when he was interrupted by his opponent. The words of Baloo were as follows: "I became angry, and enraged at his forbidding me; and bringing my own little daughter Apmunya, who was only a year and a half old, to the ſaid field, I killed her with my ſword."

A third inſtance was an act of matricide, perpetrated by Beechuk and Adher, two Brahmins, and zemindars, or proprietors of landed eſtates, the extent of which did not not exceed eight acres. The village in which they reſided was the property of many other zemindars. A diſpute, which originated in a competition for the general ſuperintendence of the revenues of the village, had long ſubſiſted between the two brothers and a perſon named Gowry; and the officer of government, who had conferred this charge upon the latter, was intimidated into a revocation of it, by the threats of the mother of Beechuk and Adher to ſwallow poiſon, as well as to the transfer of the management to the two Brahmins. By the ſame means of intimidation he was deterred from inveſtigating the complaints of Gowry, which had been referred to his enquiry by his ſuperior authority. But the immediate cauſe which inſtigated the Brahmins to murder their mother, was an act of violence, ſaid to have been committed by the emiſſaries of Gowry, employed by him for a different purpoſe, in entering their houſe, during their abſence at night, and carrying off forty rupees, the property of Beechuk and Adher, from the apartments of their women. Beechuk firſt returned to his houſe, where his mother, his wife, and his ſiſter-in-law, related what had happened. He immediately conducted his mother to an adjacent rivulet, where, being joined in the grey of the morning by his brother Adher, they called out aloud to the people of the village, that, although they would overlook the aſſault as an act which could not be remedied, the forty rupees muſt be returned. To this exclamation no anſwer was received; and Beechuk, without further heſitation, drew his ſcymetar, and at one ſtroke ſevered his mother's head from her body, with the profeſſed view, as avowed both by parent and ſon, that the mother's ſpirit, excited by the beating of a large drum during forty days, might for ever haunt, torment, and purſue to death, Gowry, and the others concerned with him. The laſt words which the mother pronounced were, "that ſhe would blaſt the ſaid Gowry, and thoſe connected with him."

The judicial records contain a caſe of great enormity, in which five women were put to death for the ſuppoſed crime of ſorcery. Three men of the caſt of Soontaar were in 1792 indicted for the murder of five women; the priſoners without heſitation confeſſed the crime with which they were charged, and pleaded in their defence that with their tribes it was the immemorial practice and cuſtom to try perſons notorious for witchcraft. That for this purpoſe an aſſembly was convened of thoſe of the ſame tribe, from far and near; and, if after due inveſtigation the charge was proved, the ſorcerers were put to death, and no complaint was ever preferred on this account to the ruling power. That the women who were killed had undergone the preſcribed form of trial, were duly convicted of cauſing the death of the ſon of one of the priſoners by witchcraft, and had been put to death by the priſoners, in conformity to the ſentence of the aſſembly.

The proſecutors, who were the relations of the deceaſed women, declared they had no charge to prefer againſt the priſoners, being ſatisfied that their relations had really practiſed ſorcery. The cuſtom pleaded by the priſoners was fully ſubſtantiated by the teſtimony of a great number of witneſſes, who recited ſpecific facts in ſupport of it, without any denial or diſagreement; and, from the collective evidence exhibited in the courſe of the enquiry, the following curious and extraordinary circumſtances appeared: That the ſucceſſive demiſe of three or four young people in the village, led to a ſuſpicion of ſorcery as the cauſe of it; and the inhabitants, taking alarm, were upon the watch to detect the witches. They were generally diſcovered dancing naked at midnight by the light of a lamp, with a broom tied round their waiſts, either near the houſe of a ſick perſon, or on the outſide of the village.

But to aſcertain with a greater degree of certainty the perſons guilty of practiſing witchcraft, the three following modes are adopted:

Firſt. Branches of the Saul tree, marked with the names of all the females in the village, whether married or unmarried, who have attained the age of twelve years, are planted in the water in the morning, for the ſpace of four hours and a half; and the withering of any of theſe branches is proof of witchcraft againſt the perſon whoſe name is annexed to it.

Secondly. Small portions of rice enveloped in cloths, marked as above, are placed in a neſt of white ants; the conſumption of the rice in any of the bags, eſtabliſhes ſorcery againſt the woman whoſe name it bears.

Thirdly. Lamps are lighted at night; water is placed in cups made of leaves, and muſtard-ſeed and oil is poured, drop by drop, into the water, whilſt the name of each woman in the village is pronounced; the appearance of the ſhadow of any woman on the water, during this ceremony, proves her a witch.

Such are the general rules for aſcertaining thoſe who practiſe witchcraft. In the inſtances quoted, the witneſs ſwore, and probably believed, that all the proofs againſt the unfortunate women had been duly verified: they aſſerted in evidence, that the branches marked with the names of the five women accuſed were withered; that the rice in the bags having their ſpecific names, was devoured by the white ants, whilſt that in the other bags remained untouched; that their ſhadows appeared on the water, on the oil being poured upon it whilſt their names were pronounced; and farther, that they were ſeen dancing at midnight in the ſituation above deſcribed. It is difficult to conceive that this coincidence of proof could have been made plauſible to the groſſeſt ignorance, if experience did not ſhow that prepoſſeſſion will ſuperſede the evidence of the ſenſes.

The following cuſtom of aſcertaining diſputed property in land, is extremely curious. From habitual neglect in aſcertaining the quantities of land held in leaſe, and in defining with accuracy their reſpective tenures, frequent diſputes ariſe between the inhabitants of different villages regarding their boundaries: to determine them, a reference is uſually made to one or more of the oldeſt inhabitants of the adjacent villages; and, if theſe ſhould not agree in their deciſion, other men are ſelected from the inhabitants of the villages claiming the diſputed ground; and the trial proceeds as follows. Holes are dug in the conteſted ſpot, and into theſe holes each of the choſen men puts a leg, and the earth is then thrown in upon it; and in this ſituation they remain until one either expreſſes a wiſh to be releaſed, or complains of being bitten or ſtung by ſome inſect. This decides the conteſt, and the property of the ground is adjudged to belong to that village the inhabitant of which goes through the trial with the moſt fortitude, and eſcapes unhurt by inſects.

In caſes of theft, where the evidence is defective, the proof of guilt or innocence in the accuſed party is frequently decided by his chuſing to undergo the trial by ordeal. Of this there are nine diſtinct kinds: viz. Firſt, by the balance; ſecondly, by fire; thirdly by water; fourthly, by poiſon; fifthly, by the coſha, or water in which an idol has been waſhed; ſixthly, by rice; ſeventhly, by boiling oil; eighthly, by red-hot iron; ninthly, by images.

Ordeal by the *balance* is performed as follows: The beam having been previouſly adjuſted, the cord fixed, and both ſcales made perfectly even, the perſon accuſed, and a *Pundit*, or perſon learned in the Sanſkrit, faſt a whole day; then, after the accuſed has been bathed in ſacred water, the *homa*, or oblation, preſented to fire, and the deities worſhipped, he is carefully weighed; and, when he is taken out of the ſcale, the Pundits proſtrate themſelves before it, pronounce a certain *mantra*, or incantation, agreeably to the *Saſtras*; and, having written the ſubſtance of the accuſation on a piece of paper, they bind it on his head. Six minutes after they place him again in the ſcale; and if he weigh more than before, he is held guilty; if leſs, innocent; if exactly the ſame, he muſt be weighed a third time; when, as it is written in the Mitacſhera, there will certainly be a difference in his weight. Should the balance, though well fixed, break down, this would be conſidered as a proof of his guilt.

For the *fire-ordeal* an excavation, nine hands long, two ſpans broad, and one ſpan deep, is made in the ground, and filled with a fire of pippal wood; into this the perſon accuſed muſt walk bare-footed; and, if his foot be unhurt, they hold him blameleſs; if burned, guilty.

*Water-ordeal* is performed by cauſing the perſon accuſed to ſtand in a ſufficient depth of water, either flowing or ſtagnant, to reach his navel; but care muſt be taken that no ravenous animal be in it, and that it be not moved by much air. A Brahmin is then directed to go into the water, holding a ſtaff in his hand; and a ſoldier ſhoots three arrows on dry ground from a bow of cane. A man is next diſpatched to bring the arrow which has been ſhot fartheſt; and, after he has taken it up, another is ordered to run from the edge of the water; at which inſtant the perſon accuſed is told to graſp the foot or the ſtaff of the Brahmin, who ſtands near him in the water, and immediately to dive into it. He muſt remain under water till the two men who went to fetch the arrows have returned; for if he raiſe his head or body above the ſurface before the arrows are brought back, his guilt is conſidered as fully proved. In the villages near Benares, it is the practice for the perſon, who is to be tried by this kind of ordeal, to ſtand in water up to his navel, and then, holding the foot of a Brahmin, to dive under it as long as a man can walk fifty paces very gently. If, before the man has walked thus far, the accuſed riſe above the water, he is condemned; if not, acquitted.

There are two ſorts of trial by *poiſon*. Firſt, the Pundits having performed their *homa*, and the perſon accuſed his ablution, two *retti's* and a half, or ſeven barley-corns, of *viſhanaga*, a poiſonous root, or of *ſanc'hya*, white arſenic, are mixed in eight maſhas, or ſixty-four rettis, of clarified butter, which the accuſed muſt eat from the hand of a Brahmin. If the poiſon produce no viſible effect, he is abſolved; otherwiſe, condemned. Secondly, the *Coluber naja*, Linn. moſt commonly called the *cobra de capello*, or hooded viper, is thrown into a deep earthen pot, into which is dropped a ring, a ſeal, or a coin. This the perſon accuſed is ordered to take out with his hand; and, if the ſerpent bite him, he is pronounced guilty; if not, innocent. If bit, death is inevitable. See the hiſtory and figure of this dreadful viper, vol. iv. p. 803.

Trial by the *coſha* is as follows: The accuſed is made to drink three draughts of the water in which the images of the Sun, of Devi, or any idols, have been waſhed for that purpoſe; and, if within fourteen days he has any ſickneſs or indiſpoſition, his crime is conſidered as eſtabliſhed.

When ſeveral perſons are ſuſpected of theft, ſome dry *rice* is weighed with the ſacred ſtone called *ſalgram*; or certain ſlocas are read over it; after which the ſuſpected perſons are ſeverally ordered to chew a quantity of it; as ſoon as they have chewed it, they are to throw it on ſome leaves of pippal; or, if none be at hand, on ſome *b'hurja patra*, or bark of a tree from Nepal, or Caſhimere. The man from whoſe mouth the rice comes dry, or ſtained with blood, is holden guilty; the reſt are acquitted.

The ordeal by *hot oil* is very ſimple: when it is brought to a boiling heat the accuſed thruſts his hand into it; and, if he be not burned, is held innocent.

In like manner they make an *iron cannon-ball* red-hot, and place it in the hands of the perſon accuſed; who, if it burn him not, is judged guiltleſs.

To perform the ordeal by *dharmarch*, which is the name of the ſloca appropriated to this mode of trial, either an image, named *Dharma*, or the Genius of Juſtice, is made of ſilver, and another, called *Adharma*, of clay or iron, both of which are thrown into a large earthen jar; and the accuſed, having thruſt his hand into it, is acquitted if he bring out the ſilver image, but condemned if he draw forth the iron one. Or the figure of a deity is painted on white cloth, and another on black; the firſt of which they name *Dharma*, and the ſecond, *Adharma*. Theſe are ſeverally rolled up in cow-dung, and thrown into a large jar, without having ever been ſhown to the accuſed; who muſt put his hand into the jar, and is acquitted or convicted, as he draws out the figure on white, or on black, cloth.

It is written in the comment on the Dherma Saſtra, that each of the four principal caſts has a ſpecific ordeal appropriated to it; that a Brahmin muſt be tried by the *balance*, a Cſhatriya by *fire*, a Vaiſya by *water*, and a Sudra by *poiſon*: but ſome have decided that any ordeal, except that by poiſon, may be performed by a Brahmin, and that a man of any caſt may be tried by the balance. It has been determined, that a woman may have any trial except thoſe by poiſon and by water

As the ſubject is curious, we will ſtate the particulars of the two following trials by ordeal, which were witneſſed by the Engliſh at Benares; in one of which the accuſer was acquitted; in the other condemned.

"In 1783, a man was tried by the *hot ball* at Benares, in the preſence of me Ali Ibrahim Khan, (Mohammedan governor, appointed by the Engliſh preſidency at Bengal,) on the following occaſion. A man had appealed one Sancar of larceny, who pleaded that he was not guilty; and, as the theft could not be proved by legal evidence, the trial by fire-ordeal was tendered to the appellee, and accepted by him. This well-wiſher to mankind (the title aſſumed by Ali Ibrahim Khan) adviſed the learned magiſtrates and Pundits, or men learned in the Sanſkrit, to prevent the deciſion of the queſtion by a mode not conformable to the practice of the company's government;

and recommended an oath by the water of the Ganges and the leaves of tulaſi in a little veſſel of braſs, or by the book Herivanſa, or the ſtone ſalgram, or by the hallowed ponds or baſons; all which oaths are uſed at Benares on different occaſions. When the parties obſtinately refuſed to try the iſſue by any one of the modes recommended, and inſiſted on a trial by the hot ball, the magiſtrates and Pundits of the court were ordered to gratify their wiſhes; and, ſetting aſide thoſe forms of trial, in which there could be only a diſtant fear of death, or loſs of property, as the juſt puniſhment of perjury by the ſure, yet ſlow, judgment of heaven, to perform the ceremony of ordeal agreeably to the Dherma Saſtra. But, it was not till after mature deliberation for four months, that a regular mandate iſſued for a trial by the red-hot ball; and this was at length granted for four reaſons: firſt, becauſe there was no other way of condemning or abſolving the perſon accuſed; ſecondly, becauſe both parties were Hindoos, and this mode of trial was ſpecially appointed in the Dherma Saſtra by the ancient lawgivers; thirdly, becauſe this ordeal is practiſed in the dominions of the Hindoo rajahs; and fourthly, becauſe it might be uſeful to inquire how it was poſſible for the heat of fire to be reſiſted, and for the hand, that held it, to avoid being burned. An order was accordingly ſent to the Pundits of the court and of Benares to this effect: "Since the parties accuſing and accuſed are both Hindoos, and will not conſent to any trial but that by the hot ball, let the ordeal deſired be duly performed in the manner preſcribed by the Mitacſhera, or commentary on Yagyawalcya."

When preparations were made for the trial, Ali Ibrahim Khan, attended by all the learned profeſſors, by the officers of the court, the ſpahis of captain Hogan's battalion, and many inhabitants of Benares, went to the place prepared, and endeavoured to diſſuade the appellor from requiring the accuſed to be tried by fire, adding; "if his hand be not burned, you ſhall certainly be impriſoned." The accuſer, not deterred by this menace, perſiſted in demanding the trial; the ceremony, therefore, was thus conducted in the preſence of me Ali Ibrahim Khan.

"The Pundits of the court and the city, having worſhipped the God of Knowledge, and preſented their oblation of clarified butter to the fire, formed nine circles of cow-dung on the ground; and, having bathed the appellee in the Ganges, brought him with his clothes wet; when, to remove all ſuſpicion of deceit, they waſhed his hands with pure water; then, having written a ſtate of the caſe, and the words of the *mantra*, on a palmyra-leaf, they tied it on his head; and put into his hands, which they opened and joined together, ſeven leaves of pippal, ſeven of jend, ſeven blades of darbha graſs, a few flowers, and ſome barley moiſtened with curds, which they faſtened with ſeven threads of raw white cotton. After this they made the iron ball red-hot, and, taking it up with tongs, placed it in his hands; he walked with it ſtep by ſtep, the ſpace of three gaz and a half, through each of the ſeven intermediate rings, and threw the ball into the ninth, where it burnt the graſs, that had been left in it. He next, to prove his veracity, rubbed out ſome rice from the huſk between his hands; which were afterwards examined, and were ſo far from being burned, that not even a bliſter was raiſed on either of them. Since it is the nature of fire to burn, the officers of the court, and people of Benares, near five hundred of whom attended the ceremony, were aſtoniſhed at the event; and this well-wiſher to mankind was perfectly amazed. It occurred to his apprehenſion, that probably the freſh leaves and other things, which, as it has been mentioned, were placed on the hands of the accuſed, had prevented their being burned; beſides that, the time was but ſhort between his taking the ball and throwing it down; yet it is poſitively declared in the Dherma Saſtra, and in the written opinions of the moſt reſpectable Pundits, that the hand of a man who ſpeaks truth cannot be burned; and Ali Ibrahim Khan certainly ſaw with his own eyes, as many others alſo ſaw with theirs, that the hands of the appellee in this cauſe were unhurt by the fire; he was conſequently diſcharged; but, that men might in future be deterred from demanding the trial by ordeal, the appellor was committed for a week."

The other inſtance, was the following:

"A Brahmin, named Riſhiſwara Bhatta, accuſed one Ramdayal, a linen-painter, of having ſtolen his goods. Ramdayal pleaded not guilty; and, after much altercation, conſented to be tried, as it had been propoſed, by the veſſel of boiling oil. This well-wiſher to mankind, Ali Ibrahim Khan, adviſed the Pundits of the court to prevent, if poſſible, that mode of trial; but, ſince the parties inſiſted on it, an ordeal by hot oil, according to the Saſtra, was awarded for the ſame reaſons which prevailed in regard to the trial by the ball.

"When Ganeſa had been worſhipped, and the homa preſented, according to the Saſtra, they ſent for this well-wiſher to mankind; who, attended by the two daroghas of the Divani and Faujdari courts, the cotwal of the town, the other officers of the court, and moſt of the inhabitants of Benares, went to the place of trial; where he laboured to diſſuade Ramdayal and his father from ſubmitting to the ordeal; and apprized them, that, if the hand of the accuſed ſhould be burned, he would be compelled to pay the value of the goods ſtolen, and his character would be diſgraced in every company. Ramdayal would not deſiſt; he thruſt his hand into the veſſel of boiling oil, and was dreadfully burned. The opinion of the Pundits was then taken; and they were unanimous, that, by the burning of his hand, his guilt was eſtabliſhed, and he bound to pay Riſhiſwara Bhatta the price of what he had ſtolen; but, if the ſum exceeded five hundred aſhrafis, his hand muſt be cut off by an expreſs law in the Saſtra; and a mulct alſo muſt be impoſed on him according to his circumſtances."

After a ſtrict and critical inveſtigation of the "Inſtitutes of Hindoo Law," ſir William Jones concludes with the following general and judicious remarks:

"The Hindoo civil and religious code certainly abounds with many beauties, which need not be pointed out; and with many blemiſhes, which cannot be juſtified or palliated. It is a ſyſtem of deſpotiſm and prieſtcraft, both indeed limited by law, but artfully conſpiring to give mutual ſupport, though with mutual checks; it is filled with ſtrange conceits in metaphyſics and natural philoſophy, with idle ſuperſtitions, and with a ſcheme of theology moſt obſcurely figurative, and conſequently liable to dangerous miſconception; it abounds with minute and childiſh formalities, with ceremonies generally abſurd and often ridiculous; the puniſhments are partial and fanciful; for ſome crimes, dreadfully cruel; for others, reprehenſibly ſlight; and the very morals, though rigid enough on the whole, are in ſome inſtances unaccountably relaxed; nevertheleſs, a ſpirit of devotion, of benevolence to mankind, and of amiable tenderneſs to all ſentient creatures, pervades the whole code; the ſtyle of it has a certain auſtere majeſty, that ſounds like the language of legiſlation, and extorts a reſpectful awe; the ſentiments of independence on all beings but God, and the harſh admonition, even to kings, are truly noble; and the many panegyrics on the *Gayatri*, the mother, as it is called, of the Veda, prove the author to have adored (not the viſible material ſun, but) that divine and incomparably greater Light, to uſe the words of the moſt venerable text in the Indian ſcripture, which illumines all, delights all, from which all proceed, to which all muſt return, and which alone can irradiate (not our viſual organs merely, but our ſouls and) our intellects."

## FAKEERS, OR DEVOTEES.

Of all the wretched beings in the ſhape of man, who contribute to put human reaſon out of countenance, or diſgrace the police of any country, by a life of total inutility,

utility, under the name of pious auſterity; and of hypocriſy and vanity under the ſacred name of religion; no claſs, no horde, upon the ſurface of the habitable globe, can hold the palm with the devotees of India. Appearing often in their exterior highly offenſive to common decency and modeſty; and acting, for the greater part, in open dereliction of the wiſe intentions of their Creator; it is to be lamented that their tribes are extremely numerous.

The moſt ancient, and probably the original of theſe wandering tribes, is that called *Saniaſſy*; i. e. one who has rejected all temporal affairs, and devoted himſelf to the ſervice of God. In the Bhagavat Geeta it is written, "That a Saniaſſy, or he who ſhall devote himſelf to a ſolitary religious life, ſhall have no other clothing but what may be neceſſary to cover his nakedneſs; nor any other worldly goods but a ſtaff in his hand, and a pitcher to drink out of. That he ſhall always meditate on the truths contained in the ſacred writings, but never argue on them. That his food ſhall be confined to rice, and other vegetables; and that he ſhall eat but once a-day, and then ſparingly. That he ſhall look forward with deſire to the ſeparation of the ſoul from the body; be indifferent about heat, or cold, or hunger, or praiſe, or reproach, or any thing concerning this life; and that unleſs he ſtrictly follow theſe rules, and ſubdue his paſſions, he will only be more criminal, by embracing a ſtate, the duties of which he could not perform, neglecting thoſe he was born to obſerve." It is ſaid, in the dialogues between Criſhna and Arjoon:

"Learn, ſon of Pandoo, that what they call *Sanias*, or a forſaking of the world, is the practice of devotion. The man who is happy in his heart, at reſt in his mind, and enlightened within, is one devoted to God, of a godly ſpirit, and obtaineth the immaterial nature of Brahme, the Supreme.

"The man who keepeth the outward accidents from entering the mind, and his eyes fixed in contemplation between his brows; who maketh the breath paſs equally through his noſtrils, who hath ſet his heart upon ſalvation, and who is free from luſt, fear, or anger; is for ever bleſſed in this life."

"The Saniaſſy conſtantly exerciſeth the ſpirit in private. He is of a ſubdued mind, free from hope. He planteth his ſeat firmly on a ſpot that is neither too high nor too low, and ſitteth on the ſacred graſs that is called *cuſa*, covered with a ſkin, or cloth. There he, whoſe buſineſs is the reſtraining of his paſſions, ſhould ſit, in the exerciſe of devotion, for the purification of his ſoul, keeping his head, his neck, and his body ſteady, without motion, his eyes fixed on the point of his noſe, looking at nothing elſe around. The Saniaſſy of a ſubdued mind, thus employed, in the exerciſe of devotion, is as a lamp ſtanding in a place without wind, which waveth not.

"Supreme happineſs attendeth him whoſe mind is thus at peace, whoſe carnal affections and paſſions are ſubdued, and who is in God, and free from ſin. The man whoſe mind is endued with devotion, beholdeth the ſupreme ſoul in all things, and all things in the ſupreme ſoul.

"This divine diſcipline is hard to be attained by him who hath not his ſoul in ſubjection; but it may be acquired by him who taketh pains. Works are the means by which a man may acquire devotion; ſo reſt is the means for him who hath attained devotion.

"When the all-contemplative Saniaſſy is not engaged with objects of the ſenſes, nor in works, then he is called one who hath attained devotion. The ſoul of the conquered placid ſpirit, is the ſame in heat and in cold, in pain and in pleaſure, in honour and diſgrace. The man whoſe mind is replete with divine wiſdom and learning, who ſtandeth on the pinnacle, and hath ſubdued his paſſions, is ſaid to be devout."

It is obvious that moſt of the paſſages in the Bhagavat Geeta, which were enigmatical, being underſtood *literally* by the ignorant, have given riſe to thoſe extravagant penances, with which ſome of the devotees now torture themſelves. Many of the Saniaſſies, who had made a vow to keep their arms conſtantly extended over their head, with their hands claſped together, or held up in a perpendicular direction, are frequently ſeen withered and immoveable. Not long ago, one of this auſtere claſs undertook to meaſure the diſtance between Benares and Jagan-Nath, or Jagarnaut, with his body, by alternately ſtretching himſelf upon the ground, and riſing; which, if he performed as faithfully as is repreſented, he muſt have taken years to accompliſh it. Some make vows to keep their arms for ever croſſed; others to keep their hands for ever ſhut; and their nails are ſometimes ſeen growing like the talons of a wild beaſt; ſome, by their own deſire, are chained to a particular ſpot; and others never lie down, but ſleep leaning againſt a tree.

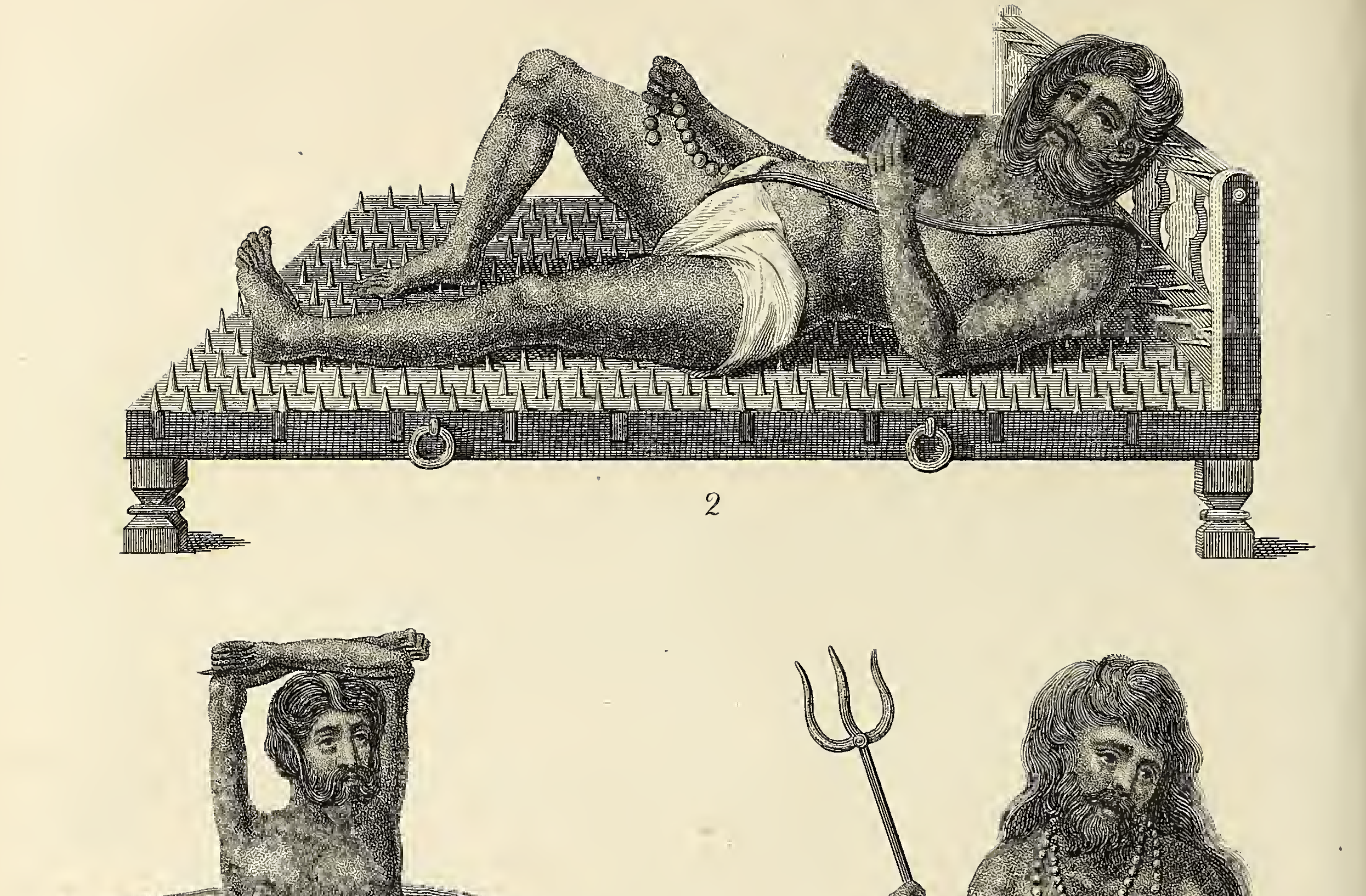
The different orders of Saniaſſies aſſume different titles, according to the kind of penance they enjoin themſelves to perform. A *Purrum hungſe* puniſhes himſelf by ſitting conſtantly in the water. A *Naunuck punthy* ſentences himſelf to wear but one ſhoe, and one whiſker. An *Oordhbahu* devotes himſelf to ſit conſtantly with his arms and hands in a fixed poſition, and joined over his head; or perpetually to remain raiſed perpendicularly over his ſhoulders; or for ever to hold one arm and hand erected, graſping a weight, while the other hangs down graſping a weight. A *Ser-ſeja* ſubjects himſelf to the cruel torture of lying conſtantly upon a bed of pebbles, or of ſharp thorns, or iron ſpikes. A *Jel-ſeja* condemns himſelf to ſit day and night upon a ſeat of ſharp iron ſpikes, while a jet d'eau, or fall of water, deſcends upon his head. Many other ſuch unaccountable practices are reſorted to; and held in the higheſt veneration by the ignorant and deluded people.

The term *pandaram*, is the ſame with pilgrim. The pandarams on the coaſt of Coromandel are followers of Siva; they rub their faces and bodies with the aſhes of burnt cow-dung, and go about the towns and villages ſinging the praiſes of their god.

The *Cary-patry-pandarams*, are a ſet of religious perſons, who make a vow never to ſpeak; they go to the doors of houſes, and demand charity, by ſtriking their hands violently together, and looking up towards heaven with a countenance full of woe. They take nothing but rice, which is given them ready prepared for eating; and, if it be ſufficient to ſatisfy their hunger, they paſs the reſt of the day ſitting in the ſhade, and ſcarcely looking at any object that may come before them.

The *Tadinums* go about begging, and ſinging the hiſtory of the different incarnations of Viſhnu. They beat a kind of drum, and have ſmall braſs bells tied round their ankles, which make a conſiderable noiſe as they walk along.

The *Yogeys*, commonly called gymnoſophiſts, or *ſtark-naked philoſophers*, conſtitute the loweſt order of the devotees. They are the moſt numerous and moſt offenſive of all theſe wretched claſſes of mankind. Thouſands of them together are often met in a company, marching from one great temple or pagoda to another, where they know that food is always in plenty; and where they have the chance of aſſociating with wives devoted to the *lingham*, and with worſhippers from all quarters, whoſe bounty is then generally open, and from whom they often collect conſiderable riches. Mr. Pennant ſays of them, "Theſe vagabonds, or wandering fakeers, under pretence of pilgrimages, ſometimes aſſemble in armies of ten or twelve thouſand, lay whole countries under contribution, rob people of their wives, and are guilty of every enormity. They are generally quite naked, except the concealment of certain parts in a purſe, tied by a ſmall ſtring which goes round the waiſt. They go armed with a kind of prong, or long ſtaff headed with the ſharp horns of the antelope, which they ſometimes point with iron; and from their rude and ſqualid aſpect, they make a moſt dreadful appearance; yet, ſhowing a diſpoſition for finery, they generally ornament themſelves with two rows of beads, hung careleſsly round the neck. It is remarkable, that they admit any perſon of abilities among them, and inſtruct



J. Chapman, Sc.

1. Purana Poori, an Oordhbahu Saniaſsy. 2. Purrum Soatuntre Perkasanund, a Ser-seja Saniaſsy. 3. A Yogey.

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their diſciples in any branch of knowledge, which may make them revered among the vulgar. A band of theſe mendicant deſperadoes attacked general Goddard on the banks of the river Cane, and drove away two elephants and a few camels; but a detachment from the general's army ſoon recovered them, and killed or wounded twenty of the Yogeys. Two thouſand more of theſe religious hovered in their rear, but fled on the firſt appearance of an attack." See Pennant's View of Hindooſtan, vol. ii. p. 192.

Theſe tribes, which all bear alike the epithet of *Fakeers*, are to be met with more or leſs in every part of Hindooſtan; but chiefly in the neighbourhood of great temples, both from religious motives, and in order to collect gifts from the perſons who reſort thither. Contrary to the practice of the Hindoos in general, many of them wear their hair; and, by frequently rubbing it with the oil of the cocoa-nut, it grows to an extraordinary degree of length and thickneſs. Some let it hang looſe on their bodies, extending to the ground; others have it plaited in many treſſes, and wound round the head in the form of a great turban. See the figure of a Yogey in the annexed Engraving.

To elucidate more obviouſly the character and purſuits of the Saniaſſies, out of which all the other devotees ſeem to have ariſen, we ſhall give an account of two or three who came peculiarly under the notice of the Engliſh, as ſtated by J. Duncan, eſq. in the fifth volume of the Aſiatic Reſearches. The particulars are as follow:

*Purana Poori* is a Saniaſſy diſtinguiſhed by the epithet *Oordhbahu*, from his arms and hands being kept in a fixed poſition above his head. He became famous as a great traveller. He is a native of Canouge, and of the Khatri or Rajapout tribe. At nine years of age he ſecretly withdrew from his father's houſe, and proceeded to the city of Bethour, on the banks of the Ganges, where he reſolved to become a Fakeer. With this determination he went to Allahabad, at the time of the great annual meeting of pilgrims; where, hearing of the merits attached to what he deſcribes as one of the eighteen kinds of *Tupiſya*, or modes of devotional diſcipline, he made choice of that of *Oordhbahu*, above noticed; the firſt operation of which he repreſents to be extremely painful, and to require preparation by a previous courſe of abſtinence. After exerciſing himſelf for ſome years in the functions of this new calling, ſerving at the temples in the ſeaſons of their various rites and ſacrifices, waiting on the Brahmins, and eſtabliſhing his character as a truly devout Saniaſſy, he determined on making a pilgrimage to all the great pagodas in every part of Hindooſtan; where he might be occaſionally noticed by the principal rajahs and chiefs of the different diſtricts, and vie with all the other Saniaſſies in ſtrictneſs of diſcipline and ſeverity of morals; and thus acquire a name among the Brahmins of every ſect.

He ſet out from Allahabad to viſit Ramiſher, which is ſituated oppoſite to Ceylon; taking his route by Calpi, Oujein, Burhampour, Aurungabad, and Elora; the ſurpriſing excavations at which place he beheld with admiration; and, croſſing the Godavery at Tounker, he paſſed by Poonah, Settarah, and various other intermediate towns, to Bednore, of which a *ranny*, or princeſs, was the ſovereign. From thence he went to Seringapatam, then in poſſeſſion of its rightful Hindoo prince, from whoſe ſon Hyder Ali ſeized it. He then deſcended through the Tamerchery Paſs into Malabar, and arrived at Cochin; whence he croſſed the peninſula through a deſert tract of country to Ramiſher; after viſiting which, he returned up the Coromandel coaſt to the temple of Jagan-Nath in Oriſſa, where he ſpent a conſiderable time with the various ſects aſſembled at that famous pagoda.

From Jagan-Nath he returned by nearly the ſame route to Ramiſher; whence he paſſed over into *Silan*, or Ceylon, and proceeded to its capital, where Khundi Maha Rauje was the reigning prince. Further on he arrived at Catlgang, on a river called the Manic Gunga, where there is a temple of Carticeya, the ſon of Mahadeo, to whom he paid his devotions, and then went on to viſit the *Sreepud*, or "Divine Foot," which the Mohammedan geographers call "Adam's Foot;" ſituated upon a mountain of extraordinary height; on one part of which there is alſo (according to this Fakeer's deſcription) an extenſive miry cavity, called the *Bhoput Tank*, and which bears alſo the name of the Tank of *Ravan*, or *Raban*, (the *b* and *v* being pronounced indifferently in various parts of India,) one of the former kings of this iſland, well known in the Hindoo legends for his wars with Rama, and from whom this *tapu*, or iſland, may probably have received its ancient appellation of *Taprobane*, (i. e. the iſle of Raban.) Leaving this tank, he proceeded to a ſtation called Seeta Koond, (where Rama placed his wife Seeta, on the occaſion of his war with her raviſher Ravan,) and then reached at length to the *Sreepud*, on a moſt extenſive table or flat, where there is (he obſerves) a bungalow built over the print of the divine foot; after worſhipping which, he returned by the ſame route.

From Ceylon, Purana Poori paſſed over among the Malays, whom he deſcribes as being Muſſulmans; but there was one capital Hindoo merchant, a native of Ceylon, ſettled there, at whoſe houſe he lodged for two months, and who then procured him a paſſage to Cochin, on the coaſt of Malabar, up which he proceeded by land; particularizing, with a wonderful tenacity of memory, the ſeveral towns and places through which he paſſed, with their intermediate diſtances. In this direction he proceeded along the coaſt of Bombay, and paſſed on to Dwarac Tatta Hingulaj, or Henglaz, and through Moultan, beyond the Attock, whence he changed his route to the eaſtward, and arrived at Hurdwar, where the Ganges enters the plains of Hindooſtan; and from that place of Hindoo devotion he again departed in a weſterly direction, through the upper parts of the Punjab to Cabul, and thence to Bamian, where he mentions with admiration the number of ſtatues that ſtill exiſt, notwithſtanding the deſtruction which had been made for ſeven hundred years, by the Muſſulman invaders.

In the courſe of his pilgrimage in this quarter of the country, he fell in with the army of Ahmed Shah Abdallah, in the cloſe vicinity of Ghizni; and that king, having an ulcer in his noſe, conſulted this Fakeer, to know if, being an Indian, he could preſcribe a remedy for it; on which occaſion the latter acknowledged that, having no knowledge of ſurgery or medicine, he had recourſe to his wits, by inſinuating to the prince, that there moſt probably did ſubſiſt a connexion between the ulcer and his ſovereignty, ſo that it might not be adviſable to ſeek to get rid of the one, leſt it ſhould riſk the loſs of the other; a ſuggeſtion that met (he adds) with the approbation of this warlike prince and his miniſters.

Purana Poori afterwards travelled through Khoraſan, by the way of Herat and Muſhhed, to Aſtrabad, on the borders of the Caſpian Sea; and to the Maha or Buree Jowalla Mookhi, or Juala Muchi, terms that mean a "Flaming Mouth," as being a ſpot in the neighbourhood of Bakee, on the weſt ſide of the ſea in queſtion, whence fire iſſues; a circumſtance that has rendered it of great veneration with the wandering Hindoos; the Fakeer adds, that locally it is called *Dagheſtan*; a word which in Sanſkrit means "The Region of Heat." After ſojourning eleven months at this Jowalla Mookhi, he embarked on the Caſpian, and obtained a paſſage to Aſtrachan; where he mentions to have been courteouſly received by the Hindoos reſiding in that place.

The Fakeer next proceeds to notice, that a river (meaning, no doubt, the Volga) flows under Aſtrachan, and is, he ſays, frozen over, ſo as to admit of paſſengers travelling on it, during four months in the year; and thence, he mentions, in eighteen days journey, he proceeded to Moſcow, the ancient capital of Ruſſia, (the ſovereign of which was, he obſerves, a *beeby*, or lady,) and that he halted there during five days in the Armenian *ſeray*; and he takes notice that there is an immenſe bell in this city, under which a hundred perſons may find room to ſtand; adding, that he there heard, in a month's journeying beyond Moſcow, a traveller may reach Peterſburgh, and thence get to Great Britain.

From Moſcow he returned by Aſtrachan, and paſſed through Perſia, by the route of Shamaki, Sherwaun, Tubrez, Hamadan, and Iſpahan; in which capital he ſojourned during forty days, and then paſſed on to Shiraz; where he arrived during the reign of Kerim Shah, whom he deſcribes as being then about forty years of age, as far as he could judge from an audience he had of him; and there were, he adds, two Engliſh gentlemen (one of whom he calls Mr. Liſter) at this king's court at the period of his viſiting it.

Embarking at Abooſheher, on the ſouthern coaſt of Perſia, he reached the iſle of Kharek, then governed by a chief called Meer Manna, who had, he obſerves, taken it from the Dutch, and whom he repreſents as a chieftain living by carrying on a warfare againſt all his neighbours; and he mentions ſeveral Hindoos as being ſettled here. He next arrived at the iſlands called Bahrein, on the coaſts of which pearls are, he ſays, found; whence re-embarking for Baſſora, the veſſel he was in was met and examined, but again releaſed, by the Bombay and Tartar grabs, then carrying on hoſtilities againſt Solyman, the Mahommedan chief of the Bahrein iſles. After this occurrence he arrived at Baſſora, in which he found a number of Hindoo houſes of trade, as well as two idols of Viſhnu, known under his appellations of Govinda Raya and Calyana Raya; or, according to the vulgar enunciation, Kulyan Row and Gobind Row.

After an ineffectual attempt to penetrate up the Tigris to Bagdad, he returned to Baſſora; whence deſcending the Perſian Gulph, he arrived at Muſcat, where he met alſo a number of Hindoos; and from that place he reached Surat. From hence he again proceeded by ſea to Mocha, where alſo he found a number of Hindoos; and he thence returned into India, landing on its weſtern coaſt, in the port of Sanyanpour, ſituated in the Cutch or Sind countries.

From this port he journeyed to Balk, and to Bochara; at which he notices having viewed the famous Derjah of Khaja Cheſtee, and the loftieſt minar or ſpire he had ever ſeen. From this place, after twelve days journey, he arrived at Samarcand, which he deſcribes as a large city, having a broad river flowing under it; and thence he arrived, after ten days journey, at Budukhſhan, in the hills around which rubies are found; whence he travelled into Cachimere; and from thence paſſing over the hills towards Hindooſtan, he came to the *Gungowtri*, or "Deſcent of the Ganges," where there is, he obſerves, a ſtatue of Baghiratha; at which place the river may, he ſays, be leaped over; and he further notices, that thirty coſs to the ſouthward of Gungowtri there is a fountain, or ſpring, called the *Jumnowtri* or *Yumnowtri*, which he deſcribes as the ſource of the Jumna or Yamuna river.

Purana Poori, leaving this part of the country, came in a ſouth-eaſt direction into Oude, and went thence into Nepal, the ſeveral towns in which he deſcribes, incluſive of its capital, where flow, he obſerves, the four rivers of Naugmutty, Biſhenmutty, Roodrmutty, and Munmutty; and at ſeven days journey beyond which, he notices a ſtation called *Goſſayn-thaun*, where Mahadeo took poiſon and ſlept, as related in the Hindoo ſacred books; from which place (deſcribed by him as a ſnowy tract) he went into Thibet; croſſing in his way to it the Coſa river by a bridge compoſed of iron chains; and obſerving that, at Leſtee, the third day's journey beyond the Coſa, is the boundary of Nepal and Thibet, where guards are ſtationed on both ſides; whence, in another day's travelling, he arrived at Khaſſa, a town within *Bhote*, or Thibet; (for by the former name the natives often underſtand what we mean by the latter;) hence he proceeded to Chehang, and from thence to Koortee, where paſſes are given; and then croſſed over the hills (called in that country *Lungoor*) into the plain of Tingri, beyond which one day's journey is Gunguir; after which he reached Lahaſſa, and the mountain of Patala, the ſeat of the Delai Lama; whence he proceeded to Degurcha, which he mentions as that of the Taiſhoo Lama; and then, in a journey of upwards of eighty days, reached to the lake of Maun Surwur, (called in the Hindoo books *Manaſarovara*;) and his deſcription of it is ſo curious, and the lake ſo little known, that we ſhall let him ſpeak for himſelf:

"Its circumference is of ſix days journey, and around it are twenty or five-and-twenty *goumaris*, religious ſtations or temples, and the habitations of the people called *Dowki*, whoſe dreſs is like that of the Thibetians. The Maun Surwur is one lake; but in the middle of it there ariſes, as it were, a partition-wall; and the northern part is called *Maun Surwur*, and the ſouthern *Lunkadh*, or *Lunkdeh*. From the Maun Surwar part iſſues one river, and from the Lunkadh part two rivers: the firſt is called *Brahma*, where Pureſram making *tupiſya*, the Brahmaputra iſſued out, and took its courſe to the eaſtward; and of the two ſtreams that iſſue from the Lunkadh, one is called the *Surju*, being the ſame which flows by Ayoddya, or Oude; and the other is called *Sutroodra*, (or, in the Puranas, *Shutudru*, and vulgarly the *Sutluje*,) which flows into the Punjab country; and two days journey weſt from the Maun Surwar is the large town of Teree Ladac, the former rajahs of which were Hindoos, but have now become Mohammedans. The inhabitants there are like unto the Thibetians. Proceeding from Ladac, ſeven days journey to the ſouthward, there is a mountain called *Cailaſa Cungri*, (*cungur* meaning a peak,) which is exceedingly lofty; and on its ſummit there is a Bhoorjputr tree, from the root of which ſprouts or guſhes a ſmall ſtream, which the people ſay is the ſource of the Ganges, and that it comes from *Vaicont'ha*, or heaven, as is alſo related in the Puranas; although this ſource appears to the ſight to flow from the ſpot where grows this Bhoorjputr tree, which is at an aſcent of ſome miles; and yet above this there is a ſtill loftier ſummit, whither no one goes; but I have heard that on that uppermoſt pinnacle there is a fountain or cavity, to which a Jagui ſomehow penetrated; who, having immerſed his little finger in it, it became petrified. At four days journey from Cailaſa Cungri is a mountain called *Brahmadanda*, or Brahma's ſtaff, in which is the ſource of the Aliknundra Ganga; and five or ſix days journey to the ſouth of that are ſituated on the mountains the temples dedicated to Cedara, or Kedarnauth, and Budranauth; and from theſe hills flow the ſtreams called the *Kedar Ganga* and *Sheo Ganga*; the confluxes of which, as well as of the Aliknundra, with the main ſtream of the Ganges, take place near Kernpraug and Deopraug, in the vicinity of Serinagur; whence they flow on in a united ſtream, which iſſues into the plains of Hindooſtan at Hurdwar."

Purana Poori went back from this part of the country into Nepal and Thibet; from the capital of which he was charged by the adminiſtration there with diſpatches to the Engliſh governor-general, Mr. Haſtings; which he mentions to have delivered in the preſence of Mr. Barwell, and of the late Meſſrs. Bogle and Elliot; after which he was ſent to Benares, with introductory letters to rajah Cheyt Sing, and to Mr. Graham, who was at that time the reſident; and ſome years afterwards Mr. Haſtings beſtowed on him, in jaghire, the village of Aſſapour, which he continues to hold as a free tenure; though he is ſtill ſo fond of travelling, that he annually makes ſhort excurſions into different parts of India. See a portrait of this extrarordinary perſon ſitting in Oordhbahu, in the annexed Engraving.

Another equally extraordinary fakeer is named *Perkaſanund*; and he aſſumes the title or epithet of *Purrum Soatuntre*, which implies ſelf-poſſeſſion or independence. We ſhall give the narrative in his own words, as ſtated by J. Duncan, eſq.—"I am a Brahmin of the Yujerveda ſect, and of the line of Praſher. My anceſtors are from the Punjab. They had a long time ago come to viſit at

Jagan-Nath, and had reached and were abiding at Gopegawn, where I was born. When I was only ten years of age, I uſed to give myſelf up to meditation and mortification, lying upon thorns and pebbles; a mode of life I had continued for ten years, when it was interrupted by my relations, who wanted me to think of marriage; whereupon, having attained to twenty years of age, I left my home, determined to devote myſelf to travelling. Firſt, after coming out of my houſe, I went towards Ootrakhund, by way of Nepal and Bhote. I went into the country of the Great and Little Lama, where the Teeſhoo Lama lives. In this tract is the Maun Talaee, (i. e. tank or lake,) as far as which is inhabited, but not beyond it; and the lake called Maun Surwur is ſeventeen *munzels*, or days' journey, farther on, in a jungly country, which prevents acceſs to it. There are in this quarter the places known under the denominations of Muni, Maheſho, Mahadeo, and of Teloke, Nauthjee, and the *Debbees*, or cooking-places, of Nownauth; and of the eighty-four *Sidhs*, or religious perſons, thus diſtinguiſhed; all ſituated on this ſide of the Maun Surwur. Into theſe Debbees, if one throw in either two loaves, or as many as are wanted; one in the name of the Sidh, and another in one's own name; that in the name of the Sidh remains at the bottom, and that in one's own name riſes up baked. Theſe places I viſited. At the Maun Talaee the boundaries of four countries meet, viz. that of China, of the Lama's country, of the Beſeher country, and that of the Cooloo country.

"Proceeding thus in religious progreſs from hill to hill, I paſſed through the Shaum country; and deſcending the hills, arrived in Cachimere, where I halted for devotional purpoſes, as well as to proſecute my ſtudies. From Caſhimere I went through Thibet to the Great Jowallah, which is ſituated in a country where fire riſes out of the ground for the ſpace of twelve coſs. In this Jowallah, whoever wants to dreſs victuals, or boil water, they have only to dig a little fiſſure into the ſurface of the ground, and place the article thereon, which will ſerve without wood. On this ſide of Peiſhore, where the Sendhe ſalt is produced, there is a village called Dudun Khan's Pend, adjoining to the ſalt-pits. The rajah of that country was called Rajah Bhenda Singh. I had here ſhut myſelf up in a *gowpha*, or cell, where I vowed to remain doing penance for a period of twelve years. Vermin or worms gnawed my fleſh, of which the marks ſtill remain; and, when one year had elapſed, then the rajah opened the door of the cell, whereupon I ſaid to him, 'Either take my curſe, or make me a *ſer-ſeja*, or bed of ſpikes;' and then that rajah made for me the *ſer-ſeja* I now occupy. During the four months of the winter, I made *jel-ſeja* upon this ſeat. *Jel-ſeja* is, that night and day water is let fall upon my head. From thence, by the Sindh country, I went to Hingoolauje, a mountain dedicated to Debee. All the country to the weſt and ſouth I travelled over upon this *ſer-ſeja*, coming at length to Preyago, or Allahabad; and paſſing by Caſhi, or Benares, I went to the temple of Jagan-Naut; and, viſiting Balajee, proceeded on to Ramiſher, and, after viſiting that place, I journeyed on to Surat. In Surat I embarked in a veſſel, and went by ſea to Muſcat in twelve days; and, thence returning, came to Surat again. Mr. Boddam was then at Surat; and he afterwards went to Bombay. I ſtayed two years at Surat. Mr. Boddam granted me ſomething to ſubſiſt on, with my followers, and built a houſe for me; and ſtill my *cheilas*, or diſciples, are there. It is thirty-five years ſince I made *tupiſya* upon this *ſer-ſeja*. I have been in ſeveral countries. How much ſhall I cauſe to be written? I have been at every place of religious reſort, and have no longer any inclination to roam; but, being deſirous of ſettling in Benares, I have come hither. Three *yugs* have paſſed, and we are now in the fourth; and in all theſe four ages there have been religious devotees, and their diſciples; and they are firſt to make application to the rajah, or to whoever is the ruler of the place; for even rajahs maintain and ſerve us; and it is befitting that I obtain a ſmall place, where I may apply to my religious duties, and that ſomething may be allowed for my neceſſary expences, that I may bleſs you."

This ſtatement being addreſſed to the Engliſh governor at Benares, the following queſtion was put to the fakeer:—"In all the eighteen *tupiſyas*, or modes of penitential devotion, that are made mention of in the Shaſter, the one you have choſen is not ſpecified; wherefore it is inferable, that you muſt have committed ſome great offence, in expiation of which you have betaken yourſelf to the preſent very rude mode of diſcipline. Declare, therefore, what crime you have perpetrated?"

To this, Perkaſanund replied:—"In the *Suthya Yug*, or firſt age, there was a *Rikh*, or holy man, called Agniburna, who performed this *ſer-ſeja* diſcipline; as in the *Treta*, or ſecond age, did Ravono, for ten thouſand years; and in the *Dwapar*, or third age, Bhikma Pitamaha did the ſame; and in the *Cale Yug*, or preſent age, I have followed their example, during a period of thirty-five years; but not to expiate any crime or offence by me committed: in which reſpect if I be guilty, may Veſhweiſhura ſtrike me a leper here in Benares."

The generoſity of the Engliſh government was extended to this ſelf-tormentor. See a figure of him, repoſing on his *ſer-ſeja*, or bed of iron ſpikes, in the annexed Engraving.

There are among this deluded people a claſs who make *jel-ſeja* of a rude kind of palankeen, in which they are carried about to all great feſtivals, ſitting bare-breeched on a ſeat of iron-ſpikes, from the punctures of which they frequently contrive to let the blood flow. They are held in high eſtimation by the ignorant multitude. Mr. Cambridge has very humorouſly, as well as JUSTLY, deſcribed the object of theſe *devout* fakeers, in the following lines:

Does the God of the Heav'ns ſuch a ſervice direct?
Can his mercy approve a ſelf-puniſhing ſect?
Will his wiſdom be worſhipp'd with ſpikes and with nails,
Or e'er look for his rites in your noſes and tails?
Come along to my houſe, and theſe penances leave;
Give your belly a feaſt, and your breech a reprieve.

The devotee is repreſented to have accepted the invitation, and to have enjoyed for a time all the pleaſures of a liberal table, and a manſion of plenty. But after a time theſe luxuries palled upon the appetite; and the ſameneſs of his new condition, added to its retirement, induced him to ſolicit permiſſion to return to his old way of life:

To live *undiſtinguiſh'd* to him was the pain;
An exiſtence *unnotic'd* he could not ſuſtain.
In retirement he ſigh'd for the *fame-giving chair*,
For the crowd to *admire* him, to *rev'rence*, and *ſtare*:
No endearments of pleaſure and eaſe could prevail;
He the ſaintſhip reſum'd, and new larded his tail.

*Pennant's Hindooſtan*, vol. ii. p. 307.

Nothing will contribute to ſhow more obviouſly and ſelf-evidently the great abſurdities into which the Saniaſſies have been carried, than a ſtatement of the origin of "*the devoted to God*," as they are called; ſynonymous with what we term hermit. It is as follows:

"In the midſt of a wild and dreadful foreſt, flouriſhing with trees and ſweet-ſcented flowers, and abounding in fruits and roots; infeſted with lions and tigers; deſtitute of human ſociety, and frequented by the Monees, reſided Bood-dha, the author of happineſs, and a portion of Narayan.

"Once upon a time, the illuſtrious Amara, renowned amongſt men, coming here, diſcovered the place of the Supreme Being, Bood-dha, in the great foreſt. The wiſe Amara endeavoured to render the god Bood-dha propitious by ſuperior ſervice; and he remained in the foreſt for the ſpace of twelve years, feeding upon roots and fruits, and ſleeping upon the bare earth; and he performed the vow of Monee, and was without tranſgreſſion. He performed acts of ſevere mortification, for he was a man of infinite reſolution, with a compaſſionate heart. One night he had a viſion, and heard a voice ſaying, "Name whatever boon thou wanteſt." Amara Deva, having heard this, was aſtoniſhed, and with due reverence replied, "Firſt, give me a viſitation, and then grant me ſuch a boon." He had another dream in the night, and the voice ſaid, "How can there be an apparition in the Kalee Yoog? the ſame reward may be obtained from the ſight of an image, or from the worſhip of an image, as may be derived from the immediate viſitation of a deity." Having heard this, he cauſed an image of the Supreme Spirit Bood-dha to be made, and he worſhipped it, according to the law, with perfumes, incenſes, and the like; and he thus glorified the name of that Supreme Being, the incarnation of a portion of Viſhnu: "Reverence be unto thee in the form of Bood-dha! Reverence be unto the Lord of the earth! Reverence be unto thee, an incarnation of the Deity and the Eternal One! Reverence be unto thee, O God, in the form of the God of mercy; the diſpeller of pain and trouble, the Lord of all things, the Deity who overcometh the ſins of the Kalee-Yoog, the Guardian of the univerſe, the Emblem of mercy towards thoſe who ſerve thee—O'm! the Poſſeſſor of all things in vital form! Thou art Brahma, Viſhnu, and Maheſa! Thou art Lord of the univerſe! Thou art, under the proper form of all things moveable and immoveable, the poſſeſſor of the whole! and thus I adore thee. Reverence be unto the beſtower of ſalvation, and, Reſheekeſa, the ruler of the faculties! Reverence be unto thee (Keſava), the deſtroyer of the evil ſpirit Keſee! O Damordara, ſhow me favour! Thou art he who reſteth upon the face of the milky ocean, and who lieth upon the ſerpent Seſa. Thou art Treeviekrama (who at three ſtrides encompaſſed the earth)! I adore thee, who art celebrated by a thouſand names, and under various forms in the ſhape of Bood-dha, the God of mercy! Be propitious, O moſt high God!"

"Having thus worſhipped the guardian of mankind, he became like one of the juſt. He joyfully cauſed a holy temple to be built of a wonderful conſtruction, and therein were ſet up the divine foot of Viſhnu, for ever purifier of the ſins of mankind, the images of the Pandoos, and of the deſcents of Viſhnu, and in like manner of Brahma, and the reſt of the divinities."

## LANGUAGE, LITERATURE, ASTRONOMY, ARCHITECTURE, AND ANTIQUITIES.

The languages of India are comprehended in three claſſes: 1. *Sanſkrit*; 2. *Pracrit*; 3. *Magad'hi*, or *Apabhranſa*. The *Sanſkrit* is a moſt poliſhed tongue, which was gradually refined until it became fixed in the claſſic writings of many elegant poets, moſt of whom are ſuppoſed to have flouriſhed in the century immediately preceding the Chriſtian æra. It is cultivated by learned Hindoos throughout India, as the language of ſcience and of literature, and as the repoſitory of their law civil and religious. It evidently draws its origin from a primeval tongue, which ſeems to have been gradually refined in various climates, and became *Sanſkrit* in India; *Pahlavi* in Perſia, and *Greek* on the ſhores of the Mediterranean. It has nearly ſhared the fate of all ancient tongues, and is now become almoſt a dead language; but there ſeems no good reaſon for doubting that it was once univerſally ſpoken in India. It was probably the language of the Indian courts; and cultivated not only by perſons who devoted themſelves to religion and literature, but alſo by princes, lawyers, and phyſicians, ſcribes, and ſoldiers. In ſhort, it was the common language of the firſt three caſts; and perhaps of ſome few claſſes of the fourth.

The ſecond, or *Pracrit* language, comprehends the written dialects which are now uſed in the intercourſe of civil life, and which are cultivated by lettered men. There is reaſon to believe, (ſays Mr. Colebrooke,) that ten diſtinct poliſhed dialects formerly prevailed in as many different civilized nations, who occupied all the fertile provinces of Hindooſtan and the Deccan; though they now bear the general denomination of *Pracrit*. Theſe Mr. Colebrooke has ſet down in the following order:

The *Sareſwata*, a nation which occupied the banks of the river Saraſwati. Brahmanas, who are ſtill diſtinguiſhed by the name of their nation, inhabit chiefly the Punjab, or Panchanada, weſt of the river from which they take their appellation. Their original language may have once prevailed through the ſouthern and weſtern parts of Hindooſtan Proper, and is probably the idiom to which the name of *Pracrit* is generally appropriated. This has been more cultivated than any other among the dialects here enumerated; and it occupies a principal place in the dialogue of moſt dramas. Many beautiful poems compoſed wholly in this language, or intermixed with ſtanzas of pure *Sanſkrit*, have perpetuated the memory of it.

The *Canyacubjas*, poſſeſſed a great empire, the metropolis of which was the ancient city of Canyacubja or Canoge. Theirs ſeems to be the language which forms the ground-work of modern Hindooſtani, and which is known by the appellation of *Hindi*, or *Hindevi*. Two dialects of it may be eaſily diſtinguiſhed, one more refined, the other leſs ſo. To this laſt the name of *Hindi* is ſometimes reſtricted, while the other is often confounded with *Pracrit*. Numerous poems have been compoſed in both dialects, not only before the Hindooſtani was ingrafted on the Hindi by a large intermixture of Perſian, but alſo in very modern times, by Mohammedan as well as Hindoo poets. *Dohras*, or detached couplets, and *Cabits*, or ſtanzas, in the Hindevi, may be found among the works of Muſſulman authors; moſt poems in this dialect are, however, the excluſive production of Hindoo poets. On examining them, the affinity of Hindi with the Sanſkrit language is peculiarly ſtriking: and no perſon acquainted with both can heſitate in affirming that Hindi is chiefly borrowed from Sanſkrit. The Hindooſtani, or Hindi, is much uſed in Upper India.

*Gaura*, or, as it is commonly called, *Bengalah*, or *Bengalee*, is the language ſpoken in the provinces, of which the ancient city of Gaur was once the capital: it ſtill prevails in all the provinces of Bengal, excepting perhaps ſome frontier diſtricts, but is ſaid to be ſpoken in its greateſt purity in the eaſtern parts only; and, as there ſpoken, contains few words which are not evidently derived from Sanſkrit. This dialect has not been neglected by learned men. Many Sanſkrit poems have been tranſlated, and ſome original poems have been compoſed in it; learned Hindoos in Bengal ſpeak it almoſt excluſively; verbal inſtruction in ſciences is communicated through this medium, and even public diſputations are conducted in this dialect.

*Mait'hila*, or *Tirkutiya*, is the language uſed in *Mit'hila*, that is, in the *Circar* of *Tirhut*, and in ſome adjoining diſtricts, limited however by the rivers Cuſi and Gandhac, and by the mountains of Nepal; it has great affinity with *Bengalee*; and the character in which it is written differs little from that which is employed throughout Bengal. In Tirhut, too, the learned write Sanſkrit in the Tirhutiya character, and pronounce it after their own inelegant manner.

*Utcala*, or *Odradeſa*, is co-extenſive with the ſubah of Oreſa, extending from Medinipur to Manacapattana, and from the ſea to Sammal-pur. The language of this province, and the character in which it is written, are both called *Uriya*. So far as a judgment can be formed from imperfect ſpecimens of this language, it contains many Sanſkrit words variouſly corrupted, with ſome Perſian and Arabic terms borrowed through the medium of Hindooſtanee, and with others of doubtful origin. The letters are evidently taken from the Devanagaree; and the Brahmins of this province uſe the Uriya character in writing the Sanſkrit language; its deviations from the Devanagaree may be explained, from the practice of writing on palm-leaves with an iron ſtyle, or on paper with a pen cut from a porcupine's quill. It differs in this reſpect from the hand-writing of northern tribes, and is analogous to that of the ſouthern inhabitants of the peninſula.

The *five* Hindoo nations, whoſe peculiar dialects have been thus briefly noticed, occupy the northern and eaſtern portions of India; they are denominated the *five Gaurs.* The reſt, called the *five Dravirs,* inhabit the ſouthern and weſtern parts of the peninſula. Some Pandits indeed exclude Carnata, and ſubſtitute *Cachemira*; but others, with more propriety, omit the Cachemirian tribe; and, by adding the Canaras to the liſt of Dravirs, avoid the inconſiſtency of placing a northern tribe among ſouthern nations. There is reaſon too for doubting whether Cachemire be occupied by a diſtinct nation, and whether the inhabitants of it be not rather a tribe of Canyacubjas.

*Dravira* is the country which terminates the peninſula of India. Its northern limits appear to lie between the twelfth and thirteenth degrees of north latitude. The language of the province is the *Tamel,* to which Europeans have given the name of *Malabar,* from *Malay-war,* a province of Dravira. They have ſimilarly corrupted the true name of the dialect into Tamul, Tamulic, and Tamulian; but the word, as pronounced by the natives, is *Tamla,* or *Tamalah*; and this ſeems to indicate a derivation from *Tamra,* or *Tamraparni,* a river of note, which waters the ſouthern Mathura, ſituated within the limits of Dravir. The provincial dialect is written in a character which is greatly corrupted from the parent Devanagari, but which nevertheleſs is uſed by the Brahmins of Dravir in writing the Sanſkrit language. The *Tamla* contains many *Sanſkrit* words, either unaltered or little changed, with others more corrupted, and a ſtill greater number of doubtful origin.

The *Maharaſhtra,* or *Mahratta,* is the language of a nation which has now greatly enlarged its ancient limits. If any inference may be drawn from the name of the character in which the language is written, the country occupied by this people was formerly called *Muru*; for the peculiar corruption of the Devanagari, which is employed by the Maharaſhtras in common tranſactions, is denominated by them *Mur.* Their books, it muſt be remarked, are commonly written in Devanagari. The Mahratta nation was formerly confined to a mountainous tract ſituated ſouth of the river Nermada, and extending to the province of Cocan. Their language is now more widely ſpread, but is not yet become the vernacular dialect of provinces ſituated far beyond the ancient bounds of their country. Like other Indian tongues, it contains much pure Sanſkrit, and more corruptions of that language intermixed with words borrowed from Perſian and Arabic, and with others derived from an unknown ſource. If the bards of *Muru* were once famous, their ſuppoſed ſucceſſors, though leſs celebrated, are not leſs diligent. The Mahrattas poſſeſs many poems in their own dialect, either tranſlated from the Sanſkrit, or original compoſitions in honour of Criſhna, Rama, and other deified heroes. Treatiſes in proſe too, on ſubjects of logic and of philoſophy, have been compoſed in the Mahratta dialect.

*Carnata,* or *Carnara,* is the ancient language of *Carnataca,* the Carnatic, a province which has given name to diſtricts on both coaſts of the peninſula. This dialect ſtill prevails in the intermediate mountainous tract, but ſeems to be ſuperſeded by other provincial tongues on the eaſtern coaſt. A peculiar character formed from the Devanagari, but like the Tamla, much corrupted from it through the practice of writing on palm-leaves with an iron ſtyle, is called by the ſame name with the language of the Carnatic.

*Tailanga, Telinga,* or *Tilanga,* is at once the name of a nation, of its language, and of the character in which that language is written. Though the province of Telingana alone retains the name in publiſhed maps of India, yet the adjacent provinces on either bank of Criſhna and Godaveri, and thoſe ſituated on the north-eaſtern coaſt of the peninſula, are undoubtedly comprehended within the ancient limits of Tilanga, and are inhabited chiefly by people of this tribe. The language too is widely ſpread; and many circumſtances indicate that the Tailangas formerly occupied a very extenſive tract, in which they ſtill conſtitute the principal part of the population. The character in which they write their own language is taken from Devanagaree, and the Tailanga Brahmins employ it in writing the Sanſkrit tongue; from which the Tailanga idiom is ſaid to have borrowed more largely than other dialects uſed in the ſouth of India. This language appears to have been cultivated by poets, if not by proſe writers, for the Tailangas poſſeſs many compoſitions in their own provincial dialect, ſome of which are ſaid to record the ancient hiſtory of the country.

The province of *Gurgara* does not appear to have been at any time much more extenſive than the modern *Guzerat,* although Brahmanas diſtinguiſhed by the name of that country, be now ſpread over the adjoining provinces on both ſides of the Nermada. This tribe uſes a language denominated from their own appellation, but very nearly allied to the Hindi tongue, while the character in which it is written conforms almoſt exactly with vulgar Nagari. Such are the *Pracrits,* or ſecond claſs of Indian languages.

The third claſs, or languages denominated *Magad'hi,* and *Apabhranſa,* comprehend all thoſe dialects which are generally known by the common appellation of *Bhaſha,* or ſpeech; and which indicates any of the modern vernacular dialects of India, eſpecially ſuch as are corrupted from the Sanſkrit. Theſe are very numerous. After excluding mountaineers, who are moſtly aborigines of India, there yet remain in the mountains and iſlands contiguous to India, many tribes that ſeem to be degenerate Hindoos; they have certainly retained ſome traces of the language and writing which their anceſtors had been taught to employ.

Without paſſing the limits of Hindooſtan, it might be eaſy to collect a copious liſt of different dialects in the various provinces, which are inhabited by the ten principal Hindoo nations. The extenſive region which is nearly defined by the banks of the Saraſwati and Ganga on the north, and which is ſtrictly limited by the ſhores of the eaſtern and weſtern ſeas towards the ſouth, contains fifty-ſeven provinces according to ſome liſts, and eighty-four according to others. Each of theſe provinces has its peculiar dialect, which appears, however, in moſt inſtances, to be a variety only of ſome one among the ten principal idioms. Thus *Hindooſtanee,* which ſeems to be the lineal deſcendant of the *Canyacubja,* compriſes numerous dialects from the *Orduzeban,* or language of the royal camp and court, to the barbarous jargon which reciprocal miſtakes have introduced among European gentlemen and their native ſervants. The ſame tongue, under its more appropriate denomination of *Hindi,* comprehends many dialects ſtrictly local and provincial. They differ in the proportion of Arabic, Perſian, and Sanſkrit, either pure or ſlightly corrupted, which they contain; and ſome ſhades of difference may be alſo found in the pronunciation, and even in the baſis, of each dialect.

Of the LITERATURE of the Hindoos, many elegant ſpecimens have been exhibited by ſir William Jones, and other gentlemen of the Aſiatic Society; who have given the names of many of their moſt celebrated writers, with analyſes of their works. The firſt Indian poet was *Valmici,* author of the *Ramayana,* a complete epic poem on one continued heroic action; and the next in celebrity, if it be not ſuperior in reputation for holineſs, was the *Mahabharata* of *Vyaſa.* To him are aſcribed the ſacred *Puranas,* which are called, for their excellence, *the Eighteen,* and which have the following titles: *Brahme,* or the Great One; *Pedma,* or the Lotos; *Brahmanda,* or the Mundane Egg; and *Agni,* or Fire; (theſe four relate to the Creation;) *Viſhnu,* or the Pervader; *Garuda,* or his Eagle; the Transformations or Brahma, Siva, Linga; Nareda, ſon of Brahma; Scanda, ſon of Siva; *Marcandeya,* or the Immortal Man; and *Bhawiſhya,* of the Prediction of Futurity; (theſe nine belong to the attributes and powers of the Deity;) and four others, Matſya, Varaha, Curma, Vamena, or as many incarnations of the Great One in his character of *Preſerver*; all containing ancient traditions, embelliſhed by poetry, or diſguiſed by fable. The eighteenth is the *Bhagawata*, or Life of Criſhna, with which the ſame poet is by ſome imagined to have crowned the whole ſeries; though others, with more reaſon, aſſign them different compoſers.

Perhaps a few ſamples of Indian compoſition might not be unacceptable to the reader. The following ſtanzas are part of a Hymn to *Narrayna*, or the "Spirit of God."

Spirit of Spirits, who, through ev'ry part
Of ſpace expanded, and of endleſs time,
Beyond the reach of lab'ring thought ſublime,
Badſt uproar into beauteous order ſtart;
Before heav'n was, thou art.

Ere ſpheres beneath us roll'd, or ſpheres above,
Ere earth in firmamental æther hung,
Thou ſat'ſt alone, till, through thy myſtic love,
Things unexiſting to exiſtence ſprung,
And grateful deſcant ſung.

Omniſcient Spirit, whoſe all-ruling pow'r
Bids from each ſenſe bright emanations beam;
Glows in the rainbow, ſparkles in the ſtream,
Smiles in the bud, and gliſtens in the flow'r
That crowns each vernal bow'r;

Sighs in the gale, and warbles in the throat
Of every bird that hails the bloomy ſpring,
Or tells his love in many a liquid note,
Whilſt envious artiſts touch the rival ſtring,
Till rocks and foreſts ring;

Breathes in rich fragrance from the ſandal grove,
Or where the precious muſk-deer playful rove;
In dulcet juice, from cluſt'ring fruit diſtils,
And burns ſalubrious in the taſteful clove:
Soft banks and verd'rous hills
Thy preſent influence fills;
In air, in floods, in caverns, woods, and plains,
Thy will inſpirits all, thy ſovereign Maya reigns.

Blue cryſtal vault, and elemental fires,
That in th' æthereal fluid blaze and breathe;
Thou, toſſing main, whoſe ſnaky branches wreathe
This penſile orb with intertwiſting gyres;
Mountains, whoſe lofty ſpires,
Preſumptuous, rear their ſummits to the ſkies,
And blend their em'rald hue with ſapphire light;
Smooth meads and lawns, that glow with varying dyes
Of dew-beſpangled leaves and bloſſoms bright,
Hence! vaniſh from my ſight
Deluſive pictures! unſubſtantial ſhows!
My ſoul abſorb'd one only Being knows,
Of all perceptions one abundant ſource,
Whence ev'ry object, ev'ry moment, flows:
Suns hence derive their force,
Hence planets learn their courſe;
But ſuns and fading worlds I view no more:
God only I perceive; God only I adore.

The following twelve moral ſentences may ſerve as an example of their proſe compoſition:

1. Reſtrain, deluded mortal, thy thirſt of acquiring wealth; excite an averſion from it in thy body, underſtanding, and inclination: with the riches which thou acquireſt by thy own actions, with theſe gratify thy ſoul.

2. Who is thy wife; who thy ſon; how extremely wonderful is even this world; whoſe creature thou alſo art; whence thou cameſt—meditate on this, O brother, and again on this.

3. Make no boaſt of opulence, attendants, youth; all theſe time ſnatches away in the twinkling of an eye; checking all this illuſion like Maya, ſet thy heart on the foot of Brahme, ſpeedily gaining knowledge of Him.

4. As a drop of water moves tremulous on the lotos-leaf, thus is human life inexpreſſibly ſlippery; the company of the virtuous endures here but for a moment; that is our ſhip in paſſing the ocean of the world.

5. The body is tottering; the head, grey; the mouth, toothleſs; the delicate ſtaff trembles in the hand which holds it; ſtill the flaggon of covetouſneſs remains unemptied.

6. How ſoon are we born! how ſoon dead! how long lying in the mother's womb! How great is the prevalence of vice in this world! Wherefore, O man, haſt thou complacency here below?

7. Day and night, evening and morning, winter and ſpring, depart and return: time ſports, life paſſes on; yet the wind of expectation continues unreſtrained.

8. To dwell under the manſion of the high gods at the foot of a tree, to have the ground for a couch, and a hide of veſture, to renounce all extrinſic enjoyments; whom doth not ſuch devotion fill with delight?

9. Place not thy affections too ſtrongly on foe or friend, on a ſon or a kinſman, in war or in peace; be thou even-minded towards all, if thou deſireſt ſpeedily to attain the nature of Viſhnu.

10. Eight original mountains, and ſeven ſeas, Brahme, Indra, the Sun, and Rudra, theſe are permanent; not thou, not I, not this or that people; wherefore then ſhould anxiety be raiſed in our minds?

11. In thee, in me, in every other being, is Viſhnu; fooliſhly art thou offended with me, not bearing my approach: ſee every ſoul in thy own ſoul; in all places lay aſide a notion of diverſity.

12. The boy ſo long delights in his play; the youth ſo long purſues his damſel; the old man ſo long broods over uneaſineſs; that no one meditates on the Supreme Being.

Of the Indian Drama, ſir William Jones has given a very ſatisfactory ſpecimen, by his excellent tranſlation of Sacontala, or the Fatal Ring. This drama was written by *Calidaſa*, an Hindoo poet, who flouriſhed in the firſt century before the birth of our Saviour. We ſhall briefly ſtate the outline of it, and illuſtrate the ſtyle and character, by extracting two or three of the principal ſcenes:

Duſhmanta, emperor of India, when hunting near a conſecrated foreſt, meets with Sacontala; who, being the daughter of a king by a nymph of the lower heaven, is left by her parents under the care of the hermit Canna. The king becomes enamoured of her, and marries her; but, being ſuddenly called to his court, he leaves her in a ſtate of pregnancy; giving her, at the ſame time, a ring, with the name, Duſhmanta, engraved on it. The manner of giving the ring he thus relates: When I was coming from the holy foreſt to the capital, my beloved, with tears in her eyes, thus addreſſed me: "How long will the ſon of my lord keep me in his remembrance?"—Then, fixing this ring on her lovely finger, I thus anſwered: "Repeat each day one of the three ſyllables engraved on this gem; and before thou haſt ſpelled the word Duſhmanta, one of my nobleſt officers ſhall attend thee, and conduct my darling to her palace." In the mean time, Sacontala, by neglecting ſome offices of hoſpitality, expoſed herſelf to the wrath of 'the angry Durvaſas,' who uttered the following imprecation: "He on whom thou art meditating, on whom alone thy heart is now fixed, while thou neglecteſt a pure gem of devotion who demands hoſpitality, ſhall forget thee, when thou ſeeſt him next, as a man reſtored to ſobriety forgets the words which he uttered in a fit of intoxication." His wrath being, however, ſoftened by the intreaties of one of the damſels attending on Sacontala, he conſented that, though his word could not be recalled, the ſpell which it had raiſed ſhould be wholly removed when her lord ſhould ſee his ring. The king not ſending according to his promiſe, Canna, the devout and holy hermit, is induced by ſome favourable omens, to convey his adopted daughter to the palace, in company with Gautami, an old female hermit, and two Brahmins. They gain admittance into the king's preſence: but Duſhmanta, being under the influence of the ſpell, denies all knowledge of his wife. Sacontala, recollecting what her companions had ſaid concerning the ring, offers to preſent it to him: but, alas! it was gone. This confirms the king in his ſuſpicions; and Sacontala, as ſhe retreats in tears, is ſnatched away by a body of light in a female form. Soon after, the ring, which had fallen into a brook, is brought to the king, who inſtantly recognizes his wife, and afflicts himſelf greatly for her loſs. He is, at length, in conſequence of ſupernatural aſſiſtance, reſtored to her, with the additional ſatisfaction of finding her delivered of a ſon, of whom it was predicted, that 'before he had paſſed the ocean of mortal life, he ſhould rule, unequalled in combat, this earth with ſeven peninſulas; and that, as he was then called *Servademana*, becauſe he tamed even in childhood the fierceſt animals, ſo in his riper years, he ſhould acquire the name of *Bharata*, becauſe he ſhould ſuſtain and nouriſh the world.'

The following beautiful ſcene takes place at the parting of Sacontala, when ſhe quits the holy foreſt for the palace of her huſband:

*Anuſuya.* The ſhades of night are diſperſed; and I am hardly awake; but were I ever ſo perfectly in my ſenſes, what could I now do? My hands move not readily to the uſual occupations of the morning.—Let the blame be caſt on love, on love only, by whom our friend has been reduced to her preſent condition, through a monarch who has broken his word.—Or does the imprecation of Durvaſas already prevail?—How elſe could a virtuous king, who made ſo ſolemn an engagement, have ſuffered ſo long a time to elapſe without ſending even a meſſage?—Shall we convey the fatal ring to him?—Or what expedient can be ſuggeſted for the relief of this incomparable girl, who mourns without ceaſing?—Yet what fault has ſhe committed?—With all my zeal for her happineſs, I cannot ſummon courage enough to inform our father Canna that ſhe is pregnant.—What then, oh! what ſtep can I take to relieve her anxiety.

Priyamvada *enters.*

*Pri.* Come, Anuſuya, come quickly. They are making ſuitable preparations for conducting Sacontala to her huſband's palace.

*Anu.* [*With ſurpriſe.*] What ſay you, my friend?

*Pri.* Hear me. I went juſt now to Sacontala, meaning only to aſk if ſhe had ſlept well——

*Anu.* What then? oh? what then?

*Pri.* She was ſitting with her head bent on her knee, when our father Canna, entering her apartment, embraced and congratulated her.—"My ſweet child," ſaid he, "there has been a happy omen: the young Brahmin who officiated in our morning ſacrifice, though his ſight was impeded by clouds of ſmoke, dropped the clarified butter into the very centre of the adorable flame.—Now, ſince the pious act of my pupil has proſpered, my foſter-child muſt not be ſuffered any longer to languiſh in ſorrow; and this day I am determined to ſend thee from the cottage of the old hermit who bred thee up, to the palace of the monarch who has taken thee by the hand."

*Anu.* My friend, who told Canna what paſſed in his abſence?

*Pri.* When he entered the place where the holy fire was blazing, he heard a voice from heaven pronouncing divine meaſures——

*Anu.* [*Amazed.*] Ah! you aſtoniſh me.

*Pri.* Hear the celeſtial verſe:—"Know that thy adopted daughter, O pious Brahmin, has received from Duſhmanta a ray of glory deſtined to rule the world; as the wood Sami becomes pregnant with myſterious fire."

*Anu.* [*Embracing* Priyamvada.] I am delighted, my beloved; I am tranſported with joy. But—ſince they mean to deprive us of our friend ſo ſoon as to-day, I feel that my delight is at leaſt equalled by my ſorrow.

*Pri.* Oh! we muſt ſubmit patiently to the anguiſh of parting. Our beloved friend will now be happy; and that ſhould conſole us.

*Anu.* Let us now make haſte to dreſs her in bridal array. I have already, for that purpoſe, filled the ſhell of a cocoa-nut, which you ſee fixed on an Amra tree, with the fragrant duſt of Nagaceſaras; take it down and keep it in a freſh lotos-leaf, whilſt I collect ſome Gorachana from the forehead of a ſacred cow, ſome earth from conſecrated ground, and ſome freſh cuſa graſs, of which I will make a paſte to enſure good fortune.

*Pri.* By all means.

[*She takes down the perfume.*——Anuſuya *goes out.*

[*Behind the ſcenes.*] O Gautami, bid the two Miſras, Sarngarava and Saradwata, make ready to accompany my child Sacontala.

*Pri.* [*Liſtning.*] Loſe no time, Anuſuya, loſe no time. Our father Canna is giving orders for the intended journey to Haſtinapura.

Anuſuya *re-enters with the ingredients of her charm.*

*Anu.* I am here: let us go, my Priyamvada. [*They both advance.*

*Pri.* [*Looking.*] There ſtands our Sacontala, after her bath at ſun-riſe, while many holy women, who are congratulating her, carry baſkets of hallowed grain.——Let us haſten to greet her.

*Enter* Sacontala, Gautami, *and female Hermits.*

*Sac.* I proſtrate myſelf before the goddeſs.

*Gaut.* My child, thou canſt not pronounce too often the word, goddeſs: thus wilt thou procure great felicity for thy lord

*Herm.* Mayſt thou, O royal bride, be delivered of a hero!

[*The* Hermits *go out.*

*Both damſels.* [*Approaching* Sacontala.] Beloved friend, was your bath pleaſant?

*Sac.* O! my friends, you are welcome: let us ſit awhile together. [*They ſeat themſelves.*

*Anu.* Now you muſt be patient, whilſt I bind on a charm to ſecure your happineſs.

*Sac.* That is kind.——Much has been decided this day: and the pleaſure of being thus attended by my ſweet friends will not ſoon return. [*Wiping off her tears.*

*Pri.* Beloved, it is unbecoming to weep at a time when you are going to be ſo happy.—[*Both damſels burſt into tears as they dreſs her.*] Your elegant perſon deſerves richer apparel: it is now decorated with ſuch rude flowers as we could procure in the foreſt.

Canna's Pupil *enters with rich clothes.*

*Pup.* Here is a complete dreſs. Let the queen wear it auſpiciouſly; and may her life be long! [*The women look with aſtoniſhment.*

*Gaut.* My ſon, Harita, whence came this apparel?

*Pup.* From the devotion of our father Canna.

*Gaut.* What doſt thou mean?

*Pup.* Be attentive. The venerable ſage gave this order: "Bring freſh flowers for Sacontala from the moſt beautiful trees:" and ſuddenly the wood-nymphs appeared, raiſing their hands, which rivalled new leaves in beauty and ſoftneſs. Some of them wove a lower mantle bright as the moon, the preſage of her felicity; another preſſed the juice of lacſha to ſtain her feet exquiſitely red; the reſt were buſied in forming the gayeſt ornaments; and they eagerly ſhowered their gifts on us.

*Pri.* [*Looking at* Sacontala.] Thus it is, that even the bee, whoſe neſt is within the hollow trunk, does homage to the honey of the lotos-flower.

*Gaut.* The nymphs muſt have been commiſſioned by the goddeſs of the king's fortune, to predict the acceſſion of brighter ornaments in his palace. [Sacontala *looks modeſt*

*Pup.* I muſt haſten to Canna, who is gone to bathe in the Malini, and let him know the ſignal kindneſs of the wood-nymphs. [*He goes out.*

*Anu.* My ſweet frend, I little expected ſo ſplendid a dreſs:—how ſhall I adjuſt it properly?—[*Conſidering*]—Oh! my ſkill in painting will ſupply me with ſome hints; and I will diſpoſe the drapery according to art.

*Sac.* I know well your affection for him.

Canna *enters meditating*

*Can.* [*Aſide.*] This day muſt Sacontala depart: that is reſolved; yet my ſoul is ſmitten with anguiſh.—My ſpeech is interrupted by a torrent of tears, which my reaſon ſuppreſſes and turns inward: my very ſight is dimmed —

Strange that the affliction of a foreſter, retired from the haunts of men, ſhould be ſo exceſſive!—Oh, with what pangs muſt they, who are fathers of families, be afflicted on the departure of a daughter! [*He walks round muſing.*

*Pri.* Now, my Sacontala, you are becomingly decorated: put on this lower veſt, the gift of ſylvan goddeſſes.

[Sacontala *riſes and puts on the mantle.*

*Gaut.* My child, thy ſpiritual father, whoſe eyes overflow with tears of joy, ſtands deſiring to embrace thee. Haſten therefore to do him reverence.

[Sacontala *modeſtly bows to him.*

*Can.* Mayſt thou be cheriſhed by thy huſband, as Sarmiſhtha was cheriſhed by Yayati! Mayſt thou bring forth a ſovereign of the world, as ſhe brought forth Puru!

*Gaut.* This my child, is not a mere benediction; it is a boon actually conferred.

*Can.* My beſt beloved, come and walk with me round the ſacrificial fire.—[*They all advance.*] May theſe fires preſerve thee! Fires which ſpring to their appointed ſtations on the holy hearth, and conſume the conſecrated wood, while the freſh blades of myſterious cuſa lie ſcattered around them!—Sacramental fires, which deſtroy ſin with the riſing fumes of clarified butter!——[Sacontala *walks with ſolemnity round the hearth.*] Now ſet out, my darling, on thy auſpicious journey.——[*Looking round.*] Where are the attendants, the two Miſras?

*Enter* Sarngarava *and* Saradwata.

*Both.* Holy ſage, we are here.

*Can.* My ſon Sarngarava, ſhow thy ſiſter her way.

*Sarn.* Come, damſel.—— [*They all advance.*

*Can.* Hear, O ye trees of this hallowed foreſt; ye trees, in which the ſylvan goddeſſes have their abode; hear, and proclaim, that Sacontala is going to the palace of her wedded lord: ſhe who drank not, though thirſty, before you were watered; ſhe who cropped not, through affection for you, one of your freſh leaves, though ſhe would have been pleaſed with ſuch an ornament for her locks; ſhe whoſe chief delight was in the ſeaſon when your branches are ſpangled with flowers!

*Chorus of inviſible Wood-nymphs.*

May her way be attended with proſperity! May propitious breezes ſprinkle, for her delight, the odoriferous duſt of rich bloſſoms! May pools of clear water, green with the leaves of the lotos, refreſh her as ſhe walks! and may ſhady branches be her defence from the ſcorching ſun-beams! [*All liſten with admiration.*

*Sarn.* Was that the voice of the Cocila wiſhing a happy journey to Sacontala?—Or did the nymphs, who are allied to the pious inhabitants of theſe woods, repeat the warbling of the muſical bird, and make its greeting their own?

*Gaut.* Daughter, the ſylvan goddeſſes, who love their kindred hermits, have wiſhed you proſperity, and are entitled to humble thanks.

[Sacontala *walks round, bowing to the nymphs.*

*Sac.* [*Aſide, to* Priyamvada.] Delighted as I am, O Priyamvada, with the thought of ſeeing again the ſon of my lord, yet, on leaving this grove, my early aſylum, I am ſcarcely able to walk.

*Pri.* You lament not alone.——Mark the affliction of the foreſt itſelf when the time of your departure approaches!—The female antelope browſes no more on the collected cuſa graſs; and the peahen ceaſes to dance on the lawn: the very plants of the grove, whoſe pale leaves fall on the ground, loſe their ſtrength and their beauty.

*Sac.* Venerable father, ſuffer me to addreſs this Madhavi creeper, whoſe red bloſſoms inflame the grove.

*Can.* My child, I know thy affection for it.

*Sac.* [*Embracing the plant.*] O moſt radiant of twining plants, receive my embraces, and return them with thy flexible arms: from this day, though removed to a fatal diſtance, I ſhall for ever be thine.—O beloved father, conſider this creeper as myſelf.

*Can.* My darling, thy amiable qualities have gained thee a huſband equal to thyſelf: ſuch an event has been long, for thy ſake, the chief object of my heart; and now, ſince my ſolicitude for thy marriage is at an end, I will marry thy favourite plant to the bridegroom Amra, who ſheds fragrance near her.——Proceed, my child, on thy journey.

*Sac.* [*Approaching the two damſels.*] Sweet friends, let this Madhavi creeper be a precious depoſit in your hands.

*Anu.* and *Pri.* Alas! in whoſe care ſhall we be left?

[*They both weep.*

*Can.* Tears are vain, Anuſuya: our Sacontala ought rather to be ſupported by your firmneſs, than weakened by your weeping. [*All advance.*

*Sac.* Father! when yon female antelope, who now moves ſlowly from the weight of the young ones with which ſhe is pregnant, ſhall be delivered of them, ſend me, I beg, a kind meſſage with tidings of her ſafety.——Do not forget.

*Can.* My beloved, I will not forget it.

*Sac.* [*Advancing, then ſtopping.*] Ah! what is it that clings to the ſkirts of my robe, and detains me?

[*She turns round, and looks.*

*Can.* It is thy adopted child, the little fawn, whoſe mouth, when the ſharp points of cuſa graſs had wounded it, has been ſo often ſmeared by thy hand with the healing oil of Ingudi; who has been ſo often fed by thee with a handful of Syamaka grains, and now will not leave the footſteps of his protectreſs.

*Sac.* Why doſt thou weep, tender fawn, for me, who muſt leave our common dwelling-place?—As thou waſt reared by me when thou hadſt loſt thy mother, who died ſoon after thy birth, ſo will my foſter-father attend thee, when we are ſeparated, with anxious care.—Return, poor thing, return—we muſt part. [*She burſts into tears.*

*Can.* Thy tears, my child, ill ſuit the occaſion: we ſhall all meet again: be firm: ſee the direct road before thee, and follow it.—When the big tear lurks beneath thy beautiful eye-laſhes, let thy reſolution check its firſt efforts to diſengage itſelf.—In thy paſſage over this earth, where the paths are now high, now low, and the true path ſeldom diſtinguiſhed, the traces of thy feet muſt needs be unequal; but virtue will preſs thee right onward.

*Sarn.* It is a ſacred rule, holy ſage, that a benevolent man ſhould accompany a traveller till he meet with abundance of water; and that rule you have carefully obſerved: we are now near the brink of a large pool. Give us, therefore, your commands, and return.

*Can.* Let us reſt awhile under the ſhade of this Vata tree. [*They all go to the ſhade.*]——What meſſage can I ſend with propriety to the noble Duſhmanta? [*He meditates.*

*Anu.* [*Aſide to* Sacontala.] My beloved friend, every heart in our aſylum is fixed on you alone, and all are afflicted by your departure.—Look; the bird Chacravaca, called by his mate, who is almoſt hidden by water-lilies, gives her no anſwer; but, having dropped from his bill the fibres of lotos-ſtalks which he had plucked, gazes on you with inexpreſſible tenderneſs.

*Can.* My ſon Sarngarava, remember, when thou ſhalt preſent Sacontala to the king, to addreſs him thus, in my name: "Conſidering us hermits as virtuous, indeed, but rich only in devotion, and conſidering alſo thy own exalted birth, retain thy love for this girl, which aroſe in thy boſom without any interference of her kindred; and look on her among thy wives with the ſame kindneſs which they experience: more than that cannot be demanded; ſince particular affection muſt depend on the will of heaven."

*Sarn.* Your meſſage, venerable man, is deeply rooted in my remembrance.

*Can.* [*Looking tenderly at* Sacontala.] Now, my darling, thou too muſt be gently admoniſhed.—We, who are humble foreſters, are yet acquainted with the world which we have forſaken.

*Sarn.* Nothing can be unknown to the wiſe.

*Can.* Hear my daughter.—When thou art ſettled in the manſion of thy huſband, ſhow due reverence to him, and to thoſe whom he reveres: though we have other wives, be rather an affectionate handmaid to them than a rival.—Should he diſpleaſe thee, let not thy reſentment lead thee to diſobedience.—In thy conduct to thy domeſtics be rigidly juſt and impartial; and ſeek not eagerly thy own gratifications.—By ſuch behaviour young women become reſpectable; but perverſe wives are the bane of a family.—What thinks Gautami of this leſſon?

*Gaut.* It is incomparable:—my child, be ſure to remember it.

*Can.* Come, my beloved girl, give a parting embrace to me and to thy tender companions.

*Sac.* Muſt Anuſuya and Priyamvada return to the hermitage?

*Can.* They too, my child muſt be ſuitably married; and it would not be proper for them yet to viſit the city; but Gautami will accompany thee

*Sac.* [*Embracing him.*] Removed from the boſom of my father, like a young ſandal-tree rent from the hills of Malaya, how ſhall I exiſt in a ſtrange ſoil?

*Can.* Be not ſo anxious. When thou ſhalt be miſtreſs of a family, and conſort of a king, thou mayſt, indeed, be occaſionally perplexed by the intricate affairs which ariſe from exuberance of wealth, but wilt then think lightly of this tranſient affliction, eſpecially when thou ſhalt have a ſon (and a ſon thou wilt have) bright as the riſing day-ſtar.—Know alſo with certainty, that the body muſt neceſſarily, at the appointed moment, be ſeparated from the ſoul: who, then, can be immoderately afflicted, when the weaker bounds of extrinſic relations are looſened, or even broken?

*Sac.* [*Falling at his feet.*] My father, I thus humbly declare my veneration for you.

*Can.* Excellent girl, may my effort for thy happineſs prove ſucceſsful.

*Sac.* [*Approaching her two companions.*] Come, then, my beloved friends, embrace me together. [*They embrace her.*

*Anu.* My friend, if the virtuous monarch ſhould not at once recollect you, only ſhow him the ring on which his own name is engraved.

*Sac.* [*Starting.*] My heart flutters at the bare apprehenſion which you have raiſed.

*Pri.* Fear not, ſweet Sacontala: love always raiſes ideas of miſery, which are ſeldom or never realiſed.

*Sarn.* Holy ſage, the ſun has riſen to a conſiderable height: let the queen haſten her departure.

*Sac.* [*Again embracing* Canna.] When, my father, oh! when again ſhall I behold this aſylum of virtue?

*Can.* Daughter, when thou ſhalt long have been wedded, like this fruitful earth, to the pious monarch, and ſhalt have borne him a ſon, whoſe car ſhall be matchleſs in battle, thy lord ſhall transfer to him the burthen of the empire, and thou, with thy Duſhmanta, ſhalt again ſeek tranquillity, before thy final departure, in this loved and conſecrated grove.

*Gaut.* My child, the proper time for our journey paſſes away rapidly: ſuffer thy father to return.—Go, venerable man, go back to thy manſion, from which ſhe is doomed to be ſo long abſent.

*Can.* Sweet child, this delay interrupts my religious duties.

*Sac.* You, my father will perform them long without ſorrow; but I, alas! am deſtined to bear affliction.

*Can.* O my daughter, compel me not to neglect my daily devotions.—[*Sighing.*] No, my ſorrow will not be diminiſhed.—Can it ceaſe, my beloved, when the plants which riſe luxuriantly from the hallowed grains which thy hand has ſtrown before my cottage, are continually in my ſight?—Go, may thy journey proſper.

[Sacontala *goes out with* Gautami *and the two Miſras.*

*Both damſels.* [*Looking after* Sacontala *with anguiſh.*] Alas! alas! our beloved is hidden by the thick trees.

*Can.* My children, ſince your friend is at length departed, check your immoderate grief, and follow me. [*They all turn back.*

*Both.* Holy father, the grove will be a perfect vacuity without Sacontala.

*Can.* Your affection will certainly give it that appearance.——[*He walks round meditating.*]—Ah me!—Yes; at laſt my weak mind has attained its due firmneſs after the departure of my Sacontala.—In truth a daughter muſt ſooner or later be the property of another; and, having now ſent her to her lord, I find my ſoul clear and undiſturbed, like that of a man who has reſtored to its owner an ineſtimable depoſit which he long had kept with ſolicitude. [*They go out.*

The following ſcene, in which Duſhmanta, in conſequence of having recovered the fatal ring, again recollects his attachment to Sacontala, poſſeſſes many beauties:

Duſhmanta enters in penitential weeds, preceded by a Warder, and attended by Madhaya, (the King's Buffoon, as he is called.) The nymph Miſraceſi, inviſible to them.

*Chamberlain.* [*Looking at the King.*] Ah! how majeſtic are noble forms in every habiliment!—Our prince, even in the garb of affliction, is a venerable object.—Though he has abandoned pleaſure, ornaments, and buſineſs; though he has become ſo thin, that his golden bracelet falls looſened even down to his wriſt; though his lips are parched with the heat of his ſighs, and his eyes are fixed open by long ſorrow and want of ſleep, yet I am dazzled by the blaze of virtue which beams in his countenance like a diamond exquiſitely poliſhed.

*Miſraceſi.* [*Aſide gazing on* Duſhmanta.] With good reaſon is my beloved Sacontala, though diſgraced and rejected, heavily oppreſſed with grief through the abſence of this youth.

*Duſhmanta.* [*Advancing ſlowly, in deep meditation.*] When my darling with an antelope's eyes would have reminded me of our love, I was aſſuredly ſlumbering; but exceſs of miſery has awakened me.

*Miſr.* [*Aſide.*] The charming girl will at laſt be happy.

*Madh.* [*Aſide.*] This monarch of ours is caught again in the gale of affection; and I hardly know a remedy for his illneſs.

*Cham.* [*Approaching* Duſhmanta.] May the king be victorious!—Let him ſurvey yon fine woodland, theſe cool walks, and this blooming garden; where he may repoſe with pleaſure on banks of delight.

*Duſhm.* [*Not attending to him.*] Warder, inform the chief miniſter in my name, that, having reſolved on a long abſence from the city, I do not mean to ſit for ſome time in the tribunal; but let him write and diſpatch to me all the caſes that may ariſe among my ſubjects.

*Warder.* As the king commands. [*He goes out.*

*Duſhm.* [*To the* Chamberlain.] And thou, Parvatayana, neglect not thy ſtated buſineſs.

*Cham.* By no means. [*He goes out.*

*Madh.* You have not left a fly in the garden.—Amuſe yourſelf now in this retreat, which ſeems pleaſed with the departure of the dewy ſeaſon.

*Duſhm.* O Madhavya, when perſons accuſed of great offences prove wholly innocent, ſee how their accuſers are puniſhed!——A phrenſy obſtructed my remembrance of any former love for the daughter of the ſage: and now the heart-born god, who delights in giving pain, has fixed in his bowſtring a new ſhaft pointed with the bloſſom of an Amra.—The fatal ring having reſtored my memory, ſee me deplore with tears of repentance the loſs of my beſt beloved, whom I rejected without cauſe; ſee me overwhelmed with ſorrow, even while the return of ſpring fills the hearts of all others with pleaſure

*Madh.* Be ſtill, my friend, whilſt I break Love's arrows with my ſtaff. [*He ſtrikes off ſome flowers from an Amra tree.*

*Duſhm.* [*Meditating*] Yes, I acknowledge the ſupreme power of Brahma.—[*To* Madhavya.] Where now, my friend, ſhall I ſit and recreate my ſight with the ſlender ſhrubs which bear a faint reſemblance to the ſhape of Sacontala.

*Madh.* You will ſoon ſee the damſel ſkilled in painting, whom you informed that you would ſpend the forenoon in yon bower of Madhavi creepers: and ſhe will bring you the queen's picture which you commanded her to draw.

*Duſhm.* My ſoul will be delighted even by her picture.—Show the way to the bower.

*Madh.* This way, my friend.—[*They both advance,* Miſraceſi *following them.*]—The arbour of twining Madhavis, embelliſhed with fragments of ſtone like bright gems, appears by its pleaſantneſs, though without a voice, to bid thee welcome.—Let us enter it, and be ſeated.

[*They both ſit down in the bower.*

*Miſr.* [*Aſide.*] From behind theſe branchy ſhrubs I ſhall behold the picture of my Sacontala.—I will afterwards haſten to report the ſincere affection of her huſband.

[*She conceals herſelf.*

*Duſhm.* [*Sighing.*] O my approved friend, the whole adventure of the hermitage is now freſh in my memory.—I informed you how deeply I was affected by the firſt ſight of the damſel; but when ſhe was rejected by me you were not preſent.—Her name was often repeated by me (how, indeed, ſhould it not?) in our converſation.—What! haſt thou forgotten, as I had, the whole ſtory?

*Miſr.* [*Aſide.*] The ſovereigns of this world muſt not, I find, be left an inſtant without the objects of their love.

*Madh.* Oh no: I have not forgotten it; but at the end of our diſcourſe you aſſured me that your love-tale was invented ſolely for your diverſion; and this, in the ſimplicity of my heart, I believed.—Some great event ſeems in all this affair to be predeſtined in heaven.

*Miſr.* [*Aſide.*] Nothing is more true.

*Duſhm.* [*Having meditated.*] O! my friend, ſuggeſt ſome relief for my torment.

*Madh.* What new pain torments you? Virtuous men ſhould never be thus afflicted: the moſt violent wind ſhakes not mountains.

*Duſhm.* When I reflect on the ſituation of your friend Sacontala, who muſt now be greatly affected by my deſertion of her, I am without comfort.—She made an attempt to follow the Brahmins and the matron: Stay, ſaid the ſage's pupil, who was revered as the ſage himſelf; Stay, ſaid he, with a loud voice. Then once more ſhe fixed on me, who had betrayed her, that celeſtial face, then bedewed with guſhing tears; and the bare idea of her pain burns me like an envenomed javelin.

*Miſr.* [*Aſide.*] How he afflicts himſelf! I really ſympathize with him.

*Madh.* Surely ſome inhabitant of the heavens muſt have wafted her to his manſion.

*Duſhm.* No; what male divinity would have taken the pains to carry off a wife ſo firmly attached to her lord? Menaca, the nymph of Swerga, gave her birth; and ſome of her attendant nymphs have, I imagine, concealed her at the deſire of her mother.

*Miſr.* [*Aſide.*] To reject Sacontala was, no doubt, the effect of a delirium, not the act of a waking man.

*Madh.* If it be thus, you will ſoon meet her again.

*Duſhm.* Alas! why do you think ſo?

*Madh.* Becauſe no father or mother can long endure to ſee their daughter deprived of her huſband.

*Duſhm.* Was it ſleep that impaired my memory? Was it deluſion? Was it an error of my judgment? Or was it the deſtined reward of my bad actions? Whatever it was, I am ſenſible that, until Sacontala return to theſe arms, I ſhall be plunged in the abyſs of affliction.

*Madh.* Do not deſpair: the fatal ring is itſelf an example that the loſt may be found.—Events which were foredoomed by heaven muſt not be lamented.

*Duſhm.* [*Looking at his ring.*] The fate of this ring, now fallen from a ſtation which it will not eaſily regain, I may at leaſt deplore.—O gem, thou art removed from the ſoft finger, beautiful with ruddy tips, on which a place had been aſſigned thee; and, minute as thou art, thy bad qualities appear from the ſimilarity of thy puniſhment to mine.

*Miſr.* [*Aſide.*] Had it found a way to any other hand, its lot would have been truly deplorable.—O Menaca, how wouldſt thou be delighted with the converſation which gratifies my ears!

*Madh.* Let me know, I pray, by what means the ring obtained a place on the finger of Sacontala.

*Duſhm.* You ſhall know, my friend.—When I was coming from the holy foreſt to my capital, my beloved, with tears in her eyes, thus addreſſed me: "How long will the ſon of my lord keep me in his remembrance?"

*Madh.* Well; what then?

*Duſhm.* Then, fixing this ring on her lovely finger, I thus anſwered: "Repeat each day one of the three ſyllables engraved on this gem; and, before thou haſt ſpelled the word Duſhmanta, one of my nobleſt officers ſhall attend thee, and conduct my darling to her palace."—Yet I forgot, I deſerted her in my phrenſy.

*Miſr.* [*Aſide.*] A charming interval of three days was fixed between their ſeparation and their meeting, which the will of Brahma rendered unhappy.

*Madh.* But how came the ring to enter, like a hook, into the mouth of a carp?

*Duſhm.* When my beloved was lifting water to her head in the pool of Sachitirt'ha, the ring muſt have dropped unſeen.

*Madh.* It is very probable.

*Miſr.* [*Aſide.*] Oh! it was thence that the king, who fears nothing but injuſtice, doubted the reality of his marriage; but how, I wonder, could his memory be connected with a ring?

*Duſhm.* I am really angry with this gem.

*Madh.* [*Laughing.*] So am I with this ſtaff.

*Duſhm.* Why ſo, Madhavya?

*Madh.* Becauſe it preſumes to be ſo ſtraight when I am ſo crooked.—Impertinent ſtick!

*Duſhm.* [*Not attending to him.*] How, O ring, couldſt thou leave that hand adorned with ſoft long fingers, and fall into a pool decked only with water-lilies?—The anſwer is obvious; thou art irrational.—But how could I, who was born with a reaſonable ſoul, deſert my only beloved?

*Miſr.* [*Aſide.*] He anticipates my remark.

*Madh.* [*Aſide.*] So; I muſt wait here during his meditations, and periſh with hunger

*Duſhm.* O my darling, whom I treated with diſreſpect, and forſook without reaſon, when will this traitor, whoſe heart is deeply ſtung with repentant ſorrow, be once more bleſſed with a ſight of thee?

*A* Damſel *enters with a picture.*

*Damſ.* Great king, the picture is finiſhed.

[*Holding it before him.*

*Duſhm.* [*Gazing on it.*] Yes; that is her face; thoſe are her beautiful eyes; thoſe her lips embelliſhed with ſmiles, and ſurpaſſing the red luſtre of the Carcandhu fruit: her mouth ſeems, though painted, to ſpeak, and her countenance darts beams of affection blended with a variety of melting tints.

*Madh.* Truly, my friend, it is a picture ſweet as love itſelf: my eye glides up and down to feaſt on every particle of it; and it gives me as much delight as if I were actually converſing with the living Sacontala.

*Miſr.* [*Aſide.*] An exquiſite piece of painting!—My beloved friend ſeems to ſtand before my eyes.

*Duſhm.* Yet the picture is infinitely below the original; and my warm fancy, by ſupplying its imperfections, repreſents, in ſome degree, the lovelineſs of my darling.

*Miſr.* [*Aſide.*] His ideas are ſuitable to his exceſſive love and ſevere penitence.

*Duſhm.* [*Sighing.*] Alas! I rejected her when ſhe lately approached me, and now I do homage to her picture; like a traveller who negligently paſſes by a clear and full rivulet, and ſoon ardently thirſts for a falſe appearance of water on the ſandy deſert.

*Madh.* There are ſo many female figures on this canvas, that I cannot well diſtinguiſh the lady Sacontala.

*Miſr.* [*Aſide.*] The old man is ignorant of her tranſcendent beauty; her eyes, which faſcinated the ſoul of his prince, never ſparkled, I ſuppoſe, on Madhavya.

*Duſhm.* Which of the figures do you conceive intended for the queen?

*Madh.* [*Examining the picture.*] It is ſhe, I imagine, who looks a little fatigued; with the ſtring of her veſt rather looſe; the ſlender ſtalks of her arms falling languidly; a few bright drops on her face, and ſome flowers dropping from her untied locks. That muſt be the queen; and the reſt, I ſuppoſe, are her damſels.

*Duſhm.* You judge well; but my affection requires ſomething more in the piece. Beſides, through ſome defect in the colouring, a tear ſeems trickling down her cheek, which ill ſuits the ſtate in which I deſired to ſee her painted.—[*To the Damſel.*] The picture, O Chaturica, is unfiniſhed.—Go back to the painting-room, and bring the implements of thy art.

*Damſ.* Kind Madhavya, hold the picture while I obey the king.

*Duſhm.* No; I will hold it.

[*He takes the picture; and the* Damſel *goes out.*

*Madh.* What elſe is to be painted?

*Maſr.* [*Aſide.*] He deſires, I preſume, to add all thoſe circumſtances which became the ſituation of his beloved in the hermitage.

*Duſhm.* In this landſcape, my friend, I wiſh to ſee repreſented the river Malini, with ſome amorous flamingos on its green margin: farther back muſt appear ſome hills near the mountain Himalaya, ſurrounded with herds of Chamaras; and in the fore-ground, a dark ſpreading tree, with ſome mantles of woven bark ſuſpended on its branches to be dried by the ſun-beams; while a pair of black antelopes couch in its ſhade, and the female gently rubs her beautiful forehead on the horn of the male.

*Madh.* Add what you pleaſe; but, in my judgment, the vacant places ſhould be filled with old hermits, bent, like me, towards the ground.

*Duſhm.* [*Not attending to him.*] Oh! I had forgot that my beloved herſelf muſt have ſome new ornaments.

*Madh.* What, I pray?

*Miſr.* [*Aſide.*] Such, no doubt, as become a damſel bred in a foreſt.

*Duſhm.* The artiſt had omitted a Siriſha flower with its peduncle fixed behind her ſoft ear, and its filaments waving over part of her cheek; and between her breaſts muſt be placed a knot of delicate fibres, from the ſtalks of water-lilies, like the rays of an autumnal moon.

*Madh.* Why does the queen cover part of her face, as if ſhe was afraid of ſomething, with the tips of her fingers, that glow like the flowers of the Cuvalaya?—Oh! I now perceive an impudent bee, that thief of odours, who ſeems eager to ſip honey from the lotos of her mouth.

*Duſhm.* A bee! drive off the importunate inſect.

*Madh.* The king has ſupreme power over all offenders.

*Duſhm.* O male bee, who approacheſt the lovely inhabitants of a flowery grove, why doſt thou expoſe thyſelf to the pain of being rejected?—See where thy female ſits on a bloſſom, and, though thirſty, waits for thy return: without thee ſhe will not taſte its nectar.

*Miſr.* [*Aſide.*] A wild, but apt, addreſs!

*Madh.* The perfidy of male bees is proverbial.

*Duſhm.* [*Angrily.*] Shouldſt thou touch, O bee, the lip of my darling, ruddy as a freſh leaf on which no wind has yet breathed, a lip from which I drank ſweetneſs in the banquet of love, thou ſhalt, by my order, be impriſoned in the centre of a lotos.—Doſt thou ſtill diſobey me?

*Madh.* How can he fail to obey, ſince you denounce ſo ſevere a puniſhment?—[*Aſide, laughing.*] He is ſtark mad with love and affliction; whilſt I, by keeping him company, ſhall be as mad as he without either.

*Duſhm.* After my poſitive injunction, art thou ſtill unmoved?

*Miſr.* [*Aſide.*] How does exceſs of paſſion alter even the wiſe!

*Madh.* Why, my friend, it is only a painted bee.

*Miſr.* [*Aſide.*] Oh! I perceive his miſtake: it ſhows the perfection of the art. But why does he continue muſing?

*Duſhm.* What ill-natured remark was that?—Whilſt I am enjoying the rapture of beholding her to whom my ſoul is attached, thou, cruel remembrancer, telleſt me that it is only a picture. [*Weeping.*

*Miſr.* [*Aſide.*] Such are the woes of a ſeparated lover! He is on all ſides entangled in ſorrow.

*Duſhm.* Why do I thus indulge unremitted grief? That intercourſe with my darling which dreams would give, is prevented by my inability to repoſe; and my tears will not ſuffer me to view her diſtinctly even in this picture.

*Miſr.* [*Aſide.*] His miſery acquits him entirely of having deſerted her in his perfect ſenſes.——

*A* Warder *enters with a leaf.*

*Ward.* May the king proſper!—The chief miniſter ſends this meſſage: "I have carefully ſtated a caſe which has ariſen in the city, and accurately committed it to writing: let the king deign to conſider it."

*Duſhm.* Give me the leaf.—[*Receiving it, and reading.*]—"Be it preſented at the foot of the king, that a merchant named Dhanavriddhi, who had extenſive commerce at ſea, was loſt in a late ſhipwreck: he had no child born; and has left a fortune of many millions, which belong, if the king commands, to the royal treaſury."—[*With ſorrow.*] Oh! how great a misfortune it is to die childleſs! Yet with his affluence he muſt have had many wives:—let an inquiry be made whether any one of them is pregnant.

*Ward.* I have heard that his wife, the daughter of an excellent man, named Sacetaca, has already performed the ceremonies uſual on pregnancy.

*Duſhm.* The child, though unborn, has a title to his father's property.—Go: bid the miniſter make my judgment public.

*Ward.* I obey. [*Going.*

*Duſhm.* Stay awhile——

*Ward.* [*Returning.*] I am here.

*Duſh.* Whether he had or had not left offspring, the eſtate ſhould not have been forfeited.—Let it be proclaimed, that whatever kinſman any one of my ſubjects may loſe, Duſhmanta (excepting always the caſe of forfeiture for crimes) will ſupply, in tender affection, the place of that kinſman.

*Ward.* The proclamation ſhall be made.— [*He goes out.*

[Duſhmanta *continues meditating.*]

*Re-enter* Warder.

O king! the royal decree, which proves that your virtues are awake after a long ſlumber, was heard with burſts of applauſe.

*Duſhm.* [*Sighing deeply.*] When an illuſtrious man dies, alas, without an heir, his eſtate goes to a ſtranger; and ſuch will be the fate of all the wealth accumulated by the ſons of Puru.

*Ward.* Heaven avert the calamity. [*Goes out.*

*Duſhm.* Wo is me! I am ſtripped of all the felicity which I once enjoyed.

*Miſr.* [*Aſide.*] How his heart dwells on the idea of his beloved!

*Duſhm.* My lawful wife, whom I baſely deſerted, remains fixed in my ſoul: ſhe would have been the glory of my family, and might have produced a ſon brilliant as the richeſt fruit of the teeming earth.

*Miſr.* [*Aſide.*] She is not forſaken by all; and ſoon, I truſt, will be thine.

*Damſ.* [*Aſide.*] What a change has the miniſter made in the king by ſending him that miſchievous leaf! Behold, he is deluged with tears.

*Duſhm.* Ah me! the departed ſouls of my anceſtors, who claim a ſhare in the funeral cake, which I have no ſon to offer, are apprehenſive of loſing their due honour, when Duſhmanta ſhall be no more on earth:—who then, alas, will perform in our family thoſe obſequies which the Veda preſcribes?—My forefathers muſt drink, inſtead of a pure libation, this flood of tears, the only offering which a man who dies childleſs can make them.

[*Weeping.*

*Miſr.* [*Aſide.*] Such a veil obſcures the king's eyes, that he thinks it total darkneſs, though a lamp be now ſhining brightly.

*Damſ.* Afflict not yourſelf immoderately: our lord is young; and, when ſons illuſtrious as himſelf ſhall be born of other queens, his anceſtors will be redeemed of their offences committed here below.

*Duſhm.* [*With agony.*] The race of Puru, which has hitherto been fruitful and unblemiſhed, ends in me; as the river Sereſwati diſappears in a region unworthy of her divine ſtream. [*He faints.*

The concluding part of the laſt act cannot but be acceptable to the reader.

*Scene, a Foreſt. Enter* Duſhmanta.

*Duſhm.* [*Looking with ſurpriſe.*]—I ſee a child, but with no childiſh countenance or ſtrength, whom two female anchorites are endeavouring to keep in order; while he forcibly pulls towards him, in rough play, a lion's whelp with a torn mane, who ſeems juſt dragged from the half-ſucked nipple of the lioneſs!

*A little* Boy *and two female* Attendants *are diſcovered, as deſcribed by the king.*

*Boy.* Open thy mouth, lion's whelp, that I may count thy teeth.

*Firſt Atten.* Intractable child! why doſt thou torment the wild animals of this foreſt, whom we cheriſh as if they were our own offspring?—Thou ſeemeſt even to ſport in anger.—Aptly have the hermits named thee Servedemana, ſince thou tameſt all creatures.

*Duſhm.* Ah! what means it that my heart inclines to this boy as if he were my own ſon?—[*Meditating.*]—Alas! I have no ſon; and the reflection makes me once more ſoft-hearted.

*Second Atten.* The lioneſs will tear thee to pieces if thou releaſe not her whelp.

*Boy.* [*Smiling.*] Oh! I am greatly afraid of her to be ſure! [*He bites his lip, as in defiance of her.*

*Duſhm.* [*Aſide, amazed.*] The child exhibits the rudiments of heroic valour, and looks like fire which blazes from the addition of dry fuel.

*Firſt Atten.* My beloved child, ſet at liberty this young prince of wild beaſts; and I will give thee a prettier plaything.

*Boy.* Give it firſt.—Where is it? [*Stretching out his hand.*

*Duſhm.* [*Aſide, gazing on the child's palm.*] What! the very palm of his hand bears the marks of empire; and, while he thus eagerly extends it, ſhows its lines of exquiſite net-work, and glows like a lotos expanded at early dawn, when the ruddy ſplendour of its petals hides all other tints in obſcurity.

*Second Atten.* Mere words, my Suvrita, will not pacify him.—Go, I pray, to my cottage, where thou wilt find a plaything made for the hermit's child, Sancara: it is a peacock of earthen ware, painted with rich colours.

*Firſt Atten.* I will bring it ſpeedily. [*She goes out.*

*Boy.* In the mean time I will play with the young lion.

*Second Atten.* [*Looking at him with a ſmile.*] Let him go, I entreat thee.

*Duſhm.* [*Aſide.*] I feel the tendereſt affection for this unmanageable child.—[*Sighing.*]—How ſweet muſt be the delight of virtuous fathers, when they ſoil their boſoms with duſt by lifting up their playful children, who charm them with inarticulate prattle, and ſhow the white bloſſoms of their teeth, while they laugh innocently at every trifling occurrence?

*Second Atten.* [*Raiſing her finger.*] What! doſt thou ſhow no attention to me?—[*Looking round.*]—Are any of the hermits near?—[*Seeing* Duſhmanta.]—Oh! let me requeſt you, gentle ſtranger, to releaſe the lion's whelp, who cannot diſengage himſelf from the graſp of this robuſt child.

*Duſhm.* I will endeavour.—[*Approaching the* Boy, *and ſmiling.*]—O thou, who art the ſon of a pious anchorite, how canſt thou diſhonour thy father, whom thy virtues would make happy, by violating the rules of this conſecrated foreſt? It becomes a black ſerpent only to infeſt the boughs of a fragrant ſandal-tree. [*The* Boy *releaſes the lion.*

*Second Atten.* I thank you, courteous gueſt;—but he is not the ſon of an anchorite.

*Duſhm.* His actions, indeed, which are conformable to his robuſtneſs, indicate a different birth: but my opinion aroſe from the ſanctity of the place which he inhabits.—[*Taking the* Boy *by the hand.*]——[*Aſide.*]—Oh! ſince it gives me ſuch delight merely to touch the hand of this child, who is the hopeful ſcion of a family unconnected with mine, what rapture muſt be felt by the fortunate man from whom he ſprang?

*Second Atten.* [*Gazing on them alternately.*] Oh wonderful!

*Duſhm.* What has raiſed your wonder?

*Second Atten.* The aſtoniſhing reſemblance between the child and you, gentle ſtranger, to whom he bears no relation.—It ſurpriſed me alſo to ſee, that although he has childiſh humours, and had no former acquaintance with you, yet your words have reſtored him to his natural good temper.

*Duſhm.* [*Raiſing the* Boy *to his boſom.*] Holy matron, if he be not the ſon of a hermit, what then is the name of his family?

*Second Atten.* He is deſcended from Puru.

*Duſhm.* [*Aſide.*] Hah! thence, no doubt, ſprings his diſpoſition, and my affection for him.—[*Setting him down.*]—[*Aloud.*] It is, I know, an eſtabliſhed uſage among the princes of Puru's race, to dwell at firſt in rich palaces with ſtuccoed walls, where they protect and cheriſh the world, but in the decline of life to ſeek humbler manſions near the roots of venerable trees, where hermits with ſubdued paſſions practiſe auſtere devotion.—I wonder, however, that this boy, who moves like a god, could have been born of a mere mortal.

*Second Atten.* Affable ſtranger, your wonder will ceaſe when you know that his mother is related to a celeſtial nymph, and brought him forth in the ſacred foreſt of Caſyapa.

*Duſhm.* [*Aſide.*] I am tranſported.—This is a freſh ground of hope.——[*Aloud.*]—What virtuous monarch took his excellent mother by the hand?

*Second Atten.* Oh! I muſt not give celebrity to the name of a king who deſerted his lawful wife.

*Duſhm.* [*Aſide.*] Ah! ſhe means me.—Let me now aſk the name of the ſweet child's mother.—[*Meditating.*]—But it is againſt good manners to inquire concerning the wife of another man.

*The* Firſt Attendant *re-enters with a toy.*

*Firſt Atten.* Look, Servademana, look at the beauty of this bird, Saconta lavanyam.

*Boy.* [*Looking eagerly round.*] Sacontala! Oh, where is my beloved mother? [*Both* Attendants *laugh.*

*Firſt Atten.* He tenderly loves his mother, and was deceived by an equivocal phraſe.

*Second Atten.* My child, ſhe meant only the beautiful ſhape and colours of this peacock.

*Duſhm.* [*Aſide.*] Is my Sacontala then his mother? Or has that dear name been given to ſome other woman?—This converſation reſembles the fallacious appearance of water in a deſert, which ends in bitter diſappointment to the ſtag parched with thirſt.

*Boy.* I ſhall like the peacock if it can run and fly; not elſe. [*He takes it.*

*Firſt Atten.* [*Looking round in confuſion.*] Alas! the child's amulet is not on his wriſt.

*Duſhm.* Be not alarmed. It was dropped while he was playing with the lion: I ſee it, and will put it into your hand.

*Both.* Oh! beware of touching it.

*Firſt Atten.* Ah! he has actually taken it up.

[*They both gaze with ſurpriſe on each other.*

*Duſhm.* Here it is; but why would you have reſtrained me from touching this bright gem?

*Second Atten.* Great monarch, this divine amulet has a wonderful power, and was given to the child by the ſon of Marichi, as ſoon as the ſacred rites had been performed after his birth: whenever it fell on the ground, no human being but the father or mother of this boy could have touched it unhurt.

*Duſhm.* What if a ſtranger had taken it?

*Firſt Atten.* It would have become a ſerpent, and wounded him.

*Duſhm.* Have you ſeen that conſequence on any ſimilar occaſion?

*Both.* Frequently.

*Duſhm.* [*With tranſport.*] I may then exult on the completion of my ardent deſire. [*He embraces the child.*

*Second Atten.* Come, Suvrita, let us carry the delightful intelligence to Sacontala, whom the harſh duties of a ſeparated wife have ſo long oppreſſed. [*The Attendants go out.*

*Boy.* Farewell; I muſt go to my mother.

*Duſhm.* My darling ſon, thou wilt make her happy by going to her with me.

*Boy.* Duſhmanta is my father; and you are not Duſhmanta.

*Duſhm.* Even thy denial of me gives me delight.

Sacontala *enters in mourning apparel, with her long hair twiſted in a ſingle braid, and flowing down her back.*

*Sac.* [*Aſide.*] Having heard that my child's amulet has proved its divine power, I muſt either be ſtrangely diffident of my good fortune, or that event which Miſraceſi predicted has actually happened. [*Advancing.*

*Duſhm.* [*With a mixture of joy and ſorrow.*] Ah! do I ſee the incomparable Sacontala clad in ſordid weeds?—Her face is emaciated by the performance of auſtere duties; one twiſted lock floats over her ſhoulder; and with a mind perfectly pure, ſhe ſupports the long abſence of her huſband, whoſe unkindneſs exceeded all bounds.

*Sac.* [*Seeing him, yet doubting.*] Is that the ſon of my lord, grown pale with penitence and affliction?—If not, who is it, that ſullies with his touch the hand of my child, whoſe amulet ſhould have preſerved him from ſuch indignity?

*Boy.* [*Going haſtily to* Sacontala.] Mother, here is a ſtranger who calls me ſon.

*Duſhm.* Oh! my beſt beloved, I have treated thee cruelly; but my cruelty is ſucceeded by the warmeſt affection; and I implore your remembrance and forgiveneſs.

*Sac.* [*Aſide.*] Be confident, O my heart.——[*Aloud.*]—I ſhall be moſt happy when the king's anger has paſſed away.—[*Aſide.*]—This muſt be the ſon of my lord.

*Duſhm.* By the kindneſs of heaven, O lovelieſt of thy ſex, thou ſtandeſt again before me, whoſe memory was obſcured by the gloom of faſcination; as the ſtar Rohini at the end of an eclipſe rejoins her beloved moon.

*Sac.* May the king be—— [*She burſts into tears.*

*Duſhm.* My darling, though the word victorious be ſuppreſſed by thy weeping, yet I muſt have victory, ſince I ſee thee again, though with pale lips, and a body unadorned.

*Boy.* What man is this, mother?

*Sac.* Sweet child, aſk the divinity, who preſides over the fortunes of us both. [*She weeps.*

*Duſh.* O my only beloved, baniſh from thy mind my cruel deſertion of thee.—A violent phrenſy overpowered my ſoul.—Such, when the darkneſs of illuſion prevails, are the actions of the beſt-intentioned; as a blind man, when a friend binds his head with a wreath of flowers, miſtakes it for a twining ſnake, and fooliſhly rejects it. [*He falls at her feet.*

*Sac.* Riſe, my huſband, oh! riſe——My happineſs has been long interrupted; but joy now ſucceeds to affliction, ſince the ſon of my lord ſtill loves me.—[*He riſes.*]—How was the remembrance of this unfortunate woman reſtored to the mind of my lord's ſon?

*Duſh.* When the dart of miſery ſhall be wholly extracted from my boſom, I will tell you all; but ſince the anguiſh of my ſoul has in part ceaſed, let me firſt wipe off that tear which trickles from thy delicate eye-laſh; and thus efface the memory of all the tears which my delirium has made thee ſhed. [*He ſtretches out his hand.*

*Sac.* [*Wiping off her tears, and ſeeing the ring on his finger.*] Ah! is that the fatal ring?

*Duſh.* Yes; by the ſurpriſing recovery of it my memory was reſtored.

*Sac.* Its influence, indeed, has been great, ſince it has brought back the loſt confidence of my huſband.

*Duſhm.* Take it then, as a beautiful plant receives a flower from the returning ſeaſon of joy.

*Sac.* I cannot again truſt it.—Let it be worn by the ſon of my lord.

Matali *enters.*

*Mat.* By the will of heaven the king has happily met his beloved wife, and ſeen the countenance of his little ſon.

*Duſhm.* It was by the company of my friend that my deſire attained maturity.—But ſay, was not this fortunate event previouſly known to Indra?

*Mat.* [*Smiling.*] What is unknown to the gods?—But come: the divine Maricha deſires to ſee thee.

*Duſhm.* Beloved, take our ſon by the hand; and let me preſent you both to the father of immortals.

*Sac.* I really am aſhamed, even in thy preſence, to approach the deities.

*Duſhm.* It is highly proper on ſo happy an occaſion.—Come, I entreat thee. [*They all advance.*

*The ſcene is withdrawn, and* Caſyapa *is diſcovered on a throne converſing with* Adita.

*Caſ.* [*Pointing to the king.*] That, O daughter of Dacſha, is the hero who led the ſquadrons of thy ſon to the front of battle, a ſovereign of the earth, Duſhmanta; by the means of whoſe bow the thunder-bolt of Indra (all its work being accompliſhed) is now a mere ornament of his heavenly palace.

*Adi.* He bears in his form all the marks of exalted majeſty.

*Mat.* [*To* Duſhmanta.] The parents of the twelve Adityas, O king, are gazing on thee, as on their own offſpring, with eyes of affection.—Approach them, illuſtrious prince.

*Duſhm.* Are thoſe, O Matali, the divine pair, ſprung from Marichi and Dacſha?—Are thoſe the grand-children of Brahma, to whom the Self-exiſtent gave birth in the beginning; whom inſpired mortals pronounce the fountain of glory apparent in the form of twelve ſuns; they who produced my benefactor, the lord of a hundred ſacrifices, and ruler of three worlds?

*Mat.* Even they.—[*Proſtrating himſelf with* Duſhmanta.]—Great beings, the king Duſhmanta, who has executed the commands of your ſon Vavaſa, falls humbly before your throne.

*Caſ.* Continue long to rule the world.

*Adi.* Long be a warrior with a car unſhattered in combat. [Sacontala *and her ſon proſtrate themſelves.*

*Caſ.* Daughter, may thy huſband be like Indra! May thy ſon reſemble Jayanta! And mayſt thou (whom no benediction could better ſuit) be equal in proſperity to the daughter of Puloman!

*Adi.* Preſerve, my child, a conſtant unity with thy lord: and may this boy, for a great length of years, be the ornament and joy of you both!—Now be ſeated near us. [*They all ſit down.*

*Caſ.* [*Looking at them by turns.*] Sacontala is the model of excellent wives; her ſon is dutiful; and thou, O king, haſt three rare advantages: true piety, abundant wealth, and active virtue.

*Duſhm.* O divine being! Having obtained the former object of my moſt ardent wiſhes, I now have reached the ſummit of earthly happineſs through thy favour, and thy beniſon will enſure its permanence.—Firſt appears the flower, then the fruit; firſt clouds are collected, then the ſhower falls; ſuch is the regular courſe of cauſes and effects; and thus, when thy indulgence preceded, felicity generally followed.

*Mat.* Great, indeed, O king, has been the kindneſs of the primeval Brahmins.

*Duſhm.* Bright ſon of Marichi, this thy handmaid was married to me by the ceremony of Gandharvas, and, after a time, was conducted to my palace by ſome of her family; but, my memory having failed through delirium, I rejected her, and thus committed a grievous offence againſt the venerable Canna, who is of thy divine lineage: afterwards, on ſeeing this fatal ring, I remembered my love and my nuptials; but the whole tranſaction yet fills me with wonder.—My ſoul was confounded with ſtrange ignorance that obſcured my ſenſes; as if a man were to ſee an elephant marching before him, yet to doubt what animal it could be, till he diſcovered by the traces of his large feet that it was an elephant.

*Caſ.* Ceaſe, my ſon, to charge thyſelf with an offence committed ignorantly, and, therefore, innocently.—Now hear me——

*Duſhm.* I am devoutly attentive.

*Caſ.* When the nymph Menaca led Sacontala from the place where thy deſertion of her had afflicted her ſoul, ſhe brought her to the palace of Aditi; and I knew, by the power of meditation on the Supreme Being, that thy forgetfulneſs of thy pious and lawful conſort had proceeded from the imprecation of Durvaſas, and that the charm would terminate on the ſight of thy ring.

*Duſhm.* [*Aſide.*] My name then is cleared from infamy.

*Sac.* Happy am I that the ſon of my lord, who now recogniſes me, denied me through ignorance, and not with real averſion.—The terrible imprecation was heard, I ſuppoſe, when my mind was intent on a different object, by my two beloved friends, who, with extreme affection, concealed it from me to ſpare my feelings, but adviſed me at parting to ſhow the ring if my huſband ſhould have forgotten me.

*Caſ.* [*Turning to* Sacontala.] Thou art appriſed, my daughter, of the whole truth, and muſt no longer reſent the behaviour of thy lord.—He rejected thee when his memory was impaired by the force of a charm; and, when the gloom was diſpelled, his conjugal affection revived; as a mirror, whoſe ſurface has been ſullied, reflects no image; but exhibits perfect reſemblances when its poliſh has been reſtored.

*Duſhm.* Such, indeed, was my ſituation.

*Caſ.* My ſon Duſhmanta, haſt thou embraced thy child by Sacontala, on whoſe birth I myſelf performed the ceremonies preſcribed in the Veda?

*Duſhm.* Holy Marichi, he is the glory of my houſe.

*Caſ.* Know too, that his heroic virtue will raiſe him to a dominion extended from ſea to ſea: before he has paſſed the ocean of mortal life, he ſhall rule, unequalled in combat, this earth with ſeven peninſulas; and as he is now called Servademana, becauſe he tames even in childhood the fierceſt animals, ſo, in his riper years, he ſhall acquire the name of Bharata, becauſe he ſhall ſuſtain and nouriſh the world.

*Duſhm.* A boy educated by the ſon of Marichi muſt attain the ſummit of greatneſs.

*Adi.* Now let Sacontala, who is reſtored to happineſs, convey intelligence to Canna of all theſe events: her mother Menaca is in my family, and knows all that has paſſed.

*Sac.* The goddeſs propoſes what I moſt ardenly wiſh.

*Caſ.* By the force of true piety the whole ſcene will be preſent to the mind of Canna.

*Duſhm.* The devout ſage muſt be ſtill exceſſively indignant at my frantic behaviour.

*Caſ.* [*Meditating.*] Then let him hear from me the delightful news, that his foſter-child has been tenderly received by her huſband, and that both are happy with the little warrior who ſprang from them.—Hola! who is in waiting?

*A* Pupil *enters.*

*Pup.* Great being, I am here.

*Caſ.* Haſten, Golava, through the light air, and in my name inform the venerable Canna, that Sacontala has a charming ſon by Duſhmanta, whoſe affection for her was reſtored with his remembrance, on the termination of the ſpell raiſed by the angry Durvaſas.

*Pup.* As the divinity commands. [*He goes out.*

*Caſ.* My ſon, re-aſcend the car of Indra with thy conſort and child, and return happy to thy imperial ſeat.

*Duſhm.* Be it as Marichi ordains.

*Caſ.* Henceforth may the god of the atmoſphere with copious rain give abundance to thy affectionate ſubjects; and mayſt thou with frequent ſacrifices maintain the Thunderer's friendſhip! By numberleſs interchanges of good offices between you both, may benefits reciprocally be conferred on the inhabitants of the two worlds!

*Duſhm.* Powerful being, I will be ſtudious, as far as I am able, to attain that felicity.

*Caſ.* What other favours can I beſtow on thee?

*Duſhm.* Can any favours exceed thoſe already beſtowed?—Let every king apply himſelf to the attainment of happineſs for his people; let Sereſwati, the goddeſs of liberal arts, be adored by all readers of the Veda; and may Siva, with an azure neck and red locks, eternally potent and ſelf-exiſting, avert from me the pain of another birth in this periſhable world, the ſeat of crimes and of puniſhment.—*Exeunt.*

The early progreſs which the Hindoos appear to have made in the ſcience of ASTRONOMY, has excited the admiration and attention of many eminent mathematicians in Europe. They are poſſeſſed of ancient aſtronomical tables, from which they compile their almanacs, and calculate eclipſes; though they ſeem now to be unacquainted with the principles upon which their anceſtors conſtructed them. Various predictions, founded on judicial aſtrology, help to fill up thoſe almanacs; wherein ſome days are marked as lucky, and others as unlucky; and they likewiſe pretend to foretel future contingencies by means of horoſcopes, juſt the ſame as Francis Moore does in England.

In all their arithmetical calculations, the Hindoos have the credit of being remarkably expert. Their operations are indeed very numerous, ingenious, and difficult; but, when once learnt, perfectly ſure. They apply to them from their early infancy; and they are ſo much accuſtomed to calculate ſums the moſt complicated, that they will do almoſt *inſtantly* what Europeans would be long in performing. They divide the units into a great number of fractions. It is a ſtudy that ſeems peculiar to them, and which requires much time to learn. The moſt frequent diviſion of the unit is into a hundred parts, which is only to be learnt conſecutively, as the fractions are different according to the things that are numbered. There are fractions for money, for weights, for meaſures, in ſhort for every thing that may be brought under arithmetical inveſtigation.

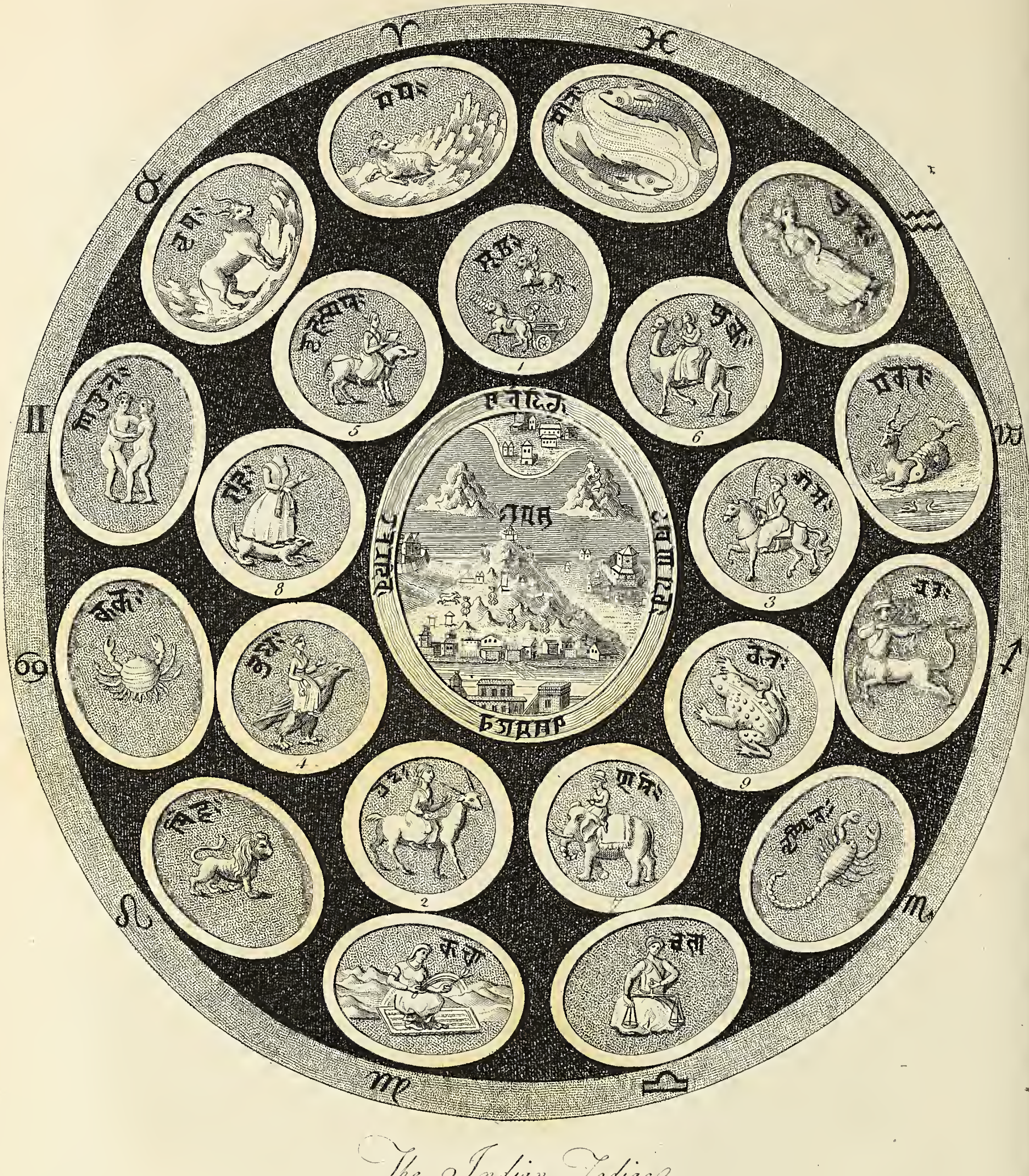
The Hindoos reckon from the riſing to the next riſing ſun, ſixty *naſigey*; each naſigey is divided into ſixty *veinary*, and each veinary into ſixty *taipary*: $2\frac{1}{2}$ naſigey are equal to one of our hours; $2\frac{1}{2}$ veinary to one of our minutes; and $2\frac{1}{2}$ taipary to one of our ſeconds: therefore a naſigey, or, as it may be called, *the Hindoo hour*, is equal to 24 of our minutes; and the veinary, or *Hindoo minute*, to 24 of our ſeconds.

Their week conſiſts of ſeven days, to each of which they have given the name of one of the planets, and arranged them exactly in the ſame order that has been adopted by Europeans:

| | | | | |
|---|---|---|---|---|
| Sunday | is | Additavaram, | or day of the | Sun. |
| Monday | — | Somavaram | — | Moon. |
| Tueſday | — | Mangalavaram | — | Mars. |
| Wedneſday | — | Boutavaram | — | Mercury. |
| Thurſday | — | Brahaſpativaram | — | Jupiter. |
| Friday | — | Soucravaram | — | Venus. |
| Saturday | — | Sanyvaram | — | Saturn. |

But their planets, like their gods, are frequently called by different names; or are variouſly pronounced and ſpelt in different parts of the empire, which is often productive of great confuſion to ſtrangers.

Their



The Indian Zodiac.

London, Publiſhed as the act directs, May 11. 1809, by J. Wilkes.

J. Chapman sc.

Their year begins on the 11th day of our month of April. They divide it into two equal parts; the one compriſing the time the ſun is to the ſouth, the other to the north, of the equator; and they celebrate his return to the north by an annual equinoctial feaſt. To adjuſt the aſtronomical with the civil time, every fourth year is a leap-year; in which the time exceeding the 365 days is thrown into one of the 12 months. The number of days in the months is unequal; and ſome are of opinion, that in eſtabliſhing the duration of each month, attention has been paid to the time required by the ſun to paſs through the different ſigns of the zodiac. In their tables they are put down in the following order:

| | | *Days.* | *Naſ.* | *Vei.* | *Tai.* |
|---|---|---|---|---|---|
| Sitterey, | beginning the 11th of April | 30 | 55 | 32 | 0 |
| Vayaſey - | beginning in May | 31 | 24 | 12 | 0 |
| Any - - - - | in June - | 31 | 36 | 38 | 0 |
| Ady - - - - - | in July - | 31 | 28 | 12 | 0 |
| Avany - - - | in Auguſt - | 31 | 2 | 10 | 0 |
| Pivataſſy - - - - | in September | 30 | 27 | 22 | 0 |
| Arbaſſey - - - | in October - | 29 | 54 | 7 | 0 |
| Cartigey - - - - | in November | 29 | 30 | 24 | 0 |
| Margaii - - - | in December | 29 | 20 | 53 | 0 |
| Tay - - - - - | in January - | 29 | 27 | 16 | 0 |
| Maſey - - - | in February - | 29 | 48 | 24 | 0 |
| Pangouney - - - | in March - | 30 | 20 | 21 | 15 |
| | | 365 | 15 | 31 | 15 |

In the common time they are reckoned as follows:

| | |
|---|---|
| Bayſatch, beginning the 11th of April, has | 31 Days. |
| Taith - - - - - - | 31 |
| Aſadeh - - - - - - - - | 32 |
| Sanvon - - - - - - | 31 |
| Bhadon - - - - - - - | 31 |
| Aſan - - - - - - | 31 |
| Catuk - - - - - - - - | 30 |
| Aghou - - - - - - | 30 |
| Pous - - - - - - - | 29 |
| Magh - - - - - - | 29 |
| Phagon - - - - - - - | 30 |
| Tehait - - - - - - | 30 |
| Days | 365 |

The lunar month is divided into two parts; that from the new to the full moon, is called *Sood*, or increaſing; and that from the full to the change, *Bole*, or waning. The former is likewiſe ſometimes called *Sookla-pakſha*, or the light ſide; and the other *Creeſhna-pakſha*, or the dark ſide.

They reckon the duration of the world by four Yugs; but in the length aſcribed to them they are prepoſterouſly extravagant.

| | YEARS. |
|---|---|
| The firſt, or Satya Yug, is ſaid to have laſted | 3,200,000 |
| The Treta Yug, or ſecond age - - - - - | 2,400,000 |
| The Dwaper Yug, or third age - - - - | 1,600,000 |
| And they pretend the Cali Yug, or preſent age, will laſt - - - - - - - - | 400,000 |

Theſe ages correſpond, in their deſignation, to the golden, ſilver, brazen, and iron, ages of the Greeks.

They tell us, that in the firſt ages men were greatly ſuperior to the preſent race, both in the length of their lives, and in the powers of their bodies and mental faculties; but that, in conſequence of vice, they gradually declined; and at laſt in this, the *earthen* age, degenerated to what we now find them. At the end of each age, they ſuppoſe that this world is deſtroyed, and that a new creation ſucceeds.

Their aſtronomy appears to be coeval at leaſt with that of the Egyptians; which is certainly manifeſted by the conſtruction of their zodiac, and the planiſpheres of the heavenly bodies diſplayed on the ceilings in ſeveral of their ancient temples. By comparing the annexed Engraving of the Indian zodiac, as given by ſir William Jones, with the Egyptian zodiac and planiſphere delineated on the engravings appropriated to our article EGYPT, vol. vi. p. 356–358, it will be ſeen, that a very ſimilar ſtate of ſcientific knowledge, as well perhaps as of religious rites, muſt have formerly exiſted between the two nations.

According to the early notions of the Hindoo philoſophers; they deſcribed the earth as a plane figure, ſtudded with eight mountains, and ſurrounded by ſeven ſeas of milk, nectar, and other fluids; that the part which they inhabit is one of ſeven iſlands, to which eleven ſmaller iſles are ſubordinate; that a god, riding on a huge elephant, guards each of the eight regions; and that a mountain of gold riſes and gleams in the centre. This is rather a poetical deſcription; and muſt not be conſidered as the doctrine of the Hindoo aſtronomers. They divide a great circle, as we do, into three hundred and ſixty degrees, called by them *anſas*, or portions; of which they, like us, allot thirty to each of the twelve ſigns, in the following order:

*Meſha*, the Ram.
*Vriſha*, the Bull.
*Mit'huna*, the Pair.
*Carcata*, the Crab.
*Sinha*, the Lion.
*Canya*, the Virgin.
*Tula*, the Balance.
*Vriſhchica*, the Scorpion.
*Dhanus*, the Bow.
*Marcara*, the Sea-Monſter.
*Cumbha*, the Ewer.
*Mina*, the Fiſh.

Theſe twelve ſigns, in the annexed Engraving, are diſtinguiſhed by the aſtronomical characters uſually aſſigned to them. The ſun, moon, and planets, and the aſcending and deſcending nodes, are repreſented by the interior circle of figures, diſtinguiſhed as follows: 1. The Sun. 2. The Moon. 3. Mars. 4. Mercury. 5. Jupiter. 6. Venus. 7. Saturn. 8. Dragon's-head, or aſcending node. 9. Dragon's-tail, or deſcending node. The centre ſhows the imaginary mountain of gold, ſubordinate mountains, ſea of nectar, &c. as anciently figured by the Hindoos.

But beſides the ſolar zodiac, or *Sodi-mandalum*, they have a diviſion of the great circle into twenty-ſeven lunar manſions, which they call *conſtellations*, or *places of the moon reckoned in the twelve ſigns*; every ſign is equal to two conſtellations and a quarter; each conſtellation conſiſts of thirteen degrees twenty minutes, and has its particular name. This diviſion of the zodiac, ſays ſir William Jones, was extremely natural in the infancy of aſtronomical obſervation, becauſe the moon completes her circle among the fixed ſtars nearly in twenty-ſeven days, and ſo makes an actual diviſion of that circle into twenty-ſeven equal parts. But theſe conſtellations are far from including all the ſtars in the zodiac. M. le Gentil obſerves, that thoſe ſtars only ſeem to have been ſelected, which are beſt adapted for marking out, by lines drawn between them, the places of the moon in her progreſs through theſe lunar manſions.

The preceſſion of the equinoxes is reckoned in their tables at fifty-four ſeconds in the year; the motion of the ſtars from weſt to eaſt is found to be at preſent only about fifty ſeconds in the year; but from this motion of fifty-four ſeconds, they have evidently formed many of their calculations. They have a cycle or period of ſixty years, each of which has its particular name; another of 3600 years; and one of 24,000. From the annual motion given by them to the ſtars, of 54 ſeconds of longitude in the year, 54 minutes of longitude make ſixty years, 54 degrees 3600, and the entire revolution of 360 degrees makes their great period, or *annus magnus*, of 24,000 years, which is often referred to by them.

M. Bailly informs us, that M. de la Loubère, who was ſent ambaſſador from Louis XIV. to Siam, brought home from thence, in 1687, tables and rules for the calculation of eclipſes; and that he likewiſe found, in the place where the charts belonging to the navy are kept, two manuſcripts containing Hindoo aſtronomical tables, that were depoſited there by M. de Liſle. It appears that one ſet of the tables depoſited by M. de Liſle had been given to him by père Patouillet, correſpondent of the miſſionaries in India; and that the other ſet had been ſent to père Gaubil by père Duchamp, who procured it from the Brahmins at Chriſhnabouram.

The tables that were given by père Patouillet, are thought to have come from the neighbourhood of Narſapour, in the northern circars; as they contain a rule for determining the length of the day, anſwering to lat. 16° 15′ N. Beſides theſe, M. le Gentil brought to Europe, in 1772, other tables and precepts of aſtronomy, that he got from the Brahmins at Tirvalore, a town in the Carnatic.

Here then are four different ſets of tables and precepts of aſtronomy, procured by different perſons, at different times, and from different places, ſome of which are extremely diſtant from the others; yet all, as M. Bailly obſerves, evidently came from the ſame original: all have the ſame motion of the ſun, the ſame duration of the year, and all are adapted to the ſame meridian, or to meridians at no great diſtance, paſſing near to Benares. They contain chiefly tables and rules for calculating the places of the ſun and moon, and of the planets; and rules for determining the phaſes of eclipſes.

M. le Gentil mentions, that the method deſcribed in the tables which he brought home, is called *Fakiam*, or the new, to diſtinguiſh it from another eſtabliſhed at Benares, called *Siddantam*, or the ancient. The père du Champ alſo ſays, that the Hindoos have a method alſo called *Surya Siddhanta*, which has ſerved as a rule for the conſtruction of all the tables now exiſting, and is *ſuppoſed* to be the original and primitive aſtronomy of the Brahmins: and he further obſerves, that when the Brahmins at Chriſhnabouram were at a loſs in their aſtronomical calculations, they uſed to ſay, "this would not have happened, if we now underſtood the Surya Siddhanta."—This ancient aſtronomical treatiſe, however, has been recently tranſlated from the Sanſkrit, by J. Bentley, eſq. and found not to be more than 1300 years old.

The epoch of the tables brought from Tirvalore, ſays Mr. Playfair, coincides with the famous era of the Cali-Yug; that is, with the beginning of the year 3102 before Chriſt. When the Brahmins at Tirvalore would calculate the place of the ſun for a given time, they begin by reducing into days the intervals between that time and the commencement of the Cali-Yug, multiplying the years by 365d. 6h. 12m. 30ſ. and taking away 2d. 3h. 32m. 30ſ. the aſtronomical epoch having begun that much later than the civil, &c. The Indian hour in this calculation is reduced to the European.

The commencement of the Cali-Yug, or preſent age, is reckoned from two hours twenty-ſeven minutes and thirty ſeconds of the morning of the 16th of February, three thouſand one hundred and two years before the Chriſtian era; but the time for which moſt of their aſtronomical tables are conſtructed, is two days three hours thirty-two minutes and thirty ſeconds after that, on the 18th of February, about ſix in the morning, according to M. Bailly. They ſay, that there was then a conjunction of the planets; and their tables ſhow that conjunction. M. Bailly obſerves, that, by calculation, it appears, that Jupiter and Mercury were then in the ſame degree of the ecliptic; that Mars was diſtant about eight degrees, and Saturn ſeventeen; and it reſults from thence, that at the time of the date given by the Brahmins to the commencement of the Cali-Yug, they might have ſeen thoſe four planets ſucceſſively diſengage themſelves from the rays of the ſun; firſt Saturn, then Mars, then Jupiter, and then Mercury. Theſe four planets, therefore, ſhowed themſelves in conjunction; and, though Venus could not have appeared, yet, as they only ſpeak in general terms, it was natural enough to ſay, *there was then a conjunction of the planets.* The account given by the Brahmins is ſaid to be confirmed by the teſtimony of our European tables, which prove it to be the reſult of a true obſervation; but M. Bailly is of opinion, that their aſtronomical time is dated from an eclipſe of the moon, which appears then to have happened, and that the conjunction of the planets is only mentioned by the way. The cauſe of the date given to their civil time he does not explain, but ſuppoſes it to be ſome memorable occurrence that we are unacquainted with.

On this ſubject, Mr. Playfair, in the ſecond volume of the Tranſactions of the Royal Society of Edinburgh, ſtates as follows: "The moon's mean place, for the beginning of the Cali-Yug, (that is, for midnight between the 17th and 18th of February, 3102 years before Chriſt, at Benares,) calculated from Meyer's tables, on the ſuppoſition that her motion has always been at the ſame rate as at the beginning of the preſent century, is $10^{s}\ 0^{\circ}\ 51'\ 16''$. But, according to the ſame aſtronomer, the moon is ſubject to a ſmall, but uniform, acceleration, ſuch that her angular motion, in any one age, is 9″ greater than in the preceding, which, in an interval of 4801 years, muſt have amounted to 5° 45′ 44″. This muſt be added, to give the real mean place of the moon at the aſtronomical epoch of the Cali-Yug, which is therefore $10^{s}\ 6^{\circ}\ 37'$. Now, the ſame, by the tables of Tirvalore, is $10^{s}\ 6^{\circ}\ 0'$; the difference is leſs than two-thirds of a degree, which, for ſo remote a period, and conſidering the acceleration of the moon's motion, for which no allowance could be made in an Indian calculation, is a degree of accuracy that nothing but actual obſervation could have produced.

"The equation of the ſun's centre is an element in the Indian aſtronomy, which has a more unequivocal appearance *of belonging to an earlier period than the Cali-Yug.* The maximum of that equation is fixed, in theſe tables, at 2° 10′ 32″. It is at preſent, according to M. de la Caille, $1^{\circ}\ 55\frac{1}{2}'$, that is 15′ leſs than with the Brahmins. Now M. de la Grange has ſhown, that the ſun's equation, together with the eccentricity of the earth's orbit, on which it depends, is ſubject to alternate diminution and increaſe, and accordingly has been diminiſhing for many ages. In the year 3102 before our era, that equation was $2^{\circ}\ 6'\ 28\frac{1}{2}''$; leſs only by 4′ than in the tables of the Brahmins. But, if we ſuppoſe the Indian aſtronomy to be founded on obſervations that preceded the Cali-Yug, the determination of this equation will be found to be ſtill more exact. Twelve hundred years before the commencement of that period, or about 4300 before our era, it appears, by computing from M. de la Grange's formula, that the equation of the ſun's centre was actually 2° 8′ 16″; ſo that, if the Indian aſtronomy be as old as that period, its error with reſpect to this equation is but 2′.

"The obliquity of the ecliptic is another element in which the Indian aſtronomy and the European do not agree; but where their difference is exactly ſuch as the high antiquity of the former is found to require. The Brahmins make the obliquity of the ecliptic 24°. Now M. de la Grange's formula for the variation of the obliquity, gives 22′ 32″ to be added to its obliquity in 1700, that is, to 23° 28′ 41″, in order to have that which took place in the year 3102 before our era. This gives us 23° 51′ 13″, which is 8′ 47″ ſhort of the determination of the Indian aſtronomers. But if we ſuppoſe, as in the caſe of the ſun's equation, that the obſervations on which this determination is founded were made 1200 years before the Cali-Yug, we ſhall find that the obliquity of the ecliptic was 23° 57′ 45″, and that the error of the tables did not much exceed 2′."

From an inveſtigation of all the materials before him, added to the concluſions formed on the ſubject by M. Bailly, and other French mathematicians, Mr. Playfair is led to make the following general concluſions:

"1ſt. The obſervations on which the aſtronomy of India is founded, were made more than three thouſand years before the Chriſtian era; and, in particular, the places of the ſun and moon, at the beginning of the Cali-Yug, were determined by actual obſervation.

"2dly. Though the aſtronomy that is now in the hands of the Brahmins is ſo ancient in its origin, yet it contains many rules and tables that are of later conſtruction.

"3dly. That the baſis of the four ſyſtems of aſtronomical tables herein mentioned, is evidently the ſame.

"4thly. That the conſtruction of theſe tables implies a great knowledge of geometry, arithmetic, and even of the *theoretical part* of aſtronomy, &c.

"But what, without doubt, is to be accounted the greateſt refinement, is the hypotheſis employed in calculating the equations of the centre for the ſun, moon, and planets; that, viz. of a circular orbit having a double eccentricity, or having its centre in the middle between the earth and the point about which the angular motion is uniform. If to this we add the great extent of geometrical knowledge requiſite to combine this and the other principles of their aſtronomy together, and to deduce from them the juſt concluſions, the poſſeſſion of a calculus equivalent to trigonometry; and laſtly, their approximation to the quadrature of the circle; we ſhall be aſtoniſhed at the magnitude of that body of ſcience, which muſt have enlightened the inhabitants of India in ſome remote age, and which, whatever it may have communicated to the weſtern nations, appears to have received nothing from them."

Theſe concluſions, however, appear to have little weight, ſince the reſearches made into the antiquity of the Hindoo aſtronomy by Mr. Bentley, who ſhows their ſyſtems to be all comparatively modern. "The *Surya Siddhanta* is generally believed to be the moſt ancient aſtronomical treatiſe the Hindoos have, and according to their notions is ſuppoſed to have been received through divine revelation at the cloſe of the Satya-Yug, of the 28th Maha-Yug, of the 7th Manwantara: that is, about 2164899 years ago. This high antiquity, however, is not warranted by the ſtricteſt inveſtigation. Several of the learned appear to have been miſled by theſe deluſive documents. M. Bailly, in 1787, publiſhed at Paris a whole quarto volume on the ſubject of the Indian aſtronomy; and Mr. Playfair, in 1789, publiſhed a paper on the ſame ſubject in the Edinburgh Tranſactions. The principles, however, of the Hindoo ſyſtems of aſtronomy, being unknown to theſe gentlemen, and differing widely in many reſpects from that of the Europeans, the concluſions drawn by them reſpecting the antiquity of the ſeveral aſtronomical tables therein mentioned, appear now to be altogether unfounded. However, in order to do away theſe deluſions, I ſhall explain, in as ſimple a manner as poſſible, the principles upon which the Hindoo ſyſtems are founded, and the manner in which they are formed.

"In the firſt place it is neceſſary to obſerve, that in moſt of the Hindoo ſyſtems, certain points of time back, are fixed on as epochs, at which the planets are *aſſumed* to fall into a line of mean conjunction with the ſun, in the beginning of Aries. From the points of time ſo aſſumed as epochs, the Hindoo aſtronomer carries on his calculations, as if they had been ſettled ſo by *actual* obſervation; and determines the mean annual motions, which he muſt employ in his ſyſtem, from thence, as will give the poſitions of the planets in his own time; as near as he is able to determine the ſame by obſervation. In fixing on theſe epochs, the firſt Hindoo aſtronomers took the precaution to throw them ſo far back into antiquity, that the difference between the *aſſumed* and *real* places of the planets, whatever they might be at that time, would, when divided by the number of years expired from thence, in a manner vaniſh; or at leaſt become too inconſiderable to affect the mean annual motions of the planets deduced from thence for ſeveral years. For, it is eaſy to perceive, that a point of time may be fixed on ſo far back, that the mean annual motions of the planets to be from thence deduced, (upon a ſuppoſition of their being then in a line of mean conjunction in the beginning of Aries,) ſhall give the real poſitions of the planets at preſent, agreeing with obſervations; and yet, the mean annual motions, ſo deduced, ſhall not differ from the real mean annual motions, above any aſſignable quantity, however ſmall.

"For, let an epoch of mean conjunction be aſſumed at only the diſtance of 648000 years ago; without troubling ourſelves at all with the *real* poſitions of the planets at that time, (which it would be impoſſible to know,) now, ſince the greateſt poſſible difference that can ever happen, at any propoſed time between the aſſumed and real place of a planet, cannot exceed ſix ſigns, if we divide this quantity by the number of years ſuppoſed *now* expired, we ſhall have $\frac{68}{648000} = 0^s\ 0^\circ\ 0'\ 0''\cdot1$, or one-tenth of a ſecond, for the greateſt poſſible difference that could ariſe between the real mean annual motions of the planets, as determined by European aſtronomers, and thoſe which it would be neceſſary to employ, reckoning from the epoch thus aſſumed, as would give the poſitions of the planets at preſent, with the ſame degree of accuracy as the moſt modern of European tables. It muſt therefore appear obvious, that the further back an epoch of mean conjunction is aſſumed, the nearer ſhould the annual motions to be thence adduced agree with the real mean annual motions determined from actual obſervations: and on the contrary, the nearer ſuch epoch is aſſumed to our own time, the greater the difference will be; unleſs a point of time is found by computation, at which the planets were either in a line of mean conjunction, or ſo near, that the difference, when divided among the years expired, would not ſenſibly affect the mean annual motions to be thence derived: but in this caſe, it is neceſſary that the ſun and moon ſhould be in a line of mean conjunction at the aſſumed epoch, or at leaſt very nearly ſo, in proportion to the diſtance of time back; for otherwiſe, the computed times of conjunctions, oppoſitions, and eclipſes, of theſe luminaries, would not agree with obſervation, for any conſiderable number of years.

"Upon this principle, the epoch now commonly called the commencement of the Cali-Yug, appears to have been fixed on by Varaha, and ſome other Hindoo aſtronomers ſince his time; for, though the planets were not then actually in a line of mean conjunction, yet the differences between their reſpective poſitions and that which was aſſumed, when divided among the years expired from that epoch, to the time of Varaha, were conſidered as too ſmall to cauſe any conſiderable difference between the real mean annual motions, and thoſe which it would be neceſſary to aſſume, ſo as to give the poſitions of the planets at that time, or even to cauſe any ſenſible error in their computed places deduced from thence for many years.

"But, in order to make this ſtill plainer, let us ſuppoſe that a Hindoo aſtronomer now ſtarts up, poſſeſſed of inſtruments and other means, whereby he is able to determine the real poſitions of the planets at preſent; and that he is deſirous of forming a complete new ſyſtem, upon the principles of his predeceſſors; that is to ſay, aſſuming a mean conjunction of the planets at the commencement of the Cali-Yug, what muſt be the mean annual motions, neceſſary to be given in ſuch ſyſtem, ſo as to bring out the longitudes of the planets agreeing with obſervations; or their poſitions in the heavens, as deduced from European tables. Let the planets be ſuppoſed to have been in a line of mean conjunction, in the beginning of Aries, at the commencement of the Cali-Yug; that is to ſay, at the inſtant of midnight, between Thurſday the 17th and Friday the 18th of February, O.S. in the year of the Julian period 1612, on the meridian of Lanka, or about 75° 50′ eaſt of Greenwich; and let the time at which the mean longitudes of the planets are to be determined as from obſervation, be the end of the year 4900 of the Cali-Yug, at the inſtant the ſun is ſuppoſed to be entering Aries, in the Hindoo ſphere, according to mean motions.

"Now, from the commencement of the Cali-Yug to the end of the year 4900, by the Surya Siddhanta, is 1789767 days $54^{do.}\ 24'\ 20''$; correſponding to the 12th of April, 1799, at 45′ 44″ paſt nine P.M. on the meridian of Lanka, or 51′ 40″ paſt four P.M. on the meridian of Paris. The mean longitude of the ſun, moon, and planets, at that inſtant, according to M. de la Lande's tables of 1792, will be as follows:

| | *European Sphere.* | | | |
|---|---|---|---|---|
| Sun - - - - - | $0^s$ | $20^\circ$ | $52'$ | $28''\cdot5$ |
| Moon - - - - - | 3 | 22 | 55 | 9·3 |
| Mercury - - - - - | 3 | 22 | 42 | 42 |
| Venus - - - - - | 2 | 24 | 6 | 14 |
| Mars - - - - - | 3 | 4 | 50 | 40 |
| Jupiter - - - - - | 1 | 29 | 58 | 2·1 |
| Saturn - - - - - | 3 | 24 | 16 | 56·1 |

"The mean longitude of the ſun at that inſtant in the Hindoo ſphere is $= 0^s\ 0^{\circ}\ 0'\ 0''$, becauſe he is ſuppoſed juſt entering Aries, according to mean motions: but his mean longitude is the European ſphere, being then $= 0^s\ 20^{\circ}\ 52'\ 28'''\cdot5$, the difference between the ſpheres at that moment becomes equal to that quantity; which muſt therefore be deducted from the mean longitudes above determined, and we have the relative poſitions of the ſun, moon, and planets, in the Hindoo ſphere, as follows:

*Hindoo Sphere.*

| | | | | | |
|---|---|---|---|---|---|
| Sun's mean longitude - - | | $0^s$ | $0^{\circ}$ | $0'$ | $0''$ |
| Moon's | ditto - - | 3 | 2 | 2 | 40·8 |
| Mercury's | ditto - - - | 3 | 1 | 50 | 13·5 |
| Venus's | ditto - - - | 2 | 3 | 13 | 45·5 |
| Mars's | ditto - - - | 2 | 13 | 58 | 11·5 |
| Jupiter's | ditto - - - | 1 | 9 | 5 | 33·6 |
| Saturn's | ditto - - - | 3 | 3 | 24 | 27·6 |

"The mean longitude of the ſun, moon, and planets, in the Hindoo ſphere, at the end of the year 4900 of the Cali-Yug, being thus determined, we muſt now find the quantities of the mean annual motions, that will juſt give theſe poſitions, reckoning from the commencement of the Cali-Yug, as an epoch of aſſumed mean conjunction.

"The length of the Hindoo year, according to the Surya Siddhanta, is 365 days $15^{do.}\ 31'\ 31''\ 24'''$, in which time the ſun is ſuppoſed to make one complete revolution in his orbit. The mean motions of the ſun, moon, and planets, in that ſpace of time, by De la Lande's tables, are as follows:

*European Sphere.*

| | | | | | | |
|---|---|---|---|---|---|---|
| Sun - - - | $1^r$ | $0^s$ | $0^{\circ}$ | $0'$ | $58''$ | $40'''\cdot26$ |
| Moon - - - | 13 | 4 | 12 | 47 | 39 | 17·03 |
| Mercury - - - | 4 | 1 | 24 | 46 | 35 | 36·9 |
| Venus - - - | 1 | 7 | 15 | 12 | 22 | 18·4 |
| Mars - - - - | 0 | 6 | 11 | 25 | 17 | 49·3 |
| Jupiter - - - | 0 | 1 | 0 | 21 | 49 | 9·2 |
| Saturn - - - | 0 | 0 | 12 | 14 | 8 | 0·9 |

"Theſe motions being reduced to the Hindoo ſphere, by deducting the difference between the ſpheres at the end of one complete Hindoo year $= 58''\ 40'''\cdot26$, we ſhall have their reſpective mean annual motions in the Hindoo ſphere, as follows:

*Hindoo Sphere.*

| | | | | | | |
|---|---|---|---|---|---|---|
| Sun - - - | $1^r$ | $0^s$ | $0^{\circ}$ | $0'$ | $0''$ | $0'''$ |
| Moon - - - | 13 | 4 | 12 | 46 | 40 | 36·78 |
| Mercury - - - | 4 | 1 | 24 | 45 | 36 | 56·6 |
| Venus - - - | 1 | 7 | 15 | 11 | 23 | 38·1 |
| Mars - - - - | 0 | 6 | 11 | 24 | 19 | 9 |
| Jupiter - - - | 0 | 1 | 0 | 20 | 50 | 29 |
| Saturn - - - | 0 | 0 | 12 | 13 | 9 | 20·6 |

"Multiplying theſe by 4900, the number of years expired from the aſſumed epoch, we obtain the number of revolutions, &c. of each planet in that ſpace of time; from which rejecting the fractional parts of a revolution, and ſubſtituting in their ſtead the ſign, degree, &c. the planet is in, (at the end of the year 4900 above determined from European tables,) and then dividing the whole by 4900, we get the mean annual motions required, as follows:

*Hindoo Sphere.*

| | | | | | | |
|---|---|---|---|---|---|---|
| Sun - - - | $1^r$ | $0^s$ | $0^{\circ}$ | $0'$ | $0''$ | $0'''$ |
| Moon - - - | 13 | 4 | 12 | 46 | 40 | 41·153 |
| Mercury - - - | 4 | 1 | 24 | 45 | 12 | 22·206 |
| Venus - - - | 1 | 7 | 15 | 11 | 47 | 40·72 |
| Mars - - - - | 0 | 6 | 11 | 24 | 10 | 15·814 |
| Jupiter - - - | 0 | 1 | 0 | 21 | 3 | 0·411 |
| Saturn - - - | 0 | 0 | 12 | 12 | 53 | 55·93 |

From this example, a general idea may be formed of the principles of the Hindoo aſtronomy, and the manner of determining the mean annual motions of the planets at different periods, from their poſitions in the heavens being then given by obſervation.

"If we compare the mean annual motions thus determined, with thoſe deduced from De la Lande's tables, we ſhall find that they differ conſiderably; and that the latter make the

| | | | | |
|---|---|---|---|---|
| Moon's mean annual motion - | | $0''$ | $4'''\cdot4$ | leſs. |
| Mercury's | ditto - - | 24 | 34·4 | greater. |
| Venus's | ditto - - - | 24 | 2·5 | leſs. |
| Mars's | ditto - - - | 8 | 53·2 | greater. |
| Jupiter's | ditto - - - - | 12 | 31·4 | leſs. |
| Saturn's | ditto - - - | 15 | 24·7 | greater. |

"From theſe circumſtances, an European aſtronomer, unacquainted with the principles of the Hindoo ſyſtems, on ſeeing ſuch motions given in Hindoo tables, would be apt to be deceived by appearances, and aſſign a degree of antiquity to the work which it never poſſeſſed; thinking, that the author *muſt* have lived at that period, when, according to his ideas, the quantities of the mean annual motions were the ſame as given in the book. This ſhows the abſolute neceſſity of being acquainted with the principles of the Hindoo ſyſtems of aſtronomy, before we can attempt to inveſtigate their antiquity from the quantity of the mean annual motion of a planet. For the mean annual motion of Jupiter, above deduced, is $1^s\ 0^{\circ}\ 21'\ 3''$, which quantity, according to the principles of the European aſtronomy, would refer the age of a book in which it was found, to a period ſome thouſands of years back; though, in reality, it is only calculated to give the poſition of that planet at the end of the year 4900 of the Cali-Yug, agreeing with European tables; and ſo of the motions of the reſt of the planets above deduced. For, let the mean annual motions above deduced be multiplied by 4900, and we ſhall have

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Sun | revolutions | 4900 — | $0^s$ | $0^{\circ}$ | $0'$ | $0''$ |
| Moon | - - | 65507 — | 3 | 2 | 2 | 40·8 |
| Mercury | - - | 20345 — | 3 | 1 | 50 | 13·5 |
| Venus | - - | 7965 — | 2 | 3 | 13 | 45·5 |
| Mars | - - | 2605 — | 2 | 13 | 58 | 11·5 |
| Jupiter | - - | 413 — | 1 | 9 | 5 | 33·6 |
| Saturn | - - | 166 — | 3 | 3 | 24 | 27·6 |

which are preciſely the ſame as thoſe computed from De la Lande's tables for the ſame inſtant.

With reſpect to the different ſyſtems of Hindoo aſtronomy, ſays Mr. Bentley, which have been framed from time to time, there are but three now generally known, all of them modern. The firſt is the *Brahma Calpa*, invented by Brahma Gupta, near 1300 years ago; (i. e. reckoning from the year 1808:) the ſecond, the *Padma Calpa*, ſaid to have been invented by a perſon of the name of Sri Dhara Padma, or Sri Dhara Padma Nabha, between eight and nine hundred years ago: and the third and laſt, the *Varaha Calpa*, invented by Varaha Mihira, between ſeven and eight hundred years ago. Hence it may be ſeen, that the different ſyſtems bear the names of their inventors, and not of deities; for there is no ſuch deity as Padma, though there is a ſyſtem of that name; therefore it muſt be ſufficiently obvious that theſe *real* ſyſtems of the aſtronomers were the baſes on which the writers of the Puranas erected their *ideal* ones of the Brahma Calpa, the Padma Calpa, and the Varaha Calpa; the two firſt of which they fancifully repreſent as paſt, and aſſert that we are now in the third or laſt. But the truth is, that none of theſe artificial ſyſtems are yet expired, (except in the idea of viſionaries,) nor will be for many millions of years to come

| | |
|---|---|
| The number of years now elapſed of the firſt, | =1972948905 |
| And yet there are to expire, - - | 2347051095 |
| The years elapſed of the Calpa of Varaha, | =1955884905 |
| And there remain yet to expire, - - - | 2364115095 |

Moſt of the Eaſtern nations, and the Hindoos in particular, appear to have employed, from time immemorial, artificial ſyſtems, not only in aſtronomy, but alſo for chronological purpoſes. Therefore, to form a juſt idea of their antiquity, a knowledge of theſe ſyſtems, and of the various changes that have taken place from time to time, is abſolutely neceſſary. Two of the moſt ancient Hindoo ſyſtems now known, and which in early times were applied to the purpoſes of chronology, are contained in an aſtronomical work entitled the *Graha Munjari.* This work is extremely valuable, as it enables us to fix, with preciſion, the real periods of Hindoo hiſtory, with their reſpective durations; and to ſhow from thence the alterations that have ſince taken place by the introduction of new ſyſtems.

The firſt ſyſtem mentioned in this work, conſiſted of 2400000 years, which was called the *Calpa.*—This period was divided into Manwantaras and Yugs, as follows:

| | |
|---|---|
| A Satya Yug conſiſted of | 960 Years. |
| A Treta, | 720 |
| A Dwapar, | 480 |
| A Cali, | 240 |
| A Maha-Yug, | 2400 |
| 71 Maha-Yugs, | 170400 |
| with a Satya of, | 960 |
| A Manwantara, | 171360 |
| 14 Manwantaras, | 2399040 |
| which, with a Satya at beginning, | 960 |
| From the whole Calpa, | 2400000 |

The calpa is alſo divided into 1000 Maha-Yugs, of 2400 years each.

The years expired of the above ſyſtem, at the era of Vicramaditya, were 1190627; which being reduced into Manwantaras and Yugs, we ſhall have

| | |
|---|---|
| A Satya at the beginning, = | 960 |
| 6 Manwantaras complete, | 1028160 |
| 67 Maha-Yugs of the 7th Manwantara, | 160800 |
| Thence to the era of Vicramaditya, | 707 |
| Total years expired, | 1190627 |

Hence it appears that Culi-Yug of the 67th Maha-Yug of the 7th Manwantara of this ſyſtem, ended 707 years before the era of Vicramaditya, or 764 years before Chriſt.—Therefore

| | |
|---|---|
| The Satya Yug, or golden age, began B. C. | 3164 |
| The Treta Yug, or ſilver age, | 2204 |
| The Dwapar Yug, or brazen age, | 1484 |
| The Cali Yug, or iron age, | 1004 |
| And ended, | 764 |

Making in all 2400 years; becauſe 3164 — 764 = 2400

During the firſt period of 960 years, called the golden age, the Hindoos have no real hiſtory; the whole being fabulous, except what relates to the flood, which is allegorically repreſented by the fiſh incarnation.

With the ſecond period, or ſilver age, the Hindoo empire commences, under the Solar and Lunar dynaſties; and from Budha, the ſon of Soma, the firſt of the Lunar line, they reckon about fifty reigns down to end of the Dwapar, which make, at an average, twenty-four years to a reign. Towards the cloſe of the fourth period, this ſyſtem appears to have been laid aſide, as the repeating the ſame names over again would, in time, cauſe a confuſion in hiſtory.

The next ſyſtem mentioned in the Graha Munjari, conſiſted of 387600000 years, which was called the term of Brahma's life. This period is divided and ſubdivided in the following manner:

A Calpa is called a day of Brahma, which in this ſyſtem contains, - - - - - 5000 Years.
And his night is of the ſame length, 5000
A day and night therefore, - = 10000
30 days and nights make a month, 300000
And 12 ſuch months a-year, = 3600000
And 107 ſuch years and eight months make the full period of Brahma's life, = 387600000

The Treta and Dwapar together make 1200 years, which, divided by 50, give 24 years to a reign. It is ſomewhat remarkable, that the principal Eaſtern nations date the commencement of their empires from nearly the ſame time. Thus we find the Chineſe empire began under the dynaſty of Hia, according to Mr. Playfair, B. C. 2207

| | |
|---|---|
| The kingdom of Egypt, | 2207 |
| The kingdom of Aſſyria, | 2221 |
| The empire of India under the ſolar and lunar lines, | 2204 |

The Calpa, or day of Brahma, is divided into Manwantaras and Yugs, in the following manner.

| | Years. | Months. |
|---|---|---|
| A Satya contains, | 2 | 0 |
| A Treta, | 1 | 6 |
| A Dwapar, | 1 | 0 |
| A Cali, | 0 | 6 |
| A Maha-Yug, | 5 | 0 |
| 71 Maha-Yugs, | 355 years. | |
| With a Satya of, | 2 | |
| Make a Manwantara of | 357 | |
| 14 ſuch Manwantaras, | 4998 | |
| Which, with a Satya at the beginning, | 2 | |
| Make a Calpa, or day of Brahma, | 5000 years. | |

The years expired of this ſyſtem, at the beginning of the Satya, or golden age of the former ſyſtem, were, 212560000

| | |
|---|---|
| Add thence to the Chriſtian era, | 3164 |
| Total years expired at the Chriſtian era, | 212563164 |

After 193799286 years had been expired of Brahma's life, he, for the firſt time, created the Earth, and ordained that, at the end of every Calpa, or 5000 years, it ſhould be deſtroyed, and again re-produced.

| | |
|---|---|
| Therefore, from the years elapſed, | 212563164 |
| Take the years at the firſt creation, = | 193799286 |
| Remain, | 18763878 |

The years from the firſt creation to the Chriſtian era—which being divided by 5000, the quotient will be the number of times the world has been deſtroyed and created, according to this Hindoo legend; and the remainder will ſhow the years expired ſince the laſt creation.

Thus, $\frac{18763873}{5000} = 3752$ times deſtroyed and created, and 3878 years from the laſt creation to the Chriſtian era. Now, ſince there are 357 years in each Manwantara, we have the date of the commencement of each as follow:

| | | |
|---|---|---|
| The firſt Manwantara, | B. C. | 3878 Years. |
| The ſecond, | | 3521 |
| The third, | | 3164 |
| The fourth, | | 2807 |
| The fifth, | | 2450 |
| The ſixth, | | 2093 |
| The ſeventh, | | 1736 |
| The eighth, | | 1379 |
| The ninth, | | 1022 |
| The tenth, | | 665 |
| The eleventh, | | 308 |
| The twelfth, | A. C. | 49 |
| The thirteenth, | | 406 |
| The fourteenth, | | 763 |
| and ended | | 1120 |

Making in all about 5000 years, with the Sandhi of two years.

Thus the Satya, or golden age, as we call it, of the firſt ſyſtem, began on the ſame year that the third Manwantara of the ſecond ſyſtem did; that is, the year before Chriſt 3164. And the ninth Manwantara, of the ſecond ſyſtem, began the year before Chriſt 1022, only eighteen years after the commencement of the Cali, or iron age, of the firſt ſyſtem.

Hence, from the beginning of the third Manwantara, down to that of the ninth, includes nearly the ſame time as the Satya, Treta, and Dwapar, of the firſt ſyſtem; and conſequently, the events of hiſtory recorded in theſe periods, if transferred to the former, ſhould be found under thoſe particular Manwantaras which correſponded with the actual times in which they happened, unleſs purpoſely deſtroyed or perverted, in modern times, to prevent a diſcovery of the change that has been made in the ſyſtems. Therefore, let us ſee how far the periods of the two ancient ſyſtems agree, with reſpect to the ſame events, which will be the moſt certain mode of proving the truth of theſe ſyſtems.

The Hindoos place the flood in the Satya, or golden age: on referring to the Manwantaras, we find, according to the Marcandeya Purana, that the flood took place in the fourth Manwantara; and that the fourth Menu derived his name, *Tamaſa*, from the univerſal darkneſs which then overſpread the earth; therefore, the two ſyſtems agree in this point.

The next period is the Treta, or ſilver age, at or about the commencement of which the Hindoo empire began under the ſolar and lunar dynaſties. Budha, the ſon of Soma, the ſon of Atri, was the firſt of the lunar line, and from him down to the end of the Dwapar, or brazen age, (being 1200 years,) there were about fifty reigns. Now by looking into the Puranas under that period, we there find, among other names of perſons who then lived, thoſe of Atri, Soma, and Budha; which ſhows the exact agreement between the two ſyſtems.

We next come to the ſixth Manwantara, before Chriſt 2093, which began 111 years later than the Treta, or ſilver age. Among the names we find mentioned in the Puranas in this period, are Bhrigu and Dacſha, who appear to have been cotemporary, or nearly ſo. For Yayati, the fourth prince in deſcent from Budha in the lunar dynaſty, according to the Puranas, was married to Devayani, the grand-daughter of Bhrigu, of whom he begat two ſons, Yadu and Turvaſu; and of Sarmiſhta, the daughter of Vriſhaparvan, the grandſon of Dacſha, he begat three ſons more, viz. Druhya, Anu, and Puru; conſequently, Bhrigu and Dacſha muſt have lived about the ſame period, and Budha could have been earlier only by a few years, perhaps one or two generations at moſt. Theſe circumſtances, though they may appear at firſt ſight as trivial, involve facts of conſiderable importance in the Hindoo hiſtory; while, at the ſame time, they prove the truth of the ancient ſyſtems. Dacſha appears to have been an aſtronomer, and to have formed the twenty-ſeven lunar manſions, and other conſtellations, of which he is allegorically called the Father.

We next proceed to the 7th Manwantara. Among the names given in the Puranas in this period, we find thoſe of Jamadagni, Biſwamitra, and Bharadwaja, men who, according to the Hindoo hiſtory, lived towards the cloſe of the Treta-Yug; for Jamadogni was the father of Paraſurama, and nephew of Biſwamitra. Hence the two ſyſtems agree in this point.

The next period we come to is the Dwapar Yug, or brazen age of the firſt ſyſtem. This period is rendered famous in the Hindoo hiſtory, by the war that took place towards the cloſe of it, between the ſons of Dhritaraſhtra and thoſe of Pandu. Among the names of men we find mentioned in Hindoo hiſtory, as living in this period, are thoſe of Paraſara, Vyas his ſon, Garga, Galava, Aſwatthaman, Cauſica, Diptiman, Cripa, Riſhyaſringa, &c. This period correſponds to the eighth Manwantara of the ſecond ſyſtem; under which we accordingly look in the Puranas, and find theſe names, which clearly eſtabliſh the truth of the ancient ſyſtems.

We now proceed to ſome of the obſervations that have been left us by Paraſara, Garga, and others of the ancients, which will enable us to judge with more certainty of the actual time in which they lived, as well as of the progreſs then made in the ſcience of aſtronomy in India. It appears, from what is ſtated in the Paraſari Sanhita, relative to the commencement of the ſix Hindoo ſeaſons, that the ſolſtitial colure had paſſed through the firſt point of Dhaniſht'ha, and the middle of Aſleſha, while the equinoctial colure cut the tenth degree of Bharani, and 3° 20′ of Viſac'ha.

About the year A. D. 527, the ſolſtitial colure, according to Brahma Gupta, cut U. Aſhara in 3° 20′, and Punarvaſu in the tenth degree, which made a difference in the poſitions of the colures, of 23° 20, from the time of Paraſara. For the longitude of the firſt point of Sraviſht'ha

in the Hindoo ſphere is - - $= 9^s\ 23^\circ\ 20'$
And $3^\circ - 20'$ of U. Aſhara - $= 9\ 00\ 00$
Difference or preceſſion to A. D. 527 $= 23\ 20$
Which at 50 ſeconds per annum gives 1680 years.
Add from A. D. 527, to this time = 1277
Total years ſince the time of Paraſara 2957

Which make about one hundred and fifty years before the beginning of the Cali Yug of the firſt ſyſtem of the Graha Munjari; or about one hundred and thirty-one years before the end of the eighth Manwantara of the ſecond ſyſtem.

It appears alſo that the ſun and moon were ſuppoſed to return to a line of conjunction in the firſt point of Sraviſht'ha, at the inſtant of the winter ſolſtice at the end of every cycle, or yug, of five years. In this period the moon was ſuppoſed to make ſixty-two revolutions to the ſun, and ſixty-ſeven to the ſame fixed ſtar, or the equinox; for, it ſeems, they had no knowledge of the preceſſion of the equinoxes at that time.

The number of mean ſolar days aſſigned to this cycle of five years was 1830, and the number of lunar days in the ſame time 1860. Hence,

1ſt. The ſolar days in a year - - $= \frac{1830}{5}$ = 366 days
2d. The lunar days in a year - - $= \frac{1860}{5}$ = 372
3d. The moon's mean annual motion $= \frac{67}{5} = 13^r\ 4^s\ 24^\circ\ 0'\ 0''$
4th. The moon's daily motion $= \frac{67}{1830} = 13\ 10\ 49\frac{11}{61}$
5th. The moon's periodical revol. $= \frac{1830}{67} = 27^d\ 7^h\ 31'\ 20''\ \frac{40}{67}$
6th. The moon's ſynodical revol. $= \frac{1830}{62} = 29\ 12\ 23\ 13\ \frac{17}{31}$

It appears alſo, that the greateſt length of the day was thirty-two *dandas*, or twelve hours forty-eight minutes; conſequently, the latitude of the place of obſervation muſt have been about $13\frac{1}{2}^\circ$ north. There is no mention made in the work of Paraſara, of the names of the days of the week, or of the twelve ſigns.

From the above ſketch, the reader will be able to judge of the progreſs made in aſtronomy in India near 3000 years ago. He will perceive that the Hindoos at that time, poſſeſſed nothing that could be called aſtronomy, beyond other nations.

The Hindoos made the lunation then - - - - - $= 29^d\ 12^h\ 23'\ 13''\frac{17}{31}$
The Europeans make it now - 29 12 44 3
Difference about - - - - - - 20 $49\frac{1}{2}$

Which in leſs than 165 years would produce an error of one lunation.

After this period, we meet with nothing on aſtronomy till we come down to Brahma Gupta, being a ſpace of 1680 years, which ſeems to be an entire blank in the Hindoo aſtronomy. This aſtronomer flouriſhed about A. D 527; and, finding that the ancient ſyſtems were very imperfect, on account of the ſhortneſs of the periods, he framed an entire new ſyſtem, on a much larger ſcale, making the Calpa to conſiſt of 4320000000 years. To this cycle, or period of years, he aſſigned the following revolutions of the planets, &c.

| Planets. | | Apſides. | Nodes retro. |
|---|---|---|---|
| Sun, | 4320000000 | 480 | |
| Moon, | 57753300000 | 488105858 | 232311168 |
| Mercury, | 17936998984 | 332 | 511 |
| Venus, | 7022389492 | 653 | 893 |
| Mars, | 2296828522 | 292 | 267 |
| Jupiter, | 364226455 | 855 | 63 |
| Saturn, | 146567298 | 41 | 584 |

The revolution of the equinoxes, in 4320000000 years - - - - = 199669
Mean ſolar days, - - - - - - 1577916450000
Lunar days, or *tithis*, - - - - 1602999000000

He made Sunday the firſt day of the Calpa; on which day, at ſunriſe, the planets, &c. are *aſſumed* to have been on a line of mean conjunction in the firſt point of Aries in the Hindoo ſphere The years expired of this ſyſtem on the 1ſt of Vaiſacha (or *Vyſakh*) this year = 1972948905.

Hence, the mean places of the planets, &c. may be computed, from the above data, for any inſtant required.

This is the third and laſt ſyſtem to which the Hindoos have transferred their hiſtory; and for which purpoſe, in imitation of the ancients, they divide it into Manwantaras and Yugs, as follow:

| | Years. |
|---|---|
| A Satya Yug of - - - | 1728000 |
| A Treta of - - - | 1296000 |
| A Dwapar of - - - | 864000 |
| A Cali of - - - | 432000 |
| A Maha Yug - - - | 4320000 |
| 71 Maha Yugs - - | 306720000 |
| with a Satya of - - - | 1728000 |
| A Manwantara - - | 308448000 |
| 14 Manwantaras - - | 4318272000 |
| with a Satya at beginning of - | 1728000 |
| The modern Calpa - - | 4320000000 |

In order to ſhow how the Hindoo hiſtory, according to the two former ſyſtems, had been transferred to this, let 1972948905, the years now expired, be reduced into Manwantaras and Yugs, and we ſhall have

| | | Years. |
|---|---|---|
| A Satya at the beginning - - - | = | 1728000 |
| 6 Manwantaras complete - - | = | 1850688000 |
| 27 Maha Yugs of the 7th Manwantara | = | 116640000 |
| Satya of the 28th Maha Yug - - | | 1728000 |
| Treta of ditto - - - | | 1296000 |
| Dwapar of ditto - - - - | | 864000 |
| Expired of the Cali of Ditto - - - | | 4905 |
| Total years expired - | | 1972948905 |

Hence it is evident, that we are now in the 4906th year of the Cali Yug of the twenty-eighth Maha Yug of the ſeventh Manwantara of this new ſyſtem.

Now, if we transfer the names, &c. in the four ages of the firſt ſyſtem of the Graha Munjari, to the Satya, Treta, Dwapar, and Cali, above-mentioned, and thoſe in the Manwantaras of the ſecond ſyſtem, to the Manwantara of the ſame name in this; then we ſhall have the periods of Hindoo hiſtory, according to modern notions, founded on the ſyſtem of Brahma Gupta.

In the firſt place, by transferring the names, &c. in the Dwapar Yug of the firſt ſyſtem, to the period of the ſame name in the new ſyſtem, Paraſara, Vyas, and others, who lived near three thouſand years ago, are thrown back into antiquity about five thouſand years; and the ſame perſons who lived in the eighth Manwantara of the ſecond ſyſtem, by the transfer, will appear as yet to come; for we are now only in the ſeventh of the new. Secondly, Budha, the ſon of Soma, the firſt of the Lunar line, who began his reign about the beginning of the Treta of the firſt ſyſtem, or 2204 years before Chriſt, will, by the transfer, be placed at the diſtance of 2163102 years before the Chriſtian era. Thirdly, in the Treta and Dwapar of the firſt ſyſtem, there were (taken together) 1200 years, during which about fifty princes in the Lunar line had reigned in ſucceſſion; but the Treta and Dwaper of the new ſyſtem contain 2160000 years, which divided among fifty, give 43200 years to a reign. Fourthly, Budha, the ſon of Soma, lived towards the cloſe of the fifth Manwantara of the ſecond ſyſtem, which being transferred to the new, his name will appear at two diſtinct periods of time, immenſely diſtant from each other, viz. in the fifth Manwantara, and again in the Treta Yug of the twenty-eighth Maha Yug of the ſeventh Manwantara, being an interval, at the leaſt, of 426816000 years. Fifthly, the mothers of the children of Yayati (ſee page 168) who lived in the ſixth Manwantara of the ſecond ſyſtem, by being transferred to the ſixth Manwantara in the new, are thrown back ſeveral millions of years before their children; and Dacſha and Bhrigu, by the ſame transfer, are thrown back, from their cotemporaries, many millions of years. Laſtly, Swayambhuva, the Adam of the Hindoos, who, according to the ſecond ſyſtem, lived 3878 years before Chriſt, is placed, by the transfer, 1972947101 years before that epoch. Theſe are a few of the terrible inconſiſtencies introduced by the adoption of the new ſyſtem of Brahma Gupta; the reſt may be eaſily conceived.

To reconcile theſe different abſurdities, it was neceſſary to new model the whole of the Puranas, and to introduce ſuch fictions and prophecies, as ſeemed beſt calculated to anſwer the end in view; but which, after all, only ſerve to ſhow, in a more glaring manner, the folly of the attempt.

The enormous length of the periods in the new ſyſtem, required that the life of man ſhould be proportionably extended, which was accordingly aſſumed. In order to account for the ſame Riſhis being mentioned in different periods, immenſely diſtant from each other, they are aſſerted not only to have exiſted at all times, but to be ſtill living. But as all men were not Riſhis, and as there were twenty-ſeven Maha Yugs from the beginning of the ſeventh Manwantara to the commencement of the twenty-eighth Maha Yug = 116640000 years, during which there is no ſhadow of hiſtory; to account for this, they therefore pretend, that at the end of every Maha Yug, or 4320000 years, the ſame names, perſons, &c. again occur, as in the preceding period; ſo that by having the names, &c. for one Maha Yug, or ſet of four ages, we have them for all the reſt.

Vyas, and others, as already noticed, lived in the eighth Manwantara of the ſecond ſyſtem of the Graha Munjari; but by the transfer of the names in that Manwantara, and in the ninth, tenth, &c. to the periods of the ſame names in the new ſyſtem, they would appear as yet to come; therefore, to reconcile this, all that was neceſſary was to convert it into a prophecy, which was accordingly adopted in the modern Puranas; ſo that thoſe men who in reality are long ſince paſt and gone, appear, in theſe books, as if yet to come; and as many millions of ages muſt elapſe, by the new ſyſtem, before the periods of their propheſied exiſtence can arrive, there is no great danger of detecting the falſehood of ſuch prophecy.

It may however be eaſily conceived, that ſuch a change in the hiſtory, by the introduction of a new ſyſtem, though highly flattering to the vanity of the Brahmins in general, in exalting their country, at leaſt nominally, in point of antiquity above all other nations, would naturally be oppoſed by many, as long as any knowledge remained of the ancient ſyſtems; therefore, the ſuppreſſion of theſe would become neceſſary. Accordingly we find, by a tradition ſtill current among the learned Hindoos, that the Maharaſtros (Mahrattas) deſtroyed all the works of the ancient aſtronomers they could meet with; which, in ſome meaſure, may account for the deficiency we have obſerved in aſtronomical works anterior to the time of Brahma Gupta. But, if the Mahrattas did actually deſtroy the works of the ancient aſtronomers, it may be juſtly inferred that other works of antiquity, the ſubjects of which might contradict the new order of things, have alſo met the ſame fate.

From this view of the artificial ſyſtems which have prevailed at different times, and of the various changes that have been made in the Hindoo hiſtory, &c. the reader will be able to judge for himſelf, and form a juſt opinion of the antiquity of the books of the Hindoos, their arts, and their ſciences.

In the firſt place, it muſt be evident, that as the artificial ſyſtem of *Brahma Gupta*, now called the *Calpa of Brahma*, and to which the modern Hindoos have artfully transferred their hiſtory, is not above 1300 years old, no book whatever, let its name or title be what it will, in which the monſtrous periods of that ſyſtem, or any alluſion to them, is found, can poſſibly be older than the time of its invention. And ſecondly, that none of the Puranas, at leaſt in the form they now ſtand, are older than 684 years; the time when the fourteenth Manwantara of the ſecond ſyſtem of the Graha Munjari ended; but that ſome of them are the compilations of ſtill later times.

It might here be proper to remark, that all the moſt ancient remains of aſtronomical works in India, the erection of the obſervatory at Benares, the conſtruction of the aſtronomical apparatus adapted to it, and the obſervations made under its meridian, go no farther back than the reign of Akbar; who, as it is ſaid, "being deſirous of *recovering the loſt ſciences of Hindooſtan*, directed that obſervatories ſhould be erected at Delhi, Agra, and Benares." The former have been lately inſpected by William Hunter, eſq. and his account of them is publiſhed in the fifth volume of the Aſiatic Reſearches; whereby they appear to reſemble very much the obſervatory deſcribed by ſir Robert Barker, bart. at Benares; for whoſe very ample detail of that building, and its appropriate inſtruments, we beg to refer the reader to the article BENARES, vol. ii. p. 880.

The majeſtic ſtyle of the ancient Hindoo ARCHITECTURE, like that of the Egyptian, will be beſt appreciated by contemplating their pagodas or temples, which aſtoniſh by their magnitude, and raiſe our admiration by the immenſity of the ſculptures with which they are adorned. While the ſtupendous ſize of the towers, the height and ſolidity of the walls, the ſpace that is incloſed within them, and the prodigious labour that the whole announces, impoſe the higheſt reſpect, we cannot at the ſame time but acknowledge the beauty, as well as ſimplicity, of the whole compoſition. In the ſouthern parts of Hindooſtan, many of theſe auguſt fabrics are ſtill in a ſtate of preſervation; but in the northern provinces, where the ravages of the Mohammedan and Mogul invaders levelled all before them, their temples are chiefly conſtructed of the fragments of their ancient works thus deſolated, and rebuilt by the fugitive Hindoos, when they had obtained ſome reſpite from perſecution, but had evidently loſt their taſte and knowledge in the arts. Striking examples of this fact are to be ſeen in many places, where modern columns are erected upon ancient capitals; while others are made to ſupport baſes, with piers between them, conſtructed entirely of mutilated pieces of ſculpture.

The Brahmins in general are extremely ſhy of admitting ſtrangers into the interior of their temples; and this indulgence is ſeldom granted but through the interference or authority of ſome principal rajah. Mr. Orme, the admired author of the Hiſtory of Hindooſtan, was among the firſt of the Engliſh who were admitted to this honour. He has accordingly deſcribed, in a maſterly ſtyle, the ſuperb temple in the iſland of Seringham, on the coaſt of Coromandel, which deſcription our readers will find under our ſection of ANCIENT ARCHITECTURE, at p. 66, of our Second Volume. This famous temple is dedicated to Viſhnu, and in the inner incloſure are the altars and the image of that god. The Brahmins who belong to its eſtabliſhment, with their families, and dependants, are ſaid to amount to ten thouſand ſouls.

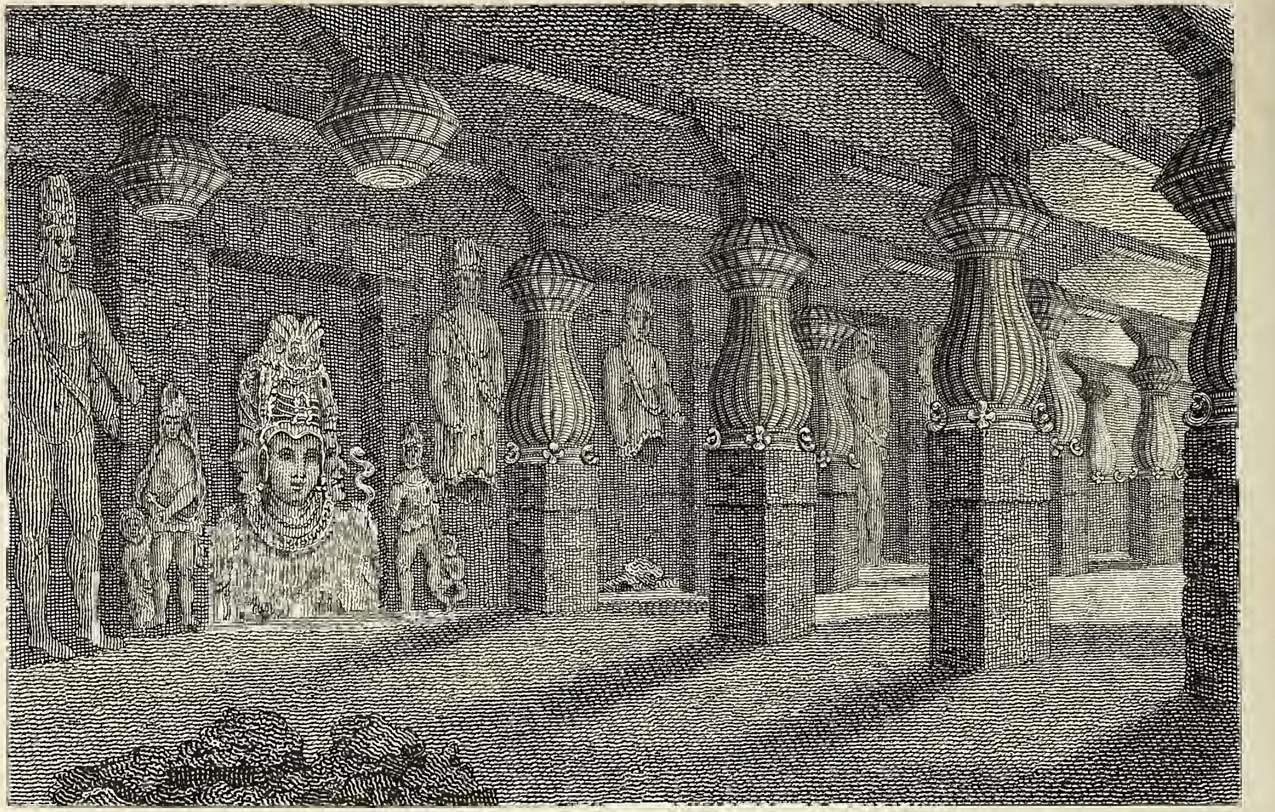
The temple of Jagan-Nath, commonly written Jagernaut, on the coaſt of Oriſſa, we have already noticed. It is pretended that this temple has been in exiſtence ever ſince the commencement of the Cali Yug, 3102 years before the birth of Chriſt; and it is, as we have before obſerved, the only temple throughout the whole extenſive region of Hindooſtan, where pilgrims and devotees of every ſect and caſt mix together, and perform their idolworſhip to their favourite god, with equal zeal and free toleration. The Brahmins pretend, that the reaſon of this ſingular unanimity of all ſects of Jagan-Nath is, becauſe the god Criſhna originally preſided in this temple, and ordained, that all ſects coming to worſhip there, ſhould be conſidered as one people, and would be favoured by the gods in proportion as they ſhould manifeſt a fraternal regard and affection for one another. It is remarkable, however, that, when any of theſe ſects meet at other places, they are ever forward in expreſſing their contempt of each other's creed.

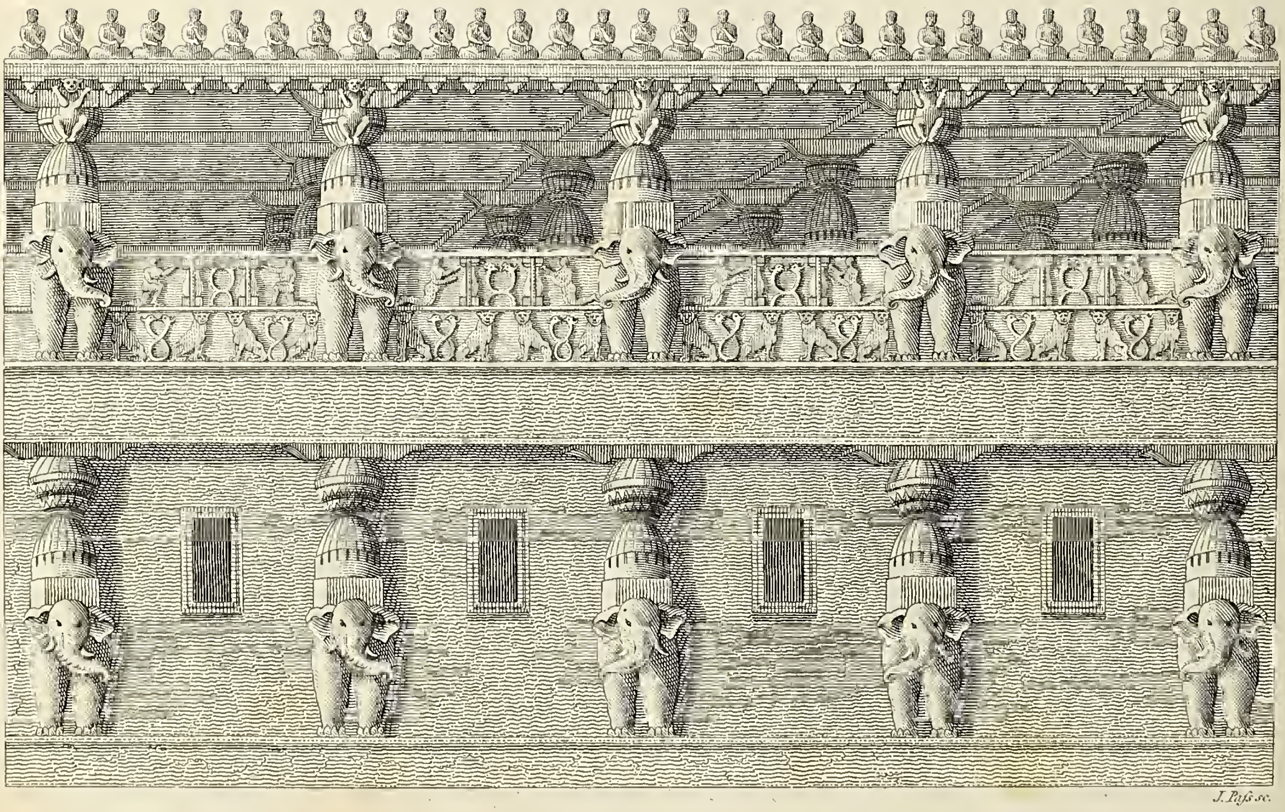
In the city of Madura, in the dominions of the nabob of Arcot, there is a Hindoo pagoda of great magnificence. This ſplendid fabric has been already deſcribed under our article ARCHITECTURE, vol. ii. p. 67, where an Engraving is given of the ſuperb pillars which ſupport its majeſtic roof; and the profuſion of ſculptures with which theſe columns are embelliſhed, will afford the reader a correct idea of the ſculptures beſtowed on all ſimilar works in Hindooſtan.

The pagoda or temple of Perwuttum, on the ſouth bank of the Kiſtna, is a fabric of conſiderable curioſity, which has been recently deſcribed by captain Mackenzie, as follows:

On entering the ſouth gate of this ſtately building, we deſcend by ſteps into the inner court, where the principal deity, called Mellecarjee, is worſhipped. It is ſquare, and the roof is terminated by a pyramid of ſteps: the whole walls, and roof on the outſide, are covered with braſs plates, which have been gilt, but the gilding is now worn off. Theſe plates are joined together by ſmall bars and ſockets, ſo that the whole may be taken off without damage to the ſpire or pyramid, which is about thirty feet from the ground: the plates are plain, excepting a few emboſſed figures of women, ſome ſmall ornaments, and on the friezes of the doors, the pannels of which are alſo plated. From hence we enter a ſmaller temple of Mallecarjee, where he is adored in the figure of a rude ſtone, erected, without ſculpture or carving, at the upper end. Behind this building an immenſe fig-tree covers, with its ſhade, the devotees and attendants, who come in immenſe numbers to worſhip this rude idol. Captain Mackenzie was afterwards allowed to ſee the ſacred idol, which is kept always in a dark receſs, and never worſhipped but when the ſun is high enough to reflect his rays into this *ſanctum ſanctorum*. When the hour arrived, the doors on the eaſt ſide of the gilt pagoda were thrown open, and a mirror, or reflecting ſpeculum, was brought for the purpoſe of reflecting the ſun-beams upon the idol. Directly oppoſite to the gate of the pagoda is a ſtone building raiſed on pillars, encloſing a well, and ending in a point; and, being at the diſtance of twelve or fourteen feet, darkens the gateway by its ſhadow, until the ſun riſes above it: this, no doubt, has been contrived on purpoſe to raiſe the expectation of the people, and, by rendering the ſight of the idol more rare, to favour the impoſition of the Brahmins. The moment being arrived, a vaſt crowd ſurrounded the entrance, impatient to obtain a glimpſe of the awful figure within. A perſon, being placed near the door-way, waved and played the concave mirror in ſuch a manner as to throw gleams of light into the pagoda; in the deepeſt receſs whereof was diſcovered, by means of theſe coruſcations, a ſmall, oblong, roundiſh white ſtone, with dark rings, fixed in a ſilver caſe. It appears that this idol is intended to repreſent the lingam, which is held in ſo much reverence by the ſect of Siva. Captain Mackenzie ſays the ſtone is quite ſmooth, and ſhining, and that the dark rings, or ſtreaks, are painted on it; it is probably an agate of an uncommon ſize.

The whole of this temple, with a choultry for the pilgrims, courts, &c. are encloſed by a wall 660 feet long, and 510 feet broad. Below the level of the principal gate, a road, twenty-four feet broad, goes parallel without to this wall, from whence is a deſcent by ſteps to gardens on the north ſide: from the eaſt gate a double colonnade runs 120 yards, forming a ſtreet: an oblong tank is on the weſt ſide, from which water is conducted to reſervoirs in the gardens. The form of the encloſure is an oblong ſquare, with one ſquare projection to the weſt. The great gateways are ſupported by ſtone pillars, leaving apartments for the guard on each ſide the entrance: they are covered with ſpires of brick-work; and this, with the pillar between, being retired ſome feet within the line of walls, ſhows that they are of a more modern conſtruction, though the ſpires are rather ruinous: and it may be proper to remark, that theſe brick ſpires, formed of ſeveral ſtories, with ſmall pilaſters of no regular order, and the niches ornamented with figures in plaſter, ſeem to be the lateſt invention uſed in the pagodas; thoſe with pyramidal roofs, ſtep-faſhion, and the ſummit crowned ſometimes by an immenſe globe, are the moſt ancient. The wall of the encloſure is built of hewn blocks of granite, from ſix to ſeven feet long by three high, exactly ſquared, and laid together;





J. Paſs sc.

The Cave or Temple of Elephanta; with a Sketch of the Style of Architecture in the Temple of Paradise?

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ther; and about eight or nine rows of theſe, from the level of the interior pavement, leave its height varied from twenty-four to twenty-ſeven feet: the whole of the wall on the outſide is covered with carvings and figures ſculptured out of the block. Every ſingle block has a rim, or border, raiſed round it, within which the carving is raiſed on a level with the rim, deſigned evidently to protect the figures from injury, while raiſed upon the wall.

The firſt and loweſt row of theſe ſtones is covered with figures of elephants, harneſſed in different ways as if led in proceſſion, many of them twiſting up trees with their trunks. The ſecond row is chiefly occupied with equeſtrian ſubjects: horſes led ready ſaddled, and their manes ornamented; others tied up to pillars; ſome looſe; a great many horſemen are repreſented engaged in fight; at full gallop; and armed with pikes, ſwords, and ſhields; others are ſeen hunting the tigers, and running them through with long ſpears. The riders are repreſented very ſmall in proportion to the horſes, probably to diſtinguiſh the ſize of the latter, as a ſmaller caſt ſeems intended to be repreſented among the led horſes, where a few are ſeen lower in ſize, ſomething reſembling the Acheen breed of horſes. All theſe figures are very accurately deſigned. It is remarkable, that ſeveral figures are repreſented gallopping off as in flight, and at the ſame time drawing the bow at full ſtretch; theſe Parthian figures ſeem to have entirely dropped the bridle, both hands being occupied by the bow; ſome of them are ſeen advancing at full ſpeed, and drawing the bow at the ſame time. This mode appears to have been practiſed by the Hindoos, as it is highly probable, that the arts of common life only are here repreſented in the lower row. On the third row, a variety of figures are repreſented, many of them hunting-pieces; tigers (and in one place a lion) attacked by ſeveral perſons; crowds of people appear on foot, many armed with bows and arrows, like the Chinſuars; many figures of Yogeys are ſeen, diſtinguiſhed by their hair twiſted up like turbans, carrying their ſticks, pots, and bundles, as if coming from a journey; ſome leaning on a ſtaff as if tired, or decrepid from age; others approaching with a mien of reſpect and adoration. The fourth, fifth, ſixth, and ſeventh, rows, are filled with repreſentations of ſeveral events regarding the deities of the place, or expreſſive allegories of the moral and religious dogmas of the Brahmins; and probably ſome may record particular events of real hiſtory. The eighth has fewer carvings than the reſt; ſome ſtones are occupied by a ſingle flower of large ſize, perhaps intended for the ſacred lotos; and ſome, though but a few, by the figure of a god. The ninth, or upper row, is cut into openings, in the manner of battlements; and the ſtones between each of theſe apertures, are alternately ſculptured with the figures of the lingam, and a cow ſhaded by an umbrella, to ſignify its pre-eminence. In ſhort, the magnitude of the building, and the richneſs and profuſion of the ſculptures, are ſuch, that we are at a loſs which moſt to admire, the immenſity of the labour, or the ability and patience of the artiſts, by which this grand ſpecimen of Hindoo architecture was brought into exiſtence.

Among the curious remains of ancient Hindoo architecture, may alſo be reckoned the *Seven Pagodas*, ſituated near the ſea, at Mahabalipoorum, about thirty-eight miles ſoutherly from Madras. A diſtant view of theſe temples preſents merely a rock, which, on a near approach, is found deſerving of particular examination. The attention, paſſing over ſmaller objects, is firſt arreſted by a Hindoo pagoda, covered with ſculpture, and hewn from a ſingle maſs of granite rock; being about twenty-ſix feet in height, nearly as long, and about half as broad. Within is a *lingam*, and a long inſcription on the wall, in characters unknown. The temple is dedicated to Siva. Near this ſtructure, the external ſurface of the rock, about ninety feet in extent, and thirty in height, is covered with figures in bas-relief. A gigantic figure of the god Criſhna is the moſt conſpicuous, with Arjoon, his favourite, in the Hindoo attitude of prayer.

Oppoſite, and ſurrounded by a wall of ſtone, are pagodas of brick, ſaid to be of great antiquity. Adjoining is an excavation in the rock, the maſſive roof ſeemingly ſupported by columns, not unlike thoſe in the celebrated cavern of Elephanta; but theſe have been left unfiniſhed. A few paces onward is another, and more ſpacious, excavation, now uſed as a ſhelter for travellers. A ſeries of ſculpture fronts the entrance, ſaid to repreſent Criſhna attending the herds of Ananda. One of the group repreſents a man diverting an infant, by playing on a flute, and holding the inſtrument as we do. The columns ſupporting the roof are of different orders; the baſe of one is the figure of a Sphynx. Near this pagoda is the almoſt-deſerted village, which ſtill retains the ancient name *Mahabalipoorum*.

Paſſing over immenſe beds of ſtone, you arrive at a ſpacious excavation; a temple dedicated to Siva, who is repreſented, in the middle compartment, of a large ſtature, and with four arms; the left foot reſts on a bull couchant; a ſmall figure of Brahma ſtands on the right hand; and another, of Viſhnu, on the left. At one end of the temple is a gigantic figure of Viſhnu, ſleeping on an enormous *cobra de capello* with ſeveral heads, and ſo diſpoſed as to form a canopy over the head of the god. At the oppoſite end is the goddeſs Cali with eight arms, mounted on a *ſingam*, or lion. Beyond this temple, at a conſiderable elevation, is a ſmaller, wrought from a ſingle maſs of ſtone. Adjoining to this is a temple in the rough, and a large maſs of rock, the upper part roughly faſhioned for a pagoda. If a concluſion may be drawn from theſe unfiniſhed works, an uncommon and aſtoniſhing perſeverance was exerted in finiſhing the ſtructures here; and the more ſo, from the ſtone being a ſpecies of granite, extremely hard.

The remains of ſeveral ſtone edifices are ſeen in the village; and a large tank, lined, with ſteps of ſtone. A canopy for the pagod attracts the attention, as by no means wanting in magnificence or elegance. It is ſupported by four columns, with baſe and capital, about twenty-ſeven feet in height, the ſhaft tapering regularly upwards; is compoſed of a ſingle ſtone, not round, but ſixteen-ſided; meaſuring at bottom about five feet and a half.

Eaſt of the village, and waſhed by the ſea, which, perhaps, would have entirely demoliſhed it before now, but for a defence of large ſtones in front, is a pagoda of ſtone, containing the lingam, and dedicated to Siva. Beſides the uſual figures within, one of a gigantic ſtature is obſerved ſtretched out on the ground, and repreſented as ſecured in that poſition. This the Brahmins ſay was deſigned for a rajah, who was thus ſecured by Viſhnu. The ſurf here breaks far out over the ruins of the ancient city, which was incredibly large and magnificent. Many of the maſſes of ſtone near the ſhore appear to have been wrought. It is ſaid that in the laſt generation the gilded tops of five pagodas were ſeen in the ſurf, now ſwallowed up by the ſea. It appears from good authorities, that the ſea on this part of the coaſt is encroaching by ſlow, but no leſs certain, ſteps; and will perhaps in a lapſe of ages entirely overwhelm theſe magnificent ruins.

Of all the moſt curious architectural works of antiquity in India, (if forming or mining a ſubterraneous temple in a ſolid rock might be ſo called,) the "Cave of Elephanta" claims ſuperior attention.

It is ſituated in a ſmall iſland about five miles from Bombay; and an elephant, carved out of a black ſtone, as large as the life, ſtands near the landing-place; and from which the iſland took its name of Elephanta. The cave is diſtant nearly a mile from the landing-place; and is excavated out of the central part of the rock. Its maſſive roof is ſupported by rows of columns regularly diſpoſed; gigantic figures, in relief, are ſculptured on the walls; theſe, as well as the columns, are ſhaped out of the ſolid rock, and by artiſts poſſeſſed of obvious ability, unqueſtionably of aſtoniſhing perſeverance. The wall at the upper end of the cave is crowded with ſculpture. The attention is firſt arreſted by a grand buſt, repreſenting the gods of the Indian triad. The middle face is preſented full, and expreſſes a dignified compoſure; the head and neck ſplendidly covered with ornaments: this is Brahma. The face on the left is in profile, and the head-dreſs rich; in one of the hands is a lotos; in the other a fruit; a ring like that worn by the Hindoos at preſent is obſerved on one of the wriſts; the expreſſion of the countenance is mild and pleaſant: this is Viſhnu. Different is the head on the right; the face is in profile, the forehead projects, the eye ſtares; ſnakes ſupply the place of hair, and the repreſentation of a human ſkull is conſpicuous on the covering of the head; one hand graſps a monſtrous *cobra de capello*; the other a ſmaller; the whole together calculated to ſtrike terror into the beholder: this is Siva. The height of this buſt is about eighteen feet, and the breadth of the middle face about four. Each ſide of this niche is ſupported by a gigantic figure leaning on a dwarf.

A niche of conſiderable dimenſions, and crowded with figures, is excavated on either ſide the former. In the middle of the niche, on the right, ſtands a gigantic figure, apparently female, but with *one breaſt* only. This figure has four arms, the foremoſt right hand is leaning on the head of a bull, the other graſps a *cobra de capello*, while a circular ſhield is obſerved in the inner left hand; the head is richly ornamented. On the right ſtands a male, bearing a pronged inſtrument, reſembling a trident; on the left is a female, holding a mace or ſceptre; near the principal is a beautiful youth on an elephant; above this is a figure with four heads, ſupported by ſwans or geeſe; and oppoſite is a male with four arms, mounted on the ſhoulders of another, having a ſceptre in one of the hands. At the top of the niche ſmall figures in different attitudes are obſerved, ſeemingly ſupported by clouds.

The moſt conſpicuous of the group on the niche to the left, is a male near ſeventeen feet in height, with four arms; on the left ſtands a female about fifteen feet high. The ſame circular rings worn by the preſent Hindoo women, are obſerved on the legs and wriſts of this figure; the hair bears a like correſpondence in the mode of putting it up; the countenance is peculiarly ſoft, and expreſſive of gentleneſs. In the back ground, a figure with four heads, ſupported by birds, and one with four arms, on the ſhoulders of another, are alſo obſerved. Several ſmaller figures in attendance; one with the right knee bent to the ground, in the attitude of addreſſing the principal, bears a creſe, exactly reſembling that in preſent uſe.

Oppoſite the laſt niche, and fifty feet nearer the entrance, is another of equal dimenſions, incloſing a figure that forcibly arreſts the attention; it is a gigantic half-length of a male with eight arms; round one of the left arms a belt, compoſed of human heads, is ſeen; a right hand graſps a ſword uplifted to ſever a figure, ſeemingly kneeling (but too much mutilated to diſtinguiſh it properly) on a block, held in the correſpondent left hand; a *cobra de capello* riſes under one arm; among the ſingular decorations of the head, a human ſkull is obſerved; above are ſeveral ſmall figures, repreſented in diſtreſs and pain. Many of the figures mutilated, as is the principal, whoſe aſpect poſſeſſes a great degree of unrelenting fierceneſs.

Croſſing to the other ſide of the cave, near one of the ſmall rooms before-mentioned, a male, ſitting as the people of India do at preſent, is obſerved; a female in the ſame poſture on his left, with an attendant on either ſide; at the feet of the male is the figure of a bull couchant; and in each corner of the niche ſtands a gigantic guard. Oppoſite is a correſpondent niche; the figures being a good deal mutilated, and the ſituation dark, prevent theſe being properly diſcriminated; a ſitting male figure, having an attendant on either hand, is however perceived.

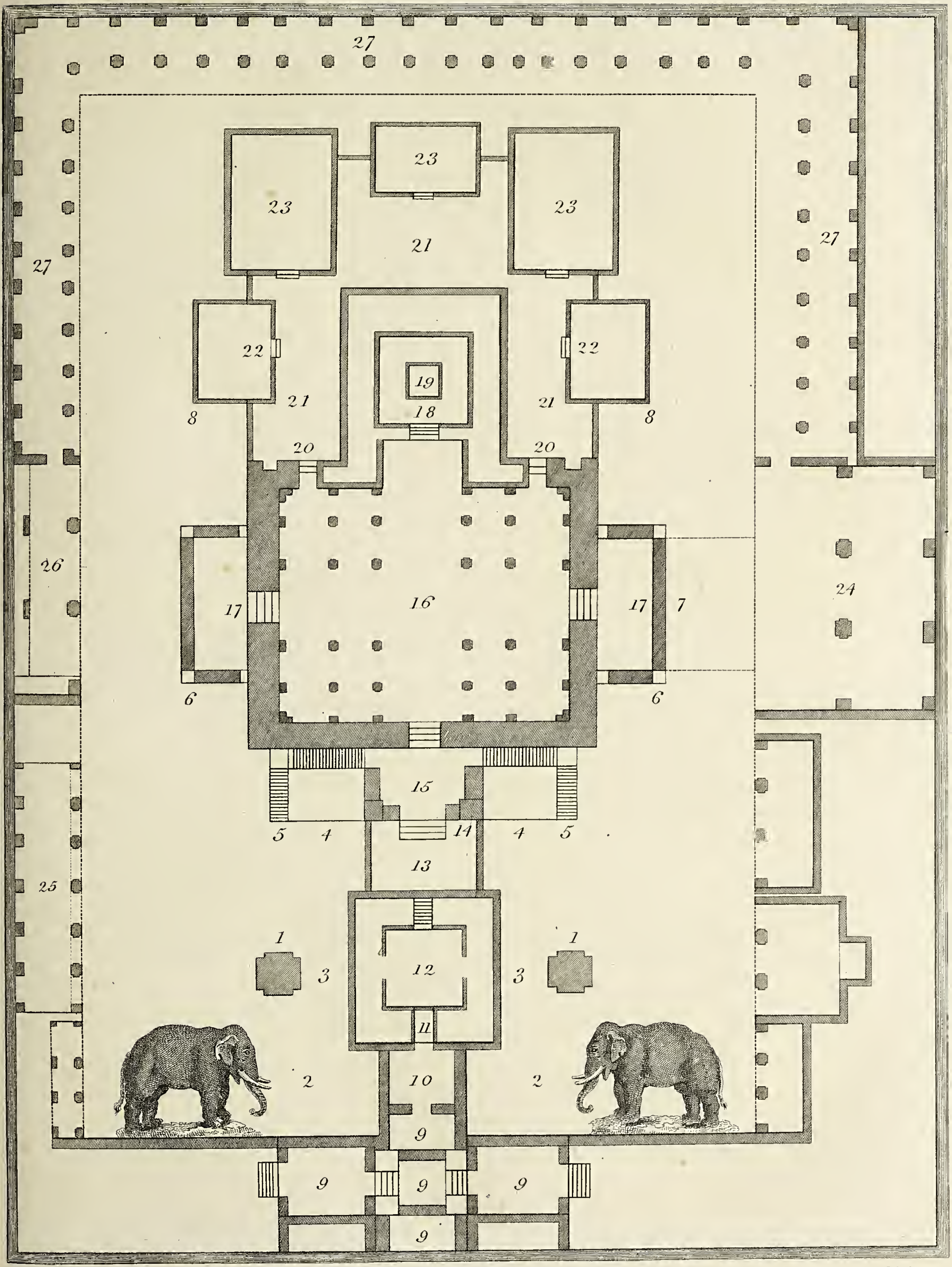
On the left ſide, and half way up the cave, is an apartment about thirty feet ſquare, encloſing the lingam; it has an entrance on the four ſides, and each ſide of either entrance is ſupported by a figure ſeventeen feet in height, each figure being ornamented in a different ſtyle.

This ſurpriſing monument of human ſkill and perſeverance is generally called *the great cave*; its length is 135 feet, and breadth nearly the ſame. But there are compartments on both ſides, ſeparated from the great cave, by large fragments of rock and looſe earth, heretofore probably a part of the roof. That on the right is ſpacious, and contains ſeveral pieces of ſculpture; the moſt remarkable is a large figure, the body human, but the head that of an elephant; it is the god Ganeſa, or patron of wiſdom. The lingam is alſo encloſed here. Gigantic as the figures are, the mind is not diſagreeably moved on viewing them; a certain indication of the harmony of the proportions. "To preſerve to future ages, (ſays Dr. Claudius Buchanan, late vice-provoſt of the College of Calcutta,) this grand monument of ancient ſculpture, perhaps the moſt ancient in the world, and to exhibit it to mankind in ſomewhat of its priſtine beauty, is a noble undertaking, and worthy of the countenance of every man who loves to embelliſh ſcience and human life; for the temple of Elephanta is perhaps a grander effort of the ingenuity of man than the pyramids of Egypt." See a repreſentation of the Elephanta Cave, in the annexed Engraving.

We ſhall notice one more inſtance, and that perhaps the moſt extenſive and ſublime, of all theſe unparalleled architectural works in India; it is, the grand *Keylas*, or Temple of Paradiſe, ſituated about a mile eaſtward from the town of Ellore, in the northern circar of that name. And, although this temple is of itſelf of prodigious extent, yet it has, excavated from the ſame rock, no leſs than ten or twelve pagodas ſubordinate to it; in each of which, in the reign of Aurungzebe, a different idol was worſhipped, according to ſtated feſtivals, under the direction of the Brahmins of the grand Keylas.

This wonderful place is majeſtically approached, and exhibits a noble front, in a vaſt area, cut perpendicularly through the rock. On the right-hand ſide of the entrance is a tank of fine water. On each ſide of the gateway there is a projection, reaching to the firſt ſtory, with much ſculpture and handſome battlements; all which, however, have ſuffered greatly from the corroding hand of time. The gateway is very ſpacious, furniſhed with apartments on each ſide, ſimilar to what are now uſually added to the *dewries* of the eaſtern palaces. Over the gate is a ſpacious balcony. On the outſide of the upper ſtory of the gateway are pillars, in a very handſome ſtyle of workmanſhip. The paſſage through the gateway below is richly adorned with mythological ſculpture. From the gateway you enter a vaſt area, cut down through the ſolid rock, to make room for an immenſe temple, of the complex pyramidal form, whoſe wonderful ſtructure, variety, profuſion, and richneſs, of ornament, beggar all deſcription. This temple, which is hewn from the upper region of the rock, and exhibits a moſt majeſtic building, is connected with the gateway by a bridge of the ſolid rock, which was left ſtanding when the maſs of the mountain was excavated. Beneath this bridge, at the end oppoſite the entrance, there is a figure of Bouanne ſitting on a lotos, with two elephants with their trunks joined, as though fighting, over her head. On each ſide of the paſſage, under the bridge, ſtands an elephant. There are likewiſe ranges of apartments on each ſide behind the elephants, of which thoſe on the left are much the fineſt, being handſomely decorated with figures. Advanced in the area, beyond the elephants, are two obeliſks, of a ſquare form, graduated to the commencement of the capitals, which ſeem to have been crowned with handſome ornaments. Theſe obeliſks are marked (1) in the annexed copper-plate Plan of this celebrated temple.

Paſſing through the gateway below, you enter the area (2), and, proceeding under a ſmall bridge, paſs a ſolid ſquare maſs (3), which ſupports the bull Nundee ſtationed above; the ſides of this receſs are profuſely ſculptured with pillars and figures of various forms. Having paſſed



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Plan of Keylas, or Temple of Paradise.

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it, you come to the paſſage under another ſmall bridge, beneath which there is, on one ſide, a gigantic ſitting figure of rajah Bhoja, ſurrounded by a group of other figures. Oppoſite to which is as gigantic a figure of Guttordhuja, with his ten hands. At the end of this ſhort paſſage commences the body of the grand temple (4), the entrance of which is in the upper ſtory, that is here aſcended by flights of ſteps on each ſide (5).

The right-hand ſide of the temple below is adorned with a very full and complex ſculpture of the battle of Ram and Rouon, in which Hunomaun makes a very conſpicuous figure. Proceeding from this field of battle, the heads of elephants, and ſome imaginary animals, are projected as though ſupporting the temple, till you come to a projection (6), in the ſide of which, ſunk in the rock, is a large group of figures, but much mutilated. This projection was connected with the apartments on the right-hand ſide of the area by a bridge (7), which has given way, and the ruins of it now fill up the ſides of the area. It is ſaid to be upwards of one hundred years ſince it fell.

Paſſing the projection of the main body of the temple, it leſſens for a few paces, then again projects (8), and after a very ſmall ſpace on the line of the body of the temple, the length of this wonderful ſtructure, if what is fabricated downwards out of a ſolid maſs can be ſo called, terminates in a ſmaller degree of projection than the former. The whole length is ſupported, in the manner above-mentioned, by figures of elephants, projecting from the baſe, to give, it ſhould ſeem, the whole vaſt maſs the appearance of moveability by thoſe mighty animals. The hindmoſt, or eaſtern, extremity of the temple, is compoſed of three diſtinct temples elaborately adorned with ſculpture, and ſupported like the ſides by elephants, &c. many of which are mutilated. The left-hand ſide differs ſo little from the right, that it is unneceſſary to be particular in mentioning any thing, except that oppoſite the deſcription of the battle of Ram and Rouon, is that of Keyſo Pando, in which the warriors conſiſt of peons and others mounted on elephants, and cars drawn by horſes. The principal weapon ſeems to be the bow, though maces and ſtraight ſwords are diſcoverable.

The gateway or grand entrance which conducts to the ſtory above, conſiſts of three centre rooms (9), and one on each ſide (9). From the centre rooms, croſſing the bridge (10), you aſcend by ſeven ſteps (11), into a ſquare room (12), in which is the bull Nundee, the vahan of Siva. This room has two doors and two windows. Oppoſite the windows are the obeliſks (1), before-mentioned.

From the ſtation of Nundee, you croſs over the ſecond bridge (13), and aſcend by three ſteps (14), into a handſome open portico (15), ſupported by two pillars, (above each of which, on the outſide, is the figure of a lion, that though mutilated, has the remains of great beauty; and on the inſide, two figures reſembling ſphynxes,) towards the bridge, and two pilaſters that join it to the body of the temple, the grand apartment of which (16), you enter from the portico by four handſome ſteps and a door-way; on each ſide of which are gigantic figures. Advancing a few paces into the temple, which is ſupported by two rows of pillars, beſides the walls that are decorated with pilaſters, there is an intermiſſion of one pillar on each ſide, leading to the right and left to an open portico (17), projecting from the body of the temple; from the right-hand one of which, the bridge already mentioned as fallen down, connected the main temple with the ſide apartments (24); to which there is now no viſible acceſs, but by putting a ladder for the purpoſe. The acceſs to the oppoſite ſide is by ſtairs from below. The receſs (18), to the *Lingam* (19), to which there is an aſcent of five ſteps, forms the termination of this fine ſaloon; on each ſide of the door of which is a profuſion of ſculpture. The whole of the ceiling has been chunamed and painted, great part of which is ſtill in good preſervation.

A door (20), on each ſide of this receſs of the Lingam, leads to an open platform (21), having on each ſide of the grand centre pyramid, that is raiſed over the receſs of the Lingam, two other receſſes (22), one on each ſide, formed alſo pyramidically, but containing no image. Three other pyramidal receſſes (23), without images in them, terminate the platform, all of them elaborately ornamented with numerous figures of the Hindoo mythology. Many of the outer as well as the inner parts of this grand temple, are chunamed and painted. The Brahmins ſay, that the diſcoloration and ſmoky blackneſs of the painting within, was occaſioned by Aurungzebe; who, intent upon fulfilling the injunctions of the koran, " to pull down the high places, and deſtroy the idols of the heathen," cauſed the different apartments to be filled with combuſtibles, and ſet on fire; this was alſo done to efface the obſcenities of the Lingam, of which there are many in the ſculpture.

On the left-hand ſide of the area, there are excavations of ſome conſideration below; from which you aſcend to an upper ſtory called *Pur Lunka*, by an indifferent ſtair-caſe, into a fine temple (25), at the extremity of which is a receſs containing the Lingam; and oppoſite thereto, near the entrance from the ſtair-caſe, is the bull Nundee, with two large fine figures reſting on maces on each ſide of the receſs in which he ſits. The ceiling of this temple is lower than any of the foregoing. The whole of this temple is in fine preſervation, ſtrongly ſupported by very maſſive pillars, and richly ornamented with mythological figures, the ſculpture of ſome of which is very fine. The ceiling, like the others, has the remains of painting viſible, through the duſky appearance of ſmoke, with which it is obſcured. Deſcending from Pur Lunka, you paſs through a conſiderable unſculptured excavation (26), to a veranda or gallery (27), which ſeems allotted to the perſonages of the Hindoo mythology, (a kind of pantheon,) in open compartments, which are continued all round the area of this end of the grand temple, to an equal ſpace on the oppoſite ſide, and contain nearly all the gods of the Hindoo mythology.

The dimenſions of the grand temple are: Door of the portico, twelve feet high by ſix feet broad; length from the door of the portico entering the temple, to the back wall of the temple, 103 feet ſix inches; length from the ſame place to the end of the raiſed platform behind the temple, 142 feet ſix inches; greateſt breadth of the inner part of the temple, ſixty-one feet; height of the ceiling, ſeventeen feet ten inches. The two porches on each ſide, meaſured without, are thirty-four feet ten inches, by fifteen feet four inches. Height of the grand ſteeple or pyramid, is about ninety feet from the floor of the court; and of the ſmaller ones about fifty. Height of the obeliſks about thirty-eight feet. Baſe eleven feet ſquare, being eleven feet diſtant from each ſide of the room in which is the bull Nundee. The ſhaft above the pedeſtal is ſeven feet ſquare. The two elephants on each ſide the court or entry are larger than life. The annexed Engraving of the Plan of this Temple, and the ſketch of the ſtyle of architecture adopted in the elevation of the ſides and eaſtern extremity of the building, will enable the reader to form a more comprehenſive idea of the majeſtic appearance of this immenſe ſtructure, at the time when Aurungzebe attempted to deſtroy it by fire.

The PALACES of the principal rajahs are alſo ſtructures of prodigious extent; but have externally more the appearance of a ſtate priſon, than the royal reſidence of a prince. Internally, however, they have ſuites of rooms which do credit to their architects; and offices and apartments for all ſubordinate purpoſes, well contrived and judiciouſly arranged, though deſtitute of the rules or principles of the Greek and Roman architecture. Their gardens and pleaſure-grounds are alſo laid out with ſuperior taſte and judgment, and abound with groves of fragrant fruits and odoriferous ſhrubs. Water is an indiſpenſable object of convenience and pleaſure; and no ſituation is ever choſen for theſe ſtructures, where Nature has not previouſly furniſhed a plentiful ſtore of this valuable element.

In a country where open violence and predatory war are for ever breaking out between neighbouring ſtates, it is more neceſſary that the dwelling of the prince ſhould be calculated for ſafety and ſecurity, than for external ſplendour and elegance. For this reaſon they have no apertures or windows, but at a great height from the ground; all the lower part appearing as a naked wall, of great thickneſs and durability. The entrances are by gateways of prodigious ſtrength, which are always defended by a numerous guard. And for ſtill greater ſafety, theſe palaces are moſtly erected at the foot of ſome ſteep mountain, the aſcent to which is ſecured on either ſide by mounds of earth, or walls, reaching to the higheſt ſummit, where an impregnable fort, on all occaſions of danger or attack in the palace below, affords an immediate aſylum for the women and children, and their numerous attendants; and where the prince himſelf, in caſe of defeat, retires for more ſafety, or as the dernier reſort, with all his treaſures, and the choſen band which is uſually attached to his fortunes. We muſt not, however, confound the once-ſumptuous palaces of Lahore, Delhi, and Agra, raiſed, as we have ſeen, by the Mogul or Mohammedan conquerors, with theſe more rugged fort-like works of the Hindoo princes.

Nor is it among the ſolemn and majeſtic ruins of temples or pagodas alone, that the curious traveller is to look for the ample antiquities of Hindooſtan. In Aſia, of all parts of the world the firſt peopled, and the firſt civilized, the moſt ancient remains of the labours of man will naturally be ſought; for we may reflect, that the European world were hordes of wild barbarians inhabiting the woods, when ſcience, and the arts of elegant life, flouriſhed in their higheſt perfection in the Eaſt. Here, therefore, the antiquarian may trace the primeval cuſtoms of men and manners; and ſeek the origin of all ancient inſtitutions. The legiſlators, poets, and hiſtorians, under the early Hindoo monarchy, will be found to claim our reſpect and admiration, for their dignified notions of juſtice and morality; for energy and ſublimity of ſentiment; for purity of language, and extenſive knowledge of mankind. The ſimilarity of their ancient rites and ceremonies, from what we know of thoſe of former times from the Sacred Writings, is wonderfully ſtriking; and even their ſuperſtitions may, in many inſtances, be diſcovered as flowing from the primeval religion, though unfortunately through very corrupted channels.

Among the ancient records lately found in the Sanſkrit language, many valuable diſcoveries relative to Indian antiquities have been already made; but many more remain behind the curtain, which can only be developed by the hand of time, and in proportion as theſe antique relics may happen hereafter to be obtained and tranſlated. But the oriental traveller muſt be on his guard againſt the impoſition of *modern* Aſiatic antiquities; for ſuch, in conſequence of the avidity for Hindoo curioſities, are now manufactured in India, with as much induſtry as they were heretofore in Italy.

## CLIMATE, COSTUME, AGRICULTURE, MANUFACTURES, AND POPULAR HABITS.

The climate and ſeaſons, in ſo extenſive a country as Hindooſtan, are of courſe diverſified by difference of latitude and local ſituation. In Bengal the hot or dry ſeaſon begins with March, and continues to the end of May, the thermometer ſometimes riſing to 110°: this intenſe heat is often accompanied with violent thunder-ſtorms from the north-weſt, the ſeat of the grand Alps of Aſia. The fogs are not only common, but thick and unhealthy. Various meteorological journals, kept in Bengal, are publiſhed in the Aſiatic Reſearches, whence a complete idea may be formed of the ſeaſons. The rainy ſeaſon continues generally from June to September: the three laſt months of the year are ſalubrious and pleaſant; but exceſſive fogs often prevail in January and February.

Theſe periodical rains are more ſlightly felt in the province of Sind; and particularly in Cachemire, where they ſeem to be excluded by the ſurrounding mountains. In the reſt of Hindooſtan they almoſt deluge the country, deſcending like cataracts from the clouds; and the Ganges and other rivers ſpreading to a wide extent, the inundation ceaſing in September. By the latter end of June the Ganges has riſen fifteen feet and a half, out of thirty-two, which is the total of its overflow. In the mountains the rainy ſeaſon begins early in April; but rarely in the plains till the latter end of June. By the latter end of July all the lower parts of Bengal, contiguous to the Ganges and the Burrampooter, are overflowed, and form an inundation of more than a hundred miles in width; nothing appearing but villages and trees, excepting very rarely the top of an elevated ſpot, appearing like an iſland.

In the ſouthern diviſion the chains of the Gauts, or mountains of Malabar and Coromandel, ſupporting the high interior land, intercept the great maſs of clouds; and the alternate ſouth-weſt and north-eaſt winds, called the *monſoons*, occaſion a rainy ſeaſon on one ſide of the mountains only, that is, on the windward ſide. Yet it appears that, during the firſt part of the rainy monſoon, in May and June, on the coaſt of Malabar, a conſiderable quantity of rain falls in the upper region of Myſore, &c. Major Rennell obſerves, that at Nagpour, in the very centre of Hindooſtan, the ſeaſons differ but little from their uſual courſe in Bengal, and on the weſtern ſide; that is, the ſouth-weſt monſoon occaſions a rainy ſeaſon, though not ſo violent. In the parallel of Surat, from the mountains declining in height, and other cauſes, there is no longer that ſingularity which occaſions rain on one ſide of the Deccan, while the moſt ſerene atmoſphere prevails on the other. The monſoon is from the north-eaſt from October to April; and from May to September in the oppoſite direction. The rainy ſeaſon on the coaſt of Coromandel is with the north-eaſt monſoon; and on that of Malabar with the ſouth-weſt: in general, March, April, May, and June, are the dry months. Hence, in the whole extent of Hindooſtan, except in Cachemire, there can hardly be ſaid to be a veſtige of winter, except the thick fogs, like our December; exceſſive rains, or exceſſive heats, form the chief varieties of the year. The Hindoos, however, reckon ſix ſeaſons, in the following order:

SEEFAR, the dewy ſeaſon.
HEEMAT, the cold ſeaſon.
VASAUT, the mild ſeaſon, or ſpring.
GREESSHMA, the hot ſeaſon, or ſummer.
VARSA, the rainy ſeaſon, or monſoon.
SARUT, the breaking up of the rains.

The ſudden change of theſe ſeaſons, and the violent heat of the ſummer months, render the climate not only unfavourable to the natives, but extremely dangerous to foreigners of every deſcription, particularly where great temperance and circumſpection are not obſerved. According to thoſe who have undergone the viciſſitudes of theſe changes, “ the hot or dry ſeaſon commences with a *typhon*, commonly called a *north-weſter*, which carries all before it. It is to ſtrangers moſt terrific; the loudneſs of the thunder, the terrible flaſhes of lightning, the roaring of the wind, and the deluge of rain, are altogether tremendous. To this periodical tempeſt, ſucceeds ſo intenſe a heat, that the inhabitants creep for relief under the varandas or porticoes, where the evening dews are cooling; but, ſhould they indulge a ſleep, death is the certain conſequence. The number of ſudden deaths amongſt the Engliſh by the *coup de ſoleil*, and the caution they are obliged to uſe to preſerve life, makes this ſeaſon very uncomfortable; and when it happens, as it ſometimes does, that the rains are late before they ſet in, the mortality exceeds belief. Life and death ſo rapidly ſucceed, that medicines very frequently have not time to operate before the great event has taken place. The illneſs of which moſt people die is called here a *pucker* fever, i. e. the ſtrong fever, which frequently carries a perſon off in a few hours; the phyſicians eſteem it the higheſt degree of putridity; but ſome have a more lingering illneſs, ſuch as a bile in the ſtomach, which very few are exempt from in theſe caſes; the intenſe heat relaxes the coats of the ſtomach, ſo as to prevent digeſtion, which occaſions the illneſs and death that ſo commonly ſucceed." See *Pennant's Hindooſtan*, vol. ii. p. 324, &c.

It is a uſual charity with the rich Hindoos at this ſeaſon of the year, to ſtation perſons at the gates of the different choultries, to adminiſter gruel made of rice to the fainting traveller, with other comforts, of which he may ſtand in need. They even erect temporary choultries, or ſheds, at ſhort diſtances from each other, that thoſe who ſicken on the road, and are ſuddenly overcome by the heat, may find immediate relief, and have places of ſafety to reſt and repoſe in. A moſt noble example of national benevolence!

Yet notwithſtanding the extreme heat of the climate, and the generally delicate conſtitutions of the natives, many examples are to be found of extraordinary longevity, both among the Mohammedans and Hindoos. In northern Hindooſtan, Aurungzebe, after all the fatigues he had undergone, died at the age of ninety, retaining his fortitude and other mental faculties to the laſt; and the late emperor of the Moguls, Shah Aulum, notwithſtanding all his perſecutions and afflictions, lived to count upwards of fourſcore years. In ſouthern Hindooſtan, where the heat is more intenſe, inſtances of ſtill longer lives are recorded: the celebrated Nizam ul Muluk, viceroy of the Deccan, died at the age of one hundred and four; Mohammed Ali Khan, nabob of the Carnatic, the ally of the Engliſh, lived upwards of eighty years; and La Croze mentions an inſtance of a Hindoo, who was converted to Chriſtianity at Tana, that lived to the great age of one hundred and thirty-nine. But, ſays Pennant, "while theſe few inſtances of longevity are boaſted of as proofs of the goodneſs of the climate, the thouſands, and tens of thouſands, who fall ſuddenly in the prime of life, are melancholy convictions of its general inſalubrity."

In a country ſo much diverſified, and of ſuch vaſt extent of latitude, the complexion, as well as the phyſical conformation, of the people, muſt be liable to conſiderable variation; thoſe in the northern being more fair and robuſt than thoſe in the ſouthern provinces But the Hindoo women, in general, are finely ſhaped, gentle in their manners, and have ſomething ſoft and muſical in their voices Mr. Forſter, ſpeaking of the women, ſays: "They have a bright olive complexion, fine features, and are delicately ſhaped. There is a pleaſing freedom in their manners, without any tendency to immodeſty, which ſeems the reſult of that confidence which the Hindoo huſbands in general repoſe in their wives."

The bodily as well as mental faculties of the human ſpecies, appear to arrive ſooner at maturity in Hindooſtan, than in colder climates; and it is not uncommon to ſee children behave and ſpeak with a degree of gravity and propriety that ſeems incompatible with their age. But neither the mind, nor the body, perhaps, enjoys that vigour which is to be found among the natives of Europe.

A luxuriant climate is commonly the parent of indolence and inactivity. But, when applied to this people, we have to add the influence of their religion, ſeconded by the great temperance of a life which is paſſed in a very ſparing uſe of animal food, and a total abſtinence from intoxicating liquors; the influence likewiſe of the mildeſt ſeaſons, by which the great fertility of the ſoil leſſens moſt of the wants to which mankind are ſubject in auſterer regions, and ſupplies the reſt without much labour; theſe cauſes, with many conſequences reſulting from them, have all together contributed to render the bulk of the inhabitants of Hindooſtan the moſt enervated people of the globe. We muſt not, however, involve the more northern provinces in this general concluſion; ſince the Afghan, Patans, Seiks, Rajapouts, and other hardy races bred upon the hills, have in all ages been celebrated for their activity and courage. The Mahrattas alſo, by being long inured to war, and kept under a ſtrict diſcipline, overcome, as it were, the influence of climate, and aſſume the activity and hardineſs of the northern inhabitants. It has been further obſerved, as a proof of the enervating tendency of the climate, that all the Mohammedan and Mogul conquerors, with their followers, who have been eſtabliſhed in India, acquire, in the third generation, the indolence and timidity of the original inhabitants; but retaining, at the ſame time, a brutality or cruelty of character, to which the Hindoos are in general happily ſtrangers.

Under this remarkable relaxation of the magnanimous ſpirit manifeſted in other countries, that this people ſhould poſſeſs patience and reſignation under calamity, is perhaps not ſo much to be wondered at, ſince the ſame cauſes that tend to damp exertion may produce thoſe qualities; but we have abundant inſtances of firmneſs and active courage, that occaſion a conſiderable degree of ſurpriſe. The gentle, and generally timid, Hindoo, while under the influence of his religion, or his ideas of duty and honour, will not only meet death with indifference, but embrace it by choice. An Engliſhman, whilſt on a hunting-party, haſtily ſtruck a peon, for improperly letting looſe a greyhound. The peon happened to be a rajapout, which is the higheſt tribe of Hindoo ſoldiers. On receiving the blow, he ſtarted back with an appearance of horror and amazement, and drew his poignard. But again compoſing himſelf, and looking ſtedfaſtly at his maſter, he ſaid, "I am your ſervant; I have long eaten your rice:"—and, having pronounced this, he plunged the dagger into his own boſom. In thoſe few words he pathetically expreſſed, "The arm that has been nouriſhed by you ſhall not be employed to take away your life; but, in ſparing yours, I muſt give up my own, as I cannot ſurvive my diſhonour."

Some Hindoo ſepoys in the Engliſh ſervice being condemned to death on account of a mutiny, it was ordered that they ſhould be blown off from cannon in front of the army. Some of the offenders being grenadiers, on ſeeing others who were not, led forth to ſuffer before them, they called out: "As we have generally ſhown the way on ſervices of danger, why ſhould we be denied that diſtinction now?" They walked towards the guns with firmneſs and compoſure; requeſted to be ſpared the indignity of being tied; and, placing their breaſts to the muzzles of the cannon, were ſhot away. Though ſeveral had been condemned, the behaviour of theſe men operated ſo ſtrongly on the feelings of the commanding officer, that the reſt were pardoned.

A native Hindoo, who was employed in an eminent poſt at an Engliſh ſettlement, being prevailed on in a dangerous illneſs to receive a viſit from an European doctor, it was found adviſable to give the bark in *ſtrong wine*; but the Hindoo poſitively refuſed to take it, notwithſtanding many arguments that were uſed both by the doctor, and the governor, who accompanied him. They promiſed that his taking the wine ſhould remain an inviolable ſecret: but he replied with great calmneſs, "that he could not conceal it from himſelf;" and a few days afterwards he fell a victim to his perſeverance.

Among all the Hindoo caſts, the rage for modes and faſhions is entirely unknown; and their dreſſes, like their cuſtoms, are the ſame to-day that they were at the beginning of the Cali-Yug. Almoſt all the Hindoos ſhave the head, except a lock on the back part of it, which is covered by their turbans; and they likewiſe ſhave their beards, leaving only ſmall whiſkers, which they preſerve with neatneſs and care. The Brahmins, who officiate at the temples, generally go with their heads uncovered, and the upper part of the body almoſt naked. A piece of white cotton cloth is wrapped round the loins, which deſcends under the knee, but lower on the left ſide than on the other; and in cold weather, they ſometimes cover their bodies with a ſhawl, and their heads with a red cap.

The Khatries, and in general thoſe who inhabit the country and villages, wear a piece of cotton cloth wrapped round the loins as above deſcribed; another piece of finer cloth, generally muſlin, is thrown over the left ſhoulder, and hangs round the body, ſomething in the manner of a Highlander's plaid; a piece of clear muſlin, almoſt in the ſhape of a handkerchief, is wrapped very neatly round the head. In the ears, which are always expoſed, all the Hindoo males wear large gold rings, ornamented, according to their taſte or means, with diamonds, rubies, or other precious ſtones.

Some, inſtead of the cloth hung over the ſhoulder, wear a *jama*, or long muſlin robe, neatly ſhaped to the upper part of the body, falling very full from thence, and extending ſo low as almoſt entirely to cover the feet. A muſlin ſaſh is wrapped round the waiſt, the ends of which are generally ornamented with a worked border and fringe. This part of their coſtume, however, appears to have been borrowed from the Moguls, and is by no means general.

Perſons of high rank ſometimes wear a ſhort cloſe veſt of fine worked muſlin, or ſilk brocaded with ſmall gold or ſilver flowers; and, in the cool ſeaſon, a ſhawl. On days of ceremony and rejoicing, they wear rich bracelets on their arms, jewels on their turbans, and ſtrings of pearls round their necks, hanging down upon the breaſt. On their feet they wear ſlippers of fine woollen cloth, or velvet, which frequently are embroidered with gold or ſilver; and thoſe of the princes or rajahs, at great ceremonies, even with precious ſtones. The ſlippers are conſtantly put off on going into an apartment, and left at the entrance, or given to an attendant; nor is it poſſible but they muſt be ſhocked at the uſual practice of Europeans, in walking with their ſhoes on the clean linen cloth or carpets on which they ſit, and occaſionally lie down.

The rajahs likewiſe obſerve great ſtate and magnificence in the furniture and ornaments of their palaces, as well as in their dreſs. The annexed Engraving is an authentic repreſentation of a rajah approached with a petition; wherein the coſtume is preciſely that of the country, taken with great care on the ſpot.

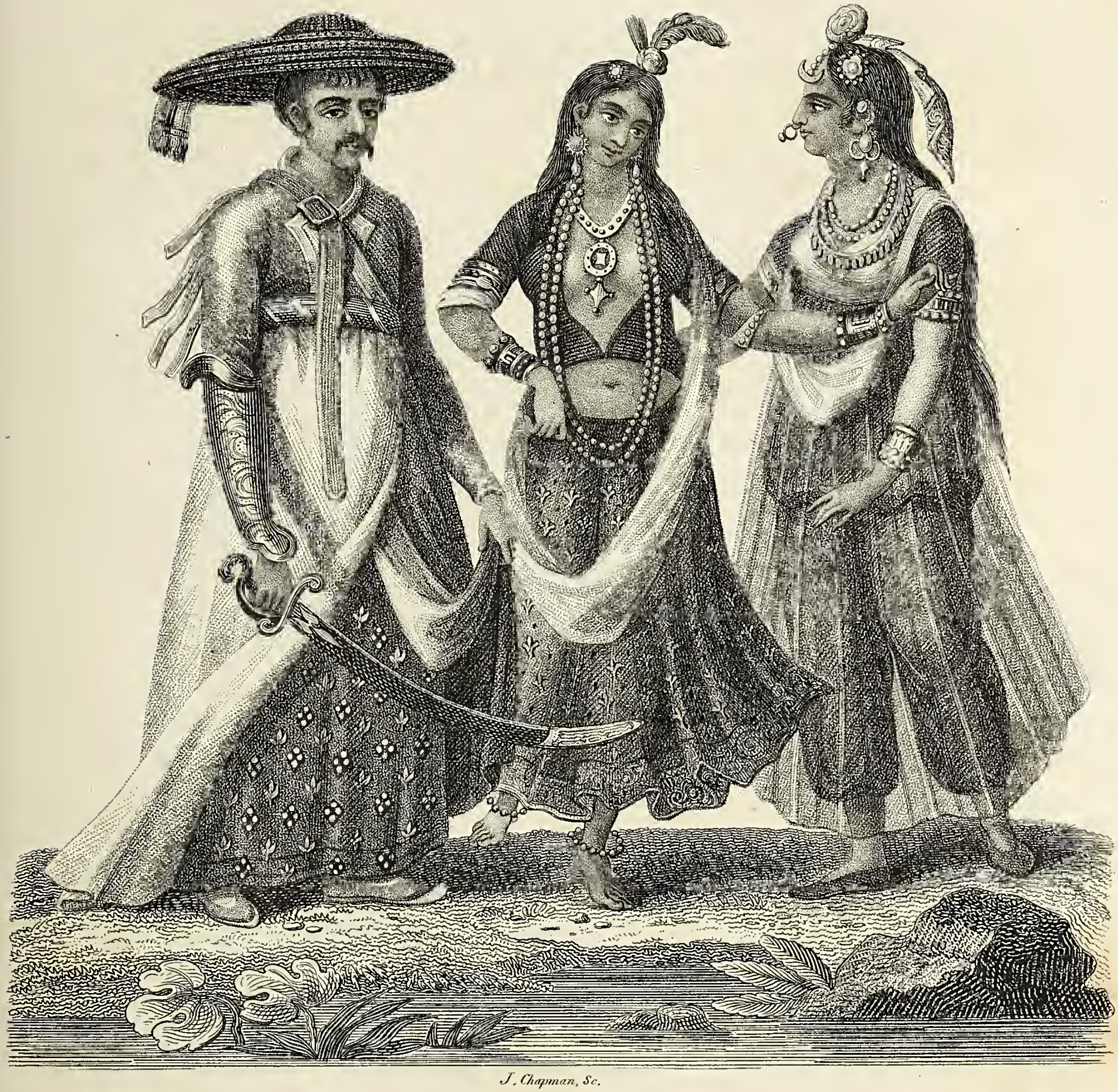
Though the rajahs now hold ſupreme authority over their reſpective diſtricts, yet this privilege was by no means inherent, ſince every rajah was anciently ſubject to the GREAT EMPEROR, or Maha-rajah, by a feodal kind of tenure. Feriſhta, in his Hiſtory of the Deccan, opens to our view the knowledge of an empire that had not before been heard of in Europe. "Its emperors of the Bahmineah dynaſty (ſays this diſtinguiſhed writer) appear to have exceeded in power and ſplendour thoſe of Delhi, even at the moſt flouriſhing periods of their hiſtory. The ſeat of government was at Calberga, which was centrical to the great body of the empire, and is even at this day a conſiderable city. Like other overgrown empires, it fell to pieces with its own weight: and out of it were formed four potent kingdoms, under the names of Viſiapour, Golconda, Berar, and Amednagur." Each of theſe ſubſiſted with a conſiderable degree of power, until the Mogul conqueſt; and the two firſt, as we have ſeen in the former part of this article, preſerved their independency until the time of Aurungzebe. This empire, however, of the Maha-rajah, could only have extended over the ſouthern provinces, or Deccan; ſince the northern diſtricts were unqueſtionably governed by diſtinct independent monarchs, and were ſo found at the era of the invaſion by Alexander, of which the great and noble king Porus affords us an example.

The dreſs of the WOMEN varies in ſome reſpects, but not materially; and the diſtinction, as among the MEN, conſiſts chiefly in the fineneſs of the cloth, and the number and value of their jewels. They in general wear a cloſe jacket, which extends forward to cover the breaſts, but completely ſhows their form. It has tight ſleeves, that reach about half way from the ſhoulder to the elbow; and a narrow border round all the edges, painted or embroidered in different colours. A piece of white cotton cloth, wrapped ſeveral times round the loins, and falling down over the legs almoſt to the ankle on one ſide, but not quite ſo low on the other, ſerves as a petticoat. A wide piece of thin muſlin is thrown over the left ſhoulder, which, paſſing under the right arm, is croſſed round the middle, and, being faſtened by tucking part of it under the piece of cloth that is wrapped round the loins, hangs down to the feet. They ſometimes lift one end of this piece of muſlin, and ſpread it over the head, to ſerve as a hood or veil. The hair is commonly rolled up into a knot, or bunch, towards the back of the head, which is faſtened with a gold bodkin; it is ornamented with jewels; and ſome have curls that hang before and behind the ears. They wear bracelets on their arms, rings in their ears, on their fingers, their ankles, and toes, and a ring or jewel on one ſide of the noſtril. Some wear a petticoat with a painted border, the hair plaited and hanging down behind, and a muſlin veil, that covers the head, and falls down below the middle.

The Hindoo men are averſe to many of thoſe accompliſhments in women that are ſo juſtly admired by Europeans. They ſay, they would be injurious to that ſimplicity of manners, and decorum of behaviour, which are requiſite to render them eſtimable in their families: that, by too much engaging the mind, they would lead their attention away from their children and huſband, and give them a diſreliſh to thoſe cares to which they think Providence has deſigned them: and, as they ſtrictly adhere to this opinion, there are few Hindoo women to be found who can either read or write. Yet, to their great praiſe, it is every where generally found, that the wife of the Hindoo is of a decency of demeanour,—of a ſolicitude in her family,—and of a fidelity to her vows,—which might do honour to human nature in the moſt civilized countries.

But the dancing women, who are the votaries of pleaſure, are taught every qualification which they imagine may tend to captivate and entertain the other ſex. They compoſe a ſeparate claſs, live under the protection of government, and according to their own particular rules. In their juridical code it is written: "If a dancing girl commit a crime that renders her property liable to confiſcation, the magiſtrate ſhall confiſcate all her effects, except her clothes, jewels, and dwelling. In the ſame manner, to a ſoldier ſhall be left his implements of war; and to a man exerciſing any profeſſion, the implements of that profeſſion ſhall be exempted from the confiſcation of the reſt of his property."

The dancing women appear in a variety of dreſſes. Beſide thoſe that have been already mentioned, they ſometimes wear trowſers, like the Perſians; a jama of worked muſlin, or gold or ſilver tiſſue; the hair plaited and hanging down behind, with ſpiral curls on each ſide of the face; and to the gold and ſilver rings on the ankles, in ſome of their dances they attach ſmall bells of the ſame metals. The figures of the dancing girl, lady of the harem, and omrah of the court, exhibited in the annexed Engraving, are not Hindoos, but Mohammedans; who were correctly ſketched at the court of Delhi, in their true coſtume. It may be here likewiſe proper to remark, that the terms *omrah, vizier, emir ul omra*, &c. are Mohammedan titles, with which the Hindoos have no connection; nor do they, like the Mohammedans, keep a harem of women. Manouchi, who reſided many years as phyſician at the Mogul court, gives the following deſcription of the ladies of the harem: "Their hair, perfumed with the fineſt eſſences, and braided with pearls, falls down in graceful treſſes. Some, on the crown of the head, wear turbans adorned with plumes of feathers, glittering with precious ſtones, while long ſcarves of gold tiſſue faſtened to them behind, hang down, and reach to the very ground. Others



*J. Chapman, Sc.*

An Omrah of State; a Dancing Girl; and a Lady of the Harem; all belonging to the Palace of Delhi.

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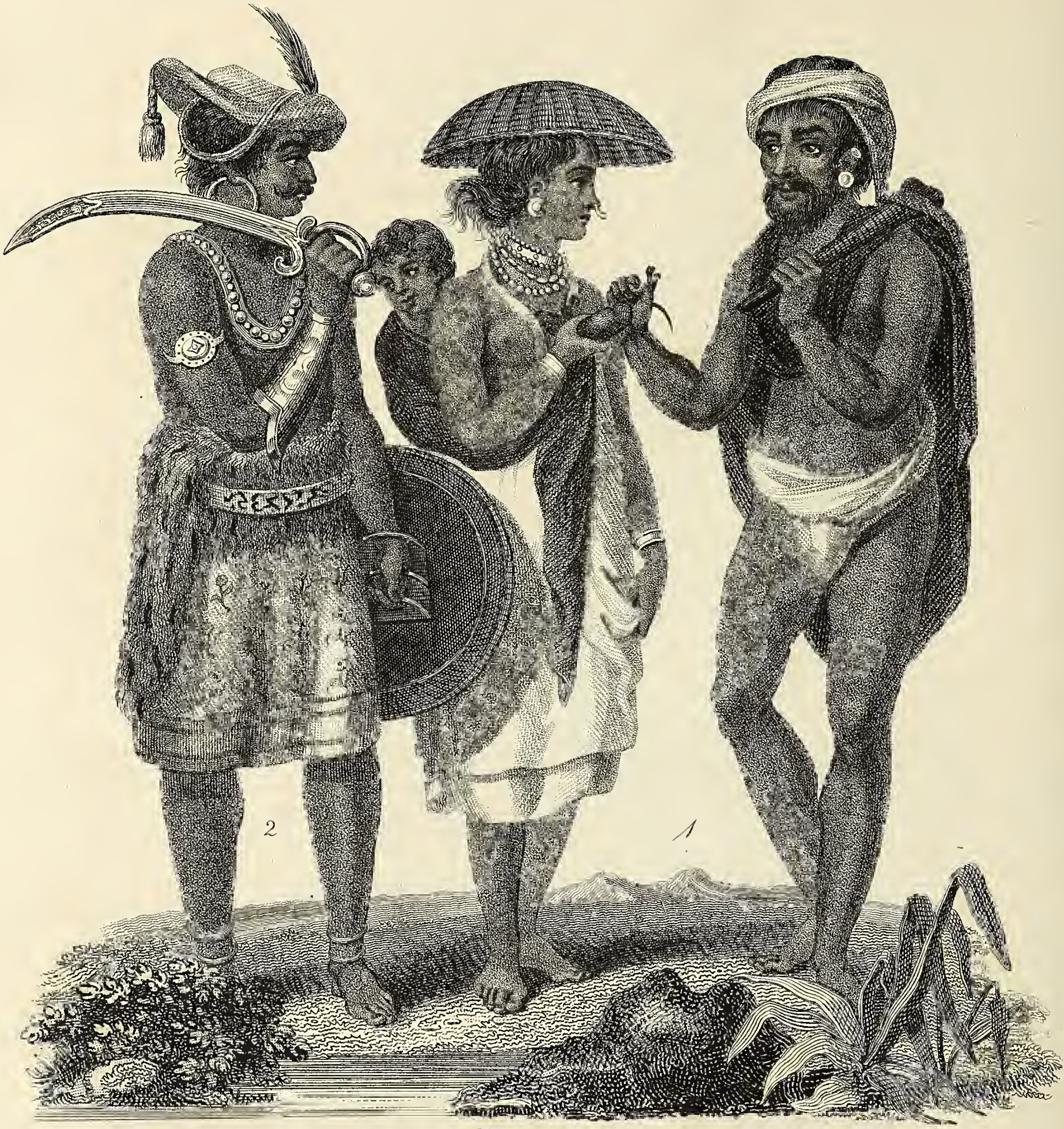


J. Chapman sculp.t

1. Aborigines of Hindoostan, on the Coromandel Coast.
2. A Piadah or Peon, retained in Great Families.

London Published as the Act directs Feb.y 22.1809 by J. Wilkes.

wear a kind of diadem, formed of pearl, on the front part of the head, in the centre of which is fixed a glorious jewel reſembling in its figure the ſun, a creſcent, a ſtar, or ſome beautiful flower. Their necklaces, too, are of the fineſt oriental pearl, intermixed with diamonds, rubies, and ſapphires. The climate obliging them to wear only the ſlighteſt covering, there is a ſilk made on purpoſe for them, ſo very fine that a whole ſuit of it does not weigh above an ounce. Theſe dreſſes are never worn a ſecond time, but every returning day ſupplies a new ſuit of a different colour from the former. While, however, theſe delicate females ſhrink from this ſlight incumbrance of clothing, they wear ſo many jewels that they are in a manner burdened with them. The neck and boſom are covered with interwoven pearl and diamonds, ſuſpended croſſwiſe in brilliant rows. Their pendants and bracelets are of a ſurpriſing magnificence. Their fingers and their toes, which are always uncovered, as they only wear ſandals, are alike adorned with the richeſt rings. On the right thumb they wear a ſmall looking-glaſs, in the form of a ſignet, ſet round with pearl, in which they are for ever admiring themſelves. The ornament moſt becoming theſe ladies is a gold girdle of about two fingers' breadth, garniſhed with variegated ſtones. Labels of the ſame metal hang down from it with cluſters of orient pearl at the extremities. What is moſt aſtoniſhing is, that many of theſe ladies have, at leaſt, ſix or eight changes of theſe jewels."—Such was the luxury of the now fallen court of Delhi!

The Hindoos are naturally cheerful, and are fond of converſation, of play, and of ſports. They will ſpend almoſt the whole night in ſeeing dancing, and hearing muſic; yet none dance but the women whoſe profeſſion it is, and who devote themſelves to the pleaſure and amuſement of the public. They are alſo great obſervers of decorum; their manners are unaffected; they poſſeſs much natural politeneſs, and have an extraordinary degree of caution in not ſaying or doing any thing which they imagine may offend. Their ſobriety and ſedateneſs equally demand our admiration. They eat only twice a-day; in the morning, and evening. Their food is prepared in earthen pots; inſtead of plates and diſhes, they uſe broad leaves, generally of the palm or plantain tree, neatly ſewn together with a blade of dry graſs, and which are thrown away, and renewed at every meal. Like the inhabitants of moſt eaſtern countries, they uſe neither forks nor ſpoons, but only the fingers of the right hand, and are ſcrupulouſly nice in waſhing both before and after meals. The left hand is reſerved for ſuch offices as are judged to be uncleanly.

Since the religion of the Hindoo forbids him to quit his native ſhores, ſo his deſires are confined within the circle of his own domeſtic affairs; and he covets nothing from abroad, nor is ſolicitous to poſſeſs what he ſees enjoyed by others. To this ſingular caſt of mind is perhaps to be attributed the reaſon why the inhabitants of Hindooſtan have loſt ſo little of their original character by the eſtabliſhment of ſuch a number of ſtrangers amongſt them. In the interior country, and particularly on the heights and faſtneſſes of the mountains, the native inhabitants are to be found in their greateſt purity of aboriginal deſcent. In the annexed Engraving we have given figures of a man, woman, and child, as found on the eaſtern Ghauts; whence they occaſionally deſcend upon the Coromandel coaſt. The rat they cheriſh and protect, as the emblem of induſtry and forecaſt, who provides his winter ſtore in times of harveſt and plenty; therefore to hurt or kill it is deemed an inexcuſable crime. The *peon* is a *ſafeguard*, in which the utmoſt confidence is repoſed. Men of rank have always peons in their ſervice. They wear a ſabre, and often form companies of body-guards. They attend their maſters when they go abroad, carry meſſages, and are in general extremely faithful. Thoſe of the proper Hindoo caſts will not undertake any menial office; but Europeans frequently take *pariars*, or outcaſts, into their ſervice, whom they improperly call peons.

From the natural fertility of the ſoil, and the congenial influence of a luxuriant climate, the AGRICULTURE of Hindooſtan is conducted with a very ſmall comparative degree of expence and trouble. The ſoil is ſometimes ſo excellent as to conſiſt of black vegetable mould to the depth of ſix feet. Rice is there the principal grain, ſimilar to wheat with us; and on the dry ſandy lands of the coaſt of Coromandel great induſtry is diſplayed in watering it. Maize, and the ſugar-cane, are alſo among the products of their harveſt. The ſugar-cane grows no where with greater vigour than in the province of Bengal; but a heavy duty, amounting to a prohibition of its export, deprives this country of its benefits. The cultivation of cotton is alſo widely diffuſed amongſt them; and this plant particularly thrives on the dry coaſt of Coromandel. Whenever the monſoons fail of their uſual ſupply of rain, and drought in conſequence follows, the harveſt is in proportion ſcanty, and a famine not unfrequently follows. In travelling through Hindooſtan, ſome opinion may be formed of the wiſdom and benignity of the government, by the number, and ſtate of preſervation, of the tanks and water-courſes, conſtructed for the purpoſe of aiding the cultivation of rice. Unhappily, in many of thoſe diſtricts that groan under a foreign yoke, theſe and other public works of ſimilar utility, being neglected, are going rapidly to decay. Some of theſe tanks are of vaſt extent, made by incloſing deep and low ſituations with a ſtrong mound of earth. Others of ſmaller dimenſions are of a quadrangular form, lined with ſtone, deſcending in regular ſteps from the margin to the bottom. They generally meaſure from three to four hundred feet on the ſide, and are regularly lined with granite. Theſe great artificial reſervoirs, being invariably filled by the periodical rains, afford incalculable advantage to the cultivators of rice, as well as to the cattle in dry and arid ſeaſons.

When the rice is grown to a certain height, it is plucked up, and tranſplanted in ſmall parcels into fields of about a hundred yards ſquare, which are ſeparated from each other by ridges of earth, and daily ſupplied with water, that is let in upon them from the neighbouring tanks. When the water in the tanks falls below the level of the channels that are made to let it out, it is drawn by what is called on the coaſt of Coromandel a *picoti*. This machine is compoſed of a piece of timber, generally a palm-tree, fixed upright in the ground, ſupported on each ſide, and forked at the top to admit another piece, which moves tranſverſely on a ſtrong pivot driven through the fork. The tranſverſe timber is flat on one ſide, and has pieces of timber acroſs it, in the manner of ſteps. At one end of this timber there is a large bucket, at the other a weight. A man walking down the ſteps throws the bucket into the well or tank; by going up, and by means of the weight, he raiſes it; and another perſon ſtanding below empties it into a channel made to convey the water into the fields.

Beſides rice, there is a variety of other grains, which, as they require leſs water, may be planted on high lands; but for the rice they chooſe the loweſt ſituations that can be found. Wheat appears to be no where cultivated lower than about the 20th degree of latitude; and even there, it is only to be found in valleys, in the mountainous parts of the country.

To account for the high ſtate of cultivation ſo much celebrated in the diſtrict of Coimbetore, which now forms part of Britiſh India, is no difficult taſk. The mountains called Ghauts, whilſt they deeply indent the plains at ſeveral diſtinct points, do not terminate, but, in their range they frequently advance and recede without any break or diminution of height: conſequently they give riſe to an incredible number of ſtreams. Theſe, from their interſection of the country in ſo many different directions, and from the various branches that are forced out of them into ſeparate and diſtinct channels, as well as from the ſupply of water that they receive from a double monſoon, contribute in a ſingular degree to the fertility of the ſoil; and, though the religious tenets of the Brahmins have a ſtrong tendency to forward cultivation, the moral and political doctrines of that ſect are not leſs calculated to promote and encourage agriculture.

The cultivation of the ſoil appertains to the tribe called *Ryuts*, who are allowed a certain portion of the harveſt, by the lord or proprietor of the land; out of which they maintain their families, provide for their cattle, and ſupply ſeed for the ſucceeding ſeaſon. The portion thus allowed to the Ryut muſt neceſſarily vary, and is chiefly determined by the fertility or barrenneſs of the ſoil, the eaſe or difficulty of cultivation, or the abundance or failure of the harveſt.

Of theſe moſt uſeful people captain Mackenzie gives the following meritorious character: “Quiet, ſober, diligent, and abſtemious, the Hindoo cultivator more than compenſates for the want of that active induſtry which characterizes the Chriſtian huſbandman, by a degree of patient perſeverance unknown amongſt the inhabitants of other countries; accuſtomed through every ſtage of life to bend his body, or to ſquat on the ground, he readily becomes an excellent cultivator of the earth; and, from the minute attention with which he regards whatſoever is the object of his purſuit, no weed is ſo trifling as to eſcape his obſervation, no tendril ſo concealed as to avoid his reſearch. The land too, as if grateful for ſuch extraordinary attention, yields a return beyond any equal ſpace on the ſurface of this globe. Without any manure whatſoever, and ſolely dependant on water to fertilize the ſoil, Hindooſtan, in general, produces two, three, and ſometimes four, harveſts. Tanjore annually produces five, nay ſix ſucceſſive crops have been reaped in that country.”

With reſpect to the MANUFACTURES of Hindooſtan, they have been celebrated from the earlieſt antiquity; particularly their muſlins, and other choice fabrics from cotton. Piece-goods, as we call them, are mentioned by many ancient writers, who praiſe the manufacture, and the beautiful colours with which it was dyed. In the painted muſlins and calicoes, the brightneſs of the tints is owing to the ſuperior excellence of their colouring drugs.

The weaver, early in the morning, ſets up his loom under the ſhade of a tree, and takes it down in the evening. The fine muſlins are indeed woven within doors, the thread being too delicate to be expoſed to the agitation of the air; but it is not uncommon, near manufacturing villages, to ſee groves full of looms employed in weaving the inferior cloths.

The ſilverſmith often works for daily hire, and brings his whole apparatus to the houſe of the perſon who employs him. Here he ſets diamonds and jewels of the moſt coſtly kind, and the fineſt in the world; which have in all ages conſtituted the moſt valuable commerce of India. His furnace is a common earthen pot; his crucibles are made of clay mixed with the aſhes of cow-dung; and theſe, with a ſmall anvil, a file, a hammer, and a pair of pincers, form the furniture of his ſhop. With clay, modelled with the fingers, he will imitate any thing that may be given to him; and ſome of their works in fillagree are extremely delicate and curious. The utenſils of all the artiſans and manufacturers partake of the ſame kind of ſimplicity.

Lacquering and gilding muſt have been long known to the Hindoos, and employed by them in various works of luxury and magnificence. We find them in uſe all over Hindooſtan, though, in ſome parts, the lacquering is in a greater degree of perfection than in others. In the towns and villages, not only every caſt, but each claſs of artiſans and manufacturers, has its own particular quarter.

Throughout every part of the interior empire, immenſe quantities of linen are manufactured, and conveyed to the frontier towns, and other emporiums, for the purpoſes of ſale or exportation. The fine cottons of Cambay, Barochia, Brodera, &c. centre chiefly in Surat. The rich and coſtly manufacture of ſhawls is principally carried on in Cachemire; where likewiſe the fineſt cambrics are produced. “It is to the ſuppleneſs, (ſays Mr. Orme,) with which the whole frame of an Indian is endowed, and which is ſtill more remarkable in the configuration of his hand, that we are indebted for the exquiſite perfection of their manufactures of linen. The ſame inſtrument which a Hindoo employs to make a piece of cambric, would, under the rigid fingers of an European, ſcarcely produce a piece of canvaſs. Thus have this people cultivated the various and valuable productions of their ſoil, and manufactured them into goods, to a perfection which ſurpaſſes the moſt exquiſite productions of the world; and they have not been impelled to theſe improvements for the purpoſe of ſupplying their own neceſſities, but to gratify the pride and oſtentation of foreign nations. Hence they have from time immemorial been as much addicted to commerce, as they are averſe to war; and hence too they have always been immenſely rich, and have always remained incapable of defending their wealth.”

In India, as in Egypt, there are ſtrollers, whoſe occupation is to intrap ſnakes; and who uſe an inſtrument called *magouty*, reſembling a ſmall bagpipe, in order, as they pretend, to bring them from their lurking-places by the charm of their muſic. They carry a number of thoſe reptiles with them in bags; which, though of the moſt venomous kind, they take out with the naked hand; and, throwing them on the ground, they are taught to rear and move about to the ſound of the magouty. They very gravely ſay, that by certain incantations, which they only are acquainted with, they cannot do them any harm. For the curious particulars relative to this ſingular practice, ſee the article EGYPT, vol. vi. p. 378.

The ſnake-catchers in India have a feſtival named *Jaup-paun*; in which they exhibit a great variety of the moſt deadly vipers, and place a child in the midſt of them, round whom the ſnakes are made to writhe and twiſt, and as it were to dance, while the tribe of *Sampoorees*, as the ſnake-catchers are called, play the magouty, and perform various mantras and incantations, for which the ſuperſtitious ſpectators load them with preſents, thinking by this means they ſhall for ever be preſerved from the bite of thoſe fatal reptiles. For correct Engravings of thoſe reptiles, with well-atteſted accounts of the deleterious effects of their poiſon, ſee the article COLUBER, vol. iv. p. 794–815.

In no caſe, however, is the wretched ſuperſtition of the Hindoos more forcibly manifeſted than in the following extract from the Aſiatic Reſearches, vol. iv. p. 357.—“As it is uſual with the huſbandmen to reſerve a certain portion of the ſugar-canes of the preceding year to ſerve as plants for their new cultivation, it very frequently happens that inconſiderable portions of the old cane remain unappropriated. Whenever this happens, the proprietor repairs to the ſpot on the 25th of Jeyte, or about the 11th of June, and having ſacrificed to Nagbele, or the tutelary deity of the ſugar-cane, he immediately ſets fire to the whole, and is exceedingly careful to have this operation executed in as complete and efficacious a manner as poſſible. This act is performed from an apprehenſion, that, if the old canes were allowed to remain in the ground beyond the 25th of Jeyte, they would in all probability produce flowers and ſeeds; and the appearance of theſe flowers they conſider as one of the greateſt misfortunes that can befal them.

“They unanimouſly aſſert, that, if the proprietor of a plantation ever happens to view even a ſingle cane therein in flower after the 25th of Jeyte, the greateſt calamities will befal himſelf, his parents, his children, and his property; in ſhort, that death will ſweep away moſt of the members, or indeed the whole, of his family, within a ſhort period after this unfortunate ſpectacle! If the proprietor's ſervant happens to ſee the flower, and immediately pulls it from the ſtalk, buries it in the earth, and never reveals the circumſtance to his maſter; in this caſe they believe that it will not be productive of any evil conſequence. But, ſhould the matter reach the proprietor's knowledge, the calamities before ſtated muſt, according to the prevailing ideas, infallibly happen. In ſupport of this unaccountable ſuperſtition, many of the moſt aged perſons in the province of Benares have gravely recounted to the Engliſh government ſeveral inſtances of the above nature, which they affirmed to have actually happened during their own time; and moreover, that they had been perſonal witneſſes to the evils and misfortunes which befel the unhappy victims of the deſcription alluded to!"

Under impreſſions of ſuch unheard-of ſuperſtition, even in the commoneſt concerns of human life, can it at all be wondered at that the Hindoos have been ſo long made the dupes of prieſtcraft, and ſunk into the groſſeſt idolatry?

The Brahmins ſeem early to have foreſeen, that advancement in knowledge would produce the decline of their own ſpiritual authority; and they guarded therefore againſt it with a degree of caution and ſucceſs, ſcarcely to be exampled in any other civilized country. Yet by this means they kept the people united among themſelves, and prevented their tranquillity from being diſturbed by the introduction of foreign innovations.

We afterwards ſee the empire over-run by a fierce race of Mohammedan invaders, who, in the beginning of their furious conqueſts, endeavoured with their countrymen to ſubdue the minds of the Hindoos. They maſſacred the people; tortured the prieſts; threw down the temples, and converted many of them into places of worſhip for their prophet; till, at length, tired with the exertion of cruelties which they found to be without effect, and guided by their intereſt, which led them to wiſh for tranquillity, they were conſtrained to tolerate a religion and cuſtoms which they found it was impoſſible to deſtroy.

It is however a lamentable reflection, that in this enlightened age, and in a country ſo much under the influence of the Britiſh government, ſo meek and complacent a people, whoſe number does not amount to leſs than fifty millions of ſouls, ſhould be daily going on in all "the abominations of the heathen;" and be "worſhipping their idols in every grove, and in every high place." It were vain any longer to attempt to controvert this obvious fact; and abſurd to palliate it, by pretending that "the adoration is paid through the idol to the Supreme Being." Thoſe who delight in ſuch diſquiſitions, appear more anxious to caſt a veil over the religious errors of the Hindoos, than to ſubject the enquiry to the touchſtone of truth.

Under theſe circumſtances, the wiſh, and the deſire, that ſome door might be opened to this people, as an inlet to the mild doctrines of the Chriſtian diſpenſation, muſt be uppermoſt in every benevolent mind. But how, it will be aſked, is the great work of the Hindoo converſion to be brought about? Not by coercion; for that mode we have ſeen fail in every part of the pagan world, and under every power which has endeavoured to enforce it. To fetter the body is no difficult taſk; but the ſhackle has never yet been forged that could fetter the mind.—Wherever the French, the Spaniſh, the Portugueſe, miſſionaries have directed their ſteps, whether in North or South America, in Aſia, Africa, or in the Eaſt or Weſt India Iſlands, and erected the perſecuting ſpirit of the Inquiſition, there we have ſeen the moſt dreadful cruelties and maſſacres take place; repelling at once every idea of converſion in the mind of the aſtoniſhed ſavage, and caſting an indelible ſtain upon that very religion they pretended to propagate. All accounts agree, that the ferocious Tamerlane, after having conquered northern Hindooſtan, collected together no leſs than one hundred thouſand of the idolatrous inhabitants, and gave them the choice of an agonizing death, or an immediate converſion to the Mohammedan faith. The fugitives heſitated not: they preferred death to the acceptance of a religion which diſgraced its profeſſors by ſuch wanton acts of cruelty and murder, alike unparalleled and unprovoked.

What ſteps then might be taken to forward ſo meritorious a taſk, as that of converting to Chriſtianity the idolatrous Hindoos? The anſwer is, A fair and candid appeal to the underſtanding of every individual; who, when left at perfect liberty, and having before him the documents whereby to inform his judgment, might freely exerciſe that unbiaſſed reaſon, with which the Almighty, in his infinite goodneſs, has more or leſs endued all his creatures. By this divine light, in all probability, he would diſcern the TRUTH; his mind would be prepared to receive inſtruction, and the work of ſalvation go regularly forward.

The difficulty appears to be in providing thoſe documents, and placing them in the hands of ſuch a countleſs multitude. Yet, perhaps, the documents might be provided without any very great trouble, or unreaſonable expence. For, as we are in poſſeſſion of the VEDAS, or Hindoo Scriptures, might we not tranſlate ſuch ſtriking paſſages from them as the Creation of the World—the general depravity of the antediluvian people—the conſequent univerſal deluge—the re-peopling of the world by the ſons of Noah—and the conſequent epochs and events, as are therein recorded? Then, in an oppoſite column, might be placed the correſpondent paſſages, from the more ſublime and elevated diction of OUR HOLY SCRIPTURES; whereby the Hindoos would, to their aſtoniſhment, perceive, that originally and fundamentally our faith and theirs was one and the ſame, and our adoration paid to one and the ſame everlaſting Being; but whom they had, by lapſe of time, or through falſe teachers, moſt unfortunately deſerted for idols of wood or ſtone, which could afford them no help whatever, either in this world or in that which is to come. Then might be added the patriarchal hiſtory; ſhowing that from thence deſcended a bleſſed Redeemer; the light of whoſe Goſpel was now to be opened to their view, and tendered for their joyful acceptance.

The immenſe number of people to whom theſe documents would require to be preſented, forms no ſerious obſtacle to the proſecution of the plan; becauſe it does not follow that the whole maſs of population is to be addreſſed at once. The moſt rational procedure would be, to begin with ſome province in alliance with the Engliſh government; and publiſh theſe Scriptures in the Hindooſtanee language, or in whatever dialect may happen to be vernacular, or commonly ſpoken, in ſuch province.

This mode of endeavouring to introduce Chriſtianity among the Hindoos, would create no alarm; it would excite no jealouſy, nor favour of any diſpoſition to exert compulſion or violence. And as the Brahmins, like the Roman-catholic clergy, prohibit the reading of the Scriptures to all but the privileged orders, it might be fairly inferred, that the avidity of the bulk of the people to avail themſelves of the information ſo unexpectedly and providentially afforded them, would be ſo much the greater. Thus, while Juſtice, tempered with Mercy, prevails in the tribunals of the Engliſh government; while urbanity of diſpoſition, exemplary manners, and a ſtrict attention to religious duties, are manifeſted by all the ſubjects under that government; the force of example would add its weight to the divine precepts of the Goſpel; and the moſt happy conſequences would probably reſult from the operation of a plan founded in ſtrict philanthrophy, and carried on with patience, candour, and true Chriſtian benevolence. It may alſo be expected, after the firſt ſucceſs, that one province would ſoon follow the example of another; and in the courſe of a few years the work of regeneration might poſſibly be effected throughout the whole of that extenſive country.

But, ſuppoſing that this friendly appeal to the ſenſe and reaſon of the Hindoos ſhould not, in the firſt inſtance, be attended with that complete ſucceſs which might be wiſhed, nor produce ſo plentiful a harveſt as there is every reaſon to expect would ultimately be reaped; ſtill, by the aid of well-drawn and judicious admonitions, a ſtop might in ſome meaſure be put to thoſe religious ſuicides, and cruel ſacrifices of innocent babes, which more or leſs prevail in every part of Hindooſtan. All thoſe mothers who bring forth twins, ſacrifice one of them to the goddeſs of fecundity; and an infinite number of others are annually deſtroyed by various ſacrifices, too ſhocking to relate. The marquis of Welleſley, ſo recently as June 1809, communicated to the compiler of this article, a plan which he had begun to ſet on foot for the ſuppreſſion of theſe horrid rites, towards the termination of his government in India, when he had happily reſtored peace to every part of the country, and was turning his mind to the regulation of the police. His lordſhip inſtituted an enquiry throughout Bengal, for the purpoſe of aſcertaining, if poſſible, the extent of theſe unnatural practices; and amongſt other information, he had it well authenticated, that great numbers of young children were every year ſacrificed to the ſharks that infeſt the Hoogly river, near its entrance into the Bay of Bengal, and round the iſland of Saugur. The enquiry was conducted with the greateſt caution, in order not to interfere with any of the *legitimate* tenets of the Hindoo religion; but, his lordſhip finding that this practice was not warranted by the Vedas or Shaſtras, an order of the government was iſſued at Calcutta, for the total ſuppreſſion of all ſuch acts of cruelty; and every perſon who ſhould in future be guilty of ſuch a practice, would be conſidered as having committed the crime of murder, and be made amenable to the laws. This had the deſired effect, and the practice was diſcontinued without a murmur.

His lordſhip then directed his attention to an enquiry reſpecting the number of the Hindoo women who ſuperſtitiouſly burn themſelves on the funeral pile of their deceaſed huſbands; and whether any mode could *ſafely* be adopted for the abolition of ſuch a cuſtom, without irritating the maſs of the people on the ſcore of their religion. The event of this enquiry ſhowed, that upwards of FOUR THOUSAND ſuch ſacrifices were made every year throughout the whole of the Hindoo provinces; and that, upon an average calculation, about TWO HUNDRED put a period to their lives in this unnatural manner every year in the ſingle province of Bengal. But his lordſhip being recalled to England, the further proſecution of this laudable deſign fell to the ground; and thus it has ever ſince remained.

## PRESENT STATE.

With reſpect to the preſent ſtate of Hindooſtan, no ſmall difficulty occurs in our attempts to define it. So indeciſive and unſtable were the ſanguinary conteſts for empire in this devoted country, after the declenſion of the Mogul power, that limits and boundaries have known no fixed law, but were for a long time at variance. The country now, however, ſeems to be permanently divided between thoſe more ſucceſsful princes or potentates, who, to uſe the ſoldier's phraſe, "have made the beſt uſe of the ſword." At the head of theſe, we are juſtified in placing the king of Great Britain; ſince the Engliſh now unqueſtionably form the moſt powerful ſtate in India.

Next to the Engliſh, are the Mahrattas, who are infinitely more numerous, but conſiderably weaker, inaſmuch as they are ouſted of the ſtrong-holds, and are greatly inferior in the ſcience of tactics. The right of collecting the *chout*, being ſecured to the Mahrattas, appears to have been the grand means of ſetting them at reſt. The origin of this tax is of no very ancient date. Aurungzebe, when far advanced in life, being tired of a war which he ſaw no proſpect of bringing to a favourable iſſue, was glad to come to an accommodation with this troubleſome enemy on their own terms: for this purpoſe he gave them a *coule*, or written agreement, by which he granted to them and their ſucceſſors, the *chout*, being a certain tax per centum on all the royal revenues in the Deccan; but in no other part of the Mogul empire.

The Nizam of the Deccan ſtands next after the Mahrattas in point of dominion and power; then the Seiks, in northern Hindooſtan; the Jauts, who diſpoſſeſſed the Moguls of the provinces round Agra; and the Afghans, Patans, Rohillas, and other hardy tribes, who inhabit the mountains. Moſt of theſe are mercenaries, being always ready to fight for any prince who will pay them beſt. It appears uſeleſs to add to this liſt the preſent repreſentative of the fallen houſe of Timour, Akbar Shah, in the city of Delhi; ſince, comparatively ſpeaking, all power and real dominion ſeem departed from him; and he exiſts under protection of the king of Great Britain. Yet he continues the *nominal* emperor of Hindooſtan, and receives an annual tribute or payment from thoſe powers who have divided amongſt them his vaſt territories; and hence they found a claim of *hereditary right* to thoſe poſſeſſions; which, if diſputed, they maintain by the ſword, and withhold the tribute, at once involving the rightful ſovereign in poverty and diſtreſs.

The Britiſh poſſeſſions prior to the fall of Tippoo Sultaun in 1799, were ſuppoſed to contain 197,496 ſquare Britiſh miles, being about 60,000 more than are compriſed in the united kingdom of Great Britain and Ireland; the number of native and mixed inhabitants was then computed at ten millions. The acquiſition of Coimbitore and other territory in 1799, probably makes an addition of 15,000 ſquare miles; and the population ſubject to Great Britain was ſuppoſed to be at leaſt 14,000,000. The net revenue exceeded three millions in 1792; but in 1799 it far ſurpaſſed that ſum; and by the addition of territory in 1801, 1802, 1803, and 1804, both the revenue and population became wonderfully increaſed. This great power and revenue of ſo diſtant a country, maintained in the midſt of a highly-civilized foreign nation, is perhaps unexampled in ancient or modern hiſtory.

The Mahrattas are divided into two ſtates or empires, that of Poonah or the weſtern, and Berar or the eaſtern; each ruled by ſeveral chiefs, or princes, who pay a nominal obedience to the Paiſhwa, as ſtated in the former part of this article.

Modern geographers, for the purpoſe of bringing this extenſive country more within the reach of common comprehenſion, have formed it into four of the moſt natural diviſions it could poſſibly admit of. There are: *Sindetic* Hindooſtan, containing the diſtricts or provinces ſituated on the river Sind, or Indus. *Central* Hindooſtan, or the Middle Provinces. *Southern* Hindooſtan, or the Deccan. *Gangetic* Hindooſtan, or the provinces bordering on the Ganges.

The firſt diviſion, or SINDETIC HINDOOSTAN, extends from the northern mountains of Cachemire, and the Hindoo Koh, or Indian Caucaſus, in the north of Cabul, to the mouth of the Indus; forming the weſtern boundary of Hindooſtan, towards Perſia; being in length about nine hundred Britiſh miles, and about three hundred and fifty in medial breadth. Beſides part of the provinces of Delhi and Agimere, it contains the extenſive province of Moultan, with Lahore, Cachemire, Cabul, the frontier-region of Candahar, and that of Sindi, at the mouth of the Indus. Theſe provinces are thoſe through which all the invaders of Hindooſtan, from the time of Alexander to the eſtabliſhment of the Mogul empire, uniformly made their way; the conſequence of which is, that they partake more of the Mohammedan faith, and abound more in moſques and minarets, and buildings in the Saracenic ſtyle of architecture, than in any other part of India. It is hence called by the natives "the country of the *Moors*;" a name which the Hindoos give to all the Mohammedans, come from where they will.

The chief cities which occur in this extenſive region are Lahore, Cachemire, Cabul, Ghizni or Gaſnah, Candahar, Attock, Moultan, and Tatta, in the Sindean Delta. On the eaſt of the Indus, or in the Punjab, the Seiks now form the leading power. All the celebrated towns and cities, being fully deſcribed under their reſpective names in this Encyclopædia, need not be enlarged upon here.

Central Hindoostan, or the Middle Provinces, are chiefly bounded by Gangetic Hindooſtan on the north; and on the weſt by the ſandy deſert, and the ocean. The ſouthern limit is the river Kiſtna, with its tributary ſtream the Beema; while the eaſtern ſide is waſhed by the bay of Bengal. The length eaſt to weſt, from Jigat Point to Cape Palmiras, is little leſs than twelve hundred Britiſh miles; while the medial breadth is about four hundred. In it are comprehended the province of Oriſſa, with part of Golconda, Berar, Dowlatabad, Candeiſh, Guzerat, and other inferior diſtricts; and on the eaſtern ſhore are the Britiſh provinces called the Circars. The chief cities and towns are Amedabad, Cambay, Surat, the Britiſh ſettlement of Bombay, Burhampour, Ellichpour, and Nagpour, which may be called the central city of Hindooſtan. Not far to the eaſt of this laſt-mentioned city, begins that extenſive and unexplored wilderneſs, which is pervaded by the great river Bain, or Baun Gonga, and terminates in the mountains that bound the Engliſh Circars.

Southern Hindoostan, or what is now conſidered as the Deccan, is bounded by the river Kiſtna, and its moſt northern ſubſidiary ſtreams flowing into the Beema. It extends from the latitude of Bombay, to the ſouthern point of Cape Comorin, about eight hundred and thirty Britiſh miles in length, and about three hundred and fifty of medial breadth; the weſtern coaſt of the peninſula being called that of Malabar, and the eaſtern that of Coromandel. It contains nearly the whole of the province of Viſiapour, and the moſt important part of that of Golconda, with the central kingdom of Myſore, the Carnatic, the principalities of Tanjore, Travancore, and the Zamorins of Calicut, the pepper-coaſt of Canara, and other diſtricts, of which Concam is ſuppoſed to be the Kamkam which the Arabian authors mention as adjoining to the territory of the Balhara. In this diviſion may alſo be included the iſland of Ceylon, the coaſts of which are now poſſeſſed by the Engliſh, while the native princes retain the inland parts.

In this diviſion of Modern India, the poſſeſſions of the Engliſh are extremely valuable and extenſive. In the Carnatic is ſituated our ancient ſettlement of Madras, where the Supreme Government was long fixed, though ſince removed to Calcutta in Bengal. And in addition to the territory round Madras, the Britiſh power was, in 1799, extended over a conſiderable part of the Myſore; and Seringapatam, its capital, and Mangalore, its valuable and commodious ſea-port, are now alſo in our poſſeſſion. In the Deccan we likewiſe poſſeſs ſeveral other important places; as Salem, and Attore, in the eaſt, Dindigul, Coimbetore, Pallicaud, on the ſouth; and on the weſtern coaſt Paniany, Ferokabad, Calicut, Tellicherry, and our northern poſſeſſion of Carwar, is within forty miles of the Portugueſe ſettlement of Goa; while on the ſouth we approach within a like diſtance of Cochin. To theſe advantages were added, by the treaty of Baſſeen in 1802, various diſtricts belonging to the Peiſhwa, ſituated on the weſtern ſhores of the Deccan, which enabled the Engliſh to become maſters of the whole of the Malabar coaſt; and in 1803, by the treaty with the rajah of Berar, the whole province of Cattack, with all the territories ſituated to the weſtward of the river Wurdah, in the Deccan, were ceded to the Engliſh. And by the treaty with Scindia in 1804, the fort and territory of Baroach in Guzerat, and the fort and territory of Ahmednagur in the Deccan, with all the diſtricts lying between the mountains and the Godavery river, were added to the Britiſh poſſeſſions in this part of Hindooſtan.

Not far from the weſtern frontier of our ſettlement at Madras, ſtands the celebrated city of Arcot, the capital of the Carnatic; the ſupreme government of which has been lately aſſumed by the Engliſh. The nabob, who is the nominal viceroy, is the ally of the Engliſh; and owes to them the eſtabliſhment of his fortunes and family in that high dignity. He reſides ſometimes at Madras, but principally at Arcot. Tanjore forms a part of the Carnatic; the rajah of which pays to the Britiſh government 160,000l. per annum, for their protection.

Beſides the cities and towns already mentioned, this diviſion contains Tranquebar, a noted Daniſh ſettlement, in the province of Tanjore. This ſettlement was formed about the year 1617, and has been chiefly remarkable on account of the Lutheran miſſionaries, who reſorted hither to convert the Hindoos; but have contributed much more to the illuſtration of natural hiſtory. Pondicherry, on this peninſula, was the principal ſettlement of the French, founded in 1674; and was then a large and beautiful city.

On the weſtern coaſt, or Malabar ſide, ſtands Cochin. This city remained ſubject to the Portugueſe till 1660, when it was taken from them by the Dutch. To the north of the Britiſh territories, in this diviſion, ſtands Goa, the famous ſettlement of the Portugueſe, and ſeat of their Inquiſition.

The principal cities of the Deccan remaining to the native princes, are, Poonah, the capital of the weſtern empire of the Mahrattas; Viſiapour, alſo called Bejapour, once the capital of a large kingdom of the ſame name; Aurungabad, the capital of the nizam's territory; and Hyderabad, another metropolis of the nizam, in the celebrated kingdom of Golconda; in the neighbourhood of which are the ſo much valued diamond-mines, under the viceroyalty of the nizam. In this diſtrict alſo ſtands Calberga, formerly the capital of the powerful kingdom under the Bamineah dynaſty, as noticed above. The nizam of the Deccan has now for many years approved himſelf the firm ally of the Engliſh, whoſe armies ſupport and defend him; but ſhould any groſs defection hereafter take place on his part, ſo as to induce a reſentful war on the part of the Britiſh government, it is more than probable that thoſe rich mines, which have ſo long operated as a mine of bloodſhed and ſlaughter to the Hindoos, will become ſubject to the king of Great Britain.

Gangetic Hindoostan, or the diviſion bordering on the Ganges, extends from the eaſtern boundaries of Bengal, to the country of Sirhind; in length about a thouſand Britiſh miles. The greateſt breadth, from the ſources of the Chumbul to the mountains of Sewalic, is about four hundred and fifty Britiſh miles; and the leaſt, on the weſt of the province of Bengal, about two hundred and thirty. It compriſes the rich and fertile provinces of Bengal, Bahar, Allahabad, Oude, Agra; with part of the provinces of Delhi and Agimere, and of Malwa, in the ſouth; moſt of them having been the choſen ſeats of the power of the Moguls, and other conquerors. But the power of England now preponderates in theſe noble provinces, which form the moſt extenſive part of Britiſh India; and here, in conſequence, the Engliſh Supreme Government is ſeated, holding the key of the country, by maintaining the ſovereignty over the Ganges, the Bay of Bengal, and the Indian Seas.

The diſtricts which, for many years paſt, have formed the grand baſis of the Engliſh power in this diviſion of Hindooſtan, are Bengal, Bahar, and Benares. Theſe provinces alone are in extent above five hundred and fifty miles in length, by three hundred in breadth; forming of themſelves a powerful kingdom; but by the treaty of Lucknow, in 1801, with Aſoph ul Dowlah nabob of Oude, the province and fort of Allahabad, the country of Rohilcund, and the whole of the Douab, or all that prodigious tract comprehended between the Jumna and the Ganges, with all the forts and ſtrong-holds, were ceded for ever to the Engliſh; and further confirmed by the treaty with Scindia in February 1804. The chief cities appertaining to the Britiſh government in theſe territories are, Calcutta, the capital; Dacca, or Moorſhedabad; Hoogly, about thirty miles above Calcutta; Patna, the capital of Bahar; Benares, on the northern bank of the Ganges; and Allahabad, ſituated at the confluence of the Jumna and the Ganges.

The cities in this diviſion ſtill retained by the native princes are, Delhi, the metropolis of Hindooſtan, with its rich provinces, and beautiful gardens of Shalimar, which are ſaid to have coſt a million of money in various embelliſhments. The palace is greatly out of repair; but accommodates the preſent emperor Akbar Shah, with the royal family of the race of Tamerlane; and in the city reſide the principal Mogul families, who have followed the fortunes of that dynaſty of princes.

The city of Agra is in the power of the Mahrattas; but Scindia reſides in a magnificent palace which he has lately erected at Ougein, the capital of Malwa. Holkar reſides at Indore, thirty miles from Ougein, on the ſide of Malwa adjoining to Guzerat, where his chief poſſeſſions are ſituated. Both Holkar and Scindia pretend to be deſcended from the ancient kings of Malwa.

Lucknow is the capital of Aſoph ul Dowlah, nabob of the celebrated province of Oude, which the Britiſh government have alſo taken under their protection, and thus ſecured the nabob as their firm ally.

Burtpour is the reſidence of the rajah or chief of the Jauts; who has approved himſelf a brave and intrepid ſoldier. He was the only chief whoſe fort or ſtrong-hold general lord Lake could not reduce; and therefore he wiſely acceded to the terms for peace which he himſelf propoſed. See p. 114, of this article.

The principal rivers which fertilize theſe four diviſions of Hindooſtan, excluſive of the Ganges, Jumna, and Indus, are the Gagra, Soan, Godavery, Hoogly, Bain Gonga, Nerbudda, Kiſtna, Cavery, and the Five Rivers of the Punjab; with the lakes of Colair, Chilka, Pulicat, and Ouller. Subſidiary ſtreams are without number, iſſuing in almoſt every direction from the vaſt and various mountains which either circumſcribe, or preſent a barrier to, this extenſive region. Thus every part is fertilized, except the great deſert of Agimere, on the eaſtern ſide of the Indus, which is near five hundred miles in length, and from one hundred to one hundred and fifty in breadth.

Amidſt this interchange of lake and deſert, of fertilizing ſtreams and lofty mountains, numerous large foreſts occur; particularly near the mouth of the Ganges, and in the wide unexplored regions on the weſt of the Circars. Theſe foreſts ſurpaſs in exuberance of vegetation any idea which Europeans can form: prickly creeping plants of prodigious ſize and length extend from tree to tree, and form an impenetrable barrier, which many of the native princes have endeavoured to imitate, by forming with ſuch plants a fortification round their palaces and forts. See the article BOUND HEDGE, vol. iii. p. 312.

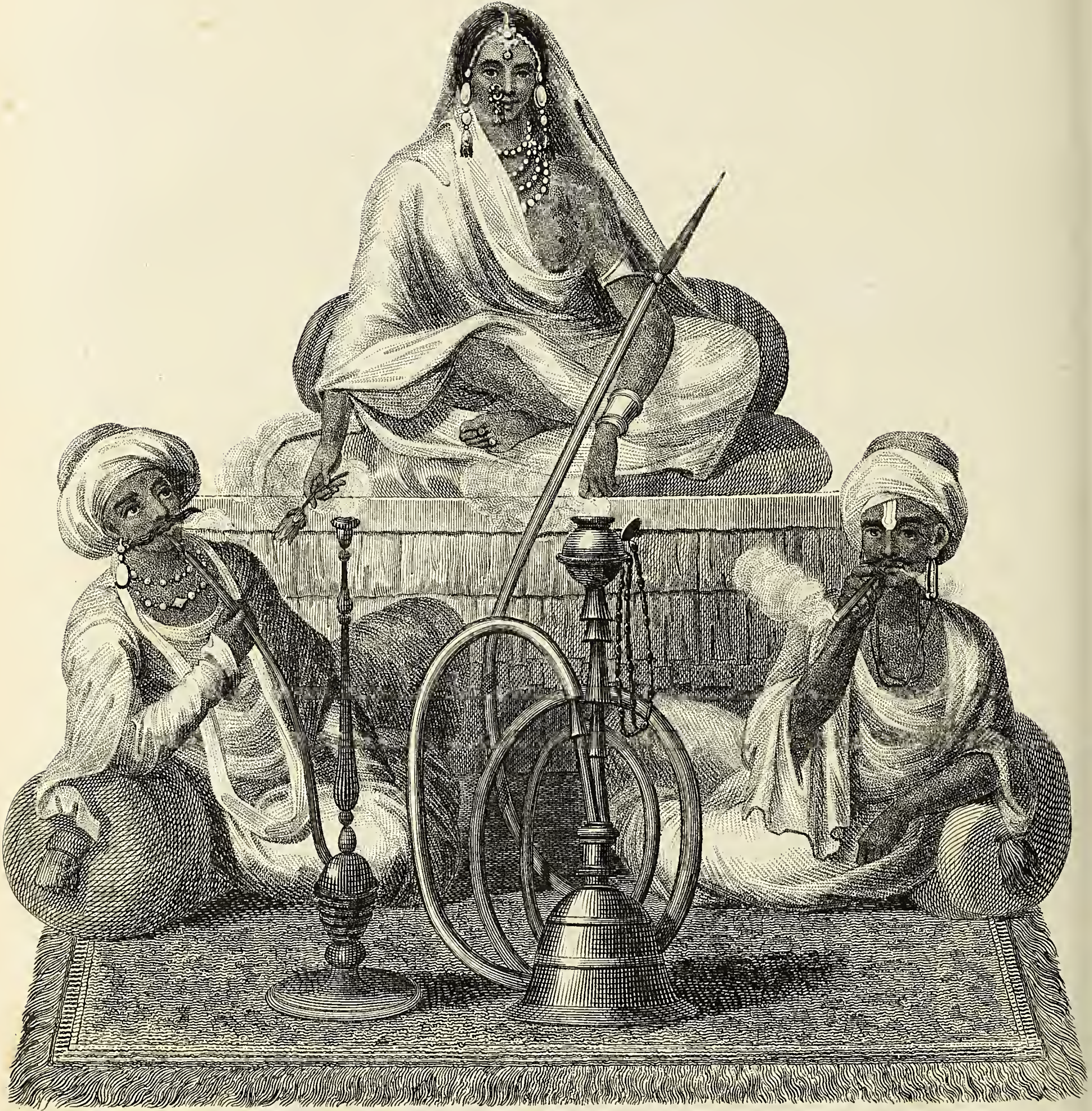
A more fertile ſoil, and a climate better adapted to the moſt profuſe luxuriance of vegetation, than the well-watered tracts in this vaſt peninſula, cannot poſſibly be found in any part of the known world. The liberality with which nature has ſcattered over this favoured country the choiceſt of thoſe plants that contribute to the ſuſtenance, the convenience, and elegance, of human life, is boundleſs, and without competition; double harveſts, two crops of fruit from many of the trees, and from moſt others a copious and regular ſupply during the greater part of the year, are the great baſis that ſupport its ſwarming population; while its timber of every quality, its herbs of medicinal virtue, its numerous and exquiſite dying vegetables, and its cotton trees and plants, offer to its inhabitants the materials of every enjoyment, for the trouble of only gathering.

The moſt diſtinguiſhing feature in their woods and foreſts, is the multitude of lofty trees of the palm kind, which riſe with a ſimple trunk to a conſiderable height, terminated by a tuft of large leaves, and wholly deſtitute of branches, except while they are in fruit. The COCOS, or cocoa-nut tree, is among the moſt pre-eminent; its fruit ſupplies an agreeable nutriment, and the fibrous covering of the nut is manufactured into the moſt elaſtic cables that are known. The ARECA palm is valued over all India for its nuts, which are preſented at all ceremonious viſits. The BORASSUS flabelliformis, or fan-palm, is diſtinguiſhed for its broad fan-ſhaped leaves, which are uſed for writing, and for thatching; and from its juice the beſt palm toddy is made. The EGLE marmelos, ſo much prized for its delicious fruit, valuable wood, and fragrant perfume. The BASIA butyracia, or butter-tree; the ſame as was diſcovered by Park in Africa: it affords a plentiful ſupply of butter, ſaid to be equal to any produced from the cow. The BOSWELLIA ſerrata, or tree which produces the true frankincenſe. The AMOMUM roſeum, or India ginger. The ARUNDO bambos, or bamboo, of univerſal uſe in India. The DILLENIA pentagyna, remarkable for its beauty, and valuable for its fruit, of a pure acid, and equal to the white lily in fragrance. The MANGIFERA, or mango, however, is reckoned the moſt exquiſite of the Indian fruits, and is found in conſiderable abundance, both wild and cultivated, through the whole peninſula, though none of this is ever ſeen in England, except the unripe fruit, which is uſed for ſpice pickles. Other valuable trees are the CANELLA alba, or white cinnamon; the ANACARDIUM, or caſhew-nut, uſed for giving a durable black ſtain to cotton; GOSSYPIUM arboreum, the cotton-tree; TECTONA grandis, or teek-tree, ſo durable for ſhip-building, that it is called "the Indian oak;" the FERONIA elephanta, or wood-apple, highly prized for its cooling fruit, and for the fineſt gum in the world for mixing paints; the FICUS glomerata, cultivated for its luxuriant fruit; the GYROCARPUS jacquini, whoſe ſtrong light wood is in great requeſt for catamarans; the HIBISCUS ficulneus, abelmoſchus, and roſa, admired for the profuſion of its elegant bloſſoms, and is of peculiar fragrance; the chaſte and elegant CYRILLA Indica; the AMANNIA octandria; and the curious varieties of MIMOSA, or ſenſitive plant, equally attract admiration and regard; the BIGNONIA quadrilocularis, or Indian trumpet-flower, is alike admired for its great fragrance and beauty; the CACTUS grandiflorus, or night-blowing ceruſe, and the JASMINUM grandiflorum, boaſt the moſt fragrant bloſſoms of the whole eaſt; the former perfuming the night, and the latter ſcenting the day; while the BUTEA ſuperba, by the ſtriking contraſt of its green leaves, its black flower-ſtalks, and its large ſcarlet papilionaceous bloſſoms, attracts with its oſtentatious charms the notice and admiration of the moſt incurious. See the Engravings and deſcriptions of all theſe beautiful ſhrubs and trees, under their generic names, in this Encyclopædia.

The cattle or oxen of Hindooſtan are numerous, and of a large ſize, with a bunch on the ſhoulders. The ſheep are covered with hair inſtead of wool, except in the moſt northern parts. Antelopes abound of various beautiful kinds, particularly that called the Nilgau; for the figure and deſcription of which, ſee vol. iii. p. 773.

The Arabian camel, or that with a ſingle bunch, is very frequent in northern Hindooſtan: for its figure and natural hiſtory, ſee CAMELUS, vol. iii. p. 649–652. The elephant has been ever the boaſt and the glory of the emperors and rajahs of Hindooſtan; but modern tactics have rendered them uſeleſs in war: the marquis Cornwallis was the laſt who tried them: for their docility, ſagacity, and natural hiſtory, with the method of catching and taming them, and for a correct Engraving of an elephant which was upwards of a hundred years old, ſee the article ELEPHAS, vol. vi. p. 463, &c.

Apes and monkeys abound in various regions of Hindooſtan; and the orang outang inhabits the vaſt foreſts on the weſt of the Circars. The other animals are wild boars, bears, wolves, foxes, jackalls, hyenas, leopards, panthers, lynxes, &c. The lion ſeems to have been always unknown in Hindooſtan; but the royal tiger of Bengal is a far more terrible and dangerous animal than the ſtouteſt lion. Such is their ſize and ſtrength, that they will carry off bullocks; the height of ſome being five or ſix feet, and the feline length in proportion. Parties of pleaſure, on the iſles at the mouth of the Ganges, have often been fatally interrupted by the ſudden appearance of the tiger, prepared for his fatal ſpring,



J. Chapman, Sc.

A Smoking Party_in the Province of Bengal.

London, Published Dec. 23, 1809. by J. Wilkes.

which is ſaid to extend a hundred feet; not improbable, when compared with that of the cat. Such is the nature of the animal, that, if diſappointed in this firſt and ſole leap, he couches his tail and retreats. See a correct portrait of this animal, with its natural hiſtory, under Felis, vol. vii. p. 296.

But the reptiles or vipers of Hindooſtan, are by far the moſt dangerous and numerous of all the noxious tribes in that extenſive region; yet a little active animal called *mangooſe*, or ichneumon, a ſpecies of Viverra, is more than a match for the ſtouteſt and moſt deſtructive of theſe reptiles, and kills great numbers of them. For Engravings of the Indian vipers, and their natural hiſtory, ſee the article Coluber, vol. iv. p. 794–815.

To enumerate the various birds, fiſhes, and inſects, of Hindooſtan, would be a vain attempt. While the turkey is certainly a native of America, wild peacocks abound in Thibet and Ceylon; our common fowl are alſo found in a ſtate of nature in the jungles, whence they are called jungle fowl. Hence it ſeems reaſonable to conclude, that, as theſe animals have been diffuſed over the civilized world from time immemorial, they muſt have paſſed from Hindooſtan to Perſia, and from thence to the weſtern countries.

The mineralogy of Hindooſtan is diſtinguiſhed by the production of the richeſt diamonds; which are alſo found in Braſil, but of inferior quality. See the article Diamond, vol. iv. p. 789. The other moſt valuable precious ſtones found here are the ſapphire and the ruby, which laſt occurs in Ceylon; the topaz, many curious tourmalins, the beryl, the emerald, and the hyacinth.

Among the metals, gold is found in the rivers which flow from the mountains into the Ganges and Indus; but no gold-mines ſeem ever to have been known in Hindooſtan; which has rather been celebrated for attracting this metal in commerce from other countries. Silver ſeems rare in general throughout the oriental regions; and there is no indication of this mineral through all India. Thunberg mentions iron-ore and plumbago among the minerals of Ceylon; but ſays nothing of copper, which ſeems alſo little known in Hindooſtan.

In a country where Providence, with an unſparing hand, has beſtowed ſo many bleſſings, it would be worſe than ſenſeleſs were the Engliſh not to improve, by every wiſe and politic meaſure, the firm footing they have at length obtained upon this part of the Aſiatic continent. Great, indeed, have been the ſtruggles between France and England for ſuperiority in this part of the world, which have finally ſubſided in favour of the Engliſh; the French not having, at this time, (1809,) a ſingle foot of domain upon the whole peninſula. To ſecure this firm eſtabliſhment, a conſiderable ſtanding army, with an adequate navy, is maintained in Bengal; where the metropolis of Britiſh India, the city of Calcutta, begins to vie with Delhi itſelf, for magnificence of building, and extent of population. The governor-general's palace, which was erected under the immediate direction of the marquis of Welleſley in 1804, is a noble ſtructure; and ſerves to manifeſt the great ſuperiority of the Greek and Roman architecture, over that which has long prevailed in Hindooſtan. Here too the Supreme Council diſpenſes the mild influence of Engliſh juriſprudence, throughout the vaſt territory acquired by the king of Great Britain; juſt as the ſtomach diffuſes to the remoteſt and ſmalleſt extremities their due portion of the healthful aliment. By its equitable and impartial deciſions, as well in caſes which reſpect natives as foreigners, the confidence and regard of the principal rajahs have in a great meaſure been ſecured; and the veneration of the Hindoo people for the Engliſh government and laws, has, of late years, begun to extend itſelf throughout all the neighbouring provinces.

But the erection of the governor-general's palace, and the various other improvements of a public nature in Calcutta, by no means redounded ſo highly to the reputation of the noble marquis, as the foundation and erection of a ſeminary of learning, which he denominated "the College of Fort William in Bengal." The indefatigable ſir William Jones had planted the firſt ſeeds for the growth of ſcience and literature in Hindooſtan, by eſtabliſhing on permanent ground, the Aſiatic Literary Society, of which he was the firſt preſident; and the marquis of Welleſley was deſirous of following up ſo meritorious a diſpoſition for diſſeminating knowledge and learning in this highly-favoured portion of the eaſtern world, by founding a college for the education of ſuch ſtudents as might hereafter be intended to fill oſtenſible ſituations in the civil departments of the Britiſh government in India: a deſign at once ſplendid, politic, benignant,—and the reſult of genuine philanthropy. Here the firſt object of the young ſtudents was to acquire the languages and dialects of the country, and to make themſelves acquainted with the laws, the manners, and cuſtoms, of the people over whom they might hereafter exerciſe rule, on the very ſcene of their future exertions, where every thing around them would tend to quicken them to diligence, and animate them to perſeverance. Thus, on their arrival in India, inſtead of immediately having ſet before them examples of profligacy, of extortion, and of avarice, they would ſerve their noviciate in a ſituation in which their minds muſt be imbued with ſentiments of honour; in which they would be taught to venerate the maxims of juſtice, and to reſpect the ſanctions of religion; in which they would learn to cheriſh liberal and enlarged views; and in which, in ſhort, they would be formed to command the reſpect, and to ſecure the attachment, of the people with whom they might be deſtined to hold intercourſe. Hence ariſes at leaſt a probability of their iſſuing forth with feelings calculated to render them anxious to promote the glory and power of the mother-country, to ſupport the reputation of the national character, and to benefit the diſtricts entruſted to their adminiſtration. By ſuch plans of genuine policy, calculated to cement and ſecure the friendſhip and regard of the native Hindoos, the Britiſh government may eſtabliſh its permanence for ages yet unborn; and hence monuments of Britiſh genius, of wiſdom, and juſtice, may live and flouriſh in thoſe diſtant regions, even when every trace of its political authority may have ſhared the fate of all ſublunary things.

The various relations of the civil government, of the naval and military eſtabliſhments, and of a moſt extenſive commerce, have contributed to throw together in the grand capital of Britiſh India, Calcutta, ſuch a mixture of different nations, people, and manners, that the city preſents a moſt pictureſque and intereſting ſcene. The ſwarthy Hindoo, the ſqualid Moor or Mahometan, contraſt with the open florid countenances of the Engliſh; while the fair and lovely faces of numerous European ladies, who perpetually arrive in purſuit of a fortunate market, receive a foil from the dark Hindoo beauties, which conſiderably enhances their charms.

All degrees of people in this great commercial city, as well as throughout the province of Bengal, and its dependencies, wear the aſpect of internal content and ſatisfaction. All are allowed the free toleration of their religion; and every innocent amuſement is countenanced and encouraged. The native Hindoos, in this quarter, are leſs reſerved, and of a more cheerful and free diſpoſition, than is obſerved of thoſe in the interior country. Here they freely enjoy themſelves in their own inoffenſive way, and ſpend a conſiderable portion of their time in ſmoking the hooka, or the ſegar; in which the Hindoo ladies, provided they are unmarried, are allowed to bear a part. So great is their propenſity for the luxury of tobacco, that ſervants are kept for no other employment but to repleniſh their pipes, and place them in order the moment they are wanted. The annexed Engraving repreſents the felicity of a ſmoking party; ſhows the conſtruction of their pipes, and exhibits ſomewhat of the coſtume of the province of Bengal. The lady is a Hindoo of high rank, and finiſhed dreſs. The hooka ſmoker is of the *khatri* caſt, which includes the ſuperior people, and ranks next to that of the Brahmin; the dreſs is that commonly worn in the above province, but partakes more of the Mogul habit than of that of the real Hindoo. The ſegar ſmoker is of the *vhyſe* caſt, which compriſes the commercial people, or all thoſe who are employed in traffic, as *banyans*, &c. Theſe are very prompt in their offers of accommodation to all Europeans who viſit Bengal.

Under the Britiſh auſpices, the melioration of manners in this part of India, and the general content diffuſed throughout all degrees of the handicraft people, have become extremely viſible and ſtriking, eſpecially within the laſt ten or twelve years, or at leaſt from the era when the noble marquis Cornwallis received as hoſtages the two ſons of Tippoo Sultaun, and by his treatment of them, and honourable return in ſafety to their inſidious father, eſtabliſhed the character of Engliſh lenity and rectitude; which ſtopped not here, but held forth its protection to all degrees of Hindoo people, whereſoever or howſoever oppreſſed: nor from that time have we heard of any of thoſe ſhocking inſtances of rapine and plunder, which formerly diſgraced all our details from Hindooſtan.

We might here ſum up the general character of the Hindoo people in the conquered provinces, as impreſſively given by their hiſtorian, the Reverend T. Maurice: "Strangers in general to the turbulence of ambition, to the fever of intemperance, and all the tumultuous violence of the more boiſterous paſſions, they are too often the victims of one moſt fatal and degrading vice, inſatiable avarice! When inflamed with this paſſion, its influence is ſaid to know neither limit nor reſtraint. In the accumulation of wealth all their faculties are abſorbed; but, ever mindful of the graſping extortion of their Mohammedan oppreſſors, they are reported to bury their wealth under ground, and dare not truſt even their children with the fatal ſecret. The moſt cruel tortures cannot compel them to reveal the place of its concealment: the horror of threatened defilement has alone any influence over their firmneſs; and to avoid this menace, they fly for refuge to the deſtroying ſteel, or elude the inventive malice of their perſecutors by ſwallowing a doſe of poiſon. Thus are the plains of Hindooſtan, like thoſe of modern Tartary, enriched with hoards of ſecret treaſure; and in this manner may partly be accounted for thoſe enormous ſums of ſilver bullion which are conſtantly importing into the country, and ſwallowed up as it were in a vortex, without ever being exported, or viſibly increaſing the quantity in circulation.—If, however, they are ſometimes hurried away by the deſtructive paſſion, and by the ſtings of jealouſy, often the reſult of diſproportionate marriages, into extremes which militate againſt the mild caſt of character by which they are in general diſtinguiſhed, the Hindoos have a thouſand excellent qualities to counterbalance the defect. They are not leſs ardent in love of their country, than zealous in their attachment to the inſtitution of their forefathers. In domeſtic life, they are tender and affectionate; and in their morals, for the moſt part, unſullied."

Thus people of every profeſſion, from the higheſt to the loweſt, are ſeen exerciſing their functions with active induſtry, and with cordial affection towards each other. Theſe profeſſions are here called by the name of *caſts*, though erroneouſly; the CASTS being, as we have ſeen, but four, and applied for the purpoſe of diſtinguiſhing the four claſſes or degrees of rank into which the whole native population of Hindooſtan is divided. The names of theſe profeſſional caſts in Bengal are as follow:

*Sudſope*, or warehouſe keeper. *Byde*, a phyſician or medical man: theſe can never acquire any knowledge of anatomy, ſince their religion forbids the killing or diſſecting of any animal whatſoever, except in ſacrifices to their idols. *Cauſto*, a writer, clerk, or ſecretary. *Dybuck*, an aſtronomer, aſtrologer, or calculator of eclipſes. *Augree*, a ploughman. *Beraye*, a pawn-planter, or cultivator of the pawn-plant; the leaves of which are ſerved up on all great occaſions with the betel-nut. *Coomhar*, a potter, or maker of earthen-ware. *Nauy*, a ſhaving barber. *Mauly*, a floriſt or flower-dealer, who makes chaplets and ornaments for the idols. *Chaſſa-kybert*, a gardener. *Aukeer*, a milkman, or ſeller of milk, curds, and whey. *Sunkaury*, a maker of ſhell ornaments for the wriſts, &c. of women. *Canſaury*, a braſs and copper ſmith. *Kumaur*, or *Lohaur*, a blackſmith. *Tilly*, a retailer of fruit, rice, ghee, &c. *Bowry*, a palankeen-bearer, ſometimes a graſs-cutter. *Myra*, a maker of ſweetmeats. *Gund-bunnya*, a ſeller of gums and ſpices. *Kapauly*, a rope-maker, which they form from the bark or rind of the cocoa-nut. *Sonaur-bunnya*, or *Shroff*, a money-changer. *Tamooly*, a ſeller of pawn-leaves made up with ſpices, and called donna, bera, &c. *Chooter*, a houſe-carpenter. *Gwalla*, a cowherd, or keeper of cattle. *Chaunhary*, a preparer of fine lime, to be eaten with pawn-leaves and betel. *Koalhoo*, an oilman, or ſeller of oil and bran. *Tauntee*, a weaver: their women ſpin the thread. *B'haut*, a profeſſion or caſt employed to ſpread reports in praiſe or commendation of thoſe who chuſe to hire them for that purpoſe. *Kulwye*, a paſtry-cook or confectioner. *Joogee*, a ſeller of cloth. *Doam*, a maker of baſkets, mats, &c. *Chaſſa-doba*, a thraſher of rice or other corn, which is effected by treading or trampling upon it with cattle: he yokes three oxen together for this purpoſe, and rides upon the middle one. *Dandy*, a rower or boatman. *Boaty*, a dealer in ruſhes. *Sculy*, a maker or collector of toddy, which he obtains by tapping many ſpecies of the palm-tree. *Doby*, a waſherman, who cleanſes the cloth or linen by ſoaking in water, and beating it upon a ſtrong board or ſtage full of holes or notches. *Soonree*, a diſtiller. *Maul*, or *Buddee-a*, a ſnake-catcher. *Poad*, a labourer. *Baugdy*, one who performs the loweſt or moſt menial offices. *Jellee-a*, a fiſherman. *Nikaury*, a fiſhmonger. *Moochee*, a ſhoemaker. *Haury*, a ſcavenger and nightman. *Puckmar*, a bird-catcher; which they effect by placing ſticks in various directions among the boughs of a tree, and ſmearing them over with a ſtrong gum, from which the birds cannot extricate themſelves. *Kaun*, or *Duſſahee*, a public ſinger in the ſtreets and highways. *Puttoo-a*, a painter of the Hindoo idols. *Shikaury*, a hunter, or game-killer. *Moordaſho*, or *Moorda-ſerauſh*, a remover of dead animals. *Kawra*, a pig-dealer.

The muſic and muſical inſtruments in Hindooſtan, are for the moſt part coarſe and unharmonious. The muſicians, however, are very numerous in Bengal, and are called by the name of the inſtrument they repectively play upon, viz. *Tumboora*, player on the tumboora, a ſtringed inſtrument ſomewhat like the guitar. *Sittar*, player on the guitar. *Saurinda*, violin performer. *Tobrie*, performer on a kind of bagpipe. *Kuplyaus*, player on an inſtrument made of two hollowed pumpkins. *Omorti*, player on a ſmall kind of baſe-viol. *Khole*, performer on a ſort of drum made of earthen ware. *Kurtaul*, player of cymbals. *Doyra*, player on the tabor. *P'haunjree*, player on hollow braſs rings. *Tubla*, player on a wooden drum. *D'holuk*, player on a ſmall drum. *Iultrung*, performer on China cups, ſtruck with ſmall rods of iron. *D'hauk*, performer on a drum beat with the upper ſurface turned downwards. *Soorna*, player on the hautboy. *Baunk*, blower of the trumpet. *Joorghaje*, beater of the double drum. *D'hole*, beater of the great drum. *Kaunſy*, player on a braſs plate beaten with an iron rod. *Borung*, great trumpeter. *Ramſinga*, blower of the ſerpentine horn. *Tickora*, player on the kettle-drum. *Surmungla*, player on an inſtrument formed of reeds, by rubbing with the fingers. *Baunſree*, player on the bamboo flute, by blowing into it through the noſe. Hence it is evident that the Hindoo muſic and muſicians are in a very wild and uncouth ſtate.

The following are the names of the ſervants or retainers in the principal families in Bengal, where ſuch an eſtabliſhment is maintained. *Jemidar*, the head ſervant or officer, or comptroller of the houſehold. *Chaubdar*, or *Aſſahburdar*, the principal ſervant in waiting, carrying a kind of ſilver mace. *Sounta-burdar*, the next in office, carrying a ſhorter mace, or ſilver ſtick. *Khaunſamaun*, houſe-ſteward. *Kidmudgar*, an attendant at table. *Serdar*, manager of the wardrobe, houſehold furniture, &c. *Durwan*, door-keeper, or porter. *Kerch-burdar*, houſe-purveyor. *B'heeſty*, fetcher of water. *Hooka-burdar*, manager of the hooka pipes: theſe conſiſt of a long convoluted tube fixed to an ornamented cocoa-ſhell, which contains the tobacco. *Chowry-burdar*, an attendant to drive away flies and inſects. *Maukun-wolla*, dairyman and butter-maker. *Rooty-wolla*, baking-ſervant. *Durzee*, houſe tailor. *Baulber*, valet de chambre. *Hircarrah*, running footman. *Syce*, groom, or manager of the ſtables. *Muſhaljee*, ſervant who goes before the palankeen at night to light the way. *Bawerchee*, purveyor of the kitchen, or cook. *Aubdar*, butler, or manager of the wines, &c. *Doorea*, dog or kennel keeper. *Chokeedar*, ſervant who guards or watches the houſe at night.—A monthly clerk in Calcutta (ſays Mr. Solvyns) has often more ſervants than are entertained by ſome of the firſt nobility in England; and in the military line, all above the rank of major, till of late years, were attended by ſilver-ſtick bearers, and by luminous branch-lights at night; but theſe unneceſſary marks of oſtentation begin to be diſpenſed with.

The principal Officers on his Majeſty's Civil Eſtabliſhment at the three Seats of Government in BRITISH INDIA, in the year 1809, were as follow:

SUPREME COUNCIL at CALCUTTA in BENGAL.—The right honourable Gilbert lord Minto, *Governor-General.*—Lieutenant-general George Hewett, *Commander-in-Chief.*—John Lumſden, Eſq.—Henry Thomas Colebrooke, Eſq.

COUNCIL at FORT ST. GEORGE in MADRAS, on the Coaſt of COROMANDEL.—Sir George Hilaro Barlow, Bart. K. B. *Governor.*—William Petrie, Eſq.—Thomas Oakes, Eſq.—James Henry Caſamaijor, Eſq.

COUNCIL at BOMBAY, on the Coaſt of MALABAR.—The honourable Jonathan Duncan, *Preſident and Governor.*—Thomas Lechmere, Eſq.—Robert Rickards, Eſq.—For particulars of the whole of the civil and military eſtabliſhments of Great Britain in Hindooſtan, ſee the annual Eaſt-India Calendar.

HINDOOSTANE'E, or HINDOOSTANI, the language of Hindooſtan; or that general dialect which is now chiefly uſed in modern India. Mr. Bayley, in the Calcutta Eſſays, deſcribes it as follows:

"It is compounded of the Arabic, Perſian, and Sanſkrit, or Bhakha, which laſt appears to have been in former ages the current language of Hindooſtan. Owing in ſome meaſure to the intercourſe of the merchants of Arabia with this country, but more particularly to the frequent invaſions of it by the Muſſulmans, and their ultimate ſettlement in it, a conſiderable number of Arabic and Perſian words became engrafted on the original language of the natives, and out of this mixture aroſe a new language, the *Hindooſtanee*, like a modern ſuperſtructure on an ancient foundation. By degrees it aſſumed its preſent appearance and eſtimation; and the court of Delhi made choice of it, as the medium in all affairs depending on colloquial intercourſe. Hence its influence gradually ſpread ſo widely, that it became univerſally uſed in the courts of the Muſſulman princes. Many of the native inhabitants alſo grew familiarized to it, and uſed it in all concerns, the validity of which did not depend upon written documents. In the whole of the vaſt country of Hindooſtan, ſcarcely any Muſſulman will be found who does not underſtand and ſpeak the Hindooſtanee. Every Hindoo alſo, of any diſtinction, or who has the leaſt connection either with the Muſſulman or the Britiſh government, is, according to his ſituation, acquainted, more or leſs, with this language. It is moreover the general medium by which many perſons of various foreign nations ſettled in Hindooſtan communicate their wants and ideas to each other. In almoſt all the armies of India this appears to be the univerſally-uſed language; even though many of the individuals compoſing them be better acquainted with the dialects peculiar to their reſpective diſtricts. Nearly from Cape Comorin to Cabul, a country about 2000 miles in length, and 1400 in breadth within the Ganges, few perſons will be found, in any large villages or towns which have ever been conquered or much frequented by Muſſulmans, who are not ſufficiently converſant in the Hindooſtanee; and in many places beyond the Ganges this language is current and familiar.

HI'NESBURGH, a townſhip of the American States, in Chittenden county, Vermont, and joins Charlotte-town on Lake Champlain.

*To* HING, *v. a.* [formerly ſometimes uſed for] To hang. The following perhaps is its lateſt authority in any Engliſh writer; though the word is ſtill a colloquial one in Scotland:

Heaven in thy palm this day the balance *hings*
Which makes kings gods, or men more great than kings.
*Machin's Dumb Knight.*

HING, a town of China, of the third rank, in the province of Chen-ſi: thirty miles ſouth-weſt of Kolan.

HING, a town of China, of the ſecond rank, in the province of Kiang-nan: 435 miles ſouth of Peking. Lat. 32. 35. N. lon. 133. 12. E. Ferro.

HING-CHAN, a town of China, of the third rank, in the province of Hou-quang: ſeventeen miles north-north-eaſt of Koue.

HING-FOU, a town of China, of the third rank, in the province of Se-tchuen: twenty miles ſouth-ſouth-weſt of Soui-tcheou.

HING-HOA, a city of China, of the firſt rank, in the province of Fo-kien, near the ſea-coaſt. The walls are of great thickneſs, the ſtreets are well paved, and adorned with ſeveral triumphal arches and majeſtic public buildings. The country furniſhes abundance of rice, li-chi, and ſilk: nine hundred miles ſouth of Peking. Lat. 25. 28. N. lon. 136. 42. E. Ferro.

HING-KOUE, a town of China, of the third rank, in the province of Kiang-ſi: fifty miles ſouth-ſouth-weſt of Ki-ngan.

HING-NGAN, a town of China, of the third rank, in the province of Kiang-ſi: twenty miles weſt of Kouang-ſin.

HING-NGAN, a town of China, of the ſecond rank, in the province of Chen-ſi, on the river Han: 587 miles ſouth-weſt of Peking. Lat. 32. 34. N. lon. 126. 40. E. Ferro.

HING-NHING, a town of China, of the third rank, in the province of Hou-quang: twenty-two miles eaſt-north-eaſt of Tching.

HING-NIE, a town of China, of the third rank, in the province of Quang-ſi: five miles weſt of Ouei-ling.

HING-NING, a town of China, of the third rank, in the province of Quang-ton: ſixty-two miles north-weſt of Tchao-tcheou.

HING-TCHIN, a town of China, of the third rank, in the province of Quang-ſi: twenty-five miles ſouth of King-yuen.

HING-VEN, a town of China, of the third rank, in the province of Se-tchuen: thirty-two miles ſouth-ſouth-eaſt of Soui-tcheou.

HINGE, *ſ.* [or *hingle*, from *hangle* or *hang*.] Joints upon which a gate or door turns.—Then from the *hinge* their ſtrokes the gates divorce. *Denham.*

Heaven's imperious queen ſhot down from high;
At her approach the brazen *hinges* fly. *Dryden.*

The cardinal points of the world, Eaſt, Weſt, North, and South:

If, when the moon is in the *hinge* at Eaſt,
The birth breaks forward from its native reſt;
Full eighty years, if you two years abate,
This ſtation give. *Creech's Manilius.*

A governing rule or principle.—The other *hinge* of puniſhment might turn upon a law, whereby all men, who did not marry by the age of five-and-twenty, ſhould pay the third part of their revenue. *Temple.*

*To be off the* Hinges. To be in a ſtate of irregularity and diſorder.—The man's ſpirit is out of order, and *off the hinges*; and, till that be put into its right frame, he will be perpetually diſquieted. *Tillotſon.*

Methinks we ſtand on ruins, Nature ſhakes
About us, and this univerſal frame
So looſe, that it but wants another puſh
To leap *from off its hinges.* *Dryden.*

*To* HINGE, *v. a.* To furniſh with hinges. To bend as an hinge:

Be thou a flatt'rer now, and *hinge* the knee,
And let his very breath, whom thou'lt obſerve,
Blow off thy cap. *Shakeſpeare.*

*To* HINGE, *v. a.* To turn as upon a hinge; to hang, to ſtick.

HINGEON', a town of the county of Namur: eight miles north-weſt of Namur.

HING'HAM, or, as it was formerly written, Hincham, in the county of Norfolk, was the head town of the deanery, and at firſt contained forty-three pariſhes. It was a very conſiderable town, with a market on Saturdays, and three fairs, on March 6, Whit-Tueſday, and October 2. The turnpike-road from Norwich to Watton paſſes through it; and alſo the croſs-road from Attleburgh to Eaſt Dereham, &c. Hingham is fourteen miles from Norwich, ſeven from Watton, and ninety-eight from London. The houſes are neatly built, but the ſtreets are irregular. The church is a venerable pile, the tower being very tall and large; the whole was rebuilt by Remigius de Hetherſet, in the time of Edward III. It is dedicated to St. Andrew the apoſtle, and had ſeveral chapels in it; and there were no leſs than ſeven guilds held in the church, each having a ſtipendiary chaplain, ſerving at their altars, and conſtituted a choir. There are ſeveral curious monuments in the church, with other ſubjects of antiquity.

HING'HAM, a poſt-town of the American States, in Suffolk county, Maſſachuſetts, ſituated on a ſmall bay. It contains two congregational churches, and a well-endowed ſchool, called, in honour of its principal founder, Derby School: nineteen miles ſouth-eaſt of Boſton, and twenty-two from Plymouth. The townſhip was incorporated in 1635, and contains by the cenſus 2085 inhabitants. Here are ſix corn-mills, three ſaw-mills, and a fulling-mill; four of which are tide-mills. Two eminences in this town, one of which is called Baker's Hill, preſent extenſive and delightful proſpects of Boſton Bay, its iſlands, and the adjacent country.

HIN'GING, *ſ.* The act of furniſhing with hinges.

HINGUET'TE, a remarkable rock near the ſouth coaſt of the iſland of Jerſey: two miles ſouth of St. Helier.

HIN'IGAN, a town of Aſiatic Turkey, in the Arabian Irak: one hundred miles weſt of Baſſora.

HIN'KA, a lake of Chineſe Tartary, about thirty-ſix leagues in circumference. Lat. 44. 35. N. lon. 150. 15. E. Ferro.

HIN'KAN, a chain of mountains of Chineſe Tartary, which reach from lat. 53. to 54. N. lon. 152. to 155. E. Ferro.

HIN'NA, *ſ.* The female hind; the ſhe mule. *Phillips.*

HIN-NGAN, a town of China, of the third rank, in the province of Quang-ſi: thirty miles north-eaſt of Kouei-ling.

HIN'NOM, or the Valley of Hinnom, in Scripture geography, a place that lay to the ſouth of Jeruſalem. It was alſo called the Valley of Tophet; and was remarkable for the cruel and execrable worſhip of the god Moloch, where parents made their children paſs through the fire in honour of that idol.

HIN'NULUS, *ſ.* A young hind; a fawn; a little mule. *Phillips.*

HIN'NUS, *ſ.* A mule from a horſe and a ſhe-aſs; a hind; a little nag. *Phillips.*

HINOJA'RES, a town of Spain, in the province of Jaen: fifteen miles ſouth-eaſt of Ubeda.

HINOJO'SA, a town of Spain, in the province of Leon: twenty-five miles north-north-weſt of Civdad Rodrigo.

HINOJO'SA, a town of Spain, in the province of Eſtremadura: ſixteen miles north of Llerena.

HINOJO'SA, a town of Spain, in New Caſtile: ten miles north of Molina.

HINOJO'SAS (Las), a town of Spain, in New Caſtile: thirty-ſix miles ſouth of Hueta.

HIN-PIN, a town of China, of the third rank, in the province of Chen-ſi: twenty-three miles weſt from Si-ngan.

HIN'SCHENFELD, a town of Germany, in the duchy of Holſtein: five miles north-eaſt of Hamburgh.

HINS'DALE, the ſouth-eaſternmoſt townſhip of the American States, in Vermont, and in Windham county. It contains 482 inhabitants.

HINS'DALE, a townſhip of the American States, in Cheſhire county, New Hampſhire, on the eaſt bank of Connecticut river, where the ſouth line of the ſtate ſtrikes the river in lat. 42. 43. 59. N. and is oppoſite to Hinſdale in Vermont. It was incorporated in 1753, and contains 522 inhabitants: thirty-eight miles from Northampton, and 114 from Portſmouth.

*To* HINT, *v. a.* [*enter*, Fr. *Skinner*.] To bring to mind by a ſlight mention, or remote alluſion; to mention imperfectly:

Willing to wound, and yet afraid to ſtrike,
Juſt *hint* a fault, and heſitate diſlike. *Pope.*

In waking whiſpers, and repeated dreams,
To *hint* pure thought, and warn the favour'd ſoul. *Thomſon.*

*To* Hint *at.* To allude to; to touch ſlightly upon.—Speaking of Auguſtus's actions, he ſtill remembers that agriculture ought to be ſome way *hinted at* throughout the whole. *Addiſon.*

HINT, *ſ.* Faint notice given to the mind; remote alluſion; diſtant inſinuation.—Let him ſtrictly obſerve the firſt ſtirrings and intimations, the firſt *hints* and whiſpers, of good and evil, that paſs in his heart. *South.*—Suggeſtion; intimation.—Actions are ſo full of circumſtances, that, as men obſerve ſome parts more than others, they take different *hints*, and put different interpretations on them. *Addiſon.*

HINTERGERS'DORF, a town of Germany, in Upper Saxony: eight miles eaſt of Freyburg.

HINTERSE'E, a lake of Germany, in Bavaria, and provoſtſhip of Berchtolſgaden: ſix miles weſt of Berchtolſgaden.

HINT'ING, *ſ.* The act of giving a hint.

HINZUAN'. See Joanna.

HI'O, a town of Sweden, in the province of Weſt Gothland, ſituated off the Wetter lake, with a good ſalmon-fiſhery: ſeventy-five miles eaſt of Uddevalla.

HI'ONG, a town of China, of the third rank, in the province of Pe-tcheli: thirty miles eaſt-north-eaſt of Paoting.

HI'ONG-TCHU'EN, a town of the kingdom of Corea: fifty-ſeven miles ſouth-eaſt of Kang-tcheou.

HIOR'RING, a town of Denmark, in North Jutland, and dioceſe of Aalborg, once a large place, and the ſee of a biſhop, with three churches; but in the year 1693 it was almoſt deſtroyed by fire: the biſhopric was removed to Aalborg by Frederic II. It is twenty-ſeven miles north-north-weſt of Aalborg.

HIOR'TED, a town of Sweden, in the province of Smaland: ſixty miles north of Calmar.

HIP, *ſ.* [hyppe, Sax.] The joint of the thigh.—How now, which of your *hips* has the moſt profound ſciatica? *Shakeſpeare.*—The haunch; the fleſh of the thigh:

So ſhepherds uſe
To ſet the ſame mark on the *hip*
Both of their ſound and rotten ſheep. *Hudibras.*

The ſloping corner or return of a roof; the rafter which forms the ſloping corner or column of a roof.

*To have on the* Hip. [*A low phraſe.*] To have an advantage over another. It ſeems to be taken from hunting, the *hip* or *haunch* of a deer being the part commonly ſeized by the dogs:

If this poor branch of Venice, whom I cheriſh,
For his quick hunting, ſtand the putting on,
I'll have our Michael Caſſio *on the hip*. *Shakeſpeare.*

HIP, *ſ.* [from heopa, Sax.] The fruit of the briar or the dog-roſe.—Years of ſtore of haws and *hips* do commonly portend cold winters. *Bacon.*

Why ſhould you want? Behold, the earth hath roots;
The oaks bear maſts, the briars ſcarlet *hips*. *Shakeſpeare.*

*To* HIP, *v. a.* To ſprain or ſhoot the hip.—His horſe was *hipp'd*. *Shakeſpeare.*—To furniſh with a hip; to ſlope down the corner of a roof.

HIP, *interject.* An exclamation, or calling to one; the ſame as the Latin, *eho, heus! Ainſworth.*

HIP, *ſ.* in architecture, a piece of timber placed at the corners of a roof. They are much longer than the rafters, becauſe of their oblique poſition.—Hip alſo means the angle formed by two parts of the roof, when it riſes outwards.

HIP, or Hip'pish, *adj.* A corruption of *hypochondriac. Ainſworth.*

HIP-GOUT, *ſ.* The gout in the hip.—Hippocrates affirmeth of the Scythians, that, uſing continual riding, they were generally moleſted with the ſciatica or *hip-gout*. *Brown.*

HIP-HOP, *ſ.* A cant word formed by the reduplication of *hop*:

Your different taſtes divide our poet's cares;
One foot the ſock, t'other the buſkin, wears:
Thus, while he ſtrives to pleaſe, he's forc'd to do't
Like Volſcius *hip-hop* in a ſingle boot. *Congreve.*

HIP-ROOF, *ſ.* called alſo Italian Roof, one in which two parts of the roof meet in an angle, riſing outwards: the ſame angle being called a *valley*, when it ſinks inwards.

HIP-SHOT, *adj.* Sprained in the hip; diſlocated in the hip.

HIP-TREE, *ſ.* in botany. See Rosa canina.

HIP'PA, in Egyptian mythology, a goddeſs of great antiquity. In the Orphic verſes ſhe is ſaid to have been the ſoul of the world; and the perſon who received and foſtered Dionuſus, when he came from the thigh of his father. This hiſtory relates to his ſecond birth, when he returned to a ſecond ſtate of childhood. Dionuſus was the chief god of the Gentile world, and was worſhipped under various titles, which at length came to be looked upon as different deities. Moſt of theſe ſecondary divinities had the title of Hippius, and Hippia: and, as they had female attendants in their temples, theſe too had the name of Hippai. As to the term itſelf, which was become obſolete, the Greeks, who were but little acquainted with the purport of their ancient theology, uniformly referred it to *horſes*. Hence we have Mars, *Poſeidon Hippius*; and Ceres, Minerva, and Juno, *Hippia*. Hippa was a ſacred Egyptian term; and as ſuch was conferred upon Arſinoë, the wife of Ptolemy Philadelphus. As Ceres was ſtiled Hippa, the Greeks imagined her to have been turned into a mare, and Hippius Poſeidon, in the ſhape of a horſe, to have had intimate acquaintance with her. *Ovid. Met.* lib. vi. The like is ſaid of Ocuroë, lib. ii. Phylera likewiſe was ſo changed by Saturn, who is ſaid to have purſued her in the ſame ſhape over the mountains of Theſſaly. *Virg. Georg.* lib. iii.

> *Talis et ipſe jubam cervice effudit equina*
> *Conjugis adventu pernix Saturnus, et altum*
> *Pelion hinnitu fugiens implevit acuto.*

All theſe legendary ſtories (ſays Mr. Bryant) aroſe from this ancient term being obſolete and miſapplied. Homer makes mention of the mares of Apollo, *Iliad* ii. v. 766. Theſe Hippai, miſconſtrued *mares*, were prieſteſſes of the goddeſs Hippa, who was of old worſhipped in Theſſaly, in Thrace, and in many different regions. They chanted hymns in her temples, and performed the rites of fire; but, the worſhip growing obſolete, the very terms were at laſt miſtaken. Many places were denominated from Hippa. It was a title of Apollo, or the Sun; and often compounded Hippa-On, contracted Hippon. Argos, according to Heſychius, was of old called Hippeion, απο Ἱππης του Δαναου; i. e. from a prieſteſs who founded there a temple, and introduced the rites of the goddeſs whom ſhe ſerved. As a title of the Sun, it was ſometimes expreſſed Hippos. Pauſanias takes notice of a very curious piece of antiquity near mount Taygetus in Laconia, called the monument of Hippos, the purport of which he almoſt ruins by referring to a horſe. The central part muſt be deſigned for the Sun; and, however rude the whole may poſſibly have appeared, it is the moſt ancient repreſentation upon record, and conſequently the moſt curious one of the planetary ſyſtem. Hence it appears that the titles Hippa, and Hippos, related to the luminary Oſiris; who was the ſame as Dïonuſus. His worſhip was extenſive; we read of Montes Hippici in Colchis; Ἱππου κωμη in Lycia; Ἱππου ακρα in Libya; Ἱππου ορος in Egypt; a town Hippos in Arabia Felix; alſo in compoſition Hippon, Hipporium, Hippouris, Hippana, Hipponeſus, Hippocrene. This laſt was a ſacred fountain, ſo called from the god of light, who was the patron of verſe and ſcience; but by the Greeks it was referred to an animal, and ſuppoſed to have been produced by the hoof of a horſe.

HIP'PACE, *ſ.* [ιππακη, Gr. from ιππος, a horſe or mare.] The rennet of a colt. Alſo cheeſe made from mare's milk, as was the cuſtom with the ancient Scythians. *Beckmann.*

HIPPAR'CHUS, a celebrated ancient aſtronomer, born at Nice, in Bithynia, and flouriſhed between the years 160 and 125 before Chriſt. To him is aſcribed the merit of having been the firſt perſon, who, from vague and ſcattered obſervations, reduced aſtronomy into a ſcience, and proſecuted the ſtudy of it ſyſtematically. Pliny ſays, that he was the firſt who attempted to count the number of the fixed ſtars; and the catalogue which he formed is preſerved in Ptolemy's Almageſt, where they are all noted according to their longitudes and apparent magnitudes. Hipparchus is alſo memorable for having been the firſt who diſcovered the preceſſion of the equinoxes, or that ſlow apparent motion of the fixed ſtars from weſt to eaſt, by which, in a great number of years, they will ſeem to have performed a complete revolution. He made his firſt aſtronomical obſervations in the iſle of Rhodes, whence he obtained the name of Rhodius; but afterwards he purſued his ſtudies in Bithynia and Alexandria only. His Commentary was firſt publiſhed by Peter Victorius, at Florence, about the middle of the ſixteenth century; but a more correct edition of it was given by father Petau, with a Latin verſion and notes, in his Uranalogia, publiſhed at Paris in 1650, folio. Beſides the above, Hipparchus compoſed ſeveral other works, which were highly ſpoken of by the ancients, but are now no longer extant.

HIP'PED, *adj.* Furniſhed with a hip; ſloped off with a hip.

HIPPEL'APHUS, *ſ.* [from ιππος, Gr. a horſe, and ελαφος, a ſtag.] A fabulous animal, ſhaped like a ſtag and a horſe.

HIP'PEUS, *ſ.* in aſtronomy, a kind of comet reſembling a horſe's mane.

HIP'PI, in ancient geography, four ſmall iſlands near Erythæ.

HIP'PIA, *ſ.* in botany, a genus of the claſs ſyngeneſia; order polygamia neceſſaria, natural order of compoſitæ diſcoideæ, (corymbiferæ, *Juſſ.*) The generic characters are—Calyx: common hemiſpherical, ſomewhat imbricate, with ovate ſcales. Corolla: compound, diſcoid; floſcules male, ſeveral in the diſk; females ten in the circumference; proper of the males funnel-form, five-cleft, upright; of the females obſolete, tubulous, two or three-cleft. Stamina: in the males filaments five, very ſhort; antheræ cylindric, ſhorter. Piſtillum: in the females germ margined, large; ſtyle bifid; ſtigmas upright. Pericarpium: none; calyx unchanged. Seeds: in the females oval, with a very wide rim all round, naked. Receptaculum: naked.—*Eſſential Character.* Calyx hemiſpherical, ſubimbricate; corollets of the ray ten, obſolete, ſubtrifid; ſeeds with very broad margins, naked; down none; receptaculum naked.

*Species.* 1. Hippia integrifolia, or annual hippia: hiſpid, erect, leaves ovate, ſerrate, five-nerved, racemes terminating. This has the flowers of Hippia, with the herb of Urtica. Native of the Eaſt Indies.

2. Hippia minuta, or minute hippia: herbaceous, procumbent, creeping, ſmooth; leaves pinnate; peduncles axillary, one-flowered. Found in South America by Mutis.

3. Hippia fruteſcens, or ſhrubby hippia: ſhrubby, villoſe; leaves pinnatifid; flowers corymbed. Stem ſhrubby, eight or ten feet high, ſending out branches on every ſide the whole length. The flowers are produced in ſmall roundiſh bunches at the ends of the branches; they are of a ſulphur colour, and appear in May; but there is a ſucceſſion of flowers on the ſame plant great part of the ſummer. Native of the Cape of Good Hope. Linnæus originally made this a ſpecies of Tanacetum; when he publiſhed the twelfth edition of the Syſtema (1767), the ſtructure of the fructification appeared to him to be ſo nearly allied to Eriocephalus, as ſcarcely to merit a ſeparate genus. In 1771, however, when the Mantiſſa was printed, he thought it approached nearer to Iva than Tanacetum, but was diſtinct from both; and he then gave it the name of *Hippia.*

*Propagation and Culture.* The ſeeds rarely ripen in England; but it is eaſily propagated by cuttings, planted in a bed of loamy earth, during any of the ſummer months. Shade them from the ſun until they have taken root, and refreſh them frequently with water. Take them up with balls of earth about their roots, plant them in pots, and place them in a ſhady ſituation until they have taken new root; then remove them to a ſheltered place, among other hardy exotics, and in October put them into ſhelter. This plant, requiring only protection from froſt, muſt not be too tenderly treated.

HIP'PIADES, ſ. [Greek.] Images repreſenting women on horſeback.

HIPPI'ATER, ſ. [from ιππος, Gr. a horſe, and ιατρος, a healer.] One who ſtudies the pathology of horſes; a horſe-doctor; a farrier. See FARRIERY, vol. vii.

HIPPIAT'ICS, ſ. Books treating of horſes.

HIPPI'ATRIC, ſ. A medicine for horſes.

HIPPI'ATRICE, ſ. [from ιππος, Gr. a horſe, and ιατρευω, to cure.] The art of curing the diſeaſes of horſes. See FARRIERY, vol. vii. p. 223.

HIP'PICON, ſ. [Greek.] A meaſure containing four furlongs.

HIP'PING, ſ. The act of diſlocating the hip; the act of ſloping down the corner of a roof.

HIP'PISH, *adj.* Afflicted with the hip; hypochondriac.

HIP'PISHNESS, ſ. The ſtate of being hippiſh.

HIP'PIUS, a ſurname of Neptune, from his having raiſed a horſe (ιππος) from the earth in his conteſt with Minerva concerning the giving a name to Athens.

HIP'PO, in ancient geography, a celebrated town of Africa, in the Mediterranean. Strabo ſays that there are two of the ſame name in Africa; one of which, by way of diſtinction, is called *Regius.*—Alſo a town of Spain. *Livy.*

HIPPOBOS'CA, ſ. in entomology, a genus belonging to the order of diptera. The characters are: mouth with a ſhort cylindrical ſtraight two-valved ſucker, the valves equal; antennæ filiform; feet armed with numerous claws; body flat and hard. There are only five ſpecies, viz.

1. Hippoboſca equina, or horſe-fly: wings obtuſe; thorax variegated; feet armed with four claws. Head brown; thorax brown varied with pale yellow; wings croſſing each other, hyaline with a brown ſpot near the outer margin; legs annulate with yellow and brown. Inhabits Europe, and is very troubleſome to horſes: they attach themſelves firmly to the ſkin, by means of their crooked nails; and, when in the act of ſucking blood, it is with difficulty that they can be detached. They abound moſt in foreſts, whence they obtained the name of "the foreſt-fly." See this inſect figured in the Engraving, at fig. 2.

2. Hippoboſca avicularia: wings obtuſe; thorax immaculate. Body dull brown, with a ſlight caſt of green. It is found in Europe, on the body of various birds.

3. Hippoboſca hirundinis: wings tapering to a point; feet with ſix claws. Body brown, with a bluiſh caſt; abdomen darker. See the Engraving, fig. 3.

4. Hippoboſca ovina: wings none; body dull teſtaceous. Legs hairy; claws double. Inhabits Europe, among the wool of ſheep.

5. Hippoboſca Uralenſis: black, hairy, with three rows of white ſhining veſicles on the back. Inhabits Ural.

HIP'POCAMP, ſ. [ιπποκαμπος, Gr.] A ſea-horſe:

Jove's bright lamps
Guiding from rocks her chariot's *hippocamps.* *W. Browne.*

HIPPOCAM'PI, *ſ. pl.* The horſes of Neptune's chariot.

HIPPOCAS'TANUM, ſ. in botany. See ÆSCHULUS.

HIPPOCEN'TAUR, ſ. [from ιππος, Gr. a horſe, κεντεω, I ſpur, and ταυρος, bull.] In antiquity, a fabulous monſter, ſuppoſed to be half horſe and half man. What gave occaſion to the fable was, that a people of Theſſaly, inhabiting near mount Pelion, became thus denominated, becauſe they were the firſt that taught the art of mounting on horſeback; which occaſioned ſome of their neighbours to imagine, that the horſe and man made but one animal. The hippocentaurs differed from the centaurs in this, that the latter rode on bullocks, and the former on horſes, as the names themſelves intimate.

HIPPOC'OON, in fabulous hiſtory, a ſon of Œbalus, brother to Tyndarus. He was put to death by Hercules, becauſe he had driven his brother from the kingdom of Lacedæmon. He was at the chace of the Calydonian boar. *Diodorus.*

HIPPOCOU'RIUS, a name given to Neptune.

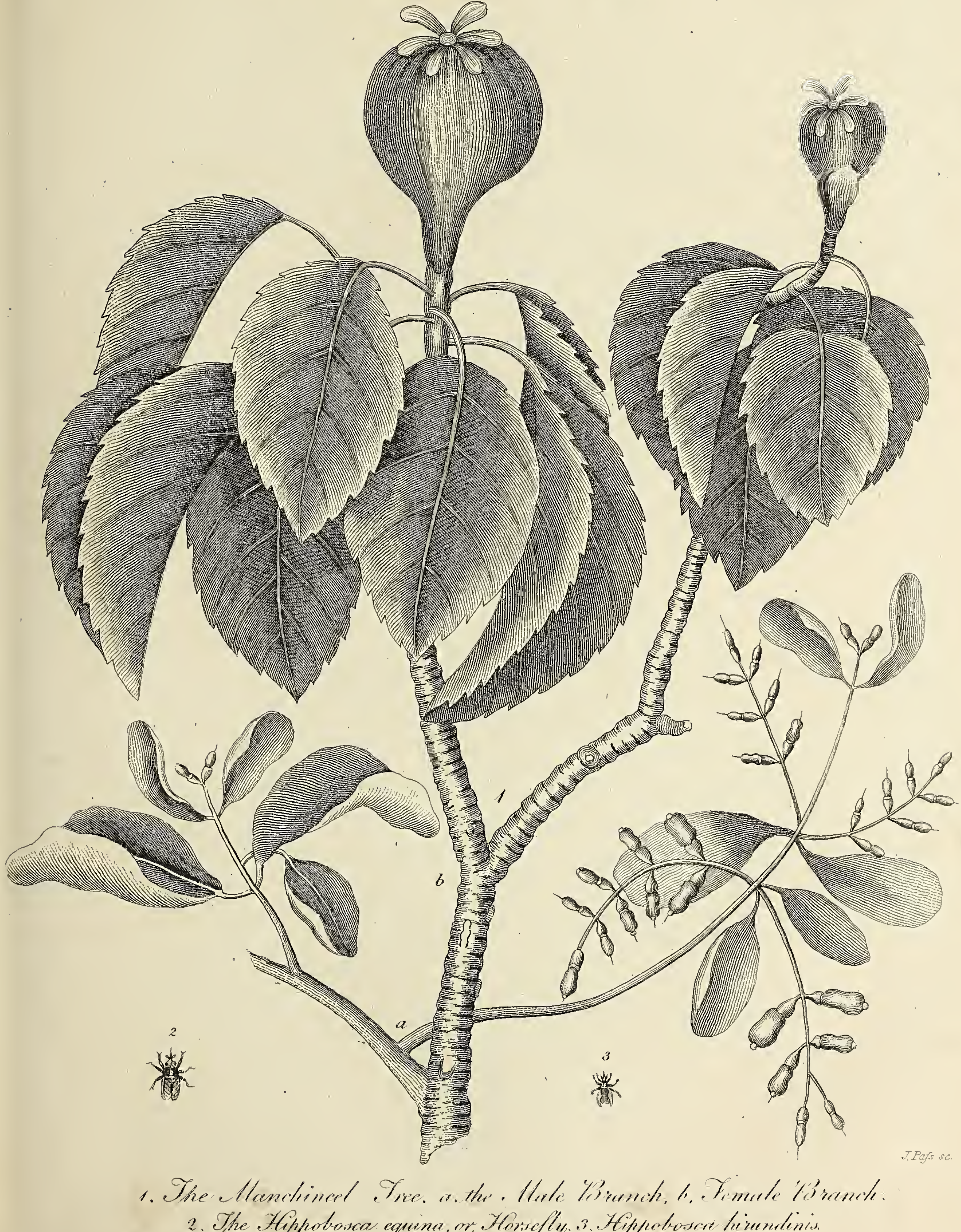
HIP'POCRASS, ſ. [*hypocras*, Fr. *quaſi vinum Hippocratis.*] A medicated wine, formerly recommended as a cordial in paralytic and nervous caſes:

Sack and the well-ſpic'd *hippocraſs*, the wine,
Waſſail the bowl, with ancient ribbands fine. *King.*

HIPPOCRATE'A, ſ. [ſo named by Plumier in memory of *Hippocrates*, the famous Greek phyſician, and father of medicine.] In botany, a genus of the claſs triandria, order monogynia, natural order of acera, *Juſſ.* The generic characters are—Calyx: perianthium one-leafed, very ſmall; leaflets roundiſh, ſpreading, incumbent, ſmaller than the corolla. Corolla: petals five, ovate, ſpreading, permanent, excavated at the tip, villoſe. Stamina: filaments three, contiguous to the germ and ſtyle, awl-ſhaped, reflex at the tip; antheræ roundiſh, with a tranſverſe groove. Piſtillum: germ roundiſh; ſtyle three-ſided, awl-ſhaped, longer than the ſtamens; ſtigma blunt. Pericarpium: capſules three, obcordate or elliptic, compreſſed, large, with two-valved cells; valves keeled and compreſſed. Seeds: in fives or ſixes, oblong, with a membranaceous wing; at firſt ſoft, but afterwards hardening like nuts, with oblong kernels.—*Eſſential Character.* Calyx five-parted; petals five; capſules three, obcordate or elliptic.

*Species.* 1. Hippocratea volubilis, or voluble hippocratea: racemes corymbed; leaves ovate-lanceolate, ſerrate. This is a ſcandent plant (not twining, whence Linnæus called it volubilis); Jacquin therefore changed the name to ſcandens. Miller ſays it grew with him to the height of eight or ten feet, twining round ſtakes with very ſlender ſtalks. Native of Carthagena in New Spain, and ſeveral of the Weſt-India iſlands. Mr. Miller had it by Mr. Robert Millar from Campeachy. Swartz ſays it flowers in the ſpring; Jacquin ſaw it flowering both in April and December, and gathered the fruit in July. He informs us, that in the dry ſeaſon, when all the trees loſe their

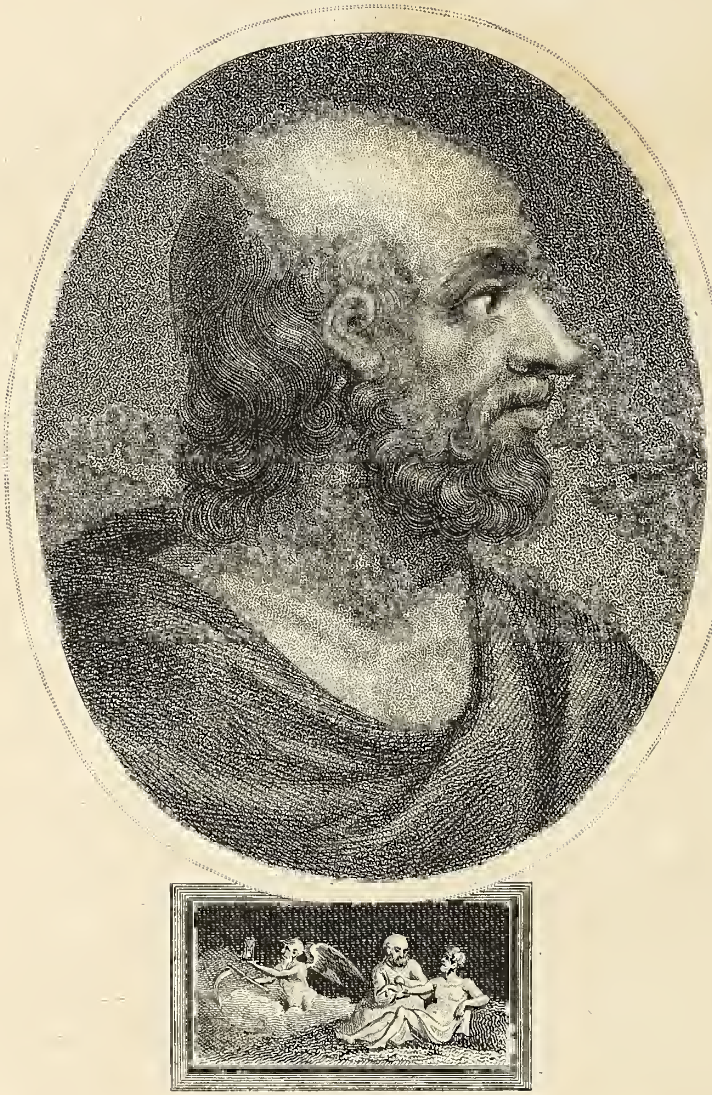
# HIPPOBOSCA, AND HIPPOMANE.



J. Paſs sc.

1. *The Manchineel Tree. a. the Male Branch. b. Female Branch.*
2. *The Hippobosca equina, or, Horſefly. 3. Hippobosca hirundinis.*

London, Publiſhed the act directs, Mar. 18 1809, by J. Wilkes.



J. Chapman, Sc.

HIPPOCRATES.

*Taken from a Gem, in the poſseſsion of J. Taſsie Esq.$^r$ in Leicester Square.*

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leaves, this plant, with the capers, and a few others, continue flouriſhing.

2. Hippocratea comoſa, or bearded hippocratea: panicles comoſe; peduncles multifid, capillary; leaves ovate, acuminate, entire. Native of Hiſpaniola.

3. Hippocratea Indica, or Indian hippocratea: panicles axillary, oppoſite, peduncled; leaves oppoſite, ſhort-petioled, oval, ſawed, ſmooth, ſhining, about two inches long. This is a large twining ſhrub; a native of foreſts, hills, and wild uncultivated places, on the coaſt of Coromandel, as deſcribed by Dr. Roxburgh, No. 130. It flowers about the beginning of the hot ſeaſon; the flowers are exceedingly numerous, very ſmall, and of a ruſty-yellow colour.

*Propagation and Culture.* Theſe are propagated by ſeeds brought from South America or the Indies. Jacquin informs us that they corrupt very ſoon, and that therefore we can hardly expect to raiſe plants from ſeeds ſent to Europe. If ſo, they ſhould be ſown whilſt freſh, and ſent over in pots or tubs. Mr. Miller, however, raiſed ſeveral plants from ſeeds, which lived two years, but did not flower. He thinks that they were rotted by having too much wet, and recommends the giving them little water in winter. They are very tender, and muſt be kept conſtantly in the bark-bed in the ſtove.

HIPPOC'RATES, the greateſt phyſician of antiquity, uſually termed the *father of phyſic*, born at the iſland of Cos, in the year 460 before Chriſt. His father was Heraclides, in whom the line of hereditary phyſicians was continued from Æſculapius. His maternal deſcent was derived from Hercules. Of the events of his life little is known with certainty. He is ſaid to have ſtudied phyſic under Prodicus or Herodicus, and philoſophy under Gorgias and Heraclitus. He did not content himſelf with that empirical practice which was hereditary in his family, but purſued the ſtudy of medicine upon the extenſive ſcale on which it has ſince been followed, with all the aid of phyſiological knowledge as it exiſted in his time. He is ſaid, however, to have been the firſt who made a proper ſeparation between medicine and philoſophy, applying the dogmas of the latter to the practical uſe of the former, rather than blending both as ſubjects of ſpeculation. He paſſed a great part of his life in travelling, and reſided in various places. He was for a time at the court of Perdiccas king of Macedon; and his fame cauſed him to receive invitations from different cities of Greece. His viſit to Abdera, the inhabitants of which had requeſted his aid to free their celebrated countryman Democritus from a ſuppoſed madneſs, but whom he pronounced the wiſeſt man of their city, is a noted incident in his hiſtory, but rather borders on fable. His ſuppoſed ſervice in extinguiſhing the plague of Athens cannot be true, ſince from the certain information of Thucydides we learn that its ravages were unchecked, and that the phyſicians were its firſt victims. He is ſaid to have refuſed an invitation to the court of Artaxerxes Longimanus, not chooſing to exerciſe his art in favour of the enemies of Greece. It is affirmed that he died at Lariſſa in Theſſaly, at a very advanced age. How dubious ſoever may be the circumſtances of the life of this great man, it is not queſtioned that he acquired a reputation which has deſervedly ranked him among the higheſt characters of Greece, and which may be traced from the age in which he flouriſhed through all ſucceeding periods. Statues were erected to his memory, and his maxims were received as authority, not only in the ſchools of medicine, but in the courts of law. He practiſed ſurgery as well as phyſic, the two branches not being ſeparated till ſome ages afterwards. He appears to have been a man of great integrity and candour; and his *oath* (if genuine) compriſes the moſt important moral duties of the profeſſion. He left two ſons, Theſſalus and Draco, both eminent practitioners, and alſo a number of diſciples.

Of the numerous works attributed to Hippocrates, ſome are indiſputably genuine, ſome are dubious, and many are unqueſtionably ſpurious. Of his genuine works the moſt valued are, 1. *Epidemicorum, Lib. III.* 2. *Prognoſticon.* 3. *Aphoriſmi.* 4. *De Aeribus, Aquis, & Locis.* 5. *De Articulis & Fracturis.* 6. *De Capitis Vulneribus.* Of the editions of the whole works of Hippocrates, the principal are thoſe of Hieronymus Mercurialis, Venet. 1588, folio; of Anutius Foeſius, Frankf. 1595, folio, ſeveral times reprinted; of Antonides Vander Linden, Leyd. 1665, 2 vols. 8vo. reprinted Venet. 1757, 2 vols. 4to. of Renatus Chartier, with the works of Galen, Paris, 14 vols. folio; and of Stephan. Mack, Viendob. 1743 & ſeq. folio. Mahon, who in 1804 publiſhed a treatiſe on the practice of Hippocrates on fever, concludes with the following eulogium to his memory: "Such was the Clinical ſyſtem of Hippocrates; a ſyſtem in which, after two thouſand years of labour, we have only been able to diſcover ſome faults in the detail; an experimental ſyſtem, admirable for the genius which united its different parts, and the relations of which phyſicians alone can appreciate, through the disjointed fragments which compoſe the immortal works of this ancient Greek: a ſyſtem forgotten by the vulgar, but verified at all times and in all countries; for which the eaſtern adage ſeems to have been formed, "The arts may all be the work of men, but medicine appears to have proceeded from the hands of the gods.""

HIPPOC'RATES's SLEEVE, *ſ.* A woollen bag, made by joining the two oppoſite angles of a ſquare piece of flannel, uſed to ſtrain ſyrups, and decoctions for clarification. *Quincy.*

HIPPOCRA'TIA, *ſ.* The ſolemn feaſts inſtituted in honour of Neptune.

HIPPOCRAT'ICA, *ſ.* The hippocratical countenance, a diſeaſe which has a remarkable effect on the countenance.

HIPPOCRAT'ICAL, *adj.* Belonging to Hippocrates; reſembling Hippocrates.

HIPPOCRE'NE, a fountain of Bœotia, near mount Helicon, ſacred to the Muſes. It firſt roſe from the ground, when ſtruck by the feet of the horſe Pegaſus, whence the name ιππȣ κρηνη, the horſe's fountain. *Ovid.*

HIPPOCREN'IDES, the Muſes.

HIPPOCRE'PIS, *ſ.* [Gr. horſe-ſhoe, from the form of the legume or pod.] In botany, a genus of the claſs diadelphia, order decandria, natural order of leguminoſæ or papilionaceæ; called HORSE-SHOE VETCH. The generic characters are—Calyx: umbel ſimple; perianthium one-leafed, five-toothed, (the upper toothlets joined, and leſs divided,) permanent. Corolla: papilionaceous; banner heart-ſhaped, with a claw the length of the calyx; wings ovate-oblong, blunt; keel lunulate, compreſſed. Stamina: filaments diadelphous, ſimple and nine-cleft, aſcending; antheræ ſimple. Piſtillum: germ ſlender, oblong, ending in a ſubulate aſcending ſtyle; ſtigma very ſimple. Pericarpium: legume compreſſed and membranaceous, very long, curved inwards, one of the ſutures many times cut almoſt to the top into roundiſh ſinuſes; and hence conſiſting of ſeveral joints, obtuſely triangular, connected by the upper ſuture. Seeds: ſolitary in each joint, oblong, incurved.—The eſſential character conſiſts in the horſe-ſhoe form of the legume.

*Species.* 1. Hippocrepis uniſiliquoſa, or ſingle-podded horſe-ſhoe vetch: legumes ſeſſile, ſolitary, ſtraight. This is an annual plant, which ſends from the root ſeveral trailing ſtalks a foot long, that divide upwards into ſmaller branches. Leaves pinnate, compoſed of four or five pairs of narrow ſmall leaflets, terminated by an odd one, which are obtuſe, and indented at their ends. From the wings of the ſtalk come out ſingle flowers, which are yellow, and ſucceeded by ſingle pods ſitting cloſe to the ſtalks, which are about two inches long, and a third of an inch broad, bending inwards like a ſickle, and divided into many joints ſhaped like a horſe-ſhoe. It flowers in June and July, and the ſeeds ripen in the autumn, ſoon after which the plants decay. Native of Italy, and other parts of the ſouth of Europe. Obſerved by Ray near Leghorn and Naples; and by Rauwolff near Tripoli. It was cultivated here by Gerarde in 1599; and ſooner, namely, in 1570, according to Lobel.

2. Hippocrepis multiſiliquoſa, or many-podded horſe-ſhoe vetch: legumes peduncled crowded, circular, ſmooth, lobed on the outer margin; leaves and calyxes ſmooth. This is alſo an annual plant, with trailing ſtalks like the preceding, to which it has great reſemblance; but the flowers of this are produced upon long axillary peduncles. They are ſmall, yellow, and many cluſtered together. Pods narrower than thoſe of the preceding ſort, more incurved, and the outer border divided into lobes. It flowers and ripens its ſeeds about the ſame time with that. Native of the ſouth of Europe.

3. Hippocrepis balearica, or ſhrubby horſe-ſhoe vetch: legumes peduncled, crowded, ſmooth, lobed on the outer margin; leaves and calyxes ſomewhat hairy; ſtems ancipital. Native of Minorca; flowers in May and June. Murray obſerves, that it ſo reſembles H. comoſa, as to make it difficult to find any limit between them.

4. Hippocrepis comoſa, or tufted horſe-ſhoe vetch: legumes peduncled, crowded, arched, rugged, ſinuated on both margins. Root perennial, thick, woody, fibrous, yellow on the outſide, white within. The whole plant is ſmooth. Stems trailing, aſcending, grooved, from two to nine inches long, much branched. Leaves alternate, frequently coming out in bundles from the tops of the younger branches, the larger ones ſix inches long, and ſcarcely an inch broad, unequally pinnate; leaflets four or five pairs, ſometimes ſix, ſeldom more, oppoſite, (ſometimes not quite ſo,) ovate, (according to Linnæus, oval-linear,) retuſe, toothed, (Pollich ſays quite entire,) having a very ſhort reddiſh ſpinule at the end, bright glaucous green underneath, ſubpetioled; the largeſt are near half an inch long, and two lines wide. Native of Germany, Italy, France, Auſtria, and England, in calcareous ſoils; flowering from April to July.

5. Hippocrepis barbata, or bearded horſe-ſhoe vetch: legumes ſtraight, ſpike oblong, terminating; ſtem ſuffruticoſe, four feet high, upright, round. Native of Cochinchina.

*Propagation and Culture.* Theſe plants are propagated by ſeeds, which ſhould be ſown in the autumn, where the plants are deſigned to remain; and, when the plants come up, they muſt be kept clean from weeds, and thinned where they are too cloſe, which is all the culture they require. The two annual ſorts will decay in the autumn after they have perfected their ſeeds, but the roots of the third will continue two or three years, provided they are not in too good ground. The third ſort muſt be kept in the green-houſe, and the fifth has not been introduced in Europe.

HIPPOD'AMAS, a ſon of the Achelous,—of Priam.—*Apollodorus.*

HIP'PODAME, *ſ.* [from ιπποποταμος, Gr.] A ſea-horſe:

That his ſwift charet might have paſſage wyde,
Which foure great *hippodames* did draw, in teme-wiſe tyde.
*Spenſer.*

HIPPODAMI'A, a daughter of Œnomaus, king of Piſa, in Elis, who married Pelops, ſon of Tantalus. Her father, who was either enamoured of her himſelf, or afraid leſt he ſhould periſh by one of his daughter's children, according to an oracle, refuſed to marry her, except to him who could overcome him in a chariot-race. As the beauty of Hippodamia was greatly celebrated, many courted her, and accepted her father's conditions, though death attended a defeat. Thirteen had already been conquered, and forfeited their lives, when Pelops came from Lydia, and entered the liſts. Pelops previouſly bribed Myrtilus, the charioteer of Œnomaus, and enſured himſelf the victory. In the race, Œnomaus, mounted on a broken chariot which the corrupted Myrtilus had purpoſely provided for him, was eaſily overcome, and was killed in the courſe; and Pelops married Hippodamia, and avenged the death of Œnomaus, by throwing into the ſea the perfidious Myrtilus, who claimed for the reward of his treachery, the favour which Hippodamia could grant only to her huſband. Hippodamia became mother of Atreus and Thyeſtes, and it is ſaid that ſhe died of grief for the death of her father, which her guilty correſpondence with Pelops and Myrtilus had occaſioned.

HIPPOD'ROME, [from ιππος, Gr. a horſe, and δρομος, courſe.] In antiquity, a liſt or courſe wherein chariot and horſes races were performed, and horſes exerciſed. The Olympian horſe-courſe was a ſpace of ground of 600 paces long, ſurrounded with a wall, near the city Elis, and on the banks of the river Alpheus. There is a famous hippodrome at Conſtantinople, which was begun by Alexander Severus, and finiſhed by Conſtantine. This circus, called by the Turks *atmeican*, is 400 paces long, and above 100 paces wide. At the entrance there is a pyramidal obeliſk of granite in one piece, about fifty feet high, terminating in a point, and charged with hieroglyphics. The Greek and Latin inſcriptions on its baſe ſhow, that it was erected by Theodoſius; the machines that were employed to raiſe it are repreſented upon it in baſſo-relievo. There are veſtiges in England of hippodromes, in which the ancient inhabitants of this country performed their races; the moſt remarkable is that near Stonehenge, which is a long tract of ground, about 350 feet, or 200 druidical cubits, wide, and more than a mile and three quarters, or 6000 druidical cubits, in length, incloſed quite round with a bank of earth, extending directly eaſt and weſt. The goal and career are at the eaſt end. The goal is a high bank of earth, raiſed with a ſlope inwards, on which the judges are ſuppoſed to have ſat. The metæ are two tumuli, or ſmall barrows, at the weſt end of the courſe. Theſe hippodromes were called in the language of the country *rhedagua*, the racer *rhedagwr*, and the carriage *rheda*, from the Britiſh word *rhedeg* "to run." One of theſe hippodromes, about half a mile to the ſouthward of Leiceſter, retains evident traits of the old name *rhedagua*, in the corrupted one of *rawdikes*. There is another of theſe, ſays Dr. Stukeley, near Dorcheſter; another on the banks of the river Lowther, near Penrith in Cumberland; and another in the valley of Royſton.

HIPPOGLOS'SUS, *ſ.* The turbot. See PLEURONECTES.

HIP'POGRIFF, *ſ.* [from ιππος, Gr. and γρυψ; *hippogriffe*, Fr.] A winged horſe, finely deſcribed by Arioſto. It was the hieroglyphic emblem of ſpeed among the ancient Egyptians. See the article EGYPT, vol. vi. p. 376, and the correſpondent Engraving, fig. 3.

He caught him up, and without wing
Of *hippogriffe* bore through the air ſublime. *Milton.*

HIPPOGROS'TIS, *ſ.* in botany. See PANICUM.

HIP'POLA, in ancient geography, a town of Peloponneſus. *Pauſanias.*

HIPPOLAPA'THUM, *ſ.* in botany. See RUMEX.

HIPPOLI'THUS, *ſ.* [from ιππος, Gr. a horſe, and λιθος, a ſtone.] A name given by the Greeks to the concretion or ſtone found in the ſtomach or inteſtines of a horſe.

HIPPOL'YTE, a queen of the Amazons, given in marriage to Theſeus by Hercules, who had conquered her, and taken away her girdle by order of Euryſtheus. She had a ſon by Theſeus, called Hippolytus. *Propertius.*

HIPPOL'YTUS, a ſon of Theſeus and Hippolyte, famous for his virtues and his misfortunes. His ſtep-mother Phædra fell in love with him, and, when he refuſed to pollute his father's bed, ſhe accuſed him before Theſeus of offering violence to her perſon. Her accuſation was readily believed, and Theſeus entreated Neptune ſeverely to puniſh the incontinence of his ſon. Hippolytus fled from the reſentment of his father, and, as he purſued his way along the ſea-ſhore, his horſes were ſo frighted at the noiſe of ſea-calves, which Neptune had purpoſely ſent there, that they ran among the rocks till his chariot was broken, and his body torn to pieces. Temples were raiſed to his memory, particularly at Trœzene, where he received divine honors. According to ſome accounts, Diana reſtored him to life. *Ovid.*

HIPPOL'YTUS, a Chriſtian biſhop of the third century, diſtinguiſhed by the ſurname of *Portuenſis*; he having been either biſhop of Portus in Italy, or of Portus Romanus, now called Aden, in Arabia. He went from Aden to Rome, where he reſided for ſome time, and became famous for his zeal in preaching the goſpel, and defending the Chriſtian religion; and where, in conſequence, he ſuffered martyrdom. This event ſome place in the year 230, under the emperor Alexander Severus, and others in the perſecution under Maximinus, about the year 235. He wrote in the Greek language; and, from what is ſaid by Euſebius, his works muſt have been well known in the eaſt. Of his fame in Europe, a noble monument, erected to his honour near Rome, affords ſome proof. This monument repreſents him ſitting in a chair, on the ſides of which are engraved, in Greek letters, cycles of ſixteen years, forming the moſt ancient paſchal canon in exiſtence. It was publiſhed in Greek, by Joſeph Scaliger, with commentaries, in 1595; and in Latin by father Giles Bucher, in 1634. Gruter has alſo inſerted it in his Collection of ancient Inſcriptions; from which it has been tranſcribed by Cave. The learned John Albert Fabricius publiſhed a very valuable edition of the remaining works and fragments of Hippolytus, in Greek and Latin, in two volumes folio, 1716, and 1718.

HIPPOM'ACHY, *ſ.* [from ιππος, Gr. a horſe, and μαχη, a fight.] A conteſt on horſeback.

HIPPOM'ANE, *ſ.* [the name of a plant ſuppoſed to make horſes furious; from ιππος, a horſe, and μανια, madneſs.] In botany, the MANCHINEEL TREE; a genus of the claſs monoecia, order monadelphia, natural order of tricoccæ, (euphorbiæ, *Juſſ.*) The generic characters are—Male flowers in a terminating ament. Calyx: perianthium one-leafed, roundiſh, bellying; with the mouth converging, emarginate. Corolla: none. Stamina: filament ſingle, filiform, twice as long as the calyx; antheræ four, roundiſh, fixed croſſwiſe to the ſides of the filament towards the tip. Female flower ſolitary, terminating, in the ſame plant. Calyx: perianthium three-leaved, withering; leaflets roundiſh, concave, blunt, converging. Corolla none. Piſtillum: germ ovate, large; ſtyle very ſhort; ſtigma ſlightly ſeven-cleft, ſharp, reflex. Pericarpium: drupe globular, very large, one-celled, crowned with the permanent ſtigmas; or a tricoccous capſule. Seed: nut woody, irregular, acuminate, excavated with little pits and apophyſes, ſeven-celled, ſeven-valved; kernels ſolitary, roundiſh.—*Eſſential Character.* Male. Ament; perianthium bifid; corolla none. Female. Perianthium trifid; corolla none; ſtigma three-parted; drupe or capſule three-grained.

*Species.* 1. Hippomane mancinella, the manchineel-tree: leaves ovate, ſerrate, biglandular at the baſe. The manchineel-tree is very large in the Weſt-Indies, almoſt equalling the oak in ſize. Jacquin ſays, it is a lofty large tree, with a very branching ſpreading head, having ſomething the air of a pear-tree. According to Swartz, the trunk is of a middling ſize, with a grey, even, thick, milky bark, and a hard wood which is yellowiſh, with grey or blackiſh veins. Leaves rounded at the baſe, acuminate, crenate, two inches in diameter, thickiſh, dark green, ſhining, paler underneath, milky, nerved; on petioles from twelve to fifteen lines in length, margined. Flowers in aments or ſpikes. Male flowers three or four in an ament: common perianth one-leafed, blunt; proper two-parted, turbinate, with blunt minute teeth. Females perianth trifid, minute, caducous; ſtyle none; ſtigmas three, two-parted, acute, reflex. Fruit a drupe, the colour, ſize, and form, of an apple, ſmooth, with a ſoft ſpongy fleſh, a ſweet ſmell, and an inſipid cauſtic taſte. Within is a nut with from three to five cells, with a ſingle ſeed in each, which is three-cornered, covered with a ſhining ſilvery ſkin, and having the taſte of a hazel-nut. Miller ſays, the fruit is about the ſize and ſhape of a golden pippin, and turns yellow when ripe. It drops from the tree in great quantities, not rotting, but drying up, and does not ſeem to be eaten by any animal, except, perhaps, by the land-crab; (cancer ruricola Linn. ſee CANCER, vol. iii. p. 706, and the correſpondent Engraving;) which reſorts to theſe trees in incredible quantities. Dr. Patrick Browne affirms, that he has known many people who have ignorantly eaten of this fruit, which they had taken for crab-apples: they generally vomited in a ſhort time, and continued to complain of a burning heat in the mouth, throat, and ſtomach, for many hours after. The juice of the buds of the white cedar is eſteemed an antidote to this poiſon, and is generally uſed with ſome ſucceſs; but oily mixtures and emulſions are the moſt effectual aſſiſtants, and ſeldom fail giving relief ſoon. He adds, that he never knew any to die by this poiſon, though he has ſeen ſome who have eaten nine or ten of the apples at a time. Long ſays, that though the green fruit may be deſtructive in conſiderable quantity, yet it may be taken in ſmall quantity without danger, and is too diſagreeable, from its acrimony, to excite any deſire of eating it. When ripe, it is too inſipid to raiſe any pleaſure. He adds, that goats, ſheep, and macaws, feed greedily on it in this ſtate. The firſt accounts of this tree were very much exaggerated. It was ſaid to be dangerous to ſit or lie under it, and that the rain which falls from the leaves will raiſe bliſters in the ſkin. Profeſſor Jacquin informs us, that he and his companions repoſed upwards of three hours under a manchineel tree, without receiving any injury; and that he experienced the rain dropping from the leaves to be perfectly innocent. Long alſo ſays, that the negroes do not ſuffer any inconvenience from the drops of the juice accidentally falling on their ſkin, when felling this tree, or hacking off the limbs; but that, if it chance to fly into their eyes, it will give them a ſevere pain for ſeveral hours: and Jacquin affirms, from his own experience, that a drop of that milky juice, with which the whole tree abounds, falling on any part of the hand, except the palm, will immediately raiſe a bliſter.

The wood of this tree is frequently of a fine grain, and very beautifully clouded; and, taking a fine poliſh, is much eſteemed in the Weſt-Indies for making cabinets, book-caſes, &c. It is very durable, and not ſubject to be eaten by worms. The wood-cutters make a fire round the body of the tree before they venture to fell it, to avoid the danger of loſing their ſight by the cauſtic juice flying into their eyes. If the juice fall upon linen, it will turn it black, and on being waſhed will come into holes. If any of the ſaw-duſt happens to get into the workmen's eyes, it cauſes an inflammation; to prevent which, they generally cover their faces whilſt they are working the wood. The Indians are ſaid to poiſon their arrows with the juice of this tree: and it exudes a gum, which has been given medicinally inſtead of gum guaiacum. The manchineel tree is common on the ſandy coaſts of America and the Weſt-Indies, generally growing at ſome ſmall diſtance from the ſurf. It flowers in May, and the fruit ripens in July. Miller cultivated it here in 1739. The European nations have, with little variation, adopted the Spaniſh name *mancanilla*, which ſignifies a little apple.

2. Hippomane biglanduloſa, the gum-tree: leaves ovate-oblong, biglandular at the baſe. This tree is from twenty to fifty feet high, with an even browniſh aſh-coloured bark. Leaves on young trees frequently a foot long, but on older ones ſhorter; they are blunt, crenate-ſerrate, of a firm ſubſtance, and bright green. Native of the continent of America and the Weſt-India iſlands, on mountains; flowering in March and September. The whole tree yields a great quantity of milky juice, which becomes a reſin or gum of a thick ſticky conſiſtence, dirty colour, opaque, and of little or no ſmell: this generally ſerves for the boiling-houſe lamps, in every part of the country where the tree is frequent; and is much uſed for bird-lime. The wood is ſoft and coarſe, and not much eſteemed; it is uſed, however, for making hogſhead-ſtaves.

3. Hippomane ſpinoſa, or prickly manchineel: leaves ſubovate, tooth-ſpiny. This is of humbler growth, ſel-

dom more than twenty feet high: the leaves greatly reſemble thoſe of the common holly, and are ſet with ſharp prickles at the end of each indenture; they are of a lucid green, and continue all the year. Native of South America. Mr. Miller had theſe two from Dr. Houſtoun, who found this at Campeachy, and the preceding at Carthagena in New Spain.

*Propagation and Culture.* Theſe plants are preſerved in ſome of the curious gardens in Europe, where they can never be expected to riſe to any great height, for they are too tender to live in theſe northern countries, but in ſtoves; they riſe eaſily from ſeeds, provided they are good. The ſeeds muſt be ſown upon a good hot-bed; and, when the plants come up, they ſhould be each planted in a ſmall ſeparate pot filled with light ſandy earth, and plunged into a good bed of tanner's bark, treating them in the ſame way as other tender plants; but they muſt not have much wet, for theſe plants abound with an acrid milky juice, and it is certain that moſt plants which do are ſoon killed by much moiſture. Theſe plants muſt be removed into the ſtove, and plunged into the tan-bed, in autumn, where they ſhould conſtantly remain, giving them very little water in winter; and in ſummer, when the weather is warm, they ſhould have a good ſhare of air admitted to them, and be once or twice a-week refreſhed with water. By this management many of theſe plants have been raiſed to the height of five or ſix feet, which have, by their ſhining green leaves, made a pretty variety during the winter ſeaſon in the ſtove. See Hura.

HIPPOM'ANES, *ſ.* [from ιππος, Gr. a horſe, and *μανια*, madneſs.] A black fleſhy kernel in the forehead of a young colt, which the mare was fabled to bite off as ſoon as ſhe had foaled; a noted poiſon among the ancients, and a chief ingredient in love-potions. *Scott.*

HIPPOMARA'THRUM, *ſ.* in botany. See Cachrys and Seseli.

HIPPOM'EDON, a ſon of Niſimachus and Mythidice, who was one of the ſeven chiefs that went againſt Thebes. He was killed by Iſmarus, ſon of Acaſtus. *Apollodorus.*

HIPPOM'ENES, in fabulous hiſtory, a ſon of Macareus and Merope, who married Atalanta, with the aſſiſtance of Venus. Theſe two fond lovers were changed into lions by Cybele, whoſe temple they had profaned in their impatience to conſummate their nuptials. *Ovid.*

HIPPOMOL'GI, a very ancient people of Scythia. *Dionyſius.*

HIP'PON, in ancient geography, a town of Africa.

HIPPO'NA, a goddeſs who preſided over horſes. Her ſtatues were placed in the ſtables of horſes. *Juvenal.*

HIPPO'NAX, a Greek poet, born at Epheſus, 540 years before the Chriſtian era He cultivated the ſame ſatirical poetry as Archilochus, and was not inferior to him in the beauty or vigour of his lines. His ſatirical raillery obliged him to fly from Epheſus. As he was naturally deformed, two brothers, Buphalus and Anthermus, made a ſtatue of him, which, by the deformity of its features, expoſed the poet to univerſal ridicule. Hipponax reſolved to revenge the injury, and he wrote ſuch bitter invectives and ſatirical lampoons againſt them, that they hanged themſelves in deſpair. *Cicero.*

HIPPONI'ATES, in ancient geography, a bay in the country of the Brutii.

HIPPO'NIUM, a city in the country of the Brutii, where Agathocles built a dock. *Strabo.*

HIPPON'OUS, in mythology, the father of Periboea and Capaneus. He was killed by the thunderbolts of Jupiter before the walls of Thebes. *Apollodorus.*

HIPPOPH'AE, *ſ.* Sea-Buckthorn; in botany, a genus of the claſs dioecia, order tetrandria, natural order of calycifloræ, (elæagni, *Juſſ.*) The generic characters are—I. Male. Calyx: perianthium one-leafed, two-parted, two-valved, with the bottom entire; the parts roundiſh, blunt, concave, upright, converging at the tips, and gaping on the ſides. Corolla: none. Stamina: filaments four, very ſhort; antheræ oblong, angular, almoſt the length of the calyx. Hermaphrodite flowers have ſometimes been obſerved among the males. II. Female. Calyx: perianthium one-leafed, ovate-oblong, tubular, club-ſhaped, with the mouth cloven, deciduous. Corolla: none. Piſtillum: germ roundiſh, ſmall; ſtyle ſimple, very ſhort; ſtigma thickiſh, oblong, upright, twice as long as the calyx. Pericarpium: berry ſuperior, ſubglobular, one-celled. Seeds: ſingle, oblong, hard, ſhining.—*Eſſential Character.* Calyx bifid; Corolla none; ſtyle one; berry one-ſeeded.

*Species.* 1. Hippophae rhamnoides, or common ſea-buckthorn: leaves lanceolate. Sea-buckthorn, or ſwallow-thorn, riſes with ſhrubby ſtalks eight or ten feet high, ſending out many irregular branches, which have a brown bark ſilvered over. Leaves narrow, or linear-lanceolate, about two inches long, and a quarter of an inch broad in the middle, of a dark green on their upper ſide, but hoary under, with a prominent midrib; the borders are reflexed, as in roſemary; they are placed alternate on every ſide the branches, and ſit cloſe to them; there are little, cluſtered, peltate, ciliate, pale ſcales ſcattered over them. The branches ſpread wide, are ſtraight, ſtiff, and thorny at the ends; the ſmaller ones numerous, ſcattered, ſhort, and ſpreading. Flowers ſolitary, appearing before the leaves, but generally abortive, unleſs the ſhrub grows in its natural ſituation. They come out from the branchlets of the former year. The berries are very abundant, on ſhort peduncles, ovate, or ovate-globular, mucronate with the ſtyle, red or yellow when ripe, ſucculent, ſmooth, ſprinkled here and there with callous dots; the cell is clothed with a very thin membrane, cohering with the ſtyle. Seed oblong, attenuated below, ſomewhat compreſſed, marked on each ſide by a depreſſed longitudinal line, very ſmooth and black. The berries are gratefully acid, and are much eaten by the Tartars; alſo about mount Caucaſus. The fiſhermen of the gulf of Bothnia prepare a rob from them, which imparts a grateful flavour to freſh fiſh. In ſunny ſandy ſituations this ſhrub is planted for hedges; it is uſed for dying yellow. Kine refuſe it; goats, ſheep, and horſes, eat it. Native of many parts of Europe, on ſandy ſea-coaſts. In England, near Sandwich, Deal, Folkſtone, and the iſle of Shepey in Kent; Canvey iſland in Eſſex; Cley and Sheringham cliffs, and between Yarmouth and Winterton, in Norfolk; Lincolnſhire; Whitby and Lyth, in Yorkſhire. It flowers in April and May; Ray ſays, June; and Miller, July. Miller ſays, that he has obſerved it only with yellow berries in England; but on the coaſt of Holland, France, &c. it has moſtly red berries.

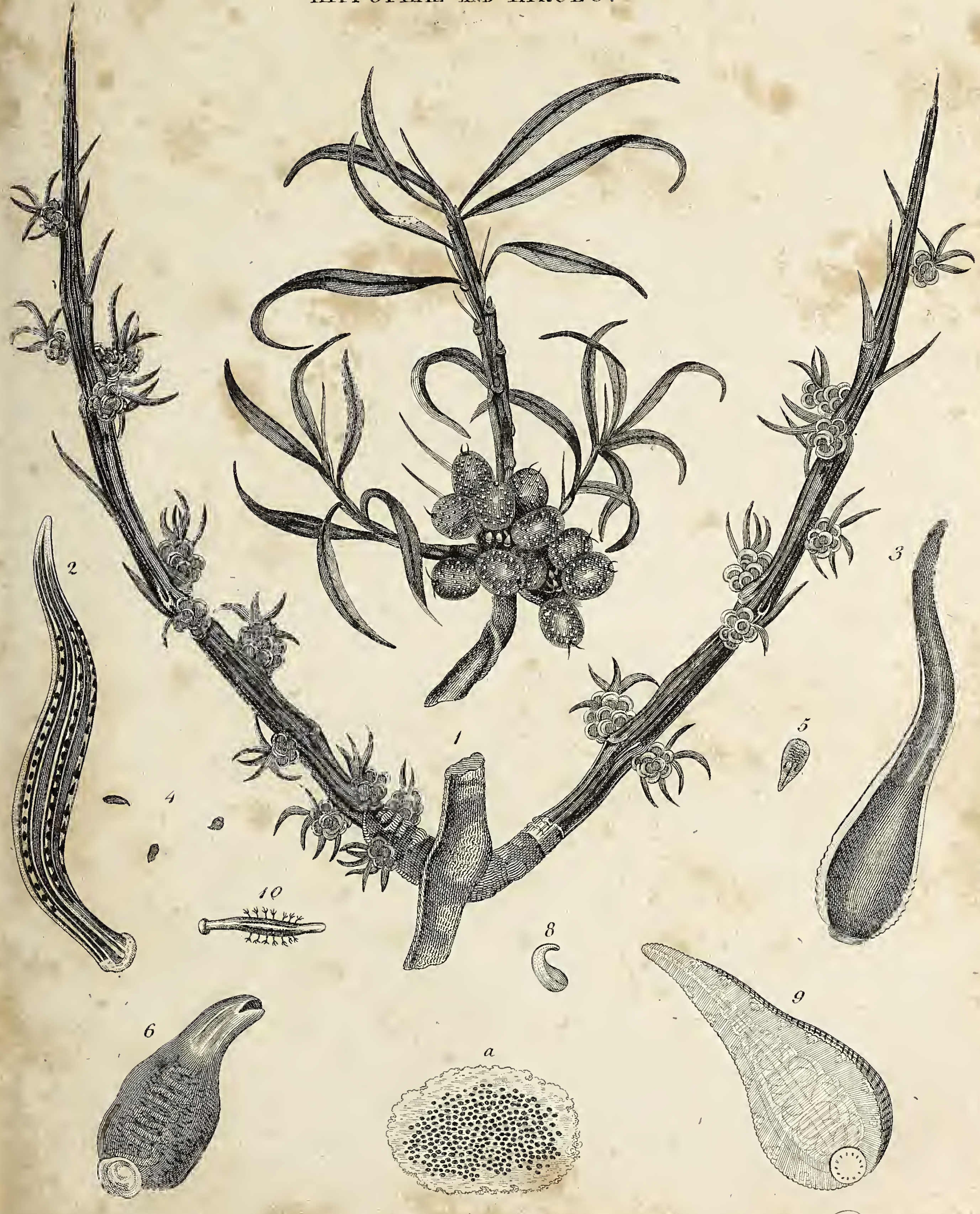
2. Hippophae Canadenſis, or Canadian ſea-buckthorn: leaves ovate. This has the appearance of the former ſort; but the leaves are broader, only half the length, of an ovate or oblong-ovate form; on the upper ſurface they are green, with diverging hairs, in bundles, ſcarcely to be diſcerned by the naked eye; on the lower they are ſilvery with hairs and ſcales, and have ruſt-coloured dots ſcattered over them. The branches are oppoſite; and the racemes ſimple among the firſt leaves, upright, and ſhorter by half than the leaves. Native of Canada.

*Propagation and Culture.* Theſe ſhrubs may eaſily be propagated by ſuckers from the root, taken off in autumn, and tranſplanted into a nurſery. After one year's growth, they will be fit to tranſplant where they are to remain. They may alſo be increaſed by layers, but the roots ſpread, and put up ſuch abundance of ſuckers, that there is no neceſſity to be at this trouble. There being little beauty in theſe ſhrubs, it will be ſufficient to have one or two of them in plantations.

HIPPOPHÆ'STUM, *ſ.* in botany. See Centaurea calcitrapa.

HIPPOPO'DES, *ſ.* [ιππος, Gr. horſe, and ϖȣς, foot.] In ancient geography, an appellation given to a people ſituated on the banks of the Scythian Sea, as being ſuppoſed to have had horſes feet. They are mentioned by Dionyſius, Mela, Pliny, and St. Auguſtine. But it is

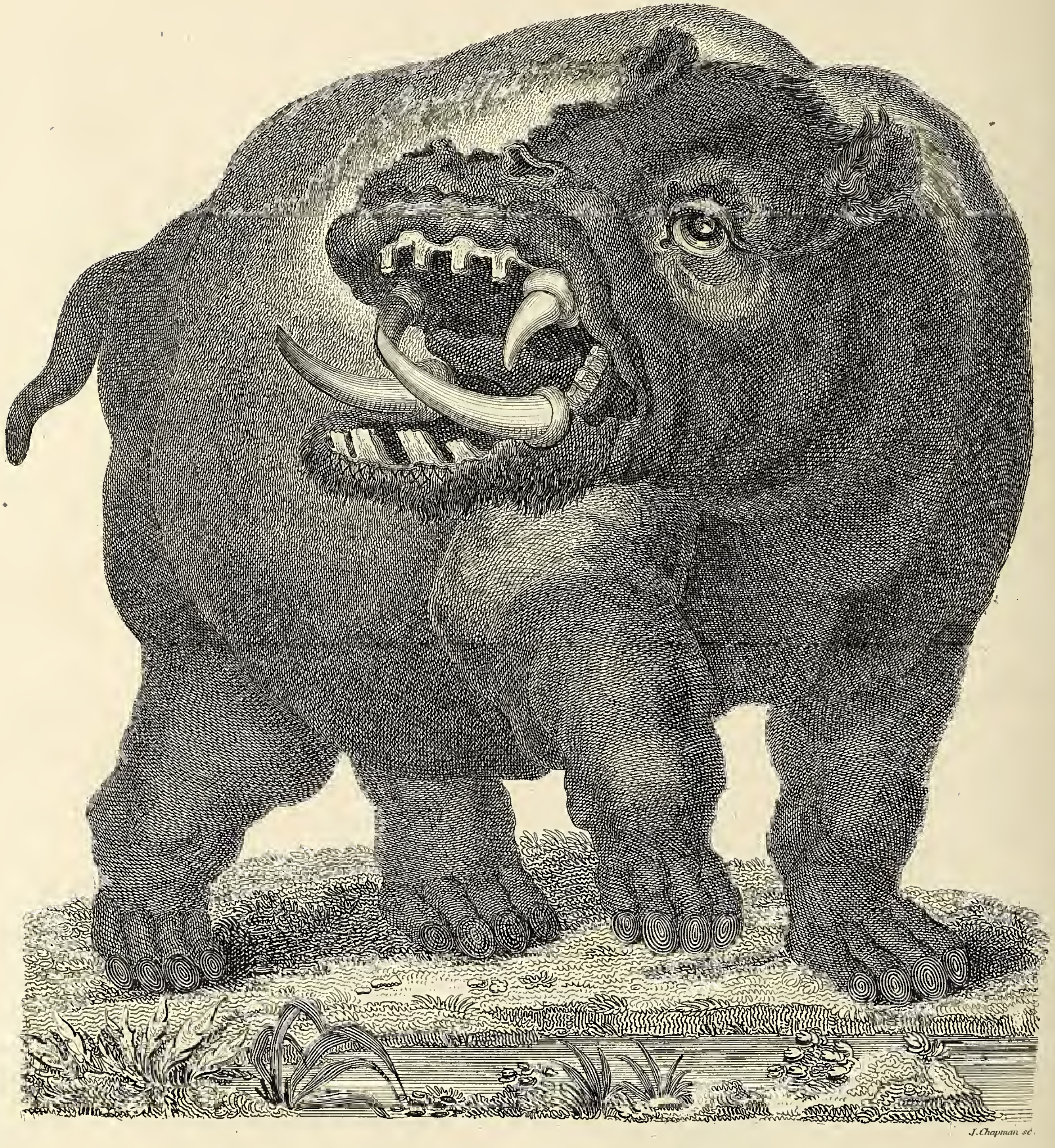
# HIPPOPHAE AND HIRUDO.



1. *Male and Female Branches of the Hippophae rhamnoides or Sea Buckthorn.*
*2. to 10. different Species of the Hirudo or Leech.*

London, Publiſhed as the act directs, March 30-1811.
J.Pass ſc.

# HIPPOPOTAMUS.



J. Chapman sc.

*The Amphibious Hippopotamus.*

London, Published as the Act directs, August 30. 1806, by J. Wilkes.

conjectured that they had this appellation given them on account of their ſwiftneſs of foot. Mr. Pennant ſuppoſes them to have been the inhabitants of the Bothnian Gulph, who wore ſnow-ſhoes; which he thinks might fairly give the idea of their being, like horſes, hoofed and ſhod.

HIPPOPO'DIUM, *ſ.* in botany. See BUXBAUMIA.

HIPPOPOT'AMUS, *ſ.* [from ιππος, Gr. a horſe, and ποταμος, a river.] The RIVER-HORSE, or SEA-COW; a genus of quadrupeds belonging to the order of belluæ, the characters of which are theſe: It has four fore-teeth in the upper jaw, diſpoſed in pairs at a diſtance from each other; and four prominent fore-teeth in the under jaw, the intermediate ones being longeſt; there are two tuſks in each jaw, thoſe of the under one very long and obliquely truncated; in both they ſtand ſolitary, and are recurvated: the feet are hoofed on the edges, and each hoof divided into four parts, unconnected by any membrane, notwithſtanding the amphibious quality of the animal. Its voice is tremendous, between the lowing of an ox and the roaring of an elephant. There is but one known ſpecies, *viz.* H. amphibius, correctly delineated in the annexed Engraving.

The head of this animal is of an enormous ſize, and the mouth vaſtly wide. The ears are ſmall and pointed, and lined very thickly with ſhort fine hairs. The eyes and noſtrils are ſmall in proportion to the bulk of the animal. On the lips are ſome ſtrong hairs ſcattered in tufts here and there. The hair on the body is very thin, and ſcarcely diſcernable at firſt ſight. There is no mane on the neck, only the hairs on that part are rather thicker. The ſkin is very thick and ſtrong, and of a duſky reddiſh brown colour. The tail is about a foot long, taper, compreſſed, and naked. The legs are ſhort and thick. In bulk it is ſecond only to the elephant. The length of a male has been found to be ſeventeen feet, the circumference of the body fifteen, the height near ſeven, the legs three, the head above three and a half, and the girth of the head near nine. The mouth, when open, is above two feet wide. The cutting, and particularly the canine, teeth of the lower jaw, are very long, and ſo hard that they ſtrike fire with ſteel. This circumſtance, it is probable, gave riſe to the fable of the ancients, that the hippopotamus vomited fire from his mouth. The grinders are ſquare or oblong, like thoſe of man, and ſo large that a ſingle tooth weighs three pounds. The tuſks, according to Dr. Sparrman, are 27 inches long. With ſuch powerful weapons, and ſuch a prodigious ſtrength of body, the hippopotamus might render himſelf formidable to every other animal. But he is naturally of a mild diſpoſition, and is only formidable when provoked. His bulk is ſo great, that twelve oxen have been found neceſſary to draw one aſhore, which had been ſhot in a river near the Cape of Good Hope. The great ſize of his belly renders his ſpecific gravity nearly equal to that of water, and makes him ſwim with eaſe and dexterity.

Theſe animals inhabit the rivers of Africa, from the Niger to Berg River, many miles north of the Cape of Good Hope. They formerly abounded in the rivers nearer the Cape, but are now almoſt extirpated; and to preſerve the few which are left in Berg River, the governor prohibited the ſhooting them without ſpecial permiſſion. They are not found in any of the African rivers which run into the Mediterranean, except the Nile; and even there only in Upper Egypt, and in the fens and lakes of Ethiopia, which that river paſſes through. From the unwieldineſs of his body, and the ſhortneſs of his legs, the hippopotamus is not able to move faſt upon land, and is then extremely timid. When purſued, he takes to the water, plunges in, ſinks to the bottom, and walks there at full eaſe: he cannot, however, continue long without riſing to the ſurface; and in the day-time is ſo fearful of being diſcovered, that, when he inhales freſh air, the place is hardly perceptible. In rivers unfrequented by man, he is leſs cautious, and thruſts his whole head out of the water. If wounded, he will riſe and attack boats or canoes with great fury, and often ſink them by biting large pieces out of the ſides: and frequently people are drowned by theſe animals; for they are as bold in the water as they are timid on land. When he quits the water, he uſually puts out half his body at once, and ſmells and looks round; but ſometimes ruſhes out with great impetuoſity, and tramples down every thing in his way. During the night he quits the rivers to depaſture; when he eats ſugar-canes, millet, rice, &c. conſuming great quantities, and doing much damage in the cultivated grounds.

The hippopotami ſleep in the reedy iſlands in the middle of the ſtream, and on which they bring forth their young. A herd of females has but a ſingle male: they bring only one young at a time, and that on the land, but ſuckle it in the water. They are ſaid to be capable of being tamed and domeſticated. In ſome parts the natives place boards of ſharp iron ſpikes in the corn-grounds; which theſe beaſts ſtrike into their feet, and ſo become an eaſy prey. Sometimes they are ſtruck in the water with harpoons faſtened to cords, and ten or twelve canoes are employed in the chace.

Though mild and timid in its nature, the hippopotamus is nevertheleſs a dangerous animal to meet; for, if provoked, it becomes furious and implacable; and, from the amazing width of its mouth, is capable of biting a man in two in an inſtant; which many of the hunters have fatally experienced. The natives dig large holes or pits to catch them, on the ſides of rivers where they are known to haunt. But they are ſo extremely ſhy of making freſh roads or paths, that the hunters are uſually prepared with the foot of a dead animal, with which they make tracks or prints on the ground leading from the river-ſide immediately to the centre of the holes and pitfalls; which being covered with jungle overlaid with mud and ſand, the unſuſpecting creature proceeds forwards till he falls in, and becomes an eaſy prey to the hunters, who either ſhoot him with muſket-balls or kill him with ſpears.

The name *ſea-cow* was probably given it from its having four ſtomachs, as in that animal; and *ſea-horſe*, from the neighing noiſe it makes, which, though ſingularly ſharp and tremulous, reſembles much the neighing of that more noble and valuable creature. In its form it reſembles neither the horſe nor cow; but much more nearly an overgrown wild boar of the foreſt.

The hippopotamus was known to the Romans. Scaurus treated the people with the ſight of five crocodiles and one hippopotamus during his ædileſhip, and exhibited them in a temporary lake. Auguſtus produced one at his triumph over Cleopatra.

This animal is the *behemoth* of Job; who admirably deſcribes its manners, food, and haunts: "Behold now behemoth, which I made near thee: he eateth graſs as an ox. Lo! now his ſtrength is in his loins, and his force is in the navel of his belly. His bones are as ſtrong pieces of braſs; his bones are like bars of iron. He lieth under the ſhady trees, in the covert of the reed and fens. Behold! he drinketh up a river: he truſteth he can draw up Jordan into his mouth." The firſt verſe, the learned Bochart obſerves, implies the locality of its ſituation; being an inhabitant of the Nile, in the neighbourhood of Uz, the land of Job. The ſecond deſcribes its great ſtrength; and the third, the peculiar hardneſs of its bones. The fourth indicates its reſidence amidſt the vaſt reeds of the river of Egypt, and other African rivers overſhadowed with thick foreſts. The fifth, the characteriſtic wideneſs of its mouth; which is hyperbolically deſcribed as large enough to exhauſt ſuch a ſtream as Jordan. That ſo formidable an animal ſhould be naturally mild and timid, and never dangerous but when hunted or provoked, muſt be conſidered as a bleſſing to thoſe countries where they abound. Bruce noticed many of them, quite harmleſs, while tracing the ſource of the Nile; and Park met with ſeveral herds on the banks of the Gambia, and always found them of a timid and inoffenſive diſpoſition. See his Travels, p. 6

But the hippopotamus is not merely harmleſs. He affords many articles of conſiderable utility to human life. His fleſh is a wholeſome and not unpleaſant food. The Hottentots, the Caffrarians, and even the European coloniſts at the Cape, eat it with great eagerneſs. In Egypt likewiſe this animal has been ſought for its fleſh. Dr. Pocock ſaw it ſold in the market. The negroes of Angola, Congo, and of the whole weſt coaſt of Africa in general, though they venerate this mighty inhabitant of the rivers as a deity, yet ſcruple not to eat him. The fleſh is ſaid to be tender: the fat is not ſo rancid and greaſy as that of moſt other animals: the gelatinous part of the feet, when well dreſſed, is a great delicacy: the dried tongue of an hippopotamus is conſidered, even at the Cape of Good Hope, as a rare and ſavoury diſh. Dr. Sparrman, on his return to Europe, furniſhed the king of Sweden's table with one of theſe tongues, two feet eight inches in length. The teeth of the hippopotamus are of a harder and whiter ſubſtance than thoſe of the elephant. Dentiſts prefer them on account of theſe qualities, even to ivory, for the purpoſe of replacing loſt teeth in the human jaw. The hide is rather thicker than that of the rhinoceros. It is a ſufficient load for a camel. The inhabitants at the Cape make excellent whips of it, which, after being uſed for ſome time, become more pliable than thoſe made of the hide of the rhinoceros. The blood of this animal is ſaid to be uſed by the Indian painters as one of their colours. Some relate, that the hippopotamus is conſtantly at war with the crocodile, and more than a match for him. Were it not for the hippopotamus, Haſſelquiſt tells us, the crocodiles would ſoon become ſo numerous in the Nile, as utterly to depopulate Egypt. But others pretend that theſe two animals are ſeen ſwimming peaceably together, without the leaſt appearance of any hoſtile diſpoſition towards one another. Belon ſpeaks of a tame hippopotamus as an animal of a very mild and gentle character: and Sparrman is of opinion, that a calf of this ſpecies might be brought up tame, without much difficulty; and that thus the curioſity of Europeans might once more be gratified with a ſight of living ſpecimens, as were the Romans at the games of Scaurus. A Dutch coloniſt found the os petroſum of the hippopotamus, reduced to powder, and taken in ſmall quantites, an excellent remedy in caſes of convulſion, particularly in children.

HIPPOSELI'NUM, *ſ.* in botany. See SMYRNIUM.

HIPPOTH'OON, in mythology, a ſon of Neptune and Alope, daughter of Cercyon, expoſed in the woods by his mother, that her amours with the god might be concealed from her father. Her ſhame was diſcovered, and her father ordered her to be put to death. Neptune changed her into a fountain, and the child was preſerved by mares, whence his name. *Pauſanias.*

HIPPOTHOON'TIS, one of the twelve Athenian tribes, which received its name from Hippothoon.

HIPPU'RIS, in ancient geography, one of the Cyclades. *Mela.*

HIPPU'RIS, *ſ.* [from ιππος, Gr. a horſe, and ουρα, a tail.] MARE'S TAIL; in botany, a genus of the claſs monandria, order monogynia, natural order of inundatæ, (naiades, *Juſſ.*) The generic characters are—Calyx: a two-lobed rim, crowning the germ. Corolla: none. Stamina: filament one, upright, placed within the anterior lobe of the calyx; antheræ roundiſh, compreſſed. Piſtillum: germ oblong inferior; ſtyle one, awl-ſhaped, upright, from the hinder lobe of the calyx, longer than the ſtamen; ſtigma ſharp. Pericarpium none. Seed: one, roundiſh, naked.—*Eſſential Character.* Calyx; a two-lobed rim to the germ; corolla none; ſtigma ſimple; ſeed one.

*Species.* 1. Hippuris vulgaris, or common mare's tail: leaves eight at a joint, awl-ſhaped. Root perennial, creeping, white, jointed; the joints furniſhed with numerous capillary fibres. Stems numerous, a foot and a half or more in height, upright, quite ſimple, ſmooth, ſtriated, round, jointed, ſpongy; the pith like a thread in the centre, compact, and in the roots tough. Leaves in whorls at each joint, from eight to twelve or thirteen in number, linear, ſeſſile, perfectly ſmooth and entire, acuminate, without veins, appearing hollow-dotted when magnified; thoſe under water reflex. Flowers axillary, ſeſſile, one to each leaf, in the whorls that are above water. Linnæus remarks, that the flower of this plant is as ſimple as can be conceived, having neither calyx nor corolla, only a ſingle ſtamen and piſtil, and one ſeed. The ſituation alſo of the leaves, in whorls, is not uſual in European plants, except in the natural order of Stellatæ. The flowers in the beginning of ſummer are moſtly hermaphrodite, but at the cloſe of it many of them are female. Native of many parts of Europe, in ponds, ditches, marſhes, and rivers, eſpecially where there is a depth of mud, and the froſt cannot reach the roots. In quiet waters it grows upright, in large lakes to the height of ſeveral feet; in running waters it bends with the ſtream. In ſome countries it is a troubleſome weed in rivers, and choaks up the ditches; but by abſorbing a great quantity of inflammable air it is reputed to aſſiſt in purifying the putrid air of marſhes. Gmelin ſays, that the wild-ducks in the north feed upon it; goats alſo are ſaid to eat it. We do not know that it is of any other uſe. In England it is not very common; it is found however in ſeveral places in Cambridgeſhire, Oxfordſhire, Weſtmorland, Staffordſhire, Leiceſterſhire, &c. Near London it is more rare; Blackſtone found it in Harefield river and Uxbridge moor, Hudſon in the New River near Hornſey, and Dr. Milne near Stoke Newington and Highgate. It flowers from May to Auguſt. Others give April to June for the time of flowering. Gerarde calls this plant *female horſe-tail,* and Parkinſon *marſh barren horſe-tail*; Mr. Hudſon firſt named it *mare's tail.* In French it is *peſſe d'eau,* which is a tranſlation of one of its old names *limnopeuce,* lake or water pine; in German it is *ſchafthalm, tannenwedel*; in Dutch, *katteſtaart, paardeſtaart*; in Daniſh, *heſterumpe, vand-ſtudeknæa*; in Swediſh, *haſtvans*; in Italian, *hippuride.*

2. Hippuris tetraphylla, or four-leaved mare's tail: leaves four at a joint, oblong, blunt. This is always very diſtinct from the preceding by its only having four leaves to a whorl, and their being ſpatulate-ovate and blunt. According to Retzius they are lanceolate, and the upper leaves are in fives. It has the appearance of Elatine alſinaſtrum, and is clearly a gynandrous plant. It is a native of Sweden, and was firſt diſcovered by Schulſen near Aboa in Finland.

3. Hippuris Indica, or Indian mare's tail: ſcape naked, root tuberous. This is a ſtemleſs plant, with a fibrous creeping root, having many roundiſh ſcattered ſmall black hairy tubers, which are eatable. Scape four feet high, very ſtraight and ſimple, round, ſtriated; within tubular divided by many tranſverſe membranes. Native of marſhes in Cochin-china. See CHARA and EQUISETUM.

HIP'PUS, in ancient geography, a river falling into the Phaſis.

HIPPUS, *ſ.* [from ιππος, Gr. a horſe.] The medical term for an affection of the eyes, in which they are continually twinkling and trembling, often occaſioned by riding on horſeback; whence the term.

HIPSYPH'ILE, a woman's name; a queen of Lemnos.

HIP'TAGE, *ſ.* in botany. See GÆRTNERA.

HIR, a town of Perſia, in the province of Kirman: ſix leagues ſouth of Sirgian.

HI'RA, in ancient geography, a maritime town of Peloponneſus. *Homer.*

HIRÆ'A, *ſ.* [ſo named by Jacquin from *Nicolas de la Hire,* whoſe phyſico-botanical works are in the Memoirs of the Academy of Sciences at Paris, and four volumes of his drawings in the Imperial Library at Vienna.] In botany, a genus of the claſs decandria, order trigynia, natural order of trihilatæ, (malpighiæ, *Juſſ.*) The generic characters are—Calyx: perianthium five-leaved; leaflets ovate, upright, very ſmall, permanent. Corolla: petals five, roundiſh, concave, with long claws. Stamina: filaments ten, capillary, the outer ones ſhorter; antheræ roundiſh, upright. Piſtillum: germ roundiſh, ſtyles three, ſimple, upright; ſtigmas bifid, blunt, ſpreading. Pericarpium: capſules three, upright, keeled on the back; each having a ſingle ſpreading wing on the outſide at the baſe, and a double one at the tip; not gaping. Seeds: ſolitary, roundiſh. Swartz obſerves, that this genus is too nearly allied to Triopteris; differing in having three two-winged capſules, inſtead of a three-celled capſule with three wings.—*Eſſential Character.* Calyx five-leaved; petals roundiſh, on claws; capſule three-celled, with three wings; ſeeds two, (ſolitary, *Jacquin.*)

Hiræa reclinata, a ſingle ſpecies. It is a ſmall tree, ſeldom exceeding fifteen feet in height, and dividing into round, long, ſmooth, bending and reclining, branches, by which it ſupports itſelf on neighbouring ſhrubs; bark aſh-coloured. Leaves oblong, a little broader at top, blunt at both ends, quite entire, ſmooth underneath, having ſoft, decumbent, ſcarcely conſpicuous, hairs on the upper ſurface, and being from three to ſix inches long; the petiole has two upright briſtly ſtipules at the baſe. Common peduncles thick, very ſhort and numerous, beautifully ſurround entire and very long branches, and, by means of twelve ſemioval ſhort bractes, finiſh in a quadrilocular top; the partial peduncles being one-flowered, an inch long, ſolitary, and therefore four to each common peduncle. Flowers beautiful, but without ſcent, yellow, an inch in diameter. Native of Carthagena in New Spain, in woods; flowering in June, and ripening the ſeeds in September.

HI'RAH, [Hebrew.] The name of a man.

HI'RAM, [Heb. exaltation.] A man's name.

HI'RAM, a ſmall ſettlement in York county, Maine. See NEW ANDOVER.

HIRCA'NIA, the provinces of Perſia which lie on the ſouthern ſhore of the Caſpian Sea.

HIRCA'NIAN, *adj.* Belonging to Hircania.

HIRCA'NIAN, *ſ.* A native of Hircania, an inhabitant of Hircania.

HIRCA'NUS, a man's name. 2 *Mac.*

HIR'CINE, *adj.* [from *hircus.*] Belonging to the goat, reſembling a goat.

HIRCIP'ILUS, *ſ.* [from *hircus*, Lat. a goat, and *pilus*, a hair.] A man who has briſtly hair, a man whoſe hair reſembles that of a goat. *Phillips.*

HIRCISCUN'DA, *ſ.* in old records, the proper diviſion of an eſtate among the heirs. *Scott.*

HIRCOCER'VUS, *ſ.* in zoology, a ſtag having the beard of a goat.

HIRCOLA'TION, *ſ.* in gardening, the barrenneſs of vines.

HIR'CULUS, *ſ.* in botany. See SAXIFRAGA.

HIR'CUS, in aſtronomy, a fixed ſtar of the firſt magnitude, the ſame with Capella.—HIRCUS is alſo uſed by ſome writers for a comet, encompaſſed as it were with a mane, ſeemingly rough and hairy.

*To* HIRE, *v. a.* [hẏꞃan, Sax.] To procure any thing for temporary uſe at a certain price:

His ſordid avarice rakes
In excrements, and *hires* the jakes. *Dryden.*

To engage a man in temporary ſervice for wages.—They weigh ſilver in the balance, and *hire* a goldſmith, and he maketh it a god. *Iſa.* xlvi. 6.—To bribe:

Themetes firſt, 'tis doubtful whether *hir'd*,
Or ſo the Trojan deſtiny requir'd,
Mov'd that the ramparts might be broken down. *Dryden.*

To engage for pay: with the reciprocal word.—They that were full, *hired* out themſelves for bread; and they that were hungry, ceaſed. 1 *Sam.* ii.—To let; to ſet for a time at a certain price. This, to prevent ambiguity, has ſometimes the particle *out*; as, he *hired out* his houſe to ſtrangers.

HIRE, *ſ.* [hẏꞃe, Sax.] Reward or recompence paid for the uſe of any thing. Wages paid for ſervice:

Great thanks and goodly meed to that good ſire
He thence departing gave for his pains *hire.* *Spenſer.*

HIRE (Laurence de la), a French painter, born at Paris in 1606. He received his firſt inſtructions in the art from his father, Stephen de la Hire, a painter of conſiderable merit. He was then placed under Vout; but Laurence adopted a manner of his own, which raiſed him to reputation. He painted hiſtory, landſcape, and portrait, and was patroniſed by cardinal Richelieu, and other perſons about the court. He was one of the firſt members of the Academy of Painting. He died at Paris in 1656. The churches of that city contain ſeveral of his greater works; and in the Hotel de Ville is a large picture of his, with portraits of the magiſtrates of the time.

HIRE (Philip de la), a celebrated French mathematician and aſtronomer, born at Paris in 1640. He firſt made himſelf known to the public as a geometrician, by giving the Second Part of a Treatiſe on Stone-cutting, printed by M. Boſſe in 1672, in continuation of the work of Gerard d'Argues on the ſame ſubject. The reputation which he acquired by this performance, he greatly increaſed by his *Nouvelle Méthode en Géometrie pour les Sections des Superficies coniques & cylindriques*, 1672, 4to. and his treatiſe *De Cycloide*, publiſhed in 1676, 12mo. In 1678, he received the honour of a ſeat in the Academy of Sciences; and in the following year he publiſhed, in one volume 12mo, 1. *Les nouveaux Elémens des Sections Coniques.* 2. *Les Lieux Géometriques.* 3. *La Conſtruction ou Effection des Equations.* In the ſame year, under the auſpices of the miniſter Colbert, he commenced an undertaking, conjointly with M. Picard, in order to collect materials for a more correct general chart of the ſea-coaſt of France than had been before laid down, and viſited the province of Bretagne, where the two mathematicians made the ſurveys and obſervations requiſite for their deſign. In 1680 they proceeded to the coaſts of Guienne and Gaſcogny; and in 1681 M. de la Hire was directed to proceed alone to Calais and Dunkirk, in order to determine the exact poſitions of thoſe places. On this occaſion he took the opportunity of meaſuring the breadth of the ſtraits of Dover, from the baſtion of Riſban, at Calais, to Dover caſtle, which he found to be twenty-one thouſand three hundred and ſixty toiſes. In 1682 he finiſhed the ſhare aſſigned to him in this undertaking, by the obſervations which he made in Provence.

Upon his return to Paris, he publiſhed his treatiſe *De Gnomonique*, 12mo. which he reprinted in 1698, with conſiderable enlargements; and in the following year he was employed on the continuation of the famous meridian line, which M. Picard had begun in 1669. He was next employed by M. de Louvois, with other members of the Academy, in taking levels for the grand aqueducts which Louis XIV. ordered to be made to bring the waters of the river Eure to Verſailles. Having received from his friend M. Picard ſome papers on levelling, with a requeſt that he would ſuperintend their publication, after making ſuch alterations and additions as he ſhould think proper, he gave them to the public in 1684, under the title of *Traité du Nivellement de M. Picard, &c.* And in the following year he publiſhed his own grand work, entitled, *Sectiones Conicæ in novem Libros diſtributæ*, folio, containing the whole theory of conic ſections, which was conſidered as an original work, and gained the author great reputation all over Europe. In 1686 he ſuperintended the publication of *Traité du Mouvement des Eaux & des autres Corps fluides, Ouvrage poſthume de M. Mariotte*; and in 1687 preſented the public with the firſt edition of his *Tabulæ Aſtronomicæ*, 4to. containing tables of the ſun and moon, and the moſt ready method of calculating eclipſes. The ſecond edition of this work, which appeared in 1702, was augmented by aſtronomical tables of all the planets. His practical geometry was next publiſhed, under the title of *L'Ecole des Arpenteurs*, 1689, 12mo. which was reprinted three years afterwards, with conſiderable additions. About the year 1690, M. de la Hire was appointed a profeſſor of the Royal College, and alſo of the Academy of Architecture, both which places were beſtowed upon him in reward of his diſtinguiſhed merit. In 1693, he edited *Veterum*

*terum Mathematicorum Opera, Græcè & Latinè, pleræque nunc primum edita*, folio. In 1695, he gave to the public his treatiſe *De Mechanique*, 12mo. and in 1702 engravings of two planiſpheres, ſixteen inches in diameter, from deſigns made by himſelf. Beſides the works already mentioned, M. de la Hire was the author of a vaſt number of valuable papers, publiſhed in the Memoirs of the Academy of Sciences, from 1666 to 1718. His days were almoſt uniformly ſpent in cloſe ſtudy, or in diſcharging his profeſſional engagements; and a conſiderable part of his nights was frequently devoted to aſtronomical obſervations. He enjoyed, notwithſtanding, a good ſtate of health, till within a month of his death, which took place in 1718, after he had completed the ſeventy-eighth year of his age.

M. de la Hire had a ſon, who was in ſome degree the heir of his genius. He was born at Paris, in 1677; and by the proofs which he afforded of his proficiency, in numerous memoirs which were read at the ſittings of the Academy of Sciences, he acquired ſuch reputation, that in 1699 he was choſen a member of that body. In 1701, he publiſhed an *Ephemeris*, calculated from his father's aſtronomical tables: a work which he continued for five years, under the ſignature of Gabriel Philip, to diſtinguiſh them from his father's productions. His next publication was a new edition of Mathurin Jouſſe's treatiſe on Carpentry, with corrections and conſiderable enlargements. Upon the death of his father, he was appointed his ſucceſſor in all his employments: but, owing to the infirm ſtate of his health, it was judged prudent for him to decline the profeſſorſhip of mathematics in the Royal College. Notwithſtanding the feebleneſs of his conſtitution, however, he went with MM. Caſſini and Maraldi to Dunkirk, to aſſiſt in carrying on the meridian line from Paris to the northern extremity of the kingdom, but fell a ſacrifice to his application in 1719, when about forty-two years of age.

HI'RELING, *ſ.* [from *hire.*] One who ſerves for wages:

The *hireling* longs to ſee the ſhades deſcend,
That with the tedious day his toil might end. *Sandys.*

A mercenary; a proſtitute:

Now ſhe the ſhades the evening walk with bays,
No *hireling* ſhe, no proſtitute to praiſe. *Pope.*

HI'RELING, *adj.* Serving for hire; venal; mercenary; doing what is done for money:

Then trumpets, torches, and a tedious crew
Of *hireling* mourners, for his funeral due. *Dryden.*

HI'RER, *ſ.* [from *hire.*] One who uſes any thing, paying a recompence; one who employs others, paying wages. In Scotland it denotes one who keeps ſmall horſes to let.

HIR'GUM, a river of Wales, which runs into the Avon four miles below Dolgelly, in the county of Merioneth.

HI'RING, *ſ.* [from *hire.*] In law, a contract, by which a qualified property is transferred to the hirer. Hiring is always for a price, ſtipend, or recompence. By this contract the poſſeſſion and a tranſient property is transferred for a particular time or uſe, on condition and agreement to reſtore the goods or things ſo hired, as ſoon as the time is expired, or uſe performed; together with the price or ſtipend, either expreſsly agreed on by the parties, or left to be implied by law, according to the value of the ſervice. 2 *Blackſt. Comm.* 454. See the article BAILMENT, vol. ii. p. 629–631.

HIR'MUND, a river of Aſia, which riſes in the Hindoo Kho mountain, and loſes itſelf in a lake, in the province of Choraſan, in Perſia.

HIRN'HEIM (Jerome), a learned abbot, who became doctor and profeſſor of divinity, abbot of Strahoven, and papal vicar-general throughout Bohemia, Auſtria, Moravia, and Sileſia. He died in 1679, when about forty-four years of age. He is claſſed among modern philoſophical ſceptics, on account of the attempt which he made to ſupport the intereſts of ſuperſtition and fanaticiſm, by declaiming on the imbecility of human reaſon. This was the object of his laborious work, entitled, *De Typho generis humani, ſive Scientiarum humanarum inani ac ventoſo Tumore, Difficultate, Labilitate, Falſitate, Jactantia, Præſumptione, &c.* 1676, 4to.

HIRPI'NI, in ancient geography, a people of Italy, next to the Samnites, to the ſouth-eaſt, and deſcendants from them; ſituated to the north of the Picentini, and to the weſt of the Apuli, having on the north the Apennine and a part of Samnium. The name is derived from *hirpus*, a term denoting a wolf in their language; either becauſe under the conduct of this animal the colony was led and ſettled, according to Strabo; or becauſe, like that prowling animal, they lived on plunder, according to Servius.

HIR'SAC, a town of France, in the department of the Charente, and chief place of a canton, in the diſtrict of Angouleme: ſeven miles weſt of Angouleme.

HIR'SCHAU, a town of Germany, in Bavaria, and Upper Palatinate: ſix miles north-eaſt of Amberg.

HIRSCH'BACH, a town of Germany, in the empire of Auſtria: five miles eaſt-north-eaſt of Weitra.

HIRSCH'BERG, a town of Bohemia, in the circle of Boleſlau: twelve miles north-weſt of Jung Buntzel.

HIRSCH'BERG, a town of Sileſia, in the principality of Jauer, and, next to Breſlau, the moſt conſiderable trading town in Sileſia, with conſiderable manufactures in the town and neighbouring villages. The churches in the town belong to the Roman Catholics; but the Lutherans, by paying 30,000 ducats as a gift to the emperor, and a loan of 100,000 florins, obtained a privilege of erecting a church and ſchool, without the walls. In the year 1549, it was burnt down; in the year 1633, it was pillaged by the Saxons, and in 1634 burned by the Imperial troops: twenty miles ſouth weſt Jauer, and twenty-two ſouth-ſouth-eaſt of Buntzlau.

HIRSCH'BERG, a town of Germany, in Franconia, and biſhopric of Aichſtadt: twenty-two miles north-eaſt of Aichſtadt.

HIRSCH'BERG, a town of Germany, in Upper Saxony, and county of Reuſen: four miles north-weſt of Hoff, and nine eaſt-ſouth-eaſt of Lobenſtein. Lat. 50. 18. N. lon. 29. 36. E. Ferro.

HIRSCH'FELD, a town of Germany, in Upper Saxony: ſeven miles ſouth of Zwickau.

HIRSCH'BORN, a town of Germany, on the Lower Rhine, and electorate of Mentz: ſeven miles eaſt of Heidelburg, and twelve ſouth of Erbach.

HIRSCH'OLM, a town of Denmark, in the iſland of Zealand, which owes its origin to an ancient caſtle, which has long been deſtroyed, and a new one erected on the ſpot: twelve miles north of Copenhagen.

HIR'SON, a town of France, in the department of the Aiſne, and chief place of a canton, in the diſtrict of Vervins: two leagues and three quarters north-eaſt of Vervins, and nine north-north-eaſt of Laon.

HIRST, *ſ.* [Saxon.] A grove, a ſmall wood.

HIR'SUTE, *adj.* [from *hirſutus*, Lat.] Rough; rugged.—There are bulbous, fibrous, and *hirſute*, roots: the *hirſute* is a middle ſort, between the bulbous and fibrous. *Bacon.*

HIRTEL'LA, *ſ.* [*hirtus*, Lat. from the hairineſs of the branches.] In botany, a genus of the claſs pentandria, order monogynia, natural order of roſaceæ, *Juſſ.* The generic characters are—Calyx: perianthium one-leafed, five-parted; parts ſubovate, reflex, unequal, permanent. Corolla: petals five, roundiſh, concave. Stamina: filaments three or five, briſtle-ſhaped, flattiſh, very long, permanent, at length rolled in ſpirally; antheræ orbiculate. Piſtillum: germ roundiſh, compreſſed and declining, villoſe; ſtyle filiform, almoſt the length of the ſtamens, ariſing from the depreſſed ſide of the germ; ſtigma ſimple. Pericarpium: berry oval, broader at the top, a little compreſſed, obſcurely-three-cornered, at whoſe baſe in front ſile a villoſe germ and ſtyle. Seed: one, large, of the ſame form with the pericarpium.—*Eſſential Character.* Petals five; filaments very long, permanent, ſpiral; ſtyle lateral; berry one-ſeeded.

*Species.* 1. Hirtella Americana, or American hirtella: leaves ovate-lanceolate, branchlets hirſute, racemes upright ſimple, flowers five-ſtamened. This is a tree, with a trunk from twenty-five to thirty feet in height, and a ferruginous bark. Branches wand-like, ſcattered, ſpreading, ſubdivided, round, hirſute; leaves on ſhort petioles, alternate, ſmooth, entire, acuminate, from three to ſix inches long. Flowers alternate, peduncled, ſomewhat rough with hairs. Germ rounded, villoſe; ſtyle lateral; ſtigma blunt; berry obovate, compreſſed, hairy-rough, dry. Native of Cayenne, where it is called by the French *bois de gavlette.*

2. Hirtella triandria, or three-ſtamened hirtella: leaves oblong, acuminate; racemes compound, looſe; flowers three-ſtamened. This is a branching tree, ſometimes twenty feet high. Native of the Weſt Indies, Martinico, Jamaica, and Domingo; flowering in April and May.

3. Hirtella paniculata, or panicled hirtella: leaves elliptic, ſhining, with hairy ſubcoriaceous racemes; upright, flowers five-ſtamened. Native of Cayenne, where it was found by Rohr.

HIR'TIUS (Aulus), an officer under Julius Cæſar, who wrote a ſupplementary part of the Commentaries publiſhed in his name. The books compoſed by Hirtius are the eighth of the Gallic war, and thoſe of the Alexandrine and African wars. His ſtyle is good, but his narrative is reckoned leſs clear than that of Cæſar himſelf.

HIRU'DO, *ſ.* [quaſi *haurudo*, from *haurio*, Lat. to draw out.] In helminthology, the LEECH; a genus belonging to the order of vermes inteſtina; the characters of which are: Body oblong, truncate at both ends, unarmed, cartilaginous, and moves by dilating the head and tail, and contracting itſelf into an arch.

The hiſtory of theſe animals is rendered intereſting from their well-known uſe in ſurgery. They are in ſuch requeſt in ſome diſtricts of England, that the poor people derive a great part of their ſubſiſtence from collecting them for ſale; and ſome plans have been projected of making ponds for the purpoſe of breeding them. Such ponds, if in good ſituations, and properly managed, would, no doubt, prove extremely lucrative to the owners.

The body of all the ſpecies of leeches, when extended, is long and ſlender, but it is capable of very conſiderable dilatation and contraction. It is compoſed of a great number of annules, or, to ſpeak more correctly, of circular muſcles, which are the principal organs of motion. The ſurface of the ſkin, in the different ſpecies, is more or leſs rough with minute tubercles. To the touch, however, theſe tubercles are ſcarcely ſenſible, from the circumſtance of their being always ſmeared with a viſcous fluid inſoluble in water, which tranſudes from them. By means of this fluid, the progreſs of the animals, in ſwimming, as well as in paſſing through mud, or amongſt the carices, reeds, and other aquatic plants, (about the roots and leaves of which they are chiefly to be found,) is greatly facilitated.

The head of theſe animals, in a ſtate of dilatation, is conſiderably leſs pointed than their poſterior extremity. They have the power of attaching themſelves to any hard ſubſtance, both by their head and tail; but it is difficult to comprehend by what preciſe means this is effected. All we know is, that they form a concavity beneath each of theſe extremities; by which, in the manner of a cupping-glaſs, they adhere ſo firmly, that in ſome inſtances their body has been torn aſunder, in attempting to detach them. The ſtructure of the fleſhy diſcus, which performs the office of ſucker, cannot eaſily be aſcertained; for, when the ſkin which covers it is removed, we obſerve only ſome minute fibres interwoven in different directions. In conſequence of the vacuum, formed by the contraction of the diſcus, the animals are fixed by the preſſure of a column of air correſponding to their diameter.

They ſwim like eels, by a ſerpentine motion. When they would change their place without ſwimming, they begin by fixing their body at one of the extremities, by means of the ſucker that terminates it. The circular muſcles of the ſkin then ſeparately act, by which the body is elongated, by diminiſhing its diameter. When the free extremity has reached the place to which the animal is deſirous of extending it, it is applied and made faſt to that ſpot by the ſucker, and becomes the fixed point of a new motion. The animal, having now removed the ſucker firſt made uſe of, draws it, by the operation of the longitudinal fibres of the ſkin, towards the other ſucker, and proceeds, in this manner, to fix each extremity alternately. Theſe motions are executed with conſiderable rapidity.

The mouth is a triangular opening, having three ſtrong and ſharp teeth, which meet in the centre, and are capable of piercing not only the human ſkin, but even the tender parts of that of the horſe or ox. At the bottom of the mouth there is a kind of fleſhy prominence, in which the tube terminates that conveys the blood from the triple wound, formed by the teeth, into the ſtomach of the animal. The ſtomach conſiſts of a great number of membranous bags, furniſhed with ſmall valves, in which blood has ſometimes been known to continue for many months without being coagulated. As none of the leeches have more than one principal orifice in their bodies, it is extremely probable, ſays Morand, who has publiſhed a Memoir reſpecting theſe animals, that all thoſe particles of the blood they ſwallow, which do not aſſiſt in nouriſhing their bodies, may paſs off by tranſpiration, and thus form the viſcous fluid which exudes through the ſkin. This fluid may be obſerved in blackiſh filaments, in water in which leeches are kept.

It appears that leeches reſpire through their mouth. The greater part are furniſhed with organs of viſion, varying in number, (according to the ſpecies,) from two to eight. In many of them, however, no eyes are to be ſeen, even with high magnifying powers.

If a leech be cut in two, that part which contains the head will continue in life, and, after a time, greater or leſs, according to the ſeaſon, will become a new animal, differing in no reſpect whatever from others of its ſpecies. It ſhould appear from this fact, and from ſome other obſervations, that leeches increaſe in ſize, not only by the developement of their parts, but likewiſe by augmentation, that is to ſay, that old leeches have a greater number of muſcular rings than the young ones.

Some ſpecies of leeches are found in almoſt all waters; but the greater part of them prefer ſuch as are muddy, and afford growth to numerous aquatic plants. They are common throughout the whole of Europe, but leſs ſo in the ſouthern than the northern parts. The duration of their life has not been aſcertained; but, beſides the general cauſes of mortality to which they are ſubject, ſuch as the drying up, but more particularly the putrefaction (during the heats of ſummer), of the waters that they inhabit, they have many enemies, which are in continual purſuit of them for food. Theſe are chiefly different ſpecies of fiſh and water-fowl; but there are alſo numerous larvæ of water-inſects, and even of perfect inſects, which prey upon them. Even the leeches themſelves deſtroy one another. Thoſe that have been long without food fall, without mercy, upon ſuch as are gorged, and ſuck out of their bodies the juices with which they are repleniſhed. This circumſtance has been particularly remarked by Vauquelin and ſome other naturaliſts.

Theſe animals will not only ſuck the blood of each other, and of quadrupeds and fiſhes, but will faſten upon the larvæ of inſects, and numerous kind of vermes, &c. that inhabit the ſame waters in which they live. Whenever they have opportunity, they gorge themſelves till their ſtomach will contain no more. On the contrary, when food is not to be had, they are able to ſupport life for many months without receiving any nutriment. This is particularly the caſe during winter, at the commencement of which they bury themſelves deep in the mud; they continue in a ſemi-torpid ſtate, till the warmth of the enſuing ſpring again calls them to life, vigour, and activity.

Sea-ſalt, tobacco, and in general all kinds of ſalt and acrid ſubſtances, applied to the ſurface of their bodies, are fatal to leeches. Some of theſe are always adopted for deſtroying ſuch as faſten upon a man or animal, that happens unfortunately to go into waters where they are in great numbers. When forcibly torn off, they almoſt always leave in the wound ſome part of their head. In this caſe the wound has often been known to feſter and become a troubleſome ſore. We are informed by Pliny, that Meſſalinus, a perſon of conſular dignity, even loſt his life by an accident of this kind.

Leeches ought to be collected in the ſpring of the year, if poſſible, and ſhould be kept in veſſels of pure ſpring water, which muſt be changed very frequently, particularly in ſummer. If they are very numerous, they ought to have freſh water as often as twice a-day; but, if they are in ſmall quantity, once in two days may be ſufficient. All the ſlime which accumulates upon their bodies ſhould be well cleaned away whenever they are kept in any abundance, otherwiſe the new water will be tainted, and become prejudicial to them from the moment they are put into it. Violent noiſes and powerful ſmells are alike injurious to theſe animals; and, on the latter account particularly, an apothecary's or druggiſt's ſhop is one of the worſt places in which they can be kept. The perſon employed in removing them from one veſſel into another ſhould have his hands in every reſpect as clean as poſſible.

There is no great art in applying leeches to the body; but a perſon who is accuſtomed to it will always do it better than one who is not. In the moſt experienced hands, however, they will ſometimes refuſe to faſten themſelves, either from not being hungry at the time, or from the ſurface of the ſkin, or the blood, on their making the attempt, being unpleaſant to their taſte. The wound they make out of water, is more ſenſible than what they make in water; but in the latter caſe, particularly when the water is ſomewhat warm, the blood flows more freely. When it is neceſſary they ſhould ceaſe from ſucking before they have fully gorged themſelves, a ſmall quantity of ſalt, tobacco, or ſnuff, will cauſe them to drop off in convulſions, and they ſoon afterwards die. On the contrary, when it is conſidered neceſſary that they ſhould draw from the wound more blood than their ſtomach will contain, it is ſometimes cuſtomary to cut off the poſterior extremity of their body, out of which the ſurplus of blood will flow as through a tube.

For ſome years it has at different times been aſſerted, that by means of leeches it is poſſible to foretell the various changes of weather, both of heat and cold, of rain and fair. The means of doing this have been variouſly laid down. A French clergyman, who attended to this ſubject for many years, has aſſerted, that a leech kept in a decanter filled with water in a window, will continue at the bottom, without any motion, if the following day is about to be ſerene and pleaſant. If rain is about to fall, before or after noon, he ſays, that the little animal will aſcend the ſide of the glaſs, to the ſurface of the water, and there continue till very nearly the time when the fine weather returns; and, previouſly to the commencement of high winds, that it will ſwim about in the water with great rapidity, and will not ceaſe from this motion till the wind begins to blow. At the approach of a ſtorm, he informs us, that it will continue entirely out of the water even for ſeveral of the preceding days, appearing all the time agitated and reſtleſs. The ſame perſon, in concluſion, aſſerts, that during froſty weather, the leech will continue almoſt motionleſs, and as much contracted as poſſible, at the bottom of the decanter; and that always during ſnow and rain, it will fix itſelf near the mouth of the decanter, and there remain in a ſtate of perfect tranquillity. There can be no doubt, but that the variations which take place in the atmoſphere, have conſiderable influence upon theſe animals; but this influence is by no means ſuch as always to produce the ſame effects upon them. An eaſy and ſatisfactory proof may at any time be had, by putting four or five leeches into different decanters. It will be found that their motions are very uncertain, and that even ſometimes each will afford a different indication. No dependance, therefore, can be placed in them; and theſe living barometers can deſerve to be conſidered as little better than playthings for children. There are ſeventeen ſpecies now aſcertained, viz.

1. Hirudo medicinalis, the medicinal leech: body elongated, olive black, with ſix yellow ferruginous lines, ſpotted with black above, and with yellow beneath; but the colours vary at different ſeaſons of the year. The body is compoſed of numerous annular wrinkles, which it can contract or expand at pleaſure, and by theſe it moves itſelf either backward or forward; mouth ſmaller than the tail, and armed with three cartilaginous teeth, with which it draws blood; tail compoſed of an annular muſcle, by which it has the power of faſtening or adhering firmly to any object. The leech, like the common earth-worm, is hermaphrodite, and copulates in the ſame manner. Found in ſtagnant ponds and ditches; and is the ſpecies uſed with ſuch ſucceſs as a phlebotomiſt in the practice of phyſic. See a correct delineation of this moſt uſeful ſpecies in the Engraving, at fig. 2.

2. Hirudo ſanguiſuga, the horſe-leech: commonly found during the ſummer-months in pools and ſtagnant waters, ditches, and ponds; it is from four to ſix inches long. Body above dull olive-black, with an ochre margin on each ſide; beneath paler, with ſometimes a few black ſpots. Tail thicker than the head. This ſpecies is larger than the preceding, and ſucks blood with great avidity, and in large quantities; whence this and the medicinalis have been often confounded; but are eaſily to be diſtinguiſhed by their ſpecific characters. It is delineated in the Engraving, at fig. 3.

3. Hirudo Indica: body depreſſed, brown, with a hundred tranſverſe muricate ſtriæ. Inhabits the maritime parts of India.

4. Hirudo lineata: elongated, grey, with four longitudinal black lines on the back; body annulate with numerous wrinkles, and with ſix deep black eyes in a double tranſverſe row. Found early in the ſpring in ſtagnant waters; about an inch and a half long.

5. Hirudo octoculata: elongated, with eight eyes in a lunate ſeries. Body ſometimes brown immaculate, ſometimes ſprinkled above with black dots; ſometimes brown with yellowiſh dots above; ſometimes yellow-brown with a knotty line in the middle, and a lateral blackiſh one pinnate within on the fore-part; ſometimes yellowiſh with longitudinal lines, the middle one knotty, the lateral ones with remote red dots; eyes often nine. Inhabits ſtagnant waters, among aquatic plants, and preys on monoculi and animalcules; fifteen lines long.

6. Hirudo ſtagnalis: elongated, cinereous, with two eyes. Body whitiſh, pellucid, ſprinkled with cinereous dots, and plaited at the ſides; eggs about forty, ſurrounded by a pellucid circle, cinereous at firſt, and afterwards brown; the young after excluſion from the ova adhere by their tails to the belly of the mother. Inhabits wet hollows and rivulets; about nine lines long.

7. Hirudo complanata: body dilated, cinereous, with a double tuberculate line on the back, the margin ſerrate; and with tranſverſe bands compoſed of three pale lines, the margin whitiſh; beneath grey; head pointed, white, with ſix eyes; tail orbicular, and cinereous. Found in ſhallow ſtreams; about four lines long.

8. Hirudo viridis: body depreſſed, and generally oblong, but aſſumes ſeveral ſhapes, though always pointed at the tail; body deep graſs-green, with a tranſparent border all round; eyes two, black; eggs five or ſix, oval, and deep brown. Inhabits clear cold waters; about an eighth of an inch long, and like moſt of the genus has a power of reproduction almoſt equal to that of the polype; for, if the animal be divided in every direction, the parts will grow to perfect animals, and may be again divided, and again reproduced, ad infinitum. This is moſt conſpicuous in the ſtagnalis, complanata, and octoculata, according to Dr. Shaw. See his Naturaliſt's Miſcellany, and valuable papers on this ſubject in the Linnæan Tranſactions. The *viridis* is delineated in ſeveral of its different ſhapes, at fig. 4.

9. Hirudo heteroclyta: body flattiſh, pointed before, and broadiſh behind; marked above with numerous fine longitudinal ſtriæ of black ſpecks, and remote tranſverſe browniſh ones, the fartheſt of which are black, with fulvous ſpecks; head white; eyes four or ſix; eggs numerous, ſpherical, green, ſurrounded with a pellucid ring; the young ones that eſcape firſt are yellow, the latter ones green. Trembley miſtook this ſpecies for a polype. Found in ſtreams among aquatic plants; ſeven lines long; and often fixes itſelf on the inhabitant of the Helix planorbis, and ſucks its juices: delineated at fig. 5.

10. Hirudo geometra: elongated, yellowiſh-green, with a row of white ſpots; body tapering before, and very broad at the tail-end; eyes four; colour varying. Inhabits freſh waters, and fixes itſelf on the bodies of trout and other fiſh after the ſpawning ſeaſon; eight lines long; moves as if meaſuring like a compaſs.

11. Hirudo teſſellata: cinereous, with a teſſellate margin; eyes eight, in a double longitudinal row; body dilated, and covered every where with black ſpecks; above with orange or white ſpots, or partly grey partly orange; beneath grey, with two rounded white ſpots in the middle. Inhabits rivulets; about eighteen lines long.

12. Hirudo marginata: body dilated, with a teſſellate margin; eyes four; head obtuſe before, and narrowed behind, white, pellucid, and marked with two tranſverſe brown bands; abdomen reddiſh-brown, with very minute ſtriæ meeting beneath in double brown lines; back with five rows of whitiſh dots, the lateral margin white, with a double brown line divided into ſquare patches; tail orbicular, pale, with brown ſpots on the margin. Inhabits rivers; ten lines long.

13. Hirudo groſſa: dilated, yellowiſh, and divided on the fore-part. Found in the ſea, uſually within the ſhells of the Venus exoleta; about twelve lines long, and ſeven broad; body marked with fine white ſtriæ, the fore-part narrower and obtuſe; eggs very numerous, ſpherical, and ſwimming in a gelatinous fluid: delineated at fig. 6. At *a*, is ſhown a congeries of the eggs of this ſpecies, as excluded from the ovaria in a gelatinous maſs, examined under the microſcope, and figured by O. F. Müller, of Copenhagen.

14. Hirudo hippogloſſi: dilated, whitiſh, with a double white eye in the middle of the body; which is oval, depreſſed, pellucid, a little pointed before, and ending in a globular ring behind; head ſomewhat triangular, with a cinereous ſpot on each ſide; eyes not viſible; tail with a row of tubercles beneath from the centre, and towards the middle two hooks. Inhabits the ſea; generally fixed to the ſkin of turbots and holibuts: delineated of its natural ſize at fig. 7.

15. Hirudo crenata: body ſlightly depreſſed, ſuboval, greeniſh, inclining to aſh-colour, and tranſverſely ſtriate with annular ſtriæ, from whence ariſe the crenatures of the margin; eyes two, approximate; upper ſurface convex, lower flat. Found in ſhallow ſtreams, among aquatic plants. This is delineated of its natural ſize at fig. 8; and a ſection of it, greatly magnified, at fig. 9, to ſhow its internal ſtructure.

16. Hirudo muricata: body round, tapering, tuberculate, and furniſhed with two ſhort horns; head larger than the tail; body ſtrongly annulate, and tuberculate upon the rings; tail very much dilated. Inhabits the ſea; and adheres to fiſh, leaving a black mark on the ſpot.

17. Hirudo branchiata: depreſſed, tapering, whitiſh, with ſeven branched briſtles on each ſide; inteſtines brown, bifid, pellucid; body ſoft, annulate, with fine wrinkles, and tapering towards the head; head ſmall, truncate; tail large, round, dilated. Inhabits the Pacific Ocean, and adheres to turtle; an inch long: delineated in the Engraving at fig. 10.

It was for a long time the received opinion that the Hirudo medicinalis, and ſanguiſuga, were both *viviparous*, excluding their young like the eel, completely formed, and endued with active life; and it is but very lately that the contrary fact has been ſuggeſted, and now ſatisfactorily aſcertained. Mr. Chriſtopher Hebb, an eminent ſurgeon in the city of Worceſter, having noticed in Buffon, and other writers on natural hiſtory, that the hirudo medicinalis was ſaid to have brought forth its young alive, from thirty to eighty at a birth, he thought there was reaſon to doubt the aſſertion, and therefore made various long and careful obſervations, for the purpoſe of inveſtigating the truth. "Leeches (ſays Mr. Hebb) will copulate in a ſtate of confinement, which I have ſeveral times ſeen, towards the cloſe of the month of April; yet never obſerved this union to be productive. Leeches, too, are caught during the whole of the ſummer-months, in which the production or multiplication of all the lower orders of nature's works ſeems more particularly to be going on How then has it happened, that no leech has ever been caught in a ſtate of *geſtation*; or, if it have, what has become of its offſpring? for no perſon has ever obſerved the leech to bring forth its young, (if it be viviparous,) while under confinement.

"All theſe objections, (which I admit are purely of a negative kind,) vaniſh before the preſumption that the leech is *oviparous*. That the *ovum* ſhould never evolve its contents, is readily accounted for, on the preſumption that glaſs (in which leeches are uſually kept) is an improper nidus for that purpoſe; as alſo, perhaps, on the abſence of that juſt temperature and direct influence of the ſun, which may be neceſſary to produce ſuch evolution. To which may be added, (in itſelf ſufficient to account for the failure,) that we are, every few days, changing the water in which leeches are kept, thus diſturbing the proceſs that under more favourable circumſtances might take place in the *ova*, if ſuch really exiſt; and indeed, by this means, throwing them away altogether. Unleſs I have been much deceived, however, I have ſeen what convinces me that they are *oviparous*. In the month of May I have, from large leeches, ſeen protruding from the female organ of generation, a white opake oval ſubſtance, having a conſiderable quantity of mucus adhering to it, which I cannot conceive to be excrementitious, but rather an *ovum*."—That this was the real fact, there can now be no doubt; ſince all theſe ingenious obſervations of Mr. Hebb have been recently confirmed in France, by the celebrated naturaliſt M. Virey, author of a Paper on the VERMES, in one of the early volumes of the Journal de Phyſique, in which he affirms, that the *Hirudo medicinalis*, and *ſanguiſuga*, are both *oviparous*, producing numerous ſimple eggs. The eggs of the ſpecies called by Linnæus *octoculata* are, according to Bergman, a kind of capſules, each including ſeveral young. The eggs of the Hirudo medicinalis and ſanguiſuga are depoſited on, or agglutinated to, water-plants, and are, in the words of M. Virey, *ſemi-ovoides, leur coque eſt brune, cartilagineuſe, & tranſparent*; "ſemi-oval, the ſhell brown, cartilaginous, and tranſparent."

Mr. Hebb, from further obſervations, conceives that the leech never *grows* in confinement; nor does he believe that it ſuſtains, in that ſtate, any ſenſible diminution, except in thoſe caſes in which it had, when taken, been gorged with the blood of ſome animal, or with ſome other matter. The ſmalleſt leech he ever ſaw was ſent to him out of Wales, in July 1808. On moſt carefully weighing it, he found it to balance *half a grain*; but it died in conſequence of the ſevere froſt in the latter end of December following, when, on ſubjecting it to the balance again, he could not diſcover in it any variable change of weight.

Mr. Hebb has alſo remarked, that the medicinal leech is ſubject to a diſeaſe of a moſt fatal nature; and by which he loſt, in July 1809, upwards of three hundred of them. This diſeaſe has been noticed by Dr. Ferguſon of Aberdeen, and by ſome others. Leeches, when afflicted with it, appear languid, and give, rapidly, a high degree of colour to the water in which they are placed; and, if it be not frequently changed, a bloody tinge will enſue, their bellies become hollow, and they ſoon die. When dead, they are unuſually rigid, and generally full of hard knots. Where this diſeaſe has broken out to any extent, Mr. Hebb never knew one of them to recover. Its cauſe ſeems at preſent to be wholly unknown. May it not ariſe from their being kept in hard and bad water? or may it not ariſe from ſome unfavourable ſtate of the atmoſphere? Whatever be the cauſe, it ſeems involved in impenetrable obſcurity. No reaſon for it has been as yet diſcovered; but the beſt preventive is ſaid to be, to keep the leeches in but ſmall numbers together, ſo as to prevent the propagation of the malady, ſhould it break out among a few. Mr. Hebb, however, tried this method without the ſmalleſt ſucceſs; he divided a hundred leeches, on the 31ſt of May 1809, into twelve different parcels, and placed the veſſels in two rooms of different temperature; the diſeaſe, notwithſtanding, took place in each veſſel about the ſame time in July following, and they all died in a few days after.

HIRUNDINA'RIA, *ſ.* in botany. See ASCLEPIAS, and LYSIMACHIA NUMMULARIA.

HIRUN'DO, *ſ.* in ornithology, a genus of birds of the order of paſſeres; the characters of which are as follow: Bill ſmall, curved, ſubulate, depreſſed at the baſe; gape larger than the head; tongue ſhort, broad, cleft; wings long; tail moſtly forked. The ſwallow appears to have been known in all ages and countries. In Hebrew it is named *agur, ſus, chauraſ, thartaſ, chatas, chataſ*; in Greek the ſwallow is denominated χελιδων, derived perhaps from χειλος, the cheek, and δινεω, to whirl; alluding to their rapid flutter, and the continual motion of their bill. It had the epithets κωτιλη, chatterer; ολολυγων, moaner; αυκυπτερη, ſwift-winged. The Latin *hirundo* was firſt written *helundo*, and evidently borrowed from χελιδων. In Italian it is termed *rondina, rondinella, ceſila*; in Spaniſh, *golondrina, andorinha*; in German, *ſchwalbe*; in Swiſs, *ſchwalm*; in Flemiſh, *ſwalwe*; in Swediſh *ſwala*; in Poliſh, *jaſkotka*. The Engliſh word *ſwallow* perhaps comes from the verb, but more probably from the German *ſchwalbe*, which is ſoftened in the parent Saxon into *ſwale*. The French *hirondelle* is evidently formed from the Latin *hirundo*. Theſe birds make their appearance in England early in ſpring, and diſappear in autumn. They chiefly frequent moiſt and watery places, and ſkim about near the ſurface in ſearch of inſects, which they catch on the wing with great dexterity, by means of the enormous gape of their jaws. There are thirty-eight ſpecies now aſcertained, and claſſed in two diviſions, viz.

I. Toes three before, and one behind. 1. Hirundo ruſtica, the domeſtic ſwallow: front and chin cheſnut; tail-feathers, except the two middle ones, with a white ſpot. Bill black; body above blackiſh-blue, beneath whitiſh; tail very much forked; legs ſhort, blackiſh. Inhabits almoſt every where; frequents houſes, and uſually builds under the roof, or in the chimney; leaves England in September, and previous to its departure aſſembles in vaſt flocks on the tops of houſes, churches, and even trees; lays from four to ſix white eggs ſpeckled with red; is ſaid by the vulgar to preſage ſtormy weather if it flies low: ſix inches long. There is a variety of this bird with the body entirely white.

2. Hirundo Tahitica, the Otaheite ſwallow: blackiſh-brown, with a blue gloſs above; front and neck beneath purple-tawny; belly and vent ſooty; tail, bill, and legs, black; five inches long; irides brown.

3. Hirundo eſculenta, the Javan ſwallow: back blackiſh, beneath white; legs brown; all the tail-feathers with a white ſpot. The ſize of this ſpecies having been queſtioned, the following extract from the Tranſactions of the Batavian Society in the iſland of Java, will place the matter in a proper point of view:—"The Hirundo eſculenta is of a blackiſh-grey, inclining a little to green; but on the back to the tail, as well as on the belly, this blackiſh colour gradually changes into a mouſe-colour. The whole length of the bird, from the bill to the tail, is near four inches and a half; and its height, from the bill to the extremity of the middle toe, three inches and a quarter. The diſtance from the tip of the one wing to that of the other, when extended, is ten inches and a quarter." This account is confirmed by ſir George Staunton, in his "Embaſſy to China," vol. i. p. 288. There is a ſmaller variety of this ſpecies with a ſpeckled breaſt, and white ſpots on the tail-feathers; and this, though leſs numerous than the preceding, appears to have been the Hirundo eſculenta originally deſcribed by Linnæus. Inhabits Java, China, and the iſlands of the Indian Ocean; builds in caverns of rocks, and makes its neſt of gelatinous marine ſubſtances, or of the fragments of the inſects which conſtitute their food; in ſhape reſembling an apple cut down the middle. Theſe neſts are eſculent, and by the Chineſe, and luxurious Aſiatics, are made into broths, or otherwiſe cooked, and regarded as one of the greateſt dainties of the table. See an account of them, with the manner of cooking, under the article BIRDS-NESTS, vol. iii. p. 56; and this curious ſpecies and its neſt, correctly delineated in the annexed Engraving at *fig.* 1.

4. Hirundo Borbonica, the wheat ſwallow: blackiſh-brown, beneath grey ſpotted with brown; tail entire; three outer tail-feathers whitiſh at the tips. Inhabits the Iſle of France, and frequents fields ſown with wheat; lays two eggs, grey ſpotted with brown.

5. Hirundo Francica, the grey-rumped ſwallow: blackiſh above; beneath whitiſh or grey. Inhabits the Iſle of France: four inches and a quarter long.

6. Hirundo Americana, the rufous-rumped ſwallow: blackiſh-brown with a green gloſs; beneath whitiſh; rump and vent rufous; quill-feathers whitiſh; chin rufous. Inhabits South America: ſix inches and a half long.

7. Hirundo urbica, the common martin: bluiſh-black; beneath white; tail-feathers without ſpots; ſometimes with the quill and tail-feathers tipt with white; bill black; mouth yellow; rump white; legs covered with a ſhort white down. Inhabits Europe, and North America: five inches and a half long; builds under the eaves of houſes, but not in chimneys; eggs white.

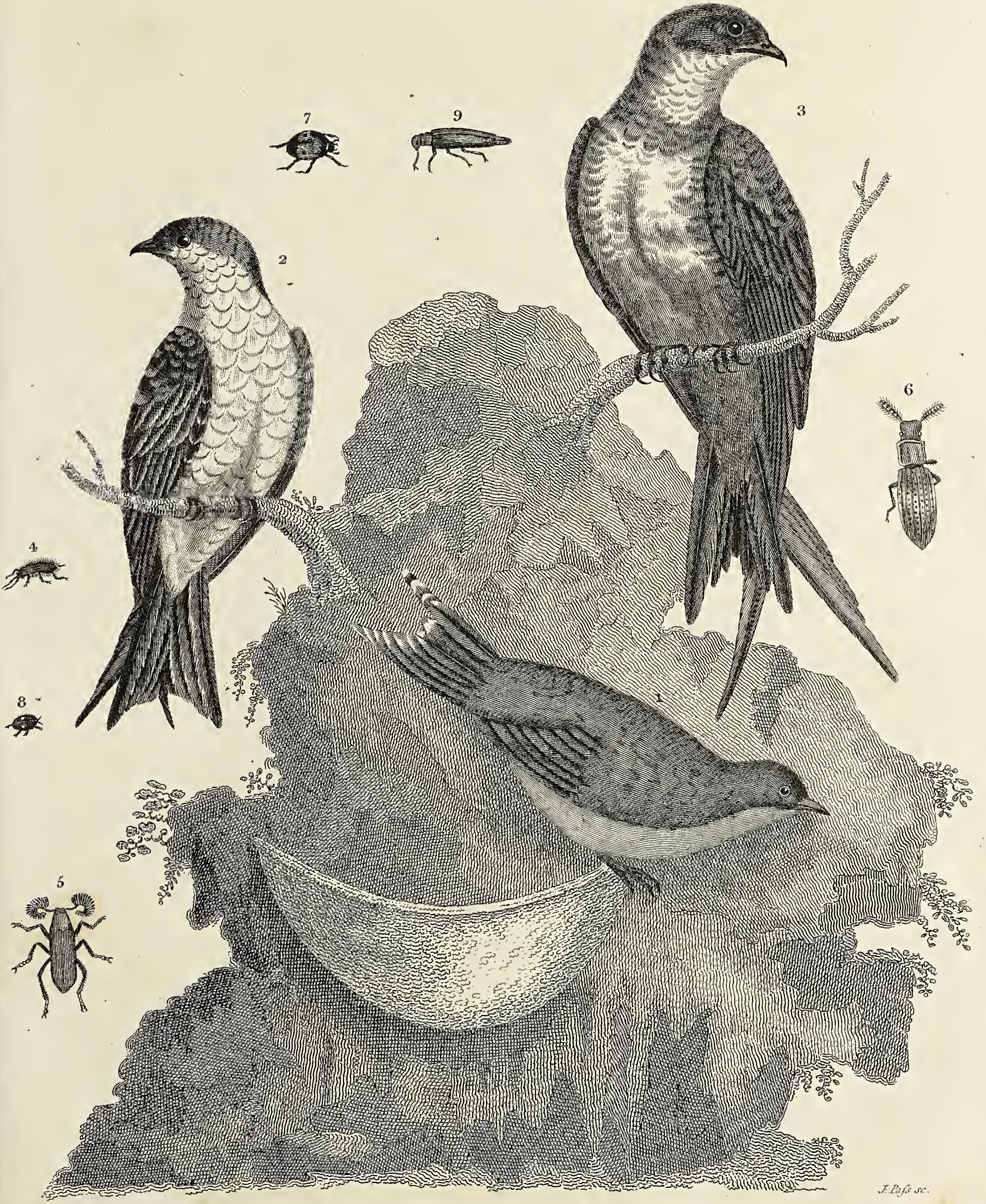
8. Hirundo Panayana, the Panayan ſwallow: black; beneath white; ſpot on the front and chin ruſty-yellow; collar black; leſſer wing-coverts of a changeable violet-black. Inhabits the Philippine Iſlands.

9. Hirundo rufa, the rufous-bellied ſwallow: ſhining black; beneath rufous; front whitiſh; bill black; legs duſky-black. Inhabits Cayenne: five inches and a half long; affixes its neſt to beams, which is ſometimes eighteen inches long.

10. Hirundo Capenſis, the Cape ſwallow: blackiſh-blue; beneath yellowiſh with blackiſh ſtreaks; cap rufous; lateral tail-feathers with a white ſpot; bill black; quill-feathers brown, with pale edges; legs duſky-black. Inhabits the Cape of Good Hope: ſeven inches long; builds often in houſes, and lays four or five ſpotted eggs.

11. Hirundo riparia, the ſand martin: cinereous; chin and belly white; bill blackiſh; throat encircled with a mouſe-coloured ring; legs black, downy behind. Inhabits Europe, and North America: four inches and three quarters long; builds in holes in ſand-pits and banks of rivers.

# HIRUNDO, HISPA, HISTER, & HORIA.



J. Paſs sc.

*Fig. 1. Hirundo esculenta, with its Nest. 2, The rufous headed Swallow. 3, Hirundo Melba, or necklaced Swift. 4, Hispa-atra. 5, Mysticina. 6, Mutica. 7, Hister unicolor. 8, Hister bimaculatus. 9, Horia dermestoides.*

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12. Hirundo rupeſtris, the rock ſwallow: mouſe-colour; beneath whitiſh; tail ſubequal, the feathers with a white ſpot on the inner web; bill and naked legs black. Inhabits Carolina; and builds in the holes of rocks.

13. Hirundo montana, the crag ſwallow: mouſe-colour; beneath rufous; quill and tail-feathers grey-brown edged with rufous; the latter, except the middle and outer ones, with a white ſpot within; bill and claws black; flanks brown; legs covered with a grey down varied with brown. Inhabits, during the ſummer, the rocky and mountainous parts of France and Spain: five inches and a half long.

14. Hirundo purpurea, the purple ſwallow: entirely violet; tail forked; bill black; legs blackiſh; female brown. Inhabits Carolina and Virginia, during ſummer; is very much eſteemed by the inhabitants for its uſe in alarming poultry of the approach of birds of prey, which it does not only by ſhrieking, but by attacking them with the greateſt fury: ſeven inches and three quarters long.

15. Hirundo ſubis, the Canada ſwallow: bluiſh-black; beneath whitiſh-aſh; clouded with brown; quill and tail-feathers blackiſh, edged with brown; legs and claws duſky. Inhabits Hudſon's Bay.

16. Hirundo Senegalenſis, the Senegal ſwallow: ſhining black; beneath rufous; bill black; chin pale. Inhabits Senegal: eight inches and a half long.

17. Hirundo ambroſiaca, the ambergris ſwallow: grey-brown, or pale aſh; bill blackiſh; legs brown. Inhabits Senegal; five inches and a half long; ſmells ſtrongly of ambergris.

18. Hirundo faſciata, the white-bellied ſwallow: black; tranſverſe band on the belly, and ſpot on the outer part of the thighs, white. Inhabits Cayenne and Guiana: ſix inches long.

19. Hirundo tapera, the Braſilian ſwallow: tail-feathers equal; body blackiſh, belly white; bill black; throat and breaſt grey-brown; quill and tail-feathers blackiſh-brown; legs brown. Inhabits Braſil, Cayenne, and Jamaica: five inches and three quarters long.

20. Hirundo torquata, the brown-collared ſwallow: brown; beneath white; tail even; pectoral band brown; between the bill and eyes a white ſpot. Inhabits the Cape of Good Hope: ſix inches long.

21. Hirundo leucoptera, the white-winged ſwallow: cinereous with a gloſs of blue and green, beneath, rump, and wings, waved with white; ſometimes ſpotted with brown; bill black; wings longer than the tail; quill and tail-feathers brown, with a blue and green gloſs; legs pale. Inhabits marſhy places of Guiana: four inches and a half long.

22. Hirundo pelaſgia, the aculeated ſwallow: tail-feathers equal, naked, and ſubulate at the tip; bill and body brown; chin whitiſh; throat ſometimes ſpotted with brown; rump grey; throat rufous-grey. Inhabits America: four inches and a quarter long; builds in chimneys.

23. Hirundo acuta, the ſharp-tailed ſwallow: black; beneath brown, ſometimes cheſnut; tail-feathers naked, and ſubulate at the tip; bill and legs brown. Inhabits Martinico: three inches and a quarter long.

24. Hirundo zonaris, the white-collared ſwallow: black, with a white collar. Inhabits America.

25. Hirundo Dauurica, the Dauurian ſwallow: blue; beneath white; temples and rump ferruginous; primary quill feathers blackiſh, the tips obtuſe, with a brown ſtreak, the firſt long; outmoſt tail-feather twice as long as the reſt; vent pale-aſh, the feathers tipt with black. Inhabits the alpine parts of Siberia; and builds an hemiſpherical neſt in the clefts of the higheſt rocks.

26. Hirundo erythrocephala, the red-headed ſwallow: duſky-black, the feathers edged with white; beneath white; head red; tail-coverts browniſh. Inhabits India; the ſmalleſt of the genus.

27. Hirundo Aoonalaſhkenſis, the Aoonalaſhka ſwallow: black; beneath cinereous; rump whitiſh. Inhabits Aoonalaſhka; four inches and a half long.

28. Hirundo Indica, the rufous-headed ſwallow: brown; beneath whitiſh; greater part of the head rufous; ſome of the wing-coverts edged with white; quill-feathers longer than the tail; legs duſky. Inhabits India: four inches long. See a correct delineation of this ſpecies in the annexed Engraving, fig. 2.

29. Hirundo nigra, the black ſwallow: entirely black, or with a white ſtripe; ſometimes blackiſh-grey. Inhabits the interior parts of South America: ſix inches long; builds in a deep hole in the ground, with a long entrance.

30. Hirundo Dominicenſis, the St. Domingo ſwallow: black, with a ſteel gloſs; belly white; bill and legs brown. Inhabits St. Domingo: ſeven inches long.

31. Hirundo Peruviana, the Peruvian ſwallow: black; beneath white; band on the belly pale aſh; quill and tail feathers pale-grey edged with yellowiſh-grey; round the eyes a brown circle. Inhabits Peru.

32. Hirundo cinerea, the aſh-bellied ſwallow: black; beneath cinereous; quill and tail feathers cinereous, edged with yellowiſh-grey. Inhabits Peru, Otaheite, and Louiſiana.

33. Hirundo violacea, the violet ſwallow: black-blue tinged with violet; greater quill-feathers within whitiſh; bill and legs black. Inhabits Louiſiana: eight inches and a half long.

34. Hirundo chalybea, the chalybeate ſwallow: black, with a ſteel gloſs; beneath white; wings and tail black; bill and legs brown. Inhabits Cayenne: ſix inches long; lays in hollow trees.

II. Toes all placed forwards. 35. Hirundo apus, the common ſwift: blackiſh; chin white. The ſwift is the moſt alert of all the feathered tribe. Every action is performed on wing. The materials of its neſt it collects either as they are carried about by the wind, or picks them up from the ſurface in its ſweeping flight. Its food is undeniably the inſects that fill the air. Its drink is taken in tranſient ſips from the water's ſurface. Even its amorous rites are performed on high. Few perſons who have attended to them in a fine ſummer's morning, but muſt have ſeen them make their aerial courſes at a great height, encircling a certain ſpace with an eaſy ſteady motion. On a ſudden they fall into each others embraces, then drop precipitate with a loud ſhriek for numbers of yards. This is the critical conjuncture; and to be no more wondered at, than that inſects (a familiar inſtance) ſhould diſcharge the ſame duty in the ſame element. This ſpecies inhabits almoſt every country: eight inches long; flies about chiefly in a morning and evening; its feet are ſo ſmall that it riſes from the ground and walks with great difficulty; is moſtly on the wing, and reſts by clinging to ſome wall; builds under the eaves of houſes, in ſteeples, and other lofty buildings.

36. Hirundo melba, the necklaced ſwift: brown; chin and belly white; bill black; collar brown, varied with blackiſh; wings and tail with a gloſs of red and green; breaſt white; lower part of the belly grey-brown; legs fleſh-colour, downy on the fore-part. The fleſh of this ſpecies is deemed a delicate food. Inhabits ſouthern Europe and Aſia: eight inches and a half long; builds in holes of turrets and rocks. See the annexed Engraving, fig. 3.

37. Hirundo Cayennenſis, the white-collared ſwift: blackiſh-violet; head black; collar, ocular band, and thighs, white; greater wing-coverts brown, edged with white; legs downy. Inhabits Cayenne: five inches and a quarter long; builds a long conic neſt, with a diviſion in the middle.

38. Hirundo Sinenſis, the Chineſe ſwift: brown; beneath reddiſh-grey; crown pale rufous; eyebrows brown; chin and eyelids white; bill, irides, and legs, blue-grey; wings long. Inhabits China: eleven inches and a half long; the largeſt of the genus.

Concerning the migration or brumal retreat of the ſwallow, many fanciful and contradictory accounts have been given; for particulars of which, together with the laws obſerved in this extraordinary inſtinct of birds of paſſage, ſee the article Migration.

HIRZ'HOLMEN, or HERTZ'HOLM, three ſmall iſlands of Denmark, lying in the Cattegat, chiefly inhabited by fiſhermen: four miles north-eaſt of Flaadſtrand. Lat. 57. 31. N. lon. 10. 24. E. Greenwich.

HIS, *pronoun poſſeſſive*; [hẏꞅ, Sax.] The maſculine poſſeſſive. Belonging to him that was before-mentioned.—He that is nouriſhed by the acorns he picked up under an oak, has appropriated them to himſelf: nobody can deny but the nouriſhment is *his*. *Locke.*

> Heav'n and yourſelf
> Had part in this fair maid; now heav'n hath all,
> Your part in her you could not keep from death;
> But heav'n keeps *his* part in eternal life. *Shakeſpeare.*

It was anciently uſed in a neutral ſenſe where we now ſay *its*:

> Who can impreſs the foreſt, bid the tree
> Unfix *his* earth-bound root? *Shakeſpeare.*

It is ſometimes uſed as a ſign of the genitive caſe; as *the man* his *ground*, for *the man's ground*. It is now rarely thus applied, as its uſe proceeded probably from a falſe opinion that the *s* formative of the genitive was *his* contracted:

> Where is this mankind now? who lives to age
> Fit to be made Methuſalem *his* page? *Donne.*

> By thy fond conſort, by thy father's cares,
> By young Telemachus *his* blooming years. *Pope.*

It is ſometimes uſed in oppoſition to this *man's*:

> Were I king,
> I ſhould cut off the nobles for their lands,
> Deſire *his* jewels, and this other's houſe. *Shakeſpeare.*

Anciently before *ſelf*.—Every of us, each for *his* ſelf, laboured how to recover him. *Sidney.*

HIS'HOLT, a town of Sweden, in the province of Smaland: twenty miles ſouth-eaſt of Halmſtadt.

HISIN'GEN, a ſmall iſland in the North Sea, ſituated near the coaſt of Sweden, at the mouth of the Gotha, about ſixteen miles long, and ſix broad, containing ſeven pariſhes. The town of Gotheborg was firſt built on this iſland. Lat. 57. 45. N. lon. 11. 48. E. Greenwich.

HIS'MO, a town of European Turkey, ſituated at the mouth of a river of the ſame name, in the province of Albania: ſixteen miles north-north-eaſt of Durazzo.

HIS'PA, *ſ.* in entomology, a genus of inſects belonging to the order of coleoptera; the characters of which are; antennæ cylindrical, approximate at the baſe, and ſeated between the eyes; feelers fuſiform; thorax and ſhells often ſpinous, or toothed at the tip. There are twenty-five ſpecies now aſcertained, and claſſed in three diviſions, viz.

I. Lip horny, entire.—1. Hiſpa atra: body black, antennæ fuſiform; thorax and ſhells covered with ſharp ſpines. Inhabits England, and is found generally near the roots of long graſs. It is a ſmall ſpecies, delineated in the Engraving at fig. 4.

2. Hiſpa teſtacea, antennæ fuſiform; body teſtaceous; antennæ and eyes black; ſpines on the thorax lateral, thoſe on the ſhells ſcattered, all black. Inhabits Africa.

3. Hiſpa bipuſtulata: antennæ ſerrate; body hairy, black; ſhells with a rufous ſpot at the baſe. Inhabits Italy.

4. Hiſpa ſpinipes: rufous; ſhells black, ſpotted with rufous; fore-ſhanks with a ſingle ſpine; head rufous; antennæ black. Inhabits Surinam.

5. Hiſpa ſanguinicollis: antennæ fuſiform, thorax and baſe of the ſhells ſanguinous: ſhells ſerrate, with three elevated ſtriæ, the ſpaces between punctured. Inhabits America.

6. Hiſpa ſerrata: antennæ fuſiform; body black; ſhells pale rufous, ſtriate, ſerrate and black at the tip. Inhabits Surinam.

7. Hiſpa cornuta: black; antennæ fuſiform; thorax ſpinous before and behind; ſhells with longitudinal raiſed lines. Inhabits Sweden.

8. Hiſpa ſcabra: black; antennæ fuſiform; thorax and ſhells with a ſerrate fringe at the edge. Inhabits Sweden.

9. Hiſpa Capenſis: body black, or dull red; hiſpid; thorax with a palmate ſpine. Inhabits the Cape of Good Hope.

10. Hiſpa dentata: antennæ fuſiform; body black; edge of the thorax yellow; ſhells ſerrate, with a yellow ſpot at the baſe, and a band in the middle. Inhabits Cayenne.

11. Hiſpa angulata: antennæ fuſiform; body yellow; head, dorſal line on the thorax, and ſinuate edge of the ſhells, black; ſhells, grooved, truncate and toothed at the tip; body beneath ferruginous. Inhabits Cayenne.

12. Hiſpa bihamata: unarmed, black ſpotted with red; ſhells truncate, hooked. Inhabits India.

13. Hiſpa emarginata: antennæ fuſiform; body black; ſhells with a rufous ſpot at the baſe, the tip two-toothed; head rufous: eyes globular, black; antennæ black; ſhells with three raiſed lines, tranſverſely grooved; body beneath paliſh; legs black; thighs pale at the baſe. Inhabits Surinam.

14. Hiſpa ſerraticornis: antennæ ſerrate and compreſſed at the baſe; body black; edge of the thorax and ſpot on the baſe of the ſhells yellow; head whitiſh; crown black, ſhells grooved, with a ſingle raiſed line in the middle, three-toothed at the tip, the middle tooth larger, rounded ſerrate; breaſt and baſe of the thighs white. Inhabits Surinam.

15. Hiſpa ſerratula: brown; antennæ ſerrate; ſhells ſtriate. Inhabits Upſal.

16. Hiſpa bidens: ferruginous; thorax with a black lateral line; ſhells one-toothed at the tip; eyes black; ſhells grooved, with a double row of dots between the grooves. Inhabits Surinam.

17. Hiſpa nigricornis: glabrous, ſcarlet; antennæ black. Inhabits the Cape of Good Hope.

18. Hiſpa ſulcata: ſcarlet; ſhells black, with a ſcarlet line at the baſe, and band in the middle; eyes black; ſhells unarmed, punctured, grooved. Inhabits Surinam.

II. Lip membranaceous, ſubemarginate. The PTILINUS of Fabricius.—19. Hiſpa myſticina: antennæ pectinate; body teſtaceous, dotted with white; head black; jaws projecting; thorax cinereous; abdomen beneath, with two lines of black dots on each ſide. Inhabits New Holland: delineated in the Engraving at fig. 5.

20. Hiſpa pectinicornis: antennæ pectinate; body brown; legs yellow. Inhabits Europe.

21. Hiſpa flaveſcens: antennæ pectinate; body black, ſubvillous; ſhells yellow. Inhabits France, chiefly on flowers.

22. Hiſpa pectinata: antennæ pectinate; body black; antennæ and legs yellow; ſhells ſtriate; body covered with a yellowiſh down. Inhabits Germany, generally concealed in old wood.

23. Hiſpa mutica: antennæ hairy; body beneath black; ſhells ſtriate, ſanguineous, ſpotted with yellow. Inhabits Europe, and is moſtly found in muſeums. This is ſhown in the Engraving at fig. 6.

III. Lip membranaceous, entire. The MELASIS of Fabricius.—24. Hiſpa flabellicornis: antennæ pectinate; body black; ſhells with ſmooth ſtriæ; body cylindrical; head globular; thorax ending on each ſide at the baſe in a ſtrong ſharp ſpine. Inhabits England.

25. Hiſpa melaſis: antennæ pectinate, ſhort, inflected; body blackiſh; ſhells with punctured ſtriæ; the edges of the ſhells and abdomen pale rufous. Inhabits the Cape of Good Hope.

HIS'PALIS, in ancient geography, a town of Bætica, in the Farther Spain: now called *Seville*.

HISPA'NIA, the ancient name of Spain, called *Heſperia Ultima* by Horace, becauſe the weſternmoſt part of Europe; alſo *Iberia*, from the river Iberus. Its name *Hiſpania* or *Spania*, is of Phœnician original, from its great number of rabbits: the Phœnicians, who ſettled ſeveral colonies on the coaſt calling it *Spanjah*, from theſe animals. See the article GEOGRAPHY, vol. viii. p. 371.

HISPA'NIAN, *adj.* Belonging to Spain, Spaniſh.

**HISPA'NIAN**, *ſ.* A native of Spain.

**HISPANIO'LA** St. Domingo, or Hayti, one of the great Antilles, or Caribbee iſlands, in the Weſt Indies, about 480 miles in length from eaſt to weſt, and 150 in breadth from north to ſouth. This iſland was diſcovered by Columbus, in the year 1491, who called it Hiſpaniola, or Little Spain, in honour of the country by whoſe ſovereign he was employed; but, giving the name of St. Domingo to a city which he or his brother Bartholomew built in 1494, the whole iſland, in proceſs of time, came to be ſo called, as frequently as Hiſpaniola. *Hayti* was the Indian name. He found the inhabitants entirely naked, their black hair, long and uncurled, floating upon their ſhoulders, or bound in treſſes round their heads. Their complexion was of a duſky copper colour; their aſpect gentle and timid; though not tall, they were well-ſhaped and active. They were governed by ſeven caziques, or kings, who reigned each over a different diviſion of the iſland; and, according to the report of Columbus to the Spaniſh monarch, they were the moſt unoffending, gentle, and benevolent, of the human race. Sir Walter Raleigh ſuppoſed, that they were deſcended from the Arrawauk tribe of Guiana.

The iſland of Hiſpaniola is ſeparated from Cuba by a ſtrait, called the Windward Paſſage, about twelve leagues in width. Next to Cuba, it is the largeſt iſland in the Weſt Indies, the moſt fertile, and the moſt pleaſant; being ſituated in the Atlantic Ocean, between the iſland of Jamaica and Cuba on the weſt, and Porto Rico on the eaſt. When firſt diſcovered, the Spaniards were received hoſpitably by the natives; but their frequent quarrels, from time to time, ended nearly in their extermination. This being the firſt tranſatlantic diſcovery by the Spaniards, it was the centre of their commerce, and was for ſome time a very flouriſhing colony; but, after the diſcovery of Peru it ſeems to have been neglected. In the middle of the ſeventeenth century, the French began to reſort and ſettle on the iſland; the firſt that came were Buccaneers; but theſe were ſome time afterwards followed by others, who became regular planters. The court of France pretended to diſcourage theſe ſettlers, but took no effectual means to prevent them; and in the year 1697, by an article in the treaty of Riſwick, the Spaniards ceded the north-weſt part of the iſland to the French, containing one of the fineſt territories in the world.

The climate of Hiſpaniola, though hot, is healthy, except to new-comers. Some of the inhabitants upon it are ſaid to live to the uncommon age of 120. It is continually refreſhed by breezes and rains, and its ſalubrity is likewiſe, in a great meaſure, owing to the beautiful variety of its ſurface, exhibiting hills and valleys, woods and rivers. It contains foreſts of palms, elms, oaks, pines, beſides ſeveral other ſorts of wood, not common and hardly known in Europe; and it is generally agreed, that the pine-apples, grapes, oranges, lemons, citrons, limes, dates, apricots, and other fruits, have a ſuperior flavour in Hiſpaniola. As to its products, both animal and vegetable, they are much the ſame with thoſe of the other Weſt-Indian iſlands. Crocodiles, or alligators, infeſt its coaſts and rivers; but they abound, at the ſame time, with turtles. Beſides the commodities already mentioned, Hiſpaniola produces great plenty of indigo, cotton, cocoa, coffee, ginger, tobacco, ſalt, wax, honey, and ambergriſe, beſides a variety of drugs and dyers' woods. It abounded in gold mines, which the Spaniards exhauſted; compelling the inhabitants, by the moſt unheard-of cruelties, to work as ſlaves in exploring the bowels of the earth for this metal.

Soon after the peace of Ryſwick, the French ſet a laudable example of induſtry and activity in the iſland, wiſely ſuperſeding the value of gold mines by the introduction of the moſt valuable plantations; and, in 1702, Port au Prince was made the ſeat of the French government. It is remarkable, that in proportion as the French flouriſhed, the Spaniards decayed. From the year 1722, the French colony in Hiſpaniola gradually roſe to the higheſt pitch of proſperity. In 1754, the amount of the various commodities of the colony was equal to 1,261,469l. ſterling, and the imports from the mother-country amounted to 1,777,509l. ſterling. There were 14,000 white inhabitants, nearly 4000 free mulattoes, and upwards of 172,000 negroes, which they had imported from Africa; 599 ſugar plantations, 3379 of indigo, 98,946 cocoa-trees, 6,300,367 cotton-plants, and near 22,000,000 caſſia-trees; 63,000 horſes and mules, 93,000 heads of horned cattle, 6,000,000 banana-trees; upwards of 1,000,000 plots of potatoes; 226,000 plots of yams; and near 3,000,000 trenches of manioc.

At the epoch of the French revolution, in 1789, the Spaniards had only four and twenty ſugar-works. They paid with raw ſugar, hides, timber, and piaſtres, for the ſmall number of cargoes they received from Europe. Beſides 11,000 heads of cattle, they furniſhed the French part of St. Domingo with horſes, mules, and ſome tobacco. Next to the ancient city of St. Domingo, their principal towns were Monte Chriſti, La Vega, St. Jago, Zeibo, St. Thomé, Azua, and Iſabella; and, at the time of its ceſſion to France, the Spaniſh part of the iſland counted only 125,000 inhabitants, 110,000 of whom were free people, and 15,000 negro ſlaves. From 1776 till 1789, the proſperity of the French colony of Hiſpaniola was at its greateſt height. It was divided into the northern, weſtern, and ſouthern, provinces. The principal towns were Cape François, Fort Dauphin, Port de Paix, and Cape St. Nicholas. The produce of theſe different plantations, in 1788, conſiſted of 163,405,500lb. of ſugar, 68,151,000lb. of coffee, 6,289,000lb. of cotton, 930,000lb. of indigo, 150,000lb. of cacao, 34,453,000lb. of ſyrup; worth in all, with ſome leſs important articles, 135,763,000 French livres. It was ſent to France in 686 veſſels of 199,122 tons. The goods imported into the colony from different ports of France, in 465 veſſels of 138,624 tons, amounted to the value of 54,578,000 French livres. At the ceſſion of the Spaniſh part of St. Domingo to the French, the whole iſland was divided into five departments; of the ſouth, of the weſt, of the north, of Samana, and of l'Inganne.

But France never enjoyed this great acceſſion of Weſt-Indian territory. Several years before the treaty of Baſle, the ſpirit of revolt had broken out in the French part of St. Domingo, and in 1791 a moſt alarming inſurrection of the negroes had deluged half of the northern province with blood. In two months upwards of 2000 white perſons periſhed; 1200 families were reduced to indigence; 180 plantations of ſugar, about 900 of coffee, cotton, and indigo, were deſtroyed, and the buildings conſumed by fire. Deſtruction every where marked the progreſs of the blacks; and reſiſtance, ſays Mr. Bryan Edwards, who was an eye-witneſs of their ravages, was conſidered as unavailing and hopeleſs. From the northern province the rebellion ſpread to the weſt, where it was, however, ſoon quelled by the concordat of the 12th of September. The wavering conduct of the firſt national aſſembly of France, however, with reſpect to the abolition of the negro-ſlavery; the decree of the legiſlative aſſembly, which acknowledged the political equality of the free negroes and people of colour with the whites; the appointment of three commiſſioners noted for the violence of their republican principles; and the arrival of a force of 8000 men in the month of September 1792, inſtead of reſtoring the peace of the colony, kept alive the flame of the diſcontent, which raged with freſh fury in 1793, when the two remaining commiſſioners of the convention, Santhonax and Polverel, proclaimed the emancipation of all the ſlaves in the colony. On the 21ſt of June, Macaya, a leader of the blacks, entered Cape François with upwards of 3000 ſlaves, and began an indiſcriminate ſlaughter of the French.

Under theſe circumſtances, ſome of the planters invited the Britiſh government to take poſſeſſion of St. Domingo. A ſmall armament of about 870 rank and file, ſent from Jamaica, took fort Jérémie, and the mole of Cape St. Nicholas. In the middle of January 1794, the Britiſh troops entered Tiburon, and directed their views towards Port de Paix. The fort of l'Acul, in the vicinity of Leogane, was carried on the 19th of February; and the town of Port au Prince ſurrendered on the 4th of June. But from this period the Britiſh power in Hiſpaniola declined; the yellow fever broke out among the troops; forty officers, and 600 rank and file, fell victims to its ravages within two months after the ſurrender of the garriſon.

In the mean time the French commiſſioners, Santhonax and Polverel, returned to France; while Rigaud, a mulatto, and the negro chief Touſſaint l'Ouverture, who headed the army of the blacks, re-captured Tiburon, Leogane, Jean Rabel, Petite Riviere, and retained the whole of the northern province, except the Mole, and Fort Dauphin. A reinforcement of 7000 Britiſh troops arrived at the Mole of St. Nicholas in May 1796; but a dreadful mortality impeded the progreſs of the Britiſh arms. The armed negroes commenced operations in every quarter round the capital; and, at the very time when general Simcoe arrived at St. Domingo to recover the Britiſh character, Touſſaint received the ſanction of the chief command which he had aſſumed, by being appointed generaliſſimo of the armies in Hiſpaniola by the French government; who thus reſolved to ſupplant the Engliſh, by pretending to give up the iſland to the natives and blacks. General Simcoe, in conſequence, returned to England in Auguſt 1797; and general Maitland, who arrived at Port au Prince in April 1798, withdrew the remainder of the Engliſh forces, and evacuated the iſland.

At this time the force of Touſſaint l'Ouverture, in the northern province, amounted to about 40,000 men; but in the year 1800 it had increaſed to more than double that number. He declared the independence of Hiſpaniola, and was proclaimed emperor, on the firſt of July 1801. But in the month of December, the ſame year, an expedition ſailed from France with a force of 20,000 men, commanded by general le Clerc, brother-in-law to Bonaparte, then firſt conſul. They arrived in the bay of Samana, on the eaſtern coaſt of the iſland, on the 28th of the ſame month; but, before they entered Cape François, the city was laid in aſhes. On the 17th of February 1802, le Clerc commenced his campaign, and fought with varied ſucceſs until the firſt of May, when hoſtilities ceaſed with generals Touſſaint and Chriſtophe, in conſequence of an aſſurance that the French would concede to them their rights and liberties. But, during this treacherous truce, the unfortunate Touſſaint was ſeized in his plantation, and conveyed a priſoner on-board a French veſſel, with his wife and children. He lingered in a dungeon at Paris till the month of April 1803, when it is generally ſuppoſed he was ſecretly murdered.

This celebrated negro chief, according to his biographer Marcus Rainsford, eſq. in his "Account of the Black Empire of Hayti," publiſhed in 1806, left a character behind him highly eſtimable, whether we regard it for its moral tendency, its magnanimity in time of peril and danger, or its amiable complacency in domeſtic life. "In perſon, (ſays Mr. Rainsford,) Touſſaint was of a manly form, above the middle ſtature; with a countenance bold and ſtriking, yet full of the moſt prepoſſeſſing ſuavity—terrible to an enemy, but inviting to the objects of his friendſhip or his love. His manners and his deportment were elegant when occaſion required, but eaſy and familiar in common; when an inferior addreſſed him, he bent with the moſt obliging aſſiduity, and adapted himſelf preciſely, without ſeeming condeſcenſion, to their peculiar circumſtances. He received in public a general and voluntary reſpect, which he was anxious to return, or rather to prevent, by the moſt pleaſing civilities. His uniform was a kind of blue jacket, with a large red cape falling over the ſhoulders; red cuffs, with eight rows of lace on the arms, and a pair of large gold epaulettes thrown back; ſcarlet waiſtcoat and pantaloons, with half-boots; round hat, with a red feather, and a national cockade; theſe, with an extreme large ſword, formed his equipment. He was an aſtoniſhing horſeman, and travelled with inconceivable rapidity."

The perfidy of the French conſul, in thus violating the truce, and putting to death the very chief with whom he juſt before affected to form an alliance, only ſerved to rouſe the blacks to a more vigorous oppoſition; and general Deſſalines, who ſucceeded to the command of the black army, ſoon began to carry every thing before him, notwithſtanding that the French had recourſe to the ſavage cruelty of hunting down and deſtroying the negroes with blood-hounds trained for the purpoſe!

By the middle of October 1802, Fort Dauphin, Port de Paix, and ſeveral other important poſts, were completely loſt to the French; and their general in chief, Victor Emanuel le Clerc, died in the night of the firſt of November. His ſucceſſor, Rochambeau, continued the war with no better fortune until the beginning of 1803, when another treacherous ceſſation of arms gave place to freſh cruelties. During this armiſtice, the blacks under Deſſalines took care to provide great reinforcements; and on its expiration they drove the French in every direction; and, on the 30th of November 1803, forced them to ſurrender, and evacuate the iſland. To avoid being ſunk with red-hot ſhot in the harbour, the French put themſelves under the protection of an Engliſh ſquadron, then cruizing before the Cape, which conveyed them priſoners to Jamaica. General Rochambeau was ſent to England.

The independence of Hiſpaniola was now again proclaimed on the 29th of November 1803; and, to obliterate every remembrance of their former ſlavery, the chiefs, who had thus effected the freedom of the iſland, reſtored to it, on the firſt of January 1804, its original name of *Hayti.* In the beginning of May, general Deſſalines was inveſted with the government of the iſland for life; and on the 8th of September he aſſumed the title of emperor of Hayti, by the name of Jaques the Firſt. His reign, however, was of ſhort duration. He fell in a conſpiracy, in the year 1806, and republican principles revived at his death, under the command of the black general Chriſtophe, who, inſtead of the title of emperor, aſſumed that of "preſident of the federal government of Hayti." Againſt him one Petion, a Frenchman, revolted; and a predatory war has been carried on between their partiſans, with various ſucceſs, ever ſince; but without ſuffering either the French or the Engliſh to take advantage of their quarrels, or to deſtroy the independence of the iſland, which to this day continues to trade with the Engliſh and the Americans.

Of the viciſſitudes which have attended this celebrated iſland, the moſt remarkable account is given by Mr. Capel Lofft, in his Introduction to Rickman's "Ode on the Emancipation of the Blacks of St. Domingo." He ſtates, that when Hiſpaniola was firſt diſcovered by Columbus, its inhabitants were computed at a million. It will hardly be believed that bigotry, avarice, and the rage of conqueſt, had reduced them, in fifteen years, to little more than a 16th part of that number, or 60,000. In 1788, the population was eſtimated at 21,808 free people of colour, and 405,528 ſlaves, with 27,717 white inhabitants: making in the whole 49,525 free: the proportion of ſlaves to freemen being about 8½ to 1; and the total population 455,053. So that, with continued importation of ſlaves from Africa, with ſome acceſſion to numbers by emigrations from Europe, and with all the advantages of a moſt favourable air and ſoil, and a moſt fertile climate, near *three* centuries had not *half repaired* the deſtruction produced in about the *ſeventh* part of *one* century. Such are the demons of war, rapacity, religious intolerance, and the domination arrogated upon the difference of colour by man over his brother man. And ſuch the fate of an iſland which has nearly *half* the ſurface of Great Britain, ſince it contains above 36,000 ſquare miles; and which, left to its natural aptitude for increaſe of population, would probably, in three centuries, have riſen to much more than half the population of Great Britain itſelf."

Of the natural advantages of this iſland, we cannot give a ſtronger or more pleaſing picture, than by concluding with the following extract from Mr. Rainſford's work.—"No deſcription that we have yet met with is adequate to the appearance, even at the preſent day, of a country, which requires all the aid of romance to imagine, much leſs to deſcribe: of fertility, which it requires but the foſtering hand of man to guide to all the purpoſes of life, and of a climate the moſt ſalubrious among the Antilles, and in which longevity is general." "In theſe delightful countries too," obſerves Robertſon, "Nature ſeemed to aſſume another form; every tree, and plant, and animal, was different from thoſe of the ancient hemiſphere; Columbus boaſted of having diſcovered the *original ſeat of Paradiſe*." "In theſe delightful vales," exclaims the abbé Raynal, "all the ſweets of ſpring are enjoyed, without either winter or ſummer. There are but two ſeaſons in the year, and they are equally fine. The ground, always laden with fruit, and covered with flowers, realizes the delights and riches of poetical deſcription. Wherever we turn our eyes, we are enchanted with a variety of objects coloured and reflected by the cleareſt light. The air is temperate in the day-time, and the nights are conſtantly cool." "In a country of ſuch magnitude," ſays Bryan Edwards, "diverſified with plains of vaſt extent, and mountains of prodigious height, is probably to be found every ſpecies of ſoil which nature has aſſigned to all the tropical parts of the earth. In general it is fertile in the higheſt degree, every where well watered, and producing almoſt every variety of vegetable nature and beauty, for uſe, for food, and luxury, which the laviſh hand of a bountiful providence has beſtowed on the richeſt portion of the globe." "The poſſeſſions of *France* in this noble iſland," he continues, "were conſidered as the garden of the Weſt Indies, and for beautiful ſcenery, richneſs of ſoil, ſalubrity, and variety of climate, might juſtly be deemed the paradiſe of the new world."—See Edwards's Hiſtory of the Weſt Indies, vol. iii. p. 151, &c.

HISPEL'LUM, in ancient geography, a town of Umbria.

HIS'PID, *adj.* [*hiſpidus*, Lat. rough.] Rough; briſtly; ſhaggy.

*To* HISS, *v. n.* [*hiſſen*, Dut.] To utter a noiſe like that of a ſerpent. It is remarkable that this word cannot be pronounced without making the noiſe which it ſignifies.—The merchants ſhall *hiſs* at thee. *Ezek.* xxvii. 36.

Againſt the ſteed he threw
His forceful ſpear, which, *hiſſing* as it flew,
Pierc'd through the yielding planks. *Dryden.*

To condemn at a public exhibition; which is ſometimes done by *hiſſing*:

Men ſhall purſue with merited diſgrace;
*Hiſs*, clap their hands, and from his country chace. *Sandys.*

*To* HISS, *v. a.* [hiꞅcean, Sax.] To condemn by hiſſing; to explode.—Every one will *hiſs* him out to his diſgrace. *Eccleſ.* xxii. 1.—To procure hiſſes or diſgrace:

Thy mother plays, and I
Play too; but ſo diſgrac'd a part, whoſe iſſue
Will *hiſs* me to my grave. *Shakeſpeare.*

HISS, *ſ.* The voice of a ſerpent, and of ſome other animals.—He *hiſs* for *hiſs* return'd, with forked tongue. *Milton.*—Cenſure; expreſſion of contempt uſed in theatres:

Fierce champion fortitude, that knows no fears
Of *hiſſes*, blows, or want, or loſs, of ears. *Pope.*

HISS'AR, a town of Hindooſtan, and capital of a diſtrict, to which it gives name, in the province of Delhi, near the river Surſooty: 112 miles weſt-north-weſt of Delhi. Lat. 22. 5. N. lon. 75. 40. E. Greenwich.

HISS'ING, *ſ.* The act of making a noiſe like a ſerpent; an expreſſion of contempt by hiſſes.

HIST, *interj.* [of doubtful original: ſome thought it a corruption of *huſh*, *huſh it*, *huſht*, *hiſt*; others call it an Iriſh verb commanding ſilence.] An exclamation commanding ſilence:

Mute ſilence *hiſt* along!
'Leſs Philomel will deign a ſong,
In her ſweeteſt ſaddeſt plight,
Smoothing the rugged brow of night *Milton.*

HIS'TER, *ſ.* in entomology, a genus of inſects belonging to the order of coleoptera; the characters of which are: antennæ clavate, the club ſolid, the laſt joint compreſſed, decurved; head retractile within the body; mouth forcipated; ſhells ſhorter than the body, truncate: foreſhanks toothed, hind-ſhanks ſpinous. The ſpecies at preſent known are as follow:

1. Hiſter major: black; ſhells ſubſtriate; thorax ciliate at the edges, with ferruginous hair. Inhabits Africa.

2. Hiſter unicolor: body black; elytra or ſhells red; body poliſhed and very ſhining, form almoſt ſquare; thorax large, and highly poliſhed: anteriorly it is made with a ſlope, in the cavity of which is lodged the head, the poſition of which is only diſcovered by the projection of the maxillæ; for the head is often ſo withdrawn under the thorax, that the inſect looks as if it had none: it can protrude or withdraw its head at pleaſure. The elytra are as it were cut off towards the extremity, and do not cover the whole of the abdomen; they are extremely ſmooth, and have a few ſtriæ, ſcarcely perceptible, towards their outward ſide, ſlightly tinged with red. It is found in cow-dung, and often on ſand. Inhabits England, almoſt every part of Europe, and America. This is delineated on the Engraving, at fig. 7.

3. Hiſter glabratus: black, poliſhed; ſhells punctured, ſubſtriate, as long as the abdomen; retuſe behind. Inhabits Germany.

4. Hiſter ſemipunctatus: braſſy-black, poliſhed; ſhells obliquely ſtriate at the baſe, obſoletely punctured at the tip; all the ſhanks compreſſed and ſerrate. Inhabits Barbary.

5. Hiſter ſcaber: black, rough with elevated dots; legs black. Inhabits Spain.

6. Hiſter cyaneus: thorax braſſy; ſhells bluiſh; head duſky; thorax ſubpunctured at the edge; ſhells poliſhed, abbreviated, obliquely ſtriate at the baſe; legs black. Inhabits New Holland.

7. Hiſter planus: plane, opake, black; ſhells quite naked. Inhabits Helvetia.

8. Hiſter brunneus: ferruginous; ſhells ſubſtriate. Inhabits Sweden.

9. Hiſter pygmæus: black; ſhells naked, ſmooth. Inhabits Europe.

10. Hiſter depreſſus: depreſſed, black, poliſhed; ſhells ſubſtriate. Found under the bark of birch-trees.

11. Hiſter quadridentatus: depreſſed, black, poliſhed; ſhells with a ſingle ſtripe; jaws exſerted, longer than the head. Inhabits North America.

12. Hiſter maxilloſus: depreſſed, black, poliſhed; ſhells ſtriate; jaws large, as long as the thorax, the left one dilated at the baſe within, and toothed; thorax plane, rounded behind; ſhells abbreviated. Inhabits America.

13. Hiſter ſulcatus: black; thorax with five raiſed lines, ſhells with three, the interſtices punctured; fore-legs toothed. Inhabits Europe.

14. Hiſter oblongus: depreſſed, black, poliſhed; ſhells ſtriate; body oblong. Inhabits Sweden, under the bark of the roots of the aſh-tree.

15. Hiſter abbreviatus: black; ſhells with crenate ſtriæ, the inner ones abbreviated. Inhabits America.

16. Hiſter ſinuatus: black; ſhells with a ſinuate rufous ſpot in the middle, ſtriate on the inner edge, ſmooth at the ſuture. Inhabits Germany.

17. Hiſter cruciatus: black; ſhells teſtaceous, with a common black croſs; ſmooth, poliſhed, the ſuture and ſpot croſſing it in the middle, hind margin black. Inhabits Barbary.

18. Hiſter bimaculatus: black; ſhells ſtriate, with each a red ſpot behind. Inhabits Europe; and found plentifully in England: it is a ſmall ſpecies, ſhown at fig. 8.

19. Hiſter quadrimaculatus: black; ſhells with two red ſpots on each. Inhabits Europe.

20. Hiſter æneus: braſſy; ſhells ſtriate at the baſe, punctured at the tip. Inhabits Europe.

21. Hiſter detritus: black, ſhining; ſhells with four oblique ſtriæ at the baſe, the tip duſky and punctured. Inhabits New Holland.

22. Hiſter picipes: oblong, black; ſhells very ſhort; antennæ and legs pitchy. Inhabits Germany.

23. Hiſter cæſius: black; thorax with a tranſverſe groove: antennæ ferruginous. Inhabits Germany.

24. Hiſter apterus: body tawny, and without wings. Inhabits Italy.

HISTIÆ'A, in ancient geography, a city of Eubœa, anciently called Talantia. It was near the promontory called Ceneum. *Homer.*

HISTIÆ'OTIS, a country of Theſſaly, ſituate below mount Olympus and mount Oſſa, anciently called Doris, from Dorus the ſon of Deucalion, and inhabited by the Pelaſgi. The Pelaſgi were driven from the country by the Cadmeans, and theſe laſt were alſo diſpoſſeſſed by the Perrhæbeans, who gave to their newly-acquired poſſeſſions the name of Hiſtiæotis, or Eſtiæotis, from Eſtiæa, or Hiſtiæa, a town of Eubœa, which they had then lately deſtroyed, and whoſe inhabitants they had carried to Theſſaly with them. *Strabo.*—Alſo a ſmall country of Eubœa, of which Hiſtiæa, or Eſtiæ, was the capital.

HISTIODRO'MIA, *ſ.* [from ιϛιον, Gr. a ſail, and *δρομος*, a courſe.] The art of navigation; the art of ſailing.

HIS'TO, a town of Spain, in New Caſtile: twenty-two miles ſouth-weſt of Cuença.

HISTO'RIAN, *ſ.* [*hiſtoricus*, Lat. *hiſtorien*, Fr.] A writer of facts and events; a writer of hiſtory.—There are four principal things eſſential to conſtitute a good *hiſtorian*: the firſt is, to be well inſtructed in what he undertakes to relate; the ſecond, to be able, without any diſguiſe, to ſay what he thinks to be the truth; the third, to be capable of relating plainly and ſatisfactorily what he knows; the fourth, to be capable of judging of the events, and of thoſe who occaſion them. *Le Clerc.*

HISTOR'IC, or HISTOR'ICAL, *adj.* [*hiſtorique*, Fr. *hiſtoricus*, Lat.] Containing or giving an account of facts and events.—In an *hiſtorical* relation, we uſe terms that are moſt proper and beſt known. *Burnet.*

Here riſing bold the patriot's honeſt face;
There warriors frowning in *hiſtoric* braſs. *Pope.*

Suitable or pertaining to hiſtory or narrative:

With equal juſtice and *hiſtoric* care,
Their laws, their toils, their arms, with his compare. *Prior.*

HISTOR'ICALLY, *adv.* In the manner of hiſtory; by way of narration.—The goſpels, which are weekly read, do all *hiſtorically* declare ſomething which our Lord Jeſus Chriſt himſelf either ſpoke, did, or ſuffered, in his own perſon. *Hooker.*

HISTOR'ICE, *ſ.* [from *hiſtory.*] That part of grammar which explains the meaning of authors. *Scott.*

*To* HISTOR'IFY, *v. a.* [from *hiſtory.*] To relate; to record in hiſtory.—The third age they term hiſtoricon; that is, ſuch wherein matters have been more truly *hiſtorified*, and therefore may be believed. *Brown.*

HISTORIOG'RAPHER, *ſ.* [ιϛορια and γραφω, Gr. *hiſtoriographe*, Fr.] An hiſtorian; a writer of hiſtory.—What poor ideas muſt ſtrangers conceive of perſons famous among us, ſhould they form their notions of them from the writings of thoſe our *hiſtoriographers. Addiſon.*

HISTORIOG'RAPHY, *ſ.* [ιϛορια and γραφω, Gr.] The art or employment of the hiſtorian.

HISTORIOL'OGY, *ſ.* [ιϛορια, Gr. hiſtory, and λογος, a deſcription.] The knowledge of hiſtory; the art of explaining hiſtorical facts.

HIS'TORY, *ſ.* [ιϛορια, Gr. *hiſtoria*, Lat. *hiſtoire*, Fr.] A narration of events and facts delivered with dignity:

Juſtly Cæſar ſcorns the poet's lays;
It is to *hiſtory* he truſts for praiſe. *Pope.*

Narration; relation.—The *hiſtory* part lay within a little room. *Wiſeman.*

What *hiſtories* of toil could I declare?
But ſtill long-wearied nature wants repair. *Pope.*

The knowledge of facts and events.—*Hiſtory*, ſo far as it relates to the affairs of the bible, is neceſſary to divines. *Watts.*

HISTORY, according to a very juſt and celebrated definition of it, is "*philoſophy teaching by example*;" and the grand purpoſe to be anſwered by dipping into the records of paſt ages, is to learn how to avoid thoſe errors which have heretofore proved injurious to human happineſs, and by what means the general welfare may be beſt promoted and ſecured. If hiſtory be not *written*, and if it be not *read*, in this ſpirit and intention, as well may the romantic tales of an Amadis or an Orlando be ſtudied, as the pages of the moſt approved hiſtorical writers, ancient or modern. The value of hiſtorical reſearch, however, is too well known and appreciated, not to be made the early object of acquirement, the moment a ſecure foundation can be laid on claſſic ground, whereon the ſuperſtructure may be cemented by the powers of mind, and raiſed to eſtimation and durability. To minds thus prepared, *Hiſtory* will be found to open like a great and broad avenue, into ſo many of the moſt valuable branches of human learning, that ſcarcely any train of ſtudy or reading can be purſued without its aid, or accompliſhed without its ſupport. We may add too, that the preſent enlarged and divided ſtate of population of the globe, and the new relations and intereſts created by commerce, have very much enlarged the ſphere of hiſtory; beſides that the times have recently been diſtinguiſhed by revolutions and changes of unuſual magnitude, and of the very higheſt importance in the ſcale of nations.

As General Hiſtory neceſſarily includes an inveſtigation of the origin and progreſs of all nations, and indeed of the globe itſelf, with all things created or contained thereon, it becomes diviſible into three grand departments, called CIVIL, ECCLESIATICAL, and NATURAL, hiſtory. The firſt department, or that uſually called *Civil Hiſtory*, treats of the riſe and fall of empires, and the progreſs of human ſociety, in all ages of the world; and this is divided into *Ancient* and *Modern.* Ancient hiſtory terminates with the fall of Rome; and modern hiſtory commences with the empire of the Saracens. Both imply a nice diſcrimination of the eras of the time; whence ariſes CHRONOLOGY. Thus in tracing a long ſucceſſion of ages, it becomes expedient to note ſuch eras as are diſtinguiſhed by ſome great event, to which we may refer tranſactions of an inferior kind. This is called an *epoch*; becauſe we may there ſtop, as at a reſting-place, and contemplate all that has happened both before and after; by which means anacroniſm, or a confuſion of times, is avoided; and for this reaſon all hiſtory ſhould be read or ſtudied in the ſtrict order of chronology. The diviſion of the globe into continents and countries, ſtates and empires, land and ſea, forms likewiſe an intereſting ſource of information ariſing out of this part of general hiſtory, and is called GEOGRAPHY. From this department too is collected what is termed *heroic* or *military hiſtory*; which is often a diſplay of thoſe violent contentions between ambitious princes, which have paraliſed the world a thouſand times more than all the awful concuſſions of nature, whether by volcanos, earthquakes, tornados, or ſtorms.

The ſecond grand department, called *Eccleſiaſtical Hiſtory*, comprehends what is termed *Scripture* hiſtory, from the creation of the world to the coming of the Meſſiah; and hence the eſtabliſhment and progreſs of the Chriſtian religion, and the affairs of the church, from the days of the apoſtles, to the preſent time. Out of theſe two branches of General Hiſtory ariſe what has been termed *perſonal* hiſtory, or tranſactions of illuſtrious and learned perſonages in the various walks of human life: this is diſtinguiſhed by the name of BIOGRAPHY.

The third grand department, or *Natural Hiſtory*, has not, till of late years, been much cultivated in this country, conſequently not much encouraged; though it is of all others the moſt pregnant with the ſeeds of morality, and affords an endleſs variety of ſubjects whereon the rational mind may delight to dwell. Its diviſion into three kingdoms, the *animal*, the *vegetable*, and the *mineral*, has been long heard of, but very little ſtudied amongſt us. Yet, while this ſtock of valuable information has been underrated in England, its progreſs in France, and in various parts of Germany, has been ample, and evinces the improved ſtate of foreign literature. The example has indeed been recently caught by other nations; and literary ſocieties, formed for the purpoſe of exploring the paths of Nature, and illuſtrating the manifold works of creation, are riſing up in every poliſhed ſtate, where philanthropy and benevolence have found a place.

In the conſtruction of this Encyclopædia, great care has been taken to preſerve an unbroken chain of General Hiſtory, by connecting, in point of time, the events and revolutions of the various countries and empires of the world, with thoſe which immediately precede and follow, under their reſpective names in the order of the alphabet; and by a retroſpect or reference to which, there is no event of importance, either civil or political, but what will be found in its proper place; and, we truſt, with due correctneſs and impartiality.—Theſe are the indiſpenſable requiſites attached to the hiſtorian, regulated by a ſtrict regard to *time*, *place*, and *perſon*: for Chronology may be deemed the thread of hiſtory—Geography the eye—while its principal ornaments are furniſhed from Biography. See theſe articles in the preſent work.

In our elucidation of the ſubjects of *Natural Hiſtory*, we have adhered to the ſyſtem of the great Linnæus; adding to the immenſe ſtock of information furniſhed by the illuſtrious Swede, all the improvements and diſcoveries made and publiſhed by ſkilful naturaliſts ſince his time. Theſe will be found amply deſcribed, and illuſtrated by correct copper-plate Engravings, under their generic titles in the order of the alphabet, as eſtabliſhed in the Linnæan claſſification; while the different diviſions and orders of that claſſification, with their reſpective genera, may be ſeen under the articles MAMMALIA, ORNITHOLOGY, AMPHIBIA, ICHTHYOLOGY, ENTOMOLOGY, and HELMINTHOLOGY, with the appropriate Engravings.

Many able diſquiſitions on the conſtruction and importance of CIVIL HISTORY, with very forcible remarks on the evil tendency of *military* hiſtory, have lately met the public eye. M. Volney, in his valuable "*Leçons d'Hiſtoire*," delivered at the Normal ſchool in Paris, regards ſome branches of hiſtory, in the ſtate we now find them, as the moſt fruitful ſources of prejudice and error to unguarded minds; particularly thoſe which relate to what is termed "the glory of heroic actions," and "the waſte of empires by the horrors of war." Theſe are too often dreſſed up in glowing colours, heightened by fiction, and directed to the paſſions, as if the work of human deſtruction were the only criterion of perfection amongſt men. He therefore guards the ſtudent againſt the *empiriciſm* of hiſtorians; and recommends, in all caſes of high colouring, or extraordinary proweſs, a great cautiouſneſs of belief; obſerving, that "he who believes much, deceives himſelf." The Greeks and Romans, he obſerves, actuated by a ſpirit of proud and intolerant egotiſm, annihilated the books of other nations, and deſtroyed, as far as they could, every teſtimony which tended to their own diſcredit. And, in ſpeaking of the ruin and miſery to which the ancient conquerors reduced other nations, he remarks, that in Dionyſius of Halicarnaſſus, in Polybius, and even in Tacitus, there will be found no movement of indignation, no expreſſion of regret, which the picture of ſo many horrors as they have tranſmitted to us ought to have excited. Love of their country was in them a ferocious ſelfiſh principle, which ſanctioned hatred to all other countries. Tacitus, who is eſteemed as one of the moſt diſpaſſionate of the Roman hiſtorians, mentions the deſtruction of ſome of the German nations by wars among themſelves, as a piece of good fortune to the Romans; and he founds his hopes of ſafety to the Roman empire on the proſpect of others being exterminated in the ſame manner. But, beſides theſe reaſons for diſtruſting hiſtorians, it ought ever to be recollected how little they can know of political negociations, on which ſo many events depend; their unavoidable ignorance of many things which they boldly aſſert as facts; and the various motives to partiality, by which they are too often influenced. Theſe circumſtances ought all to convince us of the neceſſity of *reading with caution*, and of rigidly *exerciſing our own judgment*.

This train of reaſoning has been ſucceſsfully followed up by Mr. Briſted, in his work, "The Society of Friends," publiſhed in 1807, where, treating of the conſtruction of Hiſtory, he concludes thus: "It were much to be wiſhed, that hiſtory could be ſomewhat diverted from her preſent courſe, into her proper channel; namely, the conſideration of the *manners* and *condition* of the great maſs of the people at different periods of time; marking out the cauſes which have retarded or accelerated the progreſſive march of the human intellect towards a higher degree of perfection; and dwelling more ſlightly upon the atrocities of thoſe who wade through ſlaughter to a throne, and ſhut the gates of mercy on mankind; whoſe ſteps are traced in the blood of myriads of their fellow-creatures; and whoſe progreſs is marked only by the deſolation of the faireſt provinces of the earth. Theſe horrible tranſactions, which are a libel on the underſtanding and the virtue of mankind, ſhould be paſſed over rapidly, and with expreſſions of abhorrence; while our chief attention ſhould be directed by the hiſtorian to thoſe means by which the knowledge, the happineſs, and the virtues, of mankind, have been augmented and advanced.

"But, is this the line of conduct which hiſtorians purſue? No. They are continually endeavouring to inſtil into our minds an admiration and envy of the honour and the glory of warlike nations; that is, in other words, the butchery and murder of mighty empires. Read the hiſtories of Greece, of Rome, of France, or even of England, and you will find little elſe but one continued ſeries of bloodſhed and ſlaughter. And theſe are celebrated by their hiſtorians as ſplendid, brilliant, powerful, nations; but where does the phraſe *happy nation* occur, in the records of theſe ſages of literature? Happineſs dwelleth only in the tents of peace and of virtue: ſhe is frightened from thoſe ſpots where the ſounding of the clarion to battle, and the trampling of armed hoofs, are heard; where the blood-red banner of military deſolation is ſeen to float upon the wings of the wind. Where are the hiſtorians who have been influenced by this hallowed and ſacred truth? Have they not been more intent on deſcribing battles, and victories, and armies, and triumphs; rather ſeeking to affix the names of *great* and *glorious*, than of *juſt* and *good*, to kingdoms and to empires? Have they not bequeathed to poſterity a maſs of gorgeous miſery, and induſtriouſly varniſhed over the evils and the horrors of ſanguinary and tumultuous revolutions? Have they not hidden the deformity of vice from our eyes, by throwing over it the ſplendid names of courage, bravery, magnanimity, glory?"

With the ſame laudable deſign of purging from civil hiſtory this vitiated taſte for aggrandizing themes of heroiſm, and deifying the ſavage promoters of deſtructive war, the Rev. G. Walker, F.R.S. in the firſt volume (new ſeries) of the Mancheſter Tranſactions, for 1806, has very ably expoſed the fallacy of its principle, and the evil tendency of its impreſſions upon young and unfortified minds. He has ſatisfactorily ſhown, that falſe ideas of glory, excited by hiſtorians and poets, have been productive of the worſt conſequences, by too much exalting that paſſion for the "grand and glorious," which is more or leſs inherent in the human breaſt; and which has too often influenced the hiſtorian to write chiefly to gratify this "love of diſplay." Yet it would be diſingenuous not to admit the important uſes, within certain reſtrictions, of this ſpecies of hiſtory; particularly to the ſoldier, the ſtateſman, and the philoſopher, whoſe matured reaſon might "deſcry the good which ariſes out of evil:" nor would it be fair to take from it the merit of affording to man, perſecuted and oppreſſed, the important leſſon on the magnitude of his powers, and on the unexhauſted reſources ſupplied by exertion, fortitude, and magnanimity. Yet he proceeds to ſhow, in very ſtrong and convincing language, that the advantages thus derived, by no means compenſate the evils engendered upon the maſs of mankind. "Whether, (he ſays,) we take a retroſpective view of paſt ages, or conſult the preſent hiſtory of the world, what have we preſented to our view, but one diſguſting ſeries of the heavieſt calamities, and the moſt ſhocking vices, that can afflict or degrade humanity! We hardly turn over a page, which is not crimſoned with blood, or polluted with crimes. Barbarous violence, ſanguinary wars, horrid devaſtations, mercileſs perſecutions, murders, rapes, poiſons, and aſſaſſinations, lordly tyrants trampling upon and inſulting the rights of human nature, and abject ſlaves crouching beneath the yoke of a withering deſpotiſm, which from age to age has gone on debaſing the human character, and blaſting every riſing effort of genius and of virtue.—Such are the ſcenes which hiſtory chiefly exhibits to our view. To the reader, therefore, who looks perhaps ſolely for amuſement, and with no retroſpect to any ſpecific advantage, ſuch a picture of the debaſement and miſery of his fellow-creatures can afford no gratification. Where the heart is not ſtrangely corrupted, its moſt natural impreſſion muſt be that of pain and diſguſt. Who can peruſe the bloody proſcriptions of a Roman triumvirate, the devaſtating march of a Genghis Khan or a Tamerlane, the barbarities of a Mexican or Peruvian conqueſt, the ſyſtematic cold-blooded cruelties of a Spaniſh Inquiſition, without the moſt painful emotions of indignation and abhorrence? The frequent contemplation of ſuch ſcenes, in which human nature is ſo outraged, and yet few, if any, better ſpecimens of human characters are exhibited, muſt have a ſtrong tendency to corrupt the heart of the juvenile reader; to chill all the warm affections of his innocent youth, to induce a cold, illiberal, and miſanthropic, ſpirit; or, as if all reſiſtance to the general current were impotent, to reconcile him to a partnerſhip in the ſelfiſhneſs and depravity of man. For, as the reader becomes more and more converſant with the continued tale of human folly and wickedneſs, his eſtimation of his ſpecies muſt be lowered, and his benevolent principles impaired. It requires indeed a ſtrong mind, and ſtanding upon ſtrong principles, ſuch as the world will not teach him, to reſiſt this moſt malignant of all impreſſions.

"The chief heroes of the hiſtoric pen, are in general the greateſt deſtroyers of mankind; thoſe who have ravaged kingdoms, overthrown empires, and thinned the human race. Men have been deified and ſainted, not for the *goodneſs*, but for the greatneſs, of their exploits; not for their endeavours to civilize and improve the ſtate of mankind by the introduction of mild and equitable laws, and the cultivation of the arts of peace; but for an inordinate and ſelfiſh ſpirit of ambition and aggrandiſement. The reign of juſt and peaceful ſovereigns, which, like the tranquil ſeaſons of nature, impart health and life and cheerfulneſs to every thing around, has been regarded as but an inferior and ſecondary object of their attention, valued perhaps moſt, as it renovates the energies of a nation, and fits it for the ambitious views of a military ſucceſſor. No! it is the mighty troublers of the earth, the hurricanes of proud war and conqueſt which deform the fair face of nature, which in their waſteful progreſs ſweep whole nations to the grave, that has been too much the theme of hiſtoric applauſe and admiration. When we behold the title of *Great* conferred on ſuch men as Alexander, Cæſar, Louis the XIVth, or even Peter of Muſcovy, every moral and humane mind muſt reprobate the profanation of the attribute, and lament the folly of the world, which can join in the applauſe of what it ought ſeverely to condemn, and dignify that which merits its abhorrence, and execration. But mankind too eaſily adopt the very prejudices which are their ruin: and, caught with the whiſtling of a name, fall down before and worſhip the very beaſt that is to devour them. Thus, by the falſe colours in which ſuch characters are exhibited, the moral judgment and the moral taſte of many a reader is moſt cruelly perverted. If romances and novels have erred in raiſing the notion of human virtue above its level, military hiſtory has more dangerouſly erred in the low appreciation of the human character, and aſſociating it with every vice.

"From the heroes of antiquity have ſprung the race of the waſteful conquerors of nations, the diſturbers of the peace of man. Achilles begat Alexander and his turbulent ſucceſſors; Alexander begat Julius Cæſar, with the long and horrid ſeries of Roman emperors; and the bewitchery of Cæſar's character will never ceaſe to propagate the luſt of overbearing dominion, without one end in view, but the mere fame of extended empire and deſpotic ſway. To this we have owed the embryo attempt of Charles V. of Auſtria, and of Louis XIV. of France; and at this moment owe, more perhaps than to any other cauſe, the preſent devaſtator of the world, Napoleon. An ample career of glory lay before him; but the ghoſt of Cæſar, and the dream of more than Roman empire, appear to haunt his ſleeping and his waking hours; they have turned him from every honourable courſe, nor will ſuffer him to pauſe, until, to ſerve ſome wiſe ends of an avenging Providence, he be permitted for a while to ſpread deſolation around; or fall at once himſelf and his deluded country, a mighty ruin, a juſt, but an inadequate, atonement to an offended and haraſſed world."—This folly of over-rating the "brave in battle," originated with Homer; whoſe immortal work Mr. Walker has criticiſed ſomewhat roughly. See the article Homer.

Many of the evils herein depicted, as reſulting from an injudicious compilation of Hiſtory, will be found to ariſe as often from an over-heated imagination in the writer, as from attachment to party, or ſervility to a prince. But, wherever either of theſe failings are detected, the book ſhould be thrown aſide, as infallibly calculated to miſlead the mind. The candid hiſtorian, who propoſes to exhibit to his readers a genuine picture of the period of which he treats, will avoid, with ſtudious circumſpection, theſe fatal rocks, on which ſo many ſplit: and, although the ſeverities of Truth, of Morality, and Virtue, mark out for him a ſtricter line of conduct than the poet or the orator is required to purſue, yet his obligation to follow their dictates is made eaſy, and even delightful, by proper reflections on the dignity of his labours, and the animating anticipation of the reward which will ſucceed them. It is his province to inveſtigate the latent principles of conduct, and purſue them to their remoteſt conſequences; to delineate the diverſified picture of actions and characters, and diſplay the revolutions of governments, and the fate of empires. If his ſubject be judiciouſly treated, and his productions be ſtamped with coolneſs, and with the marks of genius and fidelity, ſucceſſive generations will celebrate his name as the benefactor of mankind,—for giving them an imaginary exiſtence in paſt ages,—for introducing them to the knowledge of departed excellence,—and for enabling them to profit by the examples of their predeceſſors. His praiſe will be the theme of their gratitude, whilſt they ſhun the vices, and imitate the virtues, which his works conſign to immortality.

But the advantages to be derived from Hiſtory thus legitimately written, ſtop not here. Thoſe who devote themſelves to the ſtudy of legiſlation, or who may be called to the management of public affairs, will from thence learn the ſprings of government, their vices and excellencies, their force and weakneſs. "*Inde tibi tuæque reipublicæ*

*reipublicæ quod imitare cupias, inde fœdum inceptu, fœdum exitu quod vites.*" Livy. The man of letters and the philoſopher will thence diſcern the progreſs of the human mind, its illuſions and wanderings, the relation of cauſes and effects, the origin of the arts and ſciences, their viciſſitudes and their influence on ſociety; and at the ſame time the horrors which are occaſioned by ignorance, ſuperſtition, and tyranny. Finally, it is impartial hiſtory which aſſiſts, far beyond the power of precept, to reſcue us from the deluſions of ſelf-love and ill-founded attachments. He who has never known any other than his native country, eaſily perſuades himſelf that the government, the manners, and the prevailing notions, of the ſpot which he inhabits, are alone reaſonable; and, indulging this prejudice, he regards with contempt all other nations. It is only by a connected ſtudy of genuine hiſtory, and by familiarizing himſelf with the inſtitutions, uſages, and habits, of different ages and countries, that he will learn to eſteem wiſdom and virtue, and to ſearch for merit, wherever it is to be found. We thus diſcern that, in thoſe revolutions which have changed the political face of the globe, nothing new has occurred; and we arm ourſelves againſt that blind and affected aſtoniſhment which is ever the lot of ignorance, and imbecility of mind.

HIS'TORY-PIECE, *ſ.* A picture repreſenting ſome hiſtorical event.—His works reſemble a large *hiſtory-piece*, where even the leſs important figures have ſome convenient place. *Pope.*

HIS'TOS, *ſ.* in mechanics, an engine with a croſs beam and pulley to let down a ladder. *Phillips.*

HIS'TRIO, *ſ.* [Latin.] A ſtage-player, an actor. *Philips.*

HISTRION'IC, or HISTRION'ICAL, *adj.* [from *hiſtrio*, Lat. *hiſtrion*, Fr.] Befitting the ſtage; ſuitable to a player; becoming a buffoon; theatrical.

HISTRION'ICALLY, *adv.* [from *hiſtrionical.*] Theatrically; in the manner of a buffoon.

*To* HIT, *v. a.* [from *ictus*, Lat. *Minſhew*; from *hitte*, Daniſh; to throw at random, *Junius.*] To ſtrike; to touch with a blow.—His conſcience ſhall *hit* him in the teeth, and tell him his ſin and folly. *South.*—To touch the mark; not to miſs.—So hard it is to tremble, and not to err, and to *hit* the mark with a ſhaking hand. *South.*—To attain; to reach; not to fail; uſed of tentative experiments:

Were I but twenty-one,
Your father's image is ſo *hit* in you,
His very air, that I ſhould call you brother. *Shakeſpeare.*

To ſuit; to be conformable to:

Hail, divineſt melancholy!
Whoſe ſaintly viſage is too bright
To *hit* the ſenſe of human ſight. *Milton.*

To ſtrike; to catch by the right bait; to touch properly.—There you *hit* him: St. Dominic loves charity exceedingly; that argument never fails with him. *Dryden.*

*To* HIT *off.* To ſtrike out; to fix or determine luckily.—What prince ſoever can *hit off* this great ſecret, need know no more either for his own ſafety, or that of the people he governs. *Temple.*

*To* HIT *out.* To perform by good luck.—Having the ſound of ancient poets ringing in his ears, he mought needs in ſinging *hit out* ſome of their tunes. *Spenſer.*

*To* HIT, *v. n.* To claſh; to collide.—If bodies be extenſion alone, how can they move and *hit* one againſt another? or what can make diſtinct ſurfaces in an uniform extenſion? *Locke.*—To chance luckily; to ſucceed by accident: not to miſs:

Oft expectation fails, and moſt of there
Where moſt it promiſes; and oft it *hits*
Where hope is coldeſt and deſpair moſt ſits. *Shakeſpeare.*

To ſucceed; not to miſcarry:

All human race would fain be wits,
And millions miſs for one that *hits*. *Swift.*

To light on.—There is a kind of conveying of effectual and imprinting paſſages amongſt compliments, which is of ſingular uſe, if a man can *hit* upon it. *Bacon.*

HIT, *ſ.* A ſtroke:

So he the fam'd Cilician fencer prais'd
And at each *hit* with wonder ſeem amaz'd. *Dryden.*

A chance; a fortuitous event.—To ſuppoſe a watch, by the blind *hits* of chance, to perform diverſity of orderly motions, without the regulation of art, this were the more pardonable abſurdity. *Granville.*

If caſual concourſe did the world compoſe,
And things and *hits* fortuitous aroſe,
Then any thing might come from any thing;
For how from chance can conſtant order ſpring? *Blackm.*

A lucky chance.—Have all his ventures fail'd? What, not one *hit*? *Shakeſpeare.*—A portion of a game at backgammon.—Three *hits* amount to a gammon. *Maſon's Supplement.*

HIT, a town of Aſiatic Turkey, in the Arabian Irak. In the neighbourhood is found a ſpring of naphthe and bitumen. It is ſituated on a river of the ſame name, which ſoon after runs into the Euphrates: 100 miles weſt of Bagdat, and 190 ſouth of Moſul.

HI'TA, a town of Spain, in New Caſtile; thirteen miles north of Guadalajara.

HITCH, *ſ.* A ſea-term, a kind of knot, or nooſe by which a rope is faſtened to any thing. A faſtening by means of a rope, a tie for a horſe at graſs, as much ground as a horſe can reach when tied by the leg at graſs. A catch, cauſed by ſome impediment.—If one limps through lameneſs, he is ſaid to have a *hitch* in his gait. If a tranſaction meets with a ſtoppage, that is alſo called a *hitch*. *Maſon.*

*To* HITCH, *v. n.* [hıcgan, Sax. or *hocher*, Fr. *Skinner.*] To catch; to move by jerks:

Whoe'er offends at ſome unlucky time
Slides in a verſe, or *hitches* in a rhyme;
Sacred to ridicule his whole life long,
And the ſad burthen of ſome merry ſong. *Pope.*

*To* HITCH'EL, *v. a.* [See HATCHEL.] To beat or comb flax or hemp.

HITCH'EL, *ſ.* [*heckel*, Germ.] The inſtrument with which flax is beaten or combed.

HITCHELA'GA, or HOCHELAGA, an Indian town of Lower Canada, ſituated in the iſland of Montreal, and at the foot of the mountain ſo called. It is fortified after the Indian manner, and the inhabitants ſpeak the Huron language.

HITCH'ELING, *ſ.* The act of dreſſing with a hitchel.

HITCH'IN, a large and populous town in Hertfordſhire, thirty-four miles north-weſt of London, pleaſantly ſituated at the foot of a riſing hill, which ſecures it from the cold eaſterly winds; the air is reckoned ſalubrious, and it has many reſpectable inhabitants. It is governed by a bailiff and four conſtables, two for the town and two for the ſuburbs. The town was parcel of the poſſeſſion of the Mercian kings; it was called Hiz, from the name of the river which paſſes through it, but was afterwards changed to Hitchin. The town is reckoned the ſecond in the county for number of ſtreets, houſes, and inhabitants. It was formerly famous for the ſtaple commodities of the kingdom, and divers merchants of the ſtaple of Calais reſided here, ſince which that trade is loſt; yet the market, which is held on Tueſdays, has long been, and ſtill is, accounted one of the firſt in the county for corn, but more particularly ſo for the quantity and quality of its wheat. Here is no manufactory; but the inhabitants make a great deal of malt. The fairs are on Eaſter-Tueſday, and Whit-Tueſday, for cattle, ſheep, and pedlary ware. The church, which is an ancient and noble building, ſtands nearly in the centre of the town; it is 153 feet long and 67 broad, has a ring of eight bells, and is dedicated to the Virgin Mary. It conſiſts of the nave and two aiſles, with two chapels or chancels. In the north-aiſle window are beautiful paintings of Faith, Hope, and Charity, and of the Four Cardinal Virtues; and, in the next north window, the Beatitudes. The front hath the twelve apoſtles round it, but are much defaced by time. In the north and ſouth chancels are ſome ancient and curious monuments. Over the altar-piece is a picture of the offerings of the wiſe men, done by Rubens; and is eſteemed one of the moſt capital performances of that great maſter. This town ſuffered by fire on the 11th of September 1762. Here is a capital free-ſchool, well endowed; and twenty-two alms-houſes, for poor decayed men and women of the town of Hitchin.

HITCH'ING, *ſ.* The act of faſtening in a peculiar manner; or of catching while in motion.

HIT'ERO, a town of Spain, in Navarre: ten miles weſt of Tuleda.

HITHE, *ſ.* [hyðe, Sax.] A ſmall haven to land wares out of veſſels or boats: as *Queenhithe*, and *Lambhithe*, now *Lambeth*, near London.

HITHE, Hythe, or Hith, a ſmall town on the coaſt of Kent, ſituated ſix miles to the ſouth-weſt of Eltham, and ſixty-nine ſouth-eaſt by eaſt of London. It was once large and populous, and had five churches; but they are now reduced to one. This town, which owed its riſe and proſperity to the decay of the neighbouring towns of Lyme and Weſt Hithe, whoſe harbours were choaked up with ſand, having undergone the ſame fate, is now almoſt uſeleſs, and ſcarcely deſerves the name of a port. From hence to Boulogne is reckoned the ſhorteſt paſſage to France. Here are two hoſpitals, dedicated to St. John and St. Bartholomew, both under the government of the mayor and jurats; and alſo a charity-ſchool for thirty boys. In the reign of Henry IV. moſt of the inhabitants were carried off by a peſtilence, which was ſucceeded by a fire that conſumed two hundred houſes. Soon after which calamity, five of the ſhips which this town was obliged to fit out, were ſunk at ſea, and a hundred men drowned. The ſurviving inhabitants, diſpirited by theſe calamities, reſolved to leave the place; but the king encouraged them to ſtay, by giving them a temporary releaſe from the ſervice due from the town as a cinque port. On the 6th of April, 1580, an earthquake rang the bells, and damaged many houſes; and in April 1739, while ſome perſons were waiting in the church-porch for the keys, in order to aſcend the ſteeple, it fell down with ſix bells in it: providentially no one was hurt. Here is a remarkable pile of dry bones, twenty-eight feet long, ſix broad, and eight high; they are kept in a vault under the church, in good preſervation, and conſiſt of ſeveral thouſand heads, arms, legs, thigh-bones, &c. ſome very gigantic, and appear by an inſcription to be the remains of the Danes and Britons killed in a battle, near this place, before the Norman conqueſt. By charter of incorporation, granted by queen Elizabeth, this place conſiſts of a mayor, twelve jurats, and twenty-four common-councilmen. The right of election is in the mayor, jurats, common-councilmen, and freemen. Here are two fairs, July 12, and December 1; and a corn-market every Thurſday.

HITH'ER, *adv.* [hiðeꞃ, Sax.] To this place from ſome other:

> Men muſt endure
> Their going hence, even as their coming *hither*. *Shakeſp.*

It is uſed in oppoſition: *hither* and *thither*, to this place and that. To this end; to this deſign; to this topic of argument: [*huc*, Lat. *Huc refer exitum.*] *Not much uſed.*—*Hither* belong all thoſe texts which require of us that we ſhould not walk after the fleſh, but after the ſpirit. *Tillotſon.*

HITH'ER, *adj.* ſuperl. *hithermoſt.* Nearer; towards this part:

> After theſe,
> But on the *hither* ſide, a different ſort,
> From the high neighb'ring hills deſcended. *Milton.*

HITH'ERMOST, *adj.* [of *hither*, *adv.*] Neareſt on this ſide.—That which is external can be extended to a greater extent, at the *hithermoſt* extreme. *Hale.*

HITH'ERTO, *adv.* [from *hither.*] Yet; to this time.—*Hitherto* I have only told the reader what ought not to be the ſubject of a picture or of a poem. *Dryden.*—In any time till now:

> More ample ſpirit than *hitherto* was wont,
> Here needs me, while the famous anceſtries
> Of my moſt dreadful ſovereign I recount. *Fairy Queen.*

At every time till now:

> *Hitherto*, lords, what your commands impos'd
> I have perform'd, as reaſon was, obeying. *Milton.*

HITH'ERWARD, or Hith'erwards, *adv.* [from hyðeꞃƿeaꞃꝺ, Sax.] This way: towards this place:

> Look now for no enchanting voice, nor fear
> The bait of honey'd words; a rougher tongue
> Draws *hitherward.* *Milton.*

HIT'TEN, a town of the American States, in Ann Arundel county, Maryland: thirteen miles weſt-by-ſouth of Baltimore.

HIT'TING, *ſ.* The act of ſtriking, or of reaching a mark.

HIT'SACKER, a town of Germany, in Lower Saxony, and principality of Luneburg Zell, ſituated on an iſland in the Jetze: twenty-nine miles eaſt of Luneburg, and fifty-ſix north-eaſt of Zell. Lat. 53. 14. N. lon. 28. 48. E. Ferro.

HIT'TENDORF, a town of Germany, in the empire of Auſtria: thirteen miles weſt of Ziſterſtorf.

HIT'TERO, or Hit'teren, an iſland in the Northern Ocean, near the coaſt of Norway, about ſixty miles in circumference. Lat. 63. 32. N. lon. 9. 5. E. Greenwich.

HIT'TITES, in Scripture hiſtory, the decendants of Heth. See Heth.

HI'U, a town of China, of the ſecond rank, in the province of Honan: 377 miles ſouth-ſouth-weſt of Peking. Lat. 34. 5. N. lon. 131. 21. E. Ferro.

HI'U-CHI, a town of China, of the third rank, in the province of Ho-nan: twenty-two miles ſouth-ſouth-weſt of Kai-fong.

HIVE, *ſ.* [hyƿe, Sax.] The habitation or artificial receptacle of bees:

> So wand'ring bees would periſh in the air,
> Did not a ſound, proportion'd to their ear,
> Appeaſe their rage, invite them to the *hive.* *Waller.*

The bees inhabiting a hive:

> The commons, like an angry *hive* of bees
> That want their leader, ſcatter up and down. *Shakeſpeare.*

A company being together.—What modern maſons call a lodge, was by antiquity called a *hive* of free-maſons; and therefore, when a diſſenſion happens, the going off is to this day called ſwarming. *Swift.*

*To* HIVE, *v. a.* To put into hives; to harbour.—When bees are fully ſettled, and the cluſter at the biggeſt, *hive* them. *Mortimer.*—To contain, as in hives; to receive, as to an habitation:

> Ambitious now to take exciſe
> Of a more fragrant paradiſe,
> He at Fuſcara's ſleeve arriv'd,
> Where all delicious ſweets are *hiv'd.* *Cleaveland.*

*To* HIVE, *v. n.* To take ſhelter together; to reſide collectively.—In ſummer we wander in a paradiſaical ſcene, among groves and gardens; but at this ſeaſon we get into warmer houſes, and *hive* together in cities. *Pope.*

HIVE-DROSS, *ſ.* A ſort of wax which bees make at the mouth of their hives to keep out the cold.

HI'VER, *ſ.* [from *hive.*] One who puts bees in hives.—For the natural hiſtory, ſpecies, and management, of bees, ſee the article Apis, vol. i. p. 792–798, and the correſpondent Engravings.

HIV'ING, *ſ.* The act or proceſs of putting bees into hives.

HI'VITES, a people deſcended from Canaan. They dwelt at firſt in the country which was afterwards poſſeſſed by the Caphtorims, or Philiſtines. There were Hivites likewiſe at Shechem and Gibeon, and conſequently in the centre of the promiſed land; for the inhabitants of Shechem and the Gibeonites were Hivites. Joſhua xi. 19. Geneſis xxxiv. 2. There were ſome beyond Jordan, at the foot of mount Hermon. Joſhua xi. 3. Bochart is of opinion, that Cadmus, who carried a colony of Phœnicians into Greece, was a Hivite. His name *Cadmus*, comes from the Hebrew *Kedem*, "the eaſt," becauſe he was of the eaſtern part of the land of Canaan. The name of his wife *Hermione*, comes from mount Hermon, at the foot whereof the Hivites had their dwelling. The metamorphoſis of Cadmus's companions into ſerpents is grounded on the ſignification of the name *Hivites*, which in Phœnician ſignifies "ſerpents."

HIWASS'EE, a river which empties itſelf into the Tenneſſee from the ſouth, and on which the town of Hiwaſſee ſtands. It is a bold river, paſſing through the Cherokee towns, and empties into the Tenneſſee about forty miles below the mouth of the Clinch, and forty-ſix above the Whirl or Suck, by land, but ſixty by water. It is navigable till it penetrates the mountains on its ſouth ſide. Ore was found in theſe mountains, when in poſſeſſion of the Britiſh, from which gold was extracted. The Indians know the ſpot; but are very anxious to keep it ſecret. A branch of the Hiwaſſee, called Amoia, almoſt interlocks a branch of the Mobile. The portage between them is ſhort, and the road firm and level.

HIWASS'EE, a town of the American States, in the Tenneſſee government: twenty-two miles ſouth-weſt of Tellico.

HIZKI'JAH, [Hebrew.] A man's name.

HLA'WITZ, a town of Bohemia, in the circle of Boleſlau: four miles ſouth-weſt of Aycha.

HLIN'KA, a town of Bohemia, in the circle of Chrudim: twelve miles ſouth of Chrudim.

HLIWI'NO, a town of Lithuania, in the palatinate of Minſk: forty-four miles eaſt of Minſk.

HLUMC'ZA, a town of Poland, in the palatinate of Volhynia: ſixty miles north-north-weſt of Zytomiers.

HLUSK PAH'ARYALE, a town of Lithuania, in the palatinate of Minſk: forty-eight miles weſt of Rohaczow.

HLUSKODUBROW'RIKIE, a town of Lithuania, in the palatinate of Minſk: forty-eight miles weſt of Rohaczow.

HLYBO'KIE, a town of Lithuania, in the palatinate of Wilna: forty-four miles ſouth-eaſt of Breſlau.

HNA'RIZ, a town of Bohemia, in the circle of Boleſlau: four miles ſouth-eaſt of Turnau.

HO, *ſ.* Moderation; bounds.—There is no *ho* with them; they are madder than March-hares. *Dekker's Honeſt Whore.*—He once loved the fair maid of Freſing-field out of all *ho. Green's Fryer Bacon.*

HO, or Ho'a, *interj.* [*eho!* Lat.] A call; a ſudden exclamation to give notice of approach, or any thing elſe:

What noiſe there *ho?*
Here dwells my father Jew: *hoa*, who's within? *Shakeſp.*

HO, a town of China, in the province of Se-tchuen: 796 miles ſouth-weſt of Peking. Lat. 30. 8. N. lon. 123. 44. E. Eerro.

HO, a town of China, of the ſecond rank, in the province of Chen-ſi: 600 miles weſt-ſouth-weſt of Peking. Lat. 35. 48. N. lon. 120. 20. E. Ferro.

HO, a town of China, of the third rank, in the province of Quang-ſi: forty-ſeven miles eaſt-ſouth-eaſt of Pin-lo.

HO, a town of China, of the ſecond rank, in the province of Kiang-nan: 515 miles ſouth of Peking. Lat. 31. 42. N. lon. 135. 40. E. Ferro.

HO-BASCH, a town of Arabia, in the province of Yemen. Lat. 14. 18. N. lon. 44. E. Greenwich.

HO-CHOU'I, a town of China of the third rank, in the province of Chen-ſi: twelve miles eaſt of King-yang.

HO-CHUN, a town of China, of the third rank, in the province of Chan-ſi: thirty-two miles ſouth of Ping-ting.

HO-KI'EN, a city of China, of the firſt rank, in the province of Pe-tche-li, ſituated between two rivers well ſupplied with fiſh: eighty-ſeven miles ſouth of Peking. Lat. 38. 28. N. lon. 133. 29. E. Ferro.

HO-KIU, a town of China, of the third rank, in the province of Chan-ſi: thirty miles north-weſt of Ho-lan.

HO-NAN, a province of China, bounded on the north by Chan-ſi and Pe-tche-li, on the eaſt by Kiang-nan and Chan-tong, on the ſouth by Hou-quang, and on the weſt by Chen-ſi. The Chineſe call it *Tong-hoa*, which ſignifies the flower of the middle; it contains eight cities of the firſt rank. The whole province is a plain, except towards the weſt, where it is mountainous; it is well watered with rivers, great and ſmall; the air is temperate and healthy; it produces corn, rice, and fruit, in great abundance and variety. The Hoang croſſes it from weſt to eaſt.

HO-NAN, a city of China, of the firſt rank, and capital of the province of Ho-nan, ſuppoſed formerly by the Chineſe to have been the centre of the world, becauſe it is in the centre of their empire: 360 miles ſouth-ſouth-weſt of Peking. Lat. 34. 44. N. lon. 129. 55. E. Ferro.

HO'A, a town of China, of the third rank, in the province of Chen-ſi: 465 miles ſouth-weſt of Peking. Lat. 34. 28. N. lon. 127. 12. E. Ferro.

HO'A, a town of China, of the ſecond rank, in the province of Quang-tong: 175 miles ſouth-ſouth-weſt of Peking. Lat. 21. 38. N. lon. 127. 35. E. Ferro.

HO'A, a town of China, of the third rank, in the province of Quang-tong: twenty miles north of Quang-tcheou.

HO'A, a town of China, of the third rank, in the province of Pe-tche-le: twenty-five miles weſt-ſouth-weſt of Cay.

HO'A-TING, a town of China, of the third rank, in the province of Chan-ſi: fifteen miles ſouth of Pin-leang.

HO'A-TSI'ANG, a town of Aſia, in Thibet: thirty miles eaſt-ſouth-eaſt of Hami. Lat. 40. 55. N. lon. 117. 5. E. Ferro.

HO'A-YONG, a town of China, of the third rank, in the province of Hou-quang: twenty-five miles weſt of Yo-tcheou.

HOACHE', *ſ.* a Chineſe earth, reſembling ſteatite or ſoap-rock, but fuſible, and argillaceous, with a mixture of ſilex.

HOAD'LY (Benjamin), an eminent prelate of the church of England, born at Weſterham, in Kent, in 1675. He was educated in grammar-learning under his father, who was a clergyman, and maſter of a private ſchool in his native place; and in 1691 was entered of Catharine-hall, in the univerſity of Cambridge. He received his degree of B. A. in 1695-6, and in the following year was elected a fellow of his college. In 1698 he was admitted to deacon's orders; and commenced M. A. in 1699. He began very early to diſtinguiſh himſelf in the republic of letters. Beſides ſome occaſional tracts, he publiſhed, in 1703, The Reaſonableneſs of Conformity to the Church of England repreſented to the Diſſenting Miniſters; in anſwer to the tenth Chapter of Mr. Calamy's Abridgment of Mr. Baxter's Hiſtory of his Life and Times, 8vo. This piece was followed by a ſucceſſion of treatiſes on clerical and lay conformity, epiſcopal ordination, &c. together with a long and violent controverſy on certain religious tenets, with the celebrated biſhop Atterbury, biſhop Blackhall, and ſeveral other dignitaries of the church; over whom Mr. Hoadly triumphed with ſuch obvious advantage, that Mrs. Howland, grandmother of the duke of Bedford, preſented him, though unknown and unſeen, to the valuable rectory of Streatham, in Surrey; and he was honoured with a chaplaincy by his grace, as a qualification for holding it. In 1711, he publiſhed his volume of Diſcourſes on the Terms of Acceptance with God, 8vo. a moſt valuable performance; which was followed by the publication of ſome occaſional ſermons, and political tracts, which, together with ſome pieces of an earlier date, were collected together, and reprinted in one volume, in 1715.

Soon after the acceſſion of George I. Mr. Hoadly was nominated one of the chaplains to his majeſty, having, before his admiſſion to that office, been created doctor of divinity by archbiſhop Wake. In 1715, he was appointed to the ſee of Bangor, with which he was permitted to hold his livings *in commendam*. During the following year, he publiſhed A Preſervative againſt the Principles and Practices of the Nonjurors, both in Church and State, &c. and in 1717, he preached before the king his famous ſermon, on The Nature of the Kingdom or Church of Chriſt, which excited againſt him no little clamour among the clergy of the high-church party, and gave riſe to the celebrated controverſy which bears this prelate's name. One of the moſt able and important treatiſes which the biſhop publiſhed in the courſe of this controverſy, appeared in 1719, in an 8vo. volume, entitled, The common Rights of Subjects defended; and the Nature of the Sacramental Teſt conſidered; in Anſwer to the Dean of Chicheſter's (Dr. Sherlock's) Vindication of the Corporation and Teſt Acts.

The Bangorian controverſy was hardly brought to a concluſion, when Dr. Hoadly, in 1721, was tranſlated from the ſee of Bangor to that of Hereford: and in 1723, his lordſhip was tranſlated to the ſee of Saliſbury; upon which he reſigned his rectory of Streatham. In 1724, he publiſhed A Charge to the clergy of his dioceſe, delivered at his primary viſitation. He likewiſe continued to employ his pen in the cauſe of that liberty which he loved, and for which he had been ſo ſtrenuous and triumphant an advocate. In 1732, his lordſhip drew up An Account of the Life, Writings, and Character, of Dr. Samuel Clarke; which was prefixed to the poſthumous works of that eminent divine, then firſt publiſhed, and is a laſting monument to the memory of his illuſtrious friend. In 1734, he was advanced to the valuable ſee of Wincheſter; and in the following year he publiſhed his truly rational and uſeful treatiſe, entitled, A plain Account of the Nature and End of the Sacrament of the Lord's Supper; in which, all the Texts of the New Teſtament relating to it, are produced and explained; and the whole Doctrine about it is drawn from them alone. A judicious abridgment of this piece, under the title of, The rational Chriſtian's Aſſiſtant to the worthy Receiving of the Lord's Supper, was publiſhed by Dr. Diſney, in 1774.

In 1754, biſhop Hoadly publiſhed a volume of his diſcourſes, entitled, Sixteen Sermons formerly printed, now collected into one Volume, &c. and in the following year he publiſhed, Twenty Sermons, the firſt Nine of them preached before the King in Lent, &c. The remainder of his days were ſpent in the enjoyment of thoſe tranquil pleaſures which naturally ſpring from the recollection of a well-ſpent and uſeful life. He died at his palace at Chelſea, in 1761, in the eighty-fifth year of his age. Dr. Hoadly was diſtinguiſhed by conſiderable learning, and uncommon talents, which he conſecrated, in the moſt honourable manner, to the ſervice of mankind. By his ſeizing every proper opportunity to defend the cauſe of truth, virtue, and religion in general, and of our happy conſtitution in particular, in whatſoever quarter attacked; by his aſſerting and vindicating, on the moſt intereſting occaſions, and againſt the greateſt names (and that at once with the temper of a Chriſtian, and the good manners of a gentleman), the rights of the throne and thoſe of Engliſhmen, he added to the name of ſcholar thoſe far ſuperior, of a good man, a good ſubject, and a true lover of his country. In 1773, his ſon, Dr. John Hoadly, publiſhed a complete edition of his father's works, in three volumes, folio.

The good name and character of this truly pious and liberal-minded prelate, after repoſing for many years in peace, have been lately raked up, in no very handſome manner, by the author of the Civil and Eccleſiaſtical Hiſtory of Wincheſter. It is evident that Mr. Milner does not admire the meritorious ſervices of Dr. Hoadly, whoſe name and memory will be ever dear to the true friends of the Britiſh conſtitution, and to the cauſe of civil and religious liberty. The biſhop's relation, Dr. Hoadly Aſhe, has ably refuted the foul calumny intended. He clearly proves that Mr. M. has committed miſtakes in his account of the biſhop; and that his remarks are daſhed with an acrimonious and illiberal tincture. The reflections on biſhop Hoadly's monument in Wincheſter cathedral, were manifeſtly deſigned to ſtain his memory; and though, perhaps, all that Dr. Aſhe has advanced, will not induce this Roman catholic writer to retract them, he may nevertheleſs thank Dr. Aſhe for correcting the errors into which he appears to have fallen reſpecting the biſhop, and may rectify them in a future edition of his work. It is ever to be lamented when hiſtorians write under the influence of ſtrong prejudices; for, though they may gratify tranſient illiberality, they are ſure to diſguſt impartial poſterity.

HOAD'LY (Benjamin, M.D.), eldeſt ſon of the preceding, born in 1706; and ſtudied at Bennet College, Cambridge, under the tuition of Dr. Herring, afterwards archbiſhop of Canterbury. He took his degree in phyſic; and, particularly applying himſelf to mathematical and philoſophical ſtudies, was, when very young, admitted a member of the Royal Society. He was made regiſter of Hereford while his father filled that ſee, and was early appointed phyſician to his majeſty's houſehold, but died at his houſe in Chelſea in 1757. He wrote, 1. Three Letters on the Organs of Reſpiration, 4to. 2. The Suſpicious Huſband, a comedy. 3. Obſervations on a Series of Electrical Experiments; and, 4. *Oratio Anniverſaria, in Theatro Col. Med. Londin. ex Harvei inſtituto habita die Octob.* 1742.

HOA'I, a river of China, in the province of Chan-tong, which runs into the ſea eighteen miles weſt of Lai-tcheou.

HOA'I, a river of China, which riſes in the province of Ko-nan, and empties itſelf into the lake Hong-tſe forty-five miles eaſt of Fong-yang.

HOA'I-GIN, a town of China, of the third rank, in the province of Chen-ſi: twelve miles ſouth of Tai-tong.

HOA'I-IN, a town of China, of the third rank, in the province of Chen-ſi: fifteen miles ſouth of Tong.

HOA'I-KING, a town of China, of the firſt rank, in the province of Ho-nan: 315 miles ſouth-ſouth-weſt of Peking. Lat. 35. 6. N. lon. 130. 20. E. Ferro.

HOA'I-NGAN, a city of China, of the firſt rank, in the province of Kiang-nan. This city is ſituated in a marſhy ſoil, and encloſed with a triple wall; ſituated near a canal, which is above the level of the town, and conſequently in danger of being inundated, if great care be not conſtantly taken to ſecure the dikes: 415 miles ſouth-ſouth-eaſt of Peking. Lat. 53. 30. N. lon. 136. 33. E. Ferro.

HOA'I-JO, a town of China, of the third rank, in the province of Pe-tche-li: twenty-ſeven miles north-north-eaſt of Peking.

HOA'I-TCI, a town of China, of the third rank, in the province of Quang-ſi: ſixty miles north-eaſt of Ou-tcheou.

HOA'I-YU-KEOU, a town of Chineſe Tartary. Lat. 40. 54. N. lon. 135. 8. E. Ferro.

HOA'I-YUEN, a town of China, of the third rank, in the province of Kiang-nan: ſeventeen miles north-weſt of Fong-yang.

HOA'I-YU'NEN, a town of China, of the third rank, in the province of Quang-ſi: ſeventeen miles north-weſt of Yong-ngan.

HO'AN, a town of China, of the third rank, in the province of Chen-ſi: forty miles north-weſt of King-yang.

HO'AN-KOU, a town of China, of the third rank, in the province of Chan-ſi on the river Hoang: forty-two miles eaſt of Kiai.

HO'ANG, a town of China, of the third rank, in the province of Chang-tong: fifteen miles ſouth-weſt of Teng-tcheou.

HO'ANG, a town of China, of the ſecond rank, in the province of Hou-quang: 865 miles ſouth-ſouth-weſt of Peking. Lat. 27. 18. N. lon. 126. 18. E. Ferro.

HO'ANG, a town of China, of the third rank, in the province of Tche-kiang: fifteen miles ſouth-eaſt of Tai-tcheou.

HO'ANG, or Yellow River, a river of China, which riſes in the mountains, ſituated on the north-weſt part of China, and after a courſe of five hundred leagues, through Tartary and China, empties itſelf into the Eaſtern Sea, lat. 34. 5. N. lon. 137. 30. E. Ferro. It is broad and rapid, but ſo ſhallow, that it is hardly navigable; it often overflows its banks, ſo that it has been found neceſſary to raiſe dykes in many places, on the ſides of the river, and even round many towns in the province of Ho-nan. The name is derived from the colour of the clay, or ſand, at the bottom and ſides.

HO'ANG-MEI, a town of China, of the third rank, in the province of Hou-quang: ſeventy miles ſouth-eaſt of Hoang-tcheou.

HO'ANG-NGAN, a town of China, of the third rank, in the province of Hou-quang: fifty miles north of Ou-tchang.

HO'ANG-PI, a town of China, of the third rank, in the province of Hou-quang: forty miles ſouth-eaſt of Te-ngan.

HO'ANG-TCHEOU', a city of China, of the firſt rank, in the province of Hou-quang, on the Yang-tſe: 585 miles ſouth of Peking. Lat. 38. 28. N lon. 132. 12. E. Ferro.

HO'ANG-TCHEOU', a town of the kingdom of Corea, in the province of Hoang-hai: eighty-five miles north-north-weſt of King-ki-tao. Lat. 38. 42. N. lon. 143. 38. E. Ferro.

HO'ANG-TSI, a town of China, of the third rank, in the province of Hou-quang: fifty miles eaſt-ſouth-eaſt of Hoang-tcheou.

HOAR, *adj.* [haꞃ, Sax.] White:

Iſland of bliſs, all aſſaults
Baffling, like thy *hoar* cliffs the loud ſea wave. *Thomſon.*

Grey with age:

Now ſwarms the populace, a countleſs throng;
Youth and *hoar* age, and man drives man along. *Pope.*

White with froſt.—Low the woods bow their *hoar* heads. *Thomſon.*

*To* HOAR, *v. a.* [from the *adj.*] To make hoar:

*Hoar* the flamen,
That ſcolds againſt the quality of fleſh,
And not believes himſelf. *Shakeſpeare.*

HOAR-FROST, *ſ.* The congelations of dew in froſty mornings on the graſs.—When the dew was gone up, behold upon the face of the wilderneſs there lay a ſmall round thing, as ſmall as the *hoar-froſt* on the ground. *Exod.* xvi. 14.

HOAR'-HOUND, *ſ.* in botany. See Marubium.

HOARD, *ſ.* [hoꞃꝺ, Sax.] A ſtore laid up in ſecret; a hidden ſtock; a treaſure:

I have a venturous fairy, that ſhall ſeek
The ſquirrel's *hoard.* *Shakeſpeare.*

*To* HOARD, *v. n.* To make hoards; to lay up ſtore:

He fear'd not once himſelf to be in need
Nor car'd to *hoard* for thoſe whom he did breed. *Spenſer.*

*To* HOARD, *v. a.* To lay in hoards: to huſband privily; to ſtore ſecretly.—A ſuperfluous abundance tempts us to forget God, when it is *hoarded* in our treaſures, or conſidered as a ſafe independent proviſion, laid up for many years. *Rogers.*—It is ſometimes enforced by the particle *up*:

The baſe wretch, who *hoards up* all he can,
Is praiſ'd, and call'd a careful thrifty man. *Dryden.*

HOAR'DER, *ſ.* One that ſtores up in ſecret.—Since commodities will be raiſed, this alteration will be an advantage to nobody but *hoarders* of money. *Locke.*

HOAR'DING, *ſ.* The act of laying up in hoards.

HOAR'INESS, *ſ.* [from *hoary.*] The ſtate of being whitiſh; the colour of old mens' hair:

He grows a wolf, his *hoarineſs* remains,
And the ſame rage in other members reigns. *Dryden.*

HOARSE, *adj.* [from haꞃ, Sax. *heerſch*, Dut.] Having the voice rough, as with a cold; having a rough ſound.—He ſped his ſteps along the *hoarſe* reſounding ſhore. *Dryd.*

The ſtock-dove only through the foreſt coos.
Mournfully *hoarſe.* *Thomſon.*

HOAR'SELY, *adv.* [from *hoarſe.*] With a rough harſh voice:

The hounds at nearer diſtance *hoarſely* bay'd;
The hunter cloſe purſu'd the viſionary maid. *Dryden.*

HOAR'SENESS, *ſ.* [from *hoarſe.*] Roughneſs of voice.—The voice is ſometimes intercluded by a *hoarſeneſs*, or viſcous phlegm. *Holder.*

HOAR'Y, *adj.* [from haꞃ, haꞃunꝺ, Sax.] White; whitiſh:

Thus ſhe reſted on her arm reclin'd,
The *hoary* willows waving with the wind. *Addiſon*

White or grey with age:

A comely palmer clad in black attire,
Of ripeſt years, and hairs all *hoary* grey. *Spenſer.*

White with froſt:

The ſeaſons alter; *hoary*-headed froſts
Fall in the freſh lap of the crimſon roſe. *Shakeſpeare.*

Mouldy; moſſy; ruſty.—There was brought out of the city into the camp very coarſe, *hoary*, moulded, bread. *Knolles.*

HOAST'-MEN, *ſ.* An ancient company of traders in ſea-coal at Newcaſtle.

HOAT'CHIT, a country of Chineſe Tartary, governed by a Mongol prince, tributary to the empire; ſituated to the north of Peking, about lat. 44. N. formed into two ſtandards.

HOATH (Hill of), a promontory of Ireland, on the weſt coaſt, and north of the entrance into Dublin Bay.

HO'AY-LAY, a town of China, of the third rank, in the province of Pe-tche-li: twelve miles ſouth-weſt of Yen-king.

HO'AY-NGAN', a town of China, of the third rank, in the province of Pe-tche-li: thirty-ſeven miles north of Yu.

HOB, *ſ.* [a contraction from *Robert.*] Robin, a man's name; a country fellow, a clown.

HOB-NOB. This is probably corrupted from *hab nab* by a coarſe pronunciation.—His incenſement at this moment is ſo implacable, that ſatisfaction can be none, but pangs of death and ſepulchre: *hob-nob* is his word; giv't it, or take't. *Shakeſpeare.*

HO'BA, [Hebrew.] A man's name.

HO'BAB, [Heb. beloved.] A man's name.

HO'BAH, mentioned by Moſes as the place to which the patriarch Abram purſued and routed the four kings that invaded the land of Canaan at that time. *Gen.* xiv. 15.

HO'BAL, in mythology, an idol of the ancient Arabs, the worſhip of which at Mecca was deſtroyed by Mahomet.

HOBBES (Thomas), a celebrated Engliſh philoſopher, the ſon of a clergyman at Malmeſbury, in Wiltſhire, where he was born in 1588. At a proper age he was placed under the care of a maſter of the grammar-ſchool in his native town; and ſo rapid was the proficiency he made, that, before he quitted the ſchool, he tranſlated the Medea of Euripides into elegant Latin verſe. In 1603 he was entered of Magdalen-hall, in the univerſity of Oxford, where he was admitted to the degree of B. A. in 1607; and, after having applied with much induſtry to his college ſtudies, he was taken into the family of lord Hardwicke, afterwards earl of Devonſhire, in the capacity of tutor to his ſon William, lord Cavendiſh, with whom he made the tour of France and Italy. This opportunity of ſeeing the celebrated monuments of antiquity, converſing with learned men, becoming acquainted with the policy and manners of foreign ſtates, and learning their languages, Mr. Hobbes aſſiduouſly improved; and he continued all his life long to be patronized and protected by the illuſtrious Devonſhire family.

In 1605, Mr. Hobbes publiſhed a ſmall treatiſe entitled, Human Nature, which Mr. Addiſon pronounces to be his beſt work; and another, entitled, *De Corpore Politico,* or, Elements of the Law. He had alſo been for a conſiderable time employed in digeſting his religious, moral, and political, principles into a ſyſtem, which was publiſhed at London, in 1651, in folio, under the title of Leviathan; or, the Matter, Form, and Power, of a Commonwealth, eccleſiaſtical and civil. In this work, in eſtabliſhing a ſyſtem of civil policy, he repreſents man as an untameable beaſt of prey, and government as the ſtrong chain by which he is to be kept from miſchief. It is a learned and ingenious performance, and contains many ſound and important obſervations on the principles of government; but at the ſame time it abounds in extravagant, paradoxical, and dangerous, notions, tending to confound all diſtinction between right and wrong, and indirectly to undermine the foundations of all religion, natural and revealed. Upon its publication, the whole body of the Engliſh clergy took the alarm; and the author was not only ſuſpected to be inimical to the cauſe of revelation, but in policy to favour the cauſe of democracy. The indignation which it excited amongſt them, however, was probably in a great meaſure owing to the freedom with which it inveighs againſt eccleſiaſtical tyranny. In 1654, he publiſhed his Letter upon Liberty and Neceſſity, which occaſioned a long controverſy between him and Dr. Bramhall, biſhop of Londonderry, and afterwards lord primate of Ireland. About the ſame time he publiſhed *Elementorum Philoſophiæ, Sectio prima, de Corpore,* 8vo, which occaſioned a controverſy for upwards of twenty years between the author and Dr. Wallis, Savilian profeſſor of geometry at Oxford, and in which he had the misfortune to have all the mathematicians againſt him. To complete his body of philoſophy, he publiſhed, in 1658, A Diſſertation on Man, in which he advanced many ſingular opinions concerning the intellectual and moral powers of human nature. Upon the reſtoration of Charles II. Mr. Hobbes was particularly noticed by the king, who ſettled a penſion upon him of one hundred pounds per annum, out of his privy purſe. Yet this protection did not render him ſecure from attacks; for, in 1666, his Leviathan was cenſured by parliament, which alarmed him much; and it is ſuppoſed to have been on this occaſion that he compoſed his very learned and ingenious Hiſtorical Narration concerning Hereſy, and the Puniſhment thereof; with the view of demonſtrating that he could not be legally puniſhed for hereſy, in writing and publiſhing his Leviathan. He now entertained the deſign of collecting and publiſhing a beautiful edition of his *Elementa Philoſophica de Cive,* and ſuch other of his pieces as were in Latin; but, owing to the vigilance of the clergy, he found it impracticable in England, and therefore ſent them to Amſterdam, where an entire edition of them was publiſhed, in 1668, in 4to.

Whilſt the writings of Hobbes were reprobated by the general body of the clergy, and occaſioned many learned and able replies, they were not without their admirers, both at home and abroad. Foreigners of the firſt diſtinction viſited the author, among whom was Coſmo De Medicis, then prince of Tuſcany, who gave him ample marks of his eſteem and reſpect; and having received his picture, and a complete collection of his writings, ordered the former to be depoſited among his curioſities, and the latter to be added to his celebrated library at Florence. Similar viſits were paid him by ſeveral foreign ambaſſadors, and other perſons of diſtinction, who were curious to ſee a perſon, whoſe ſingular opinions and numerous writings had made ſo much noiſe all over Europe.

In 1672, Mr. Hobbes wrote his own Life, in Latin verſe, when, as he obſerves, he had completed his eighty-fourth year; in which, whatever may be thought of the poetry, there is much wit diſplayed, as well as a ſufficient portion of vanity. In 1674, he publiſhed a tranſlation, in Engliſh verſe, of four books of Homer's Odyſſey; which were ſo well received by the public, that he was encouraged to undertake a verſion of the whole Iliad, and the remaining books of the Odyſſey. This taſk he completed, and publiſhed his work in 1675. Of this performance Mr. Pope, in the preface to his own tranſlation of the Iliad, ſays, that the author has given a correct explanation of the ſenſe in general, but for particulars and circumſtances he often omits the moſt beautiful. His verſification, however, is ſo bad, that his tranſlation is entirely fallen into neglect, though it was ſo much eſteemed in his own time, that in leſs than ten years it paſſed through three large editions. Before the appearance of this work, in 1674, Mr Hobbes had taken his leave of London, and retired to ſpend the remainder of his days in Derbyſhire. In this ſituation, however, he ſtill continued to proſecute his ſtudies with unwearied application, and ſent into the world more productions of his pen. In 1676, he printed his diſpute with Dr. Benjamin Laney, biſhop of Ely, concerning Liberty and Neceſſity; and in 1678, he publiſhed his *Decameron Phyſiologicum,* or Ten Dialogues of Natural Philoſophy. About the ſame time he put the laſt hand to a work formerly publiſhed, though without his name, entitled, The Art of Rhetoric, collected from Ariſtotle and Ramus; to which he added a book, compoſed ſome years before, entitled, A Dialogue between a Philoſopher and a Student of the Common Law of England. In 1679, he ſent another book, entitled, Behemoth, or, a Hiſtory of the Civil Wars from 1640 to 1660, to the preſs. The work made its appearance ſoon after the author's death, and is written in the form of a dialogue, in a perſpicuous and accurate ſtyle. A few months after he had ſent this work to the preſs, Mr. Hobbes was afflicted with a ſuppreſſion of urine; and he died on the 4th of December, 1679, in the ninety-ſecond year of his age.

The following poſitions, chiefly ſelected from his Leviathan, may ſerve as a ſpecimen of his philoſophy. "All knowledge originates in ſenſation, and is produced by the preſſure, either immediate or mediate, of external objects upon the ſenſes. Senſible qualities are, in their objects, nothing more than the motion of matter operating variouſly upon the organs of ſenſation. Imagination and memory are the permanent effects of former impreſſions upon the ſenſes. Thinking is the ſucceſſion of one imagination after another, which may be either irregular, or regulated with a view to ſome end. Every conception, being derived from the ſenſes, is finite; we have, therefore, no idea of infinity, and God is an object, not of apprehenſion, but of reverence. No one can conceive of any thing but as exiſting in ſome place, of ſome finite magnitude, and diviſible into parts; nor can any thing be wholly in one place and wholly in another at the ſame time, or two or more things be at the ſame time in the ſame place. Truth and falſehood are attributes, not of things, but of language. The intellect peculiar to man is a faculty ariſing from ſpeech; and the uſe of reaſon is the deduction of remote conſequences from the definitions of terms. Science is the knowledge of theſe conſequences. There are in animals two kinds of motion, one vital and involuntary, the other animal and voluntary. The latter, if it tends towards an object, is appetite; if it recedes from it, averſion: and the object in the former caſe is ſaid to be good, in the latter, evil. Appetite is attended with pleaſure, averſion with pain. In deliberation, the laſt impulſe of the appetite is will; ſucceſs in attaining its object, enjoyment. Moral qualities are thoſe by which the peace and ſecurity of the ſtate are preſerved. Felicity conſiſts not in tranquillity, but in a perpetual progreſs from one deſire to another The diverſity of human characters ariſes from the different ways in which men purſue happineſs. The deſire of inveſtigating cauſes leads to the knowledge and belief of a firſt cauſe, the one eternal Deity, although the divine nature is incomprehenſible. From mens' ignorance of true cauſes ariſe anxiety, fear, ſuperſtition. Nature has formed all men equal; whence ariſes the univerſal hope of acquiring by violence whatever we deſire, and the univerſal apprehenſion of ſuffering violence from others. The neceſſary conſequence is, that a ſtate of nature is a ſtate of perpetual hoſtility, in which no individual has any other means of ſafety than his own ſtrength or ingenuity, and in which there is no room for induſtry, becauſe no ſecure enjoyment of its fruits. In this ſtate every one has a right to uſe his own faculties at pleaſure for his preſervation, and of doing whatever he judges to be conducive to this end; and, ſince there is no property, there can be no injuſtice. For the ſake of peace and ſecurity, it is neceſſary that each individual recede from a part of his natural right, and be contented with ſuch a ſhare of liberty, or freedom from reſtraint, as he is willing to allow to others. This reſignation of natural rights may either be a ſimple renunciation, or a transfer of them to an individual or body, by mutual conſent, for the common good. The multitude, thus brought out of a ſtate of nature, becomes one perſon, which is called the republic or ſtate, in which the common power and will are exerciſed for the common defence. The ruling power cannot be taken from thoſe to whom it has been committed, nor can they be puniſhed for mal-adminiſtration. If the ſupreme magiſtrate inflicts any penalty upon the innocent, he ſins againſt God, but does not act unjuſtly. The interpretation of the laws is to be ſought, not from preceptors nor philoſophers, but from the authority of the ſtate; for it is not truth, but authority, that makes law: nevertheleſs, the king ought to interpret the law according to his own natural reaſon and conſcience. Puniſhment is an evil inflicted upon the tranſgreſſor of the law, to this end, that the apprehenſion of it may bend the will of the citizens to ſubmiſſion. The public law is to be inſtead of conſcience to every individual; it is therefore falſe that every violation of conſcience in a citizen is a ſin. The offices of the ſupreme governors are to be regulated by thoſe ends which comprehend the ſecurity of the people."

The ſingular obſtinacy of Hobbes was proverbial even in his own time; for, though he was evidently wrong in all his propoſitions, he could not be perſuaded to retract a ſingle one. This is ſaid to be the reaſon why his friends denied him his laſt requeſt, which was, to place on his tomb-ſtone, "This is the philoſopher's ſtone:" they would not erect a monument to deception.

*To* HOB'BLE, *v. n.* [to *hop*, to *hopple*, to *hobble*.] To walk lamely or aukwardly upon one leg more than the other; to hitch; to walk with unequal and incumbered ſteps.—The friar was *hobbling* the ſame way too. *Dryden.*—To move roughly or unevenly. Feet being aſcribed to verſes, whatever is done with feet is likewiſe aſcribed to them:

While you Pindaric truths rehearſe,
She *hobbles* in alternate verſe. *Prior.*

HOB'BLE, *ſ.* Uneven aukward gait.—One of his heels is higher than the other, which gives him a *hobble* in his gait. *Gulliver's Travels.*

HOB'BLER, *ſ.* [from *hobby*.]—For twenty *hobblers* armed, Iriſhmen ſo called becauſe they ſerved on hobbies, he paid ſix-pence a-piece *per diem. Davies.*

HOB'BLING, *ſ.* The act of moving unevenly.

HOB'BLINGLY, *adv.* Clumſily; aukwardly; with a halting gait.

HOB'BY, *ſ.* [*hobereau*, Fr.] A ſpecies of hawk. See the article Falco, vol. vii. p. 195.—The people will chop like trouts at an artificial fly, and dare like larks under the awe of a painted *hobby. L'Eſtrange.*—[*Hoppe*, Goth. a horſe, *hobin*, Fr. a pacing horſe.] An Iriſh or Scottiſh horſe; a pacing horſe; a garran.

HOB'BY-HORSE, *ſ.* A ſtick on which boys get aſtride and ride.—Thoſe grave contenders about opinionative trifles look like aged Socrates upon his boy's *hobby-horſe. Glanville.*—A ſtupid fellow.—I have ſtudied eight or nine wiſe words to ſpeak to you, which theſe *hobby-horſes* muſt not hear. *Shakeſpeare.*—The perſon, thing, or occupation, that pleaſes one moſt.—Give it your *hobby-horſe. Shakeſpeare.*

HOBEI'RA, a ſtrong fortreſs and town of Aſiatic Turkey, in the Arabian Irak: ſeventy miles ſouth of Bagdad.

HOBGOB'LIN, *ſ.* [according to Skinner for *Robgoblins*, from *Robin Goodfellow*, *Hob* being the nickname of *Robin*: but more probably, according to Wallis and Junius, *hopgoblins*, becauſe they do not move their feet: whence, ſays Wallis, came the boys' play of *fox in the hole*, the fox always hopping on one leg.] A frightful fairy:

Fairies, black, grey, green, and white,
Attend your office and your quality;
Crier *hobgoblin*, make the fairy o-yes. *Shakeſpeare.*

HO'BIT, *ſ.* [*haubitzen*, Teut.] A ſort of ſmall mortar uſed in annoying the enemy at a diſtance with ſmall bombs.

HOB'LERS, or Hob'ilers, *ſ.* [*hobelarii*, Lat.] In our ancient cuſtoms, men who, by their tenure, were obliged to maintain a light horſe, or hobby, for the certifying of any invaſion, were ſo denominated.—The name was alſo uſed for certain Iriſh knights, who uſed to ſerve as light-horſemen upon hobbies.

HOB'NAIL, *ſ.* A nail uſed in ſhoeing a hobby or little horſe; a nail with a thick ſtrong head.—We ſhall buy maidens as they buy *hobnails*, by the hundred. *Shakeſpeare.*

HOB'NAILED, *adj.* Set with hobnails:

Would'ſt thou, friend, who haſt two legs alone,
Would'ſt thou, to run the gauntlet, theſe expoſe
To a whole company of *hobnail'd* ſhoes? *Dryden.*

HOB'OKEN, a diſtrict belonging to the American States, in Bergen county, New Jerſey, ſituated on the weſt bank of the Hudſon, in the mountainous country between the town of Bergen and Fort Lee, about ſeven miles above New-York city.

HOB'ROE, a town of Denmark, in North Jutland, and dioceſe of Wiborg: ſixteen miles north-eaſt of Wiborg.

HO'BY, a town of Sweden, in the province of Sudermanland: fifteen miles north-weſt of Nykioping.

HO'CA, *ſ.* A particular game at cards. *Phillips.*

HOC'CUS, *ſ.* in doomſday-book, a hole, a ſmall pit.

HOCH-ER'LIZ, a town of Bohemia, in Konigingratz: eight miles from Gayerſberg.

HOCH'AUS, a town of Germany, in the empire of Auſtria: nine miles ſouth-ſouth-weſt of Aigen.

HOCH'BERG, a marquiſate of Germany, in Swabia, annexed to the margraviate of Baden Durlach, which takes its name from an ancient caſtle, ſituated two miles north-eaſt from Emendingen, which is the principal town.

HOCHELA'GA, the ancient name of the river St. Lawrence, in Canada.

HOCHENAU', a town of Germany, in the empire of Auſtria: nine miles eaſt-north-eaſt of Ziſterſtorff.

HOCH'ENEG, a town of Germany, in the duchy of Stiria: ſix miles ſouth-weſt of Pettau.

HOCHFEL'DEN, a town of France, in the department of the Lower Rhine, and chief place of a canton, in the diſtrict of Haguenau: four leagues north-weſt of Straſburg, and three weſt-ſouth-weſt of Haguenau.

HOCHKIR'CHEN, a town of Luſatia, near which the king of Pruſſia was defeated in the year 1758: ſix miles ſouth-eaſt of Budiſſen.

HOCH'SCHEID, a town of Germany, on the Upper Rhine, and county of Sponheim: ſeven miles ſouth-eaſt of Traarbach.

HOCHST, a town of Germany, in Franconia, and county of Wertheim: eleven miles north of Erbach.

HOCHST, a town of Germany, on the Lower Rhine, and electorate of Mentz, ſituated on the Maine: ſix miles weſt of Frankfort, and fourteen eaſt of Mentz.

HOCH'STADT, a town of Bohemia, in Boleſlau: eleven miles from Turnau.

HOCH'STADT, a town of Germany, on the Upper Rhine, and county of Hanau Munzenberg: three miles north-weſt of Hanau.

HOCH'STATT, a town of Germany, in Franconia, and biſhopric of Bamberg: eleven miles north-weſt of Erlang, and thirteen ſouth of Bamberg. Lat. 49. 39. N. lon. 28. 32. E. Ferro.

HOCH'STATT, or HOCH'STETT, a town of Germany, in Bavaria, and principality of Neuburg, ſituated on the Danube. Near this place was fought the celebrated battle of Blenheim; ſee BLENHEIM. It is nineteen miles north-weſt of Augſburg, and twenty-nine weſt of Neuburg.

HOCH'STER. See HOXTER.

HOCH'STETTER (Andrew-Adam), a learned German Lutheran divine, born at Tubingen in 1668. He was admitted to the degree of doctor, and was ſucceſſively profeſſor of eloquence, of moral philoſophy, and of divinity, in the univerſity of his native city; where he died in 1717. Among other works, he was the author of, 1. *Collegium Puffendorfianum.* 2. *De Feſto Expiationis, & Hirco Azazel.* 3. *De Conradino, ultimo ex Suevis Duce.* 4. *De Rebus Elbingenſibus,* &c. His hiſtorical works are held in moſt eſtimation.

HOCH'WEISH, a town of Hungary: twenty miles weſt-ſouth-weſt of Kremnitz.

HOCK, *ſ.* [the ſame with *hough*; hoh, Sax.] The joint between the knee and the fetlock.

*To* HOCK, *v. a.* To diſable in the hock.

HOCK, or HOCK'AMORE, *ſ.* [from *Hockheim*, on the Maine.] Old ſtrong Rheniſh.—Wine becomes ſharp, as *hock*, like vitriolic acidity. *Floyer.*

HOCK-DAY, or HOKE-DAY, *ſ.* A popular holiday formerly kept in England, as mentioned by Matthew Paris and other ancient writers. It was called *Hock-Tueſday*, being the ſecond Tueſday after Eaſter-day; and diſtinguiſhed, according to John Rouſe, by various ſportive paſtimes, in which the towns-people, divided into parties, were accuſtomed to bind and draw each other with ropes. Spelman tells us, "they conſiſted in the men and women binding each other, and eſpecially the women the men;" and hence it was called *Binding-Tueſday*. A third author informs us that it was cuſtomary in ſeveral manors in Hampſhire, for the men to hock the women on the Monday, and the women the men upon the Tueſday; that is, on that day the women in merriment ſtop the ways with ropes, and pull the paſſengers to them, deſiring ſomething to be laid out in *pious uſes*, in order to obtain their freedom." Such are the general outlines of this ſingular inſtitution; and the pens of ſeveral able writers have been employed in attempting to inveſtigate this origin. Some think it was held in commemoration of the Danes, in the reign of Ethelred the Unready, on St. Brice's day; others, that it was in remembrance of the death of Hardicanute, by which event the Engliſh were delivered from the intolerant government of the Danes. The *binding* part of the ceremony might refer to the abject ſtate of ſlavery in which the wretched Saxons were held by their imperious lords; and the donations for "*pious uſes*" may be conſidered as tacit acknowledgments of gratitude to heaven for freeing the nation from its bondage. Hock-day was generally obſerved as lately as the ſixteenth century. We learn from Spelman, that it was not totally diſcontinued in his time; and Plott has noticed ſome veſtiges of it at the diſtance of fifty years; but now it is totally aboliſhed.

HOCK-TUESDAY MONEY, a duty formerly given to the landlord, that his tenants and bondmen might ſolemnize that day on which the Engliſh maſtered the Danes. *Cowell.*

HOCK'ERLAND, or OBERLAND. See OBERLAND.

HOCK'HEIM, a town of Germany, on the Lower Rhine, and electorate of Mentz, ſituated near the conflux of the Rhine and the Maine, celebrated for its excellent wine: ſixteen miles weſt of Frankfort on the Maine, and four eaſt-north-eaſt of Mentz.

HOCK'HEIM, a town of Germany, on the Upper Rhine, and biſhopric of Worms: three miles north-weſt of Worms.

HOCK'HOCKING, a river of North America, in the north-weſt territory, about twenty-eight miles below the Muſkingum, which it reſembles, but is inferior in ſize. It riſes near a branch of the Sciota, and taking a ſouth-weſt courſe enters the Ohio at Bellpree, in lat. 38. 57. N. It is navigable for large flat-bottomed boats between ſeventy and eighty miles; has fine meadows with high banks, which are ſeldom overflowed, and rich uplands on its borders. On the banks of this fine river are inexhauſtible quarries of free-ſtone, large beds of iron-ore, rich mines of lead, and coal-pits. There are alſo productive ſalt-ſprings, beds of white and blue clay of an excellent quality; red bole, and many other uſeful foſſils, have alſo been found on the banks of this river.

*To* HOCK'LE, *v. a.* [from *hock*.] To hamſtring; to cut the ſinews about the ham or *hough*. To mow ſtubble.

HOCK'LIFFE, a ſmall town in Bedfordſhire, and a great thoroughfare from London to Liverpool, which here divides like the letter Y. That on the left is called the Cheſter road; and that on the right, called the North road, leads to Wooburn, Newport Pagnel, Northampton, &c.

HOCKQUAR', or HOCKQUART, an iſland of Upper Canada, on the eaſt ſide of Lake Superior.

HO'CUS PO'CUS, *ſ.* [Junius derives it from *hocced*, Welſh, a cheat, and *poke*, or *pocus*, a bag, the conſtant inſtrument of a juggler. Tillotſon thinks it was uſed to ridicule the words *Hoc eſt corpus*, This is the body, uſed by the Romiſh prieſts at the ſacrament, by which they pretend that tranſubſtantiation is effected.] A juggle, or cheat.—This gift of *hocus-pocuſſing*, and of diſguiſing matters, is ſurpriſing. *L'Eſtrange.*—A juggler, a man who performs ſleight of hand:

As *Hocus Pocus* conjures to amuſe
The rabble from obſerving what he does. *Butler's Remains.*

HOD, *ſ.* [corrupted perhaps from *hood*, a hod being carried on the head.] A kind of trough in which a labourer carries mortar to the maſons:

A fork and a hook to be tampering in clay,
A lath, hammer, trowel, a *hod* or a tray. *Tuſſer.*

HOD, [Hebrew.] A man's name.

HODAI'AH, [Hebrew.] A man's name.

HO'DAL, a ſea-port of Sweden, in the province of Weſt Gothland, on the coaſt of the North Sea: forty-five miles north-north-weſt of Uddevalla.

HO'DAM, a town of Scotland, in the county of Dumfries: ten miles eaſt of Dumfries.

HODANI'AH, [Hebrew.] A man's name.

HO'DASH, [Hebrew.] A woman's name.

HOD'DER, a river of England, in the county of York, which runs into the Ribble ſix miles north from Blackburn, in Lancaſhire.

HOD'DESDON, a handſome town in Hertfordſhire, ſituated on the river Lea; and is a great thoroughfare on the northern road. It is ſeventeen miles from London, four from Hertford, and three from Ware. The market is on Wedneſdays; fair, June 29. Queen Elizabeth directed a grammar-ſchool to be erected here, and incorporated it with many privileges. An almſhouſe was alſo founded here in the reign of Henry VI. which is a uſeful charity.

HOD'DY, *adj.* Well-diſpoſed, pleaſant, in good humour. *Scotch.*

HODEI'DA, a ſea-port town of Arabia, on the Red Sea, with a harbour only fit for ſmall veſſels: ninety-ſix miles ſouth-weſt of Sana. Lat. 14. 39. N. lon. 42. 40. E. Greenwich.

HODE'VA, [Hebrew.] A man's name.

HODGE-PODGE, *ſ.* [*haché, poché, hochepot*, quaſi *hachis en pot*, Fr.] A medley of ingredients boiled together.—It produces excellent corn, whereof the Turks make the trachana, and bouhourt, a certain *hodge-podge* of ſundry ingredients. *Sandys.*

HOD'GES (Nathaniel), a diſtinguiſhed Engliſh phyſician, the ſon of the reverend Dr. Hodges, dean of Hereford. He received his early education at Weſtminſter-ſchool, and was elected a ſtudent of Chriſt-church college, Oxford, in 1648. He received his degree of doctor of phyſic in 1659, and ſettled in London as a medical practitioner. At the breaking out of the great plague in 1665, he was appointed by the city of London one of the two ſelected phyſicians, who attended the infected; and he continued to fulfil this perilous duty during the whole of that dreadful viſitation. His method of overcoming the infection was, by cauſing a pan of coals to be carried before him, in which ſtrong perfumes were conſtantly burnt, and by chewing troches while he was in the ſick apartments. He was twice taken ill during the prevalence of the diſeaſe, but his life was preſerved. This account of himſelf is contained in a work which he publiſhed, entitled *Loimologia, ſive Peſtis Nuperæ apud Populum Londinenſem Graſſantis Narratio hiſtorica*, 8vo. 1672. His account of this memorable calamity is a valuable one, and the moſt authentic that we poſſeſs. He has given the bills of mortality of the plague-year, 1665, amounting in all to 97,306 deaths, of which 68,596 died of the peſtilence. This work was tranſlated into Engliſh by Dr. Quincy, and publiſhed, with other curious tracts relative to the ſame epidemic, in 1721. It is to be lamented that a man who performed this dangerous ſervice to the public, ſhould have fallen into ſuch reduced circumſtances, as to become a priſoner for debt in Ludgate, in which place he died in 1684. Dr. Hodges was alſo the author of a work entitled *Vindiciæ Medicinæ & Medicorum.*

HODG'KINS, [of *Hodges*, and that from *Roger*; q. d. *Little Roger.*] A ſurname.

HODI'AH, [Hebrew.] A man's name.

HODIER'NAL, *adj.* [*hodiurnus*, Lat.] Of to-day.

HODI'SAH, [Hebrew.] The name of a man.

HOD'MAN, *ſ.* A young ſcholar admitted from Weſtminſter-ſchool to be a ſtudent in Chriſt-church college, Oxford. Alſo a labourer who bears a hod.

HODOMET'RICAL, *adj.* [from ὁδὸς, Gr. a way, and μετρον, a meaſure.] Belonging to the method of finding the longitude at ſea from the way or courſe of the ſhip. *Scott.*

HOD'SON, [i. e. the ſon of *Oddo*, or *Otto.*] A ſurname.

HODUCISZ'KI, a town of Lithuania, in the palatinate of Wilna: thirty-ſix miles ſouth of Breſlau.

HO'DY (Humphrey), a learned Engliſh divine, born in 1659, at Odcombe, in Somerſetſhire, of which place his father was rector. After paſſing through the grammar-ſchool, he was entered of Wadham-college, Oxford, in 1676; and in 1684 was choſen fellow. In 1681 and 1682, before he was twenty-two years of age, he wrote his learned Diſſertation on Ariſteas's Hiſtory of the LXXII Interpreters. In 1689, he wrote the learned Prolegomena to John Malela's Chronicle, which was publiſhed at Oxford two years afterwards, with an interpretation and notes, by Edward Chilmead. In the following year, Dr. Edward Stillingfleet, biſhop of Worceſter, made him his chaplain. In 1692-3, he took his degree of doctor of divinity; and in 1694, publiſhed a treatiſe, entitled The Reſurrection of the ſame Body aſſerted, 8vo. Dr. Hody had now ſo powerfully recommended himſelf by his writings to archbiſhop Tillotſon, that, early in 1694, he appointed him his domeſtic chaplain; and, upon the ſudden death of that good prelate, he was continued in the ſame capacity by his ſucceſſor, Dr. Tenniſon. In 1698, he was appointed regius profeſſor of Greek in the univerſity of Oxford; and ſome time afterwards he was preſented to the rectory of Monk's Riſborough, in Buckinghamſhire. When, in the beginning of queen Anne's reign, the controverſy concerning the powers and privileges of an Engliſh ſynod or convocation was warmly agitated, Dr. Hody publiſhed his valuable Hiſtory of Engliſh Councils and Convocations, and of the Clergy's ſitting in parliament; in which is alſo comprehended the Hiſtory of Parliaments, with an Account of our ancient Laws, 1701, 8vo. It brings down the hiſtory from the firſt ſynod which is mentioned to be held in this iſland, that of Verulam, in 446, to the beginning of the reign of Henry VIII. In 1704, he publiſhed his pieces announced nearly twenty years before, on the original text, and Greek and Latin vulgate verſions, of the Bible, under the title of *De Bibliorum Textibus Originalibus, Verſionibus Græcis & Latina Vulgata, &c. Lib. IV.* 8vo. Beſides the works already mentioned, Dr. Hody alſo employed himſelf in preparing for the preſs an account of thoſe learned Greeks who retired to Italy before and after the taking of Conſtantinople by the Turks, which he left behind him in manuſcript. It was publiſhed in 1742, by Dr. S. Jebb, under the title of *De Græcis illuſtribus Linguæ Græcæ Literarumque Humaniorum Inſtauratoribus eorum Vitis, Scriptis, & Elogiis, Lib. duo, &c.* 8vo. In addition to the other ſervices which Dr. Hody rendered to the intereſts of literature, he founded ten ſcholarſhips at Wadham-college, of ten pounds each; and directed, that five of the exhibitioners ſhould apply themſelves to the ſtudy of the Hebrew, and five to the ſtudy of the Greek, language. He died in 1706, in the forty-eighth year of his age.

HOE, *ſ.* [*houe*, Fr. *houwe*, Dut.] An inſtrument to cut up weeds; of which the blade is at right angles with the handle. See the article HUSBANDRY, in this volume.

*To* HOE, *v. a.* [*houer*, Fr. *houwen*, Dut.] To cut or dig with a hoe.

HOE (Matthew), a famous German Lutheran divine, born at Vienna in 1580. He ſtudied divinity at Wirtemberg; and in 1602 he was invited into Saxony to become court-preacher to the elector. He was admitted doctor of divinity at Wirtemberg in 1604. He is claſſed by the Lutherans among the learned and able defenders of their faith, on account of his *Defenſio Pupillæ Evangelicæ*, which he publiſhed in two volumes, in the years 1628 and 1631, and which Moſheim ſpeaks of as "an accurate and laborious defence of the proteſtants." He publiſhed at different periods, A Commentary on the Book of Revelation, which after his death was reprinted at Leipſic, in folio; *Philoſophiæ Ariſtotelicæ, Partes tres*; and a vaſt number of controverſial works, both in German and Latin. He died in 1645.

HOE-KI'A, a town of China, of the third rank, in the province of Ho-nan: twenty-five miles ſouth-weſt of Oue-kiun.

HOE'DIC, a ſmall French iſland, in the Engliſh Channel, near the coaſt of the department of Morbihan: about three leagues eaſt from Belliſle, and four ſouth-eaſt from the peninſula of Quiberon. It has a town or village of the ſame name, and a fort. Lat. 47. 18. N. lon. 14. 42. E. Ferro.

HOE'I, a town of China, of the ſecond rank, in the province of Se-tchuen: 827 miles ſouth-weſt of Peking. Lat. 31. 28. N. lon. 121. 5. E. Ferro.

HOE'I-FAN-HO'TUN, a town of Chineſe Tartary: 500 miles eaſt-north-eaſt of Peking. Lat. 42. 46. N. lon. 143. 35. E. Ferro.

HOE'I-HOA, a town of China, of the third rank, in the province of Yun-nan: twelve miles north-eaſt of Tching-kiang.

HOE'I-LI, a town of China, of the third rank, in the province of Se-tchuen: 1060 miles ſouth-weſt of Peking. Lat. 26. 34. N. lon. 120. 19. E. Ferro.

HOE'I-NAN, a town of China, of the third rank, in the province of Chen-ſi: thirty-two miles north-eaſt of Si-ngan.

HOE'I-NGAN, a town of China, of the third rank, in the province of Chen-ſi: thirty-ſeven miles ſouth of Ling.

HOE'I-NGAN, a town of China, of the third rank, in the province of Fo-kien: twelve miles north-eaſt of Siuen-tcheou.

HOE'I-TCHANG, a town of China, of the third rank, in the province of Kiang-ſi: fifty-two miles eaſt-ſouth-eaſt of Kan-tcheou.

HOE'I-TCHEOU, a city of China, of the firſt rank, in the province of Kiang-nan. This is one of the richeſt and moſt commercial cities in the province; the air is mild and healthy; there are ſome mines of gold, ſilver, and copper, in the neighbouring mountains; the beſt tea grows in the environs, and the japanned work of this town is reckoned equal or ſuperior to any other: 625 miles ſouth of Peking. Lat. 29. 57. N. lon. 136. E. Ferro.

HOE'I-TCHEOU, a city of China, of the firſt rank, in the province of Quang-tong: 1010 miles ſouth of Peking. Lat. 23. 1. N. lon. 131. 45. E. Ferro.

HOE'I-TONG, a town of China, of the third rank, in the province of Hou-quang: fifteen miles north of Tſin.

HOE'I-TONG, a town of China, of the third rank, in the iſland of Hai-nan: forty-five miles ſouth-ſouth-eaſt of Kiong-tcheou.

HOE'I-YUEN, a town of China, of the third rank, in the province of Chen-ſi: twenty-two miles weſt-north-weſt of Kong-tchang.

HOE'ING, *ſ.* The method or proceſs of clearing ground by cutting up weeds or ſuperfluous plants with a hoe.

HŒMATO'PUS. See HEMATOPUS.

HO'EN, a town of China, of the third rank, in the province of Ho-nan, on the river Hoang: twelve miles ſouth-eaſt of Hoai-king.

HOEROMSK', a town of Norway, in the dioceſe of Aggerhuus: ſixteen miles ſouth-ſouth-weſt of Chriſtiania.

HOESCHE'LIUS (David), an eminent Greek ſcholar, born at Augſburg in 1556. He ſtudied at the college of his native city, and at Lawingen, and greatly diſtinguiſhed himſelf by his proficiency in ancient learning. In 1589 he was made librarian of the college of Augſburg, and in 1593, rector of the college of St. Anne. He enriched the library with a great number of manuſcripts, eſpecially Greek, of which he publiſhed a catalogue. He edited a great many Greek authors, to which he ſupplied notes and obſervations, and ſometimes tranſlations. The reputation he acquired in the republic of letters, cauſed him to be viſited by all learned ſtrangers, to whom he behaved with great politeneſs. He died in 1617.

HŒSS'ERING, a town of Germany, in Lower Saxony, and principality of Luneburg Zell, ſituated on the Hardan: twenty-two miles north-eaſt of Zell.

HO'EY-NIM-HOTUN, a town of the kingdom of Corea. Lat. 42. 38. N. lon. 147. 4. E. Ferro.

HOF, a town of Norway, in the dioceſe of Aggerhuus: thirty-ſix miles north of Berga.

HO'FERN, a town of Germany, in Auſtria: fifteen miles north-north-weſt of Windiſgarten.

HOFF, a town of Moravia, in the diſtrict of Olmutz: eighteen miles north-eaſt of Olmutz, and fourteen ſouth-weſt of Troppau.

HOFF, or DIE STADT ZUM HOFF, a town of Germany, in Franconia, on the Saale, which divides it into Old and New Town. It has three fauxbourgs, four churches, an academy, and a woollen manufacture. The Old Town was founded in the year 1080; the New Town in the thirteenth century, by the dukes of Meran. In the environs are found quarries of marble, red and black, and grey, in the latter are ſometimes found red ſpots like drops of blood. Hoff was formerly imperial: twenty-two miles north-north-eaſt of Bareuth, and forty-ſix north-eaſt of Bamberg. Lat. 50. 14. N. lon. 29. 40. E. Ferro.

HOFF'ELEIN, a town of Germany, in Auſtria: three miles ſouth-weſt of Hardeck.

HOFF'HEIM, a town of Germany, in Franconia, and biſhopric of Wurzburg: eight miles ſouth-ſouth-eaſt of Konigſhofen, and thirty-ſix north-eaſt of Wurzburg.

HOFF'KIRCHEN, a town of Germany, in Auſtria: ten miles ſouth of Aigen.

HOFF'MAN (Daniel), a German Lutheran divine, who was ſucceſſor to Heſhuſius in the theological chair at Helmſtadt, in 1588. He rendered himſelf famous, as the head of a party which, about the year 1598, declared openly againſt philoſophy, and continued to oppoſe it with the greateſt violence. Adopting ſome particular opinions of Martin Luther, he maintained that philoſophy was the mortal enemy of religion; that truth was diviſible into two branches, the one philoſophical, and the other theological; and that what was true in philoſophy, was falſe in theology. Theſe tenets naturally alarmed the doctors of the univerſity, and excited a warm controverſy between Hoffman and his colleagues; a controverſy which was alſo carried on in other countries with the ſame fervor. The tumults which it excited in Germany were appeaſed by the interpoſition of the duke of Brunſwick, who, after a careful enquiry into the nature of the debate, and conſulting the profeſſors of Roſtock, commanded Hoffman to retract publicly the invectives which he had thrown out againſt philoſophy in his writings and academical lectures, and to acknowledge, in the moſt open manner, the harmony and union of ſound philoſophy with true and genuine theology. That order was complied with in 1601. His writings were entirely controverſial, and chiefly on the above ſubject.

HOFF'MANN (Frederic), a celebrated phyſician, born at Halle, in Saxony, in 1660. He was of a family long diſtinguiſhed in medicine, and his father was a phyſician of repute. Frederic received his early education in the public ſchool at Halle; and in his nineteenth year he went to the univerſity of Jena, where he purſued the ſtudy of phyſic under G. Wolfgang Wedel. He paſſed ſome time at Erford, attending the chemical lectures of Gaſp. Cramer; and, returning to Jena, he obtained the degree of M. D. in the beginning of 1681. In 1684 he viſited Holland and England, cultivating the acquaintance of men of ſcience, particularly of Herman the botaniſt in the former, and Robert Boyle in the latter. Returning to the continent in 1686, he was appointed by Frederic-William, elector of Brandenburg, phyſician to the principality of Minden. In 1688, he accepted an invitation to ſettle at Halberſtadt, as public phyſician. At this period he publiſhed a treatiſe *De Inſufficientia Acidi & Viſcidi*, by which he overthrew the theory of Corn. Bontekoe. The univerſity of Halle being now eſtabliſhed by the firſt king of Pruſſia, Hoffman, in 1693, was nominated primary profeſſor of medicine and natural philoſophy. On this occaſion he diſplayed his piety as well as his learning by an oration, *De Atheo ex artificioſiſſima Corporis humani Fabrica convincendo*, which was printed, and well received. As a colleague in the medical profeſſorſhip he recommended the celebrated Stahl, who proved the great rival of his fame as a teacher. He attended very cloſely to the duties of his ſtation, and introduced into the univerſity a ſpirit of free and enlarged enquiry, which greatly promoted the advancement of medical knowledge. A number of learned publications made him known throughout Europe, and gave him admiſſion to the ſcientific ſocieties of Berlin, London, and Peterſburg. In 1718 he began to publiſh his *Syſtema Medicinæ rationalis*, which was received with great applauſe by the faculty in various parts of Europe. He alſo made collections of his moſt remarkable caſes, and publiſhed them in ſucceſſive faſciculi, under the title of *Medicina Conſultatoria*. He continued to attend to his academical functions, till his death in 1742, at the age of eighty-two. His works were publiſhed collectively, in ſix volumes folio, from 1748 to 1754. What moſt peculiarly belongs to him as a theoriſt, and has rendered him in ſome meaſure the founder of a new ſchool, is his doctrine of ſpaſm and atony. This he has deduced from his maxim, "that general pathology may be much more juſtly and eaſily explained from faults in the microcoſmic motions of the ſolids, than from vicious affections of the humours; and that all kinds of internal diſeaſes may be referred to preternatural affections of the nervous ſyſtem." He thus called the attention of phyſicians to the moſt eſſential part of the animal economy, and opened a door to much theoretical and practical improvement.

HOFF'MANN (Maurice), an eminent phyſician, anatomiſt, and botaniſt, born in 1622, at Furſtemwald in

Brandenburg. In 1641, he went for improvement to Padua, where he particularly attended to anatomy and botany. In the former ſcience he merits the title of an inventor, if the relation of Bartholine be true, that on diſſecting a turkey he diſcovered the pancreatic duct, and ſhowed it to the anatomiſt Wirſung, who afterwards found it in the human ſubject, and gave it his own name. He went to Altdorf in 1645, where he took the degree of doctor, and began to give lectures. In 1648 he obtained the extraordinary chair of anatomy and ſurgery, and in the following year he ſucceeded Gaſpar Hoffman as ordinary profeſſor in theſe branches. He was the founder of the anatomical theatre at that univerſity. In 1653 he ſucceeded Louis Jungerman in the botanical chair; and from his exertions a botanical garden was formed, which was the earlieſt inſtitution of the kind in the German univerſities. Beſides his academical occupations, he aſſiduouſly purſued the practice of phyſic, in which he became ſo eminent, as to be conſulted by ſeveral of the German princes. His private character was highly eſtimable, and he was generally regretted at his death in 1698, in his ſeventy-ſixth year. He wrote a number of theſes and diſſertations on anatomical and phyſiological topics; and in botany he publiſhed *Deliciæ Hortenſes*, or a catalogue of the plants in the botanical garden of Altdorf, 1660, 1677, 1691; alſo, *Floræ Altdorfinæ Deliciæ Sylveſtres*, or a catalogue of the plants growing wild about Altdorf, 1662. He likewiſe gave a botanical deſcription of Mount Maurice in the diſtrict of Leimburg, and other neighbouring places, 1694.

JOHN-MAURICE HOFFMANN, ſon of the preceding, was alſo an eminent profeſſor at Altdorf of anatomy, botany, and chemiſtry. He removed to Anſpach, where he died in 1727, aged ſeventy-four. He continued his father's *Floræ Altdorfinæ*, and wrote ſeveral other works.

HOFFMAN'NIA, *ſ.* [ſo named by Swartz in memory of *Maurice Hoffmann*, profeſſor of botany at Altdorf; whoſe works have been mentioned above.] In botany, a genus of the claſs tetrandria, order monogynia, natural order of ſtellatæ, (rubiaceæ, *Juſſ.*) The generic characters are—Calyx: perianthium one-leafed, four-toothed, ſuperior; teeth upright, ſharp. Corolla: monopetalous, ſalver-ſhaped; tube ſo ſhort as to be next no none; border four-parted; parts lanceolate, ſpreading. Stamina: filaments none; antheræ four, fixed to the baſe of the tube, linear-ſubulate, upright, preſſed cloſe to the ſtyle. Piſtillum: germ inferior, oblong-four-cornered; ſtyle ſubulate, the length of the ſtamens; ſtigma blunt, ſcarcely emarginate. Pericarpium: berry oblong, ſlightly four-cornered, crowned, two-celled, two-valved. Seeds numerous, roundiſh, fixed to receptacles in each cell.—*Eſſential Character.* Calyx four-toothed; corolla ſalver-ſhaped, four-parted; filaments none; berry two-celled, many-ſeeded.

Hoffmannia pedunculata, a ſingle ſpecies. Native of Jamaica.

HOFF'MARCKT, a town of Germany, in Auſtria, ſituated on the river March: twenty miles ſouth-ſouth-eaſt of Ziſterzdorf, and twenty-ſix from Vienna.

HOFF'WA, a town of Sweden, in the province of Weſt Gothland, where, in the year 1276, king Waldemar was taken priſoner by his brother: eighty miles north-eaſt of Uddevalla.

HOF'HEIM, a town of Germany, on the Upper Rhine, and principality of Heſſe Darmſtadt: five miles ſouth-weſt of Darmſtadt.

HOF'LEIN, a town of Germany, in Auſtria: three miles north-eaſt of Bruck.

HOF'MANSTORP, a town of Sweden, in the province of Smaland: twelve miles ſouth-eaſt of Wexio.

HOF'STOTTEN, a town of Germany, in Auſtria: eight miles ſouth of St. Polten.

HOF'TERWITZ, a town of Germany, in Upper Saxony, and margraviate of Meiſſen: ſix miles ſouth-eaſt of Dreſden.

HOG, *ſ.* [*hwch*, Welſh.] The general name of ſwine:

The *hog* that plows not, nor obeys thy call,
Lives on the labours of this Lord of all. *Pope.*

A caſtrated boar.

*To bring* HOGS *to a fine market.* To fail of one's deſign.—You have brought your *hogs to a fine market. Spectator.*

HOG, an iſland belonging to the American States, ſituated on the eaſt ſide of Lake Champlain, in Franklin county, Vermont, nine miles long, and generally about three broad.

HOG, an iſland of the American States, in Naraganſet Bay, in the ſtate of Rhode Iſland, about two miles in circumference: two miles from Briſtol.

HOG-COTE, *ſ.* A houſe for hogs; a hog-ſty.

HOG'S FENNEL, *ſ.* in botany. See PEUCEDANUM.

HOG'S HEAD, a cape on the ſouth-weſt coaſt of Ireland, in the county of Kerry. Lat. 41. 45. N. lon. 10. 15. W. Greenwich.

HOG-HERD, *ſ.* [*hog* and hẏꞃð, a keeper.] A keeper of hogs.—The terms *hog-herd* and cow-keeper are not to be uſed in our poetry. *Brome.*—*Hog-herd* however was uſed by an elegant poet in the reign of James I.

No luſty neat-herd thither drove his kine,
Nor booriſh *hog-herd* fed his rooting ſwine. *Browne.*

HOG ISLANDS, a cluſter of ſmall iſlands near the ſouth-weſt coaſt of Ireland, and county of Kerry, between Ballinaſkelling bay and the mouth of Kenmare river: three or four miles from Hog's Head.

HOG-LOUSE, *ſ.* A kind of inſect, a millepede.

HOG PLUM, *ſ.* in botany. See SPONDIAS.

HOG STEER, *ſ.* A wild boar of the third year.

HOG-STY, *ſ.* The place in which ſwine are put to be fed.

HOG-WASH, *ſ.* The draff which is given to ſwine.

HOG-WEED, *ſ.* in botany. See BOERHAVIA, HERACLEUM, and POLYGONUM AVICULARE.

HO'GA, HO'GIUM, HOCH, *ſ.* [from *hoogh*, Ger. high, or from hou, Sax.] A mountain or hill.

HO'GARTH, [of *hoogh*, high, and *aerd*, nature.] William, an original genius in painting, born in Weſtmoreland in 1698, and apprenticed in London to a ſilver-ſmith, with whom he entered upon that branch of the trade which conſiſts in engraving ciphers and arms upon plate. This occupation gave him ſomewhat of a turn for drawing; and, before his apprenticeſhip expired, he had exhibited a ſingular talent for ludicrous caricature. As ſoon as he became his own maſter, he entered at an academy for drawing and deſign; and ſtudied attitudes from the life. An edition of Hudibras afforded him the firſt ſubject ſuited to his genius; after which he acquired conſiderable employment as a portrait-painter. Grace was, however, no attribute of his pencil, and he was more diſpoſed to aggravate than to ſoften the external defects of nature. His talents for original comic deſign, however, gradually unfolded themſelves; and on various public occaſions he produced diſplays of his ludicrous powers. In 1730 he formed a clandeſtine marriage with the only daughter of ſir James Thornhill, the painter; and ſoon after, he commenced his firſt great ſeries of moral paintings, The Harlot's Progreſs. Some of theſe pieces, when they were finiſhed, were deſignedly placed in the way of his father-in-law, in order to reconcile him to a match which the obſcurity of the object of his daughter's choice had led him to diſapprove. His obſervation upon them was, "The man who can produce ſuch works, can maintain a wife without a portion." He was ſoon after, however, reconciled, and the young couple were brought home to his houſe. The Harlot's Progreſs proved extremely popular; inſomuch that a pantomime taken from it was ſucceſsfully repreſented on the ſtage. This performance, with ſeveral ſubſequent ones of a ſimilar kind, failed not to place Hogarth in the claſs of original geniuſes and inventors. He may be ſaid to have created an entirely new ſpecies of painting, which may be termed the *moral comic*. The Dutch and Flemiſh ſchool, in their repreſentations of vulgar life, had occaſionally touched upon the humorous, but without any moral purpoſe. Hogarth's pieces are all lectures of morality. They are ſatires of particular vices and follies, expreſſed with ſuch ſtrength of character, and ſuch an accumulation of minute and appropriate circumſtances, that they have all the truth of nature, heightened by the attractions of wit and fancy. Of his works in ſeries, beſides the Harlot's Progreſs, are, The Rake's Progreſs, Marriage-à-la-Mode, Induſtry and Idleneſs, The Stages of Cruelty, and a ſet of Election Prints. The ſingle comic pieces from his pencil are very numerous, and many of them a conſtant ſource of inexhauſtible amuſement. But, after having acquired deſerved reputation in his proper walk, Hogarth attempted to ſhine in the higheſt branch of the art, and produced ſeveral unſucceſsful ſpecimens of hiſtory-painting: it was his misfortune that the defects of education, and a vulgar and comic turn of thinking, had incapacitated him for the graceful and ſublime in Nature. A Sigiſmunda, which was to rival the Italian ſchool, proved, according to lord Orford, "more ridiculous than any thing he had ever ridiculed." Several of his pieces, however, in the middle ſtyle, are not without a conſiderable ſhare of merit. Although he profeſſedly decried literature, he choſe to communicate his ideas on a topic moſt intimately connected with his art, and, by the aid of ſome friends, produced in 1753 a work entitled The Analyſis of Beauty, written with a View of fixing the fluctuating Ideas of Taſte, 4to. Its leading principle is, that beauty fundamentally conſiſts in that union of uniformity and variety which is found in the curve or waving line. This poſition is illuſtrated by many ingenious remarks, and by ſome plates characteriſtic of the genius of the author; but it was not to be expected that men of taſte were to acquieſce in any particular ſyſtem upon the ſubject.

By the reſignation of his brother-in-law Thornhill, Hogarth, in 1757, obtained the place of ſerjeant-painter to the king. This connection with the court probably induced him to quit the line of party-neutrality which he had hitherto obſerved, and to engage againſt the patriotic champion Wilkes, and his friends, in a print, publiſhed September 1762, entitled "The Times." Some ſtrictures upon him on this account in a North Briton, produced his caricature of Wilkes; this occaſioned an angry epiſtle to the painter by Churchill, which was retaliated by a caricature of the poetical divine. On this occaſion, the earl of Orford ſays, in his Hiſtory of Painting, "Never did two angry men of great abilities throw mud with leſs dexterity." Hogarth's powers were, however, as yet unimpaired, for he had ſhortly before produced one of his capital works, a ſatirical print againſt the methodiſts. From this year a decline in his health took place, which in October, 1764, terminated in his ſudden death, owing to the rupture of an aneuryſm in his cheſt. He died at his houſe in Leiceſter-ſquare, and was interred at Chiſwick, under an elegant mauſoleum, decorated with a poetical inſcription by his friend Garrick. Hogarth was a man of rough manners, but wore a generous heart. He lived to enjoy an ample ſhare of fame among his countrymen; and ſince his death, complete collections of his works have been regarded as highly valuable by the curious. A catalogue of all his prints has been given by the earl of Orford, in the work above-mentioned. The multiplicity of local and temporary circumſtances introduced in his deſigns, ſeemed to have rendered notes or illuſtrations neceſſary for the full comprehenſion of them. A work upon this plan, accompanying ſmall copies of his plates, entitled "Hogarth Illuſtrated," by Mr. John Ireland, has been well received by the public. His Life has alſo been written by Mr. J. Nichols, and recently publiſhed with merited ſucceſs. The following character of Hogarth has been given by Mr. Prince Hoare, in his "State of the Arts," publiſhed in 1807: "Of Hogarth, but one opinion can be entertained: a phœnix in the art, which probably never before appeared in any country, he was in painting a moral ſatiriſt. As Shakeſpeare wrote to the paſſions connected with moral ſentiment, ſo did Hogarth paint for the inſtruction of every age, and 'through the eye correct the heart.' In ſubjects of ſportive fancy, and in domeſtic or familiar hiſtory, the native and characteriſtic powers of Hogarth were ſingularly eminent: but his eulogy has been ſo often written, and lately ſo amply diſplayed by a learned and noble author, the earl of Orford, that it would be here ſuperfluous; yet it may be allowable to remark, that in the conſpicuous prominence of the intellectual and moral properties of his art, in the wit, humour, and patriotiſm, of his ſcenes, his powers in other profeſſional points have been chiefly overlooked. The picture of the Boys playing on the Tomb-ſtone, at the ſame time that it lays claim to ſome of the higheſt moral hiſtoric merits, is an inſtance of the moſt ſkilful, and, it may be added, *grand* compoſition. In the ſeries of Marriage-à-la-Mode, ſeveral of the ſubjects are painted with a breadth, force, and clearneſs, of colour, which have ſeldom been ſurpaſſed; but the Breakfaſt Table is the moſt ſtriking inſtance of theſe merits."

HOG'ASTER, *ſ.* [*hogaſtrum*, Lat.] A little hog; it alſo ſignifies a ſheep of the ſecond year. In the northern parts of England, ſheep, after they loſe the name of lambs, are called *hogs*; and in Kent, Suſſex, &c. *tags*. *Cowell.*

HOG'BO, a town of Sweden, in the province of Geſtricia: nine miles weſt of Geffle.

HO'GENHINE, *ſ.* in our old cuſtoms, a ſtranger or gueſt lodged in a houſe or family for three nights, after which the maſter of the houſe was anſwerable for his good behaviour.

HOG'GENBERG, a town of Germany, in Auſtria: twelve miles ſouth-weſt of Freyſtadt.

HOG'GEREL, *ſ.* A two-year old ewe. *Ainſworth.*

HOGH, *ſ.* [otherwiſe written *ho*, *how*, or *hough*; from *hoogh*, Dut.] A hill; riſing ground; a cliff. *Obſolete.*

That well can witneſs yet unto this day,
The weſtern *hogh*, beſprinkl'd with the gore
Of mighty Goemot. *Fairy Queen.*

HOG'GISH, *adj.* Having the qualities of a hog; brutiſh; greedy; ſelfiſh.

HOG'GISHLY, *adv.* Greedily; ſelfiſhly.

HOG'GISHNESS, *ſ.* Brutality; greedineſs; ſelfiſhneſs.

HO'GI, *ſ.* With the Turks, perſons employed in tranſcribing books.

HOG'LA, [Heb. dame.] The name of a woman.

HOG'LAND, a town of Norway, in the dioceſe of Aggerhuus: thirty-two miles north of Frederickſtad.

HO'GO, *ſ.* [from *haut gout*, Fr.] A high reliſh; an offenſive ſmell. In cookery, a meſs ſo called from its high reliſh. *Scott.*

HOG'OLEN, one of the Carolinas, or New Philippine Iſlands.

HOGS'BY, a town of Sweden, in the province of Smaland: thirty-three miles north of Calmar.

HOGS'HEAD, *ſ.* A meaſure of liquids containing ſixty-three gallons: it is half a pipe, and the fourth part of a ton, by ſtat. 1 Richard III. c. 13.

HOG'STA, a town of Sweden, in the province of Upland: ſeven miles north of Upſal.

HOG'SUND, a town of Norway, in the province of Aggerhuus: twenty-three miles ſouth-weſt of Chriſtiania.

HOGUE (La), a town of France, in the department of the Channel: two leagues and a half eaſt-north-eaſt of Valognes, and one and three quarters ſouth Barfleur. In the year 1692, the Engliſh fleet, under the command of admiral Ruſſel, obtained a glorious victory over the French, in the Engliſh Channel, oppoſite this town, and from thence called the battle of la Hogue, in which fifteen French men of war were taken, burned, or deſtroyed.

HOGUE (Belle), a cape on the north coaſt of the iſland of Jerſey: five miles north of St. Helier.

HOGWAL'TA, a town of Sweden, in the province of Warmeland: thirty miles north-weſt of Carlſtadt.

HO'HAM, [Hebrew.] The name of a man.

HO'HE, a river of Germany, in Lower Saxony, which runs into the Aller near Hudemuhlen, in the principality of Luneburg-Zell.

HOHE'FAHL, a river of Sileſia, which runs into the Billau, in the principality of Neiſſe.

HO'HEN, or Yom-tim, a river of China, which runs into the lake Pay, in the province of Pe-tche-li.

HO'HEN AS'PERG, a fortreſs of Germany, in Swabia, and duchy of Wurtemburg. Taken by the French in the year 1688: ſix miles north of Stuttgart.

HO'HEN ELB, a town of Bohemia, in Konigingratz: ſixteen miles north-eaſt of Gitſchin.

HO'HEN FRI'EDBERG. See Friedberg.

HO'HEN FRI'EDEBERG, a town of Sileſia, in the principality of Schweidnitz: four miles and a half north-north-weſt of Freyburg, and five ſouth-weſt from Striegau.

HO'HEN GURSCH'DORF, a town of Sileſia, in the principality of Neiſſe: four miles weſt of Grotkau.

HO'HEN LIM'BURG, a town of Germany, in Weſtphalia, and county of Mark: nine miles ſouth of Schwiert.

HO'HEN RU'PERSTORFF, a town of Germany, in Auſtria: five miles ſouth-weſt of Ziſterſtorff, and fifteen north-eaſt of Vienna.

HO'HEN SCHWAN'GAU, a town of Germany, in Upper Bavaria: one mile ſouth-weſt of Fueſſen, and twenty ſouth-ſouth-weſt of Weilhaim.

HO'HEN SOLMS, a town of Germany, on the Upper Rhine, which gives title of count to a branch of the houſe of Solms, ſituated in a valley near a high mountain, on which is built the chateau of the counts. The inhabitants are Calviniſts, but thoſe of the villages round about are chiefly Lutherans: five miles north-north-eaſt of Wetzlar, and thirty-eight north-north-eaſt of Mentz.

HO'HENBERG, a county and principality of Germany, in Swabia, ſituated between the duchy of Wurtemberg and the Auſtrian Briſgaw, purchaſed by Leopold, duke of Auſtria, in the year 1381, for 66,000 florins. It takes its name from a citadel, now in ruins. It is divided into Upper and Lower counties, which lie at ſome diſtance from each other. The principal towns are Rotenburg, Ehingen, Hord, and Schramberg.

HO'HENBERG, a town of Germany, in Franconia, and principality of Bareuth: ten miles eaſt-north-eaſt of Wunſiedel.

HO'HENBRUK, a town of Bohemia, in Konigingratz: five miles eaſt of Konigingratz.

HOHENBUC'KA, a town of Germany, in Upper Saxony, and electorate of Saxony: ſix miles north-eaſt of Schlieben.

HO'HENBURG, a town of Germany, in Auſtria, on the river Traſen: twenty miles weſt of Ebenfurth.

HO'HENECK, a town and caſtle of Germany, in Franconia, and principality of Bareuth: fourteen miles north of Anſpach.

HO'HENEMBS, a county and principality of Germany, in Swabia, ſituated to the ſouth of the lake of Conſtance. It takes its name from two ſtrong caſtles, called *Old* and *New Hohenembs*. The aſſeſſment in the matricula is twenty florins, and the tax ſixty rix-dollars. The family of Hohenembs became extinct in 1760, when it was united to the houſe of Auſtria.

HOHEN'ESTED, a town of Germany, in Holſtein: ten miles ſouth-weſt of Nordtorp.

HO'HENFELD, a town of Germany, in Holſtein: ſix miles north-weſt of Lutkenborg.

HO'HENFELS, a town of Germany, in Bavaria, and lordſhip of Brieteneck: thirteen miles north-north-eaſt of Dietfurt, and ſeventeen north-north-weſt of Ratiſbon.

HO'HENFURT, a town of Bohemia, in the diſtrict of Prachatitz, on the Molda: four miles ſouth-ſouth-weſt of Roſenburg.

HO'HENLOHE, or Holach, a county and principality of Germany, in Franconia, ſituate to the weſt of the margraviate of Anſpach, about twenty-ſix miles from north to ſouth, and twenty-three from eaſt to weſt. The country is compoſed of mountains, valleys, and plains. The ſouthern parts abound in vineyards, the northern parts are cultivated with corn; in the valleys are excellent meadows and paſture land, which feed great numbers of an excellent kind of cattle; on the mountains are valuable woods of oak, fir, pine, beech, and birch, with plenty and variety of game. The inhabitants are chiefly Lutherans, with ſome Roman Catholics. The principality takes its name from an ancient chateau. The princes are deſcended from Conrad the Sage, duke of Franconia and Lorraine. There are ſeveral branches: the two principal are thoſe of Waldenburg and Neuenſtein.

HO'HENMAUT, or Wysse meyto, a town of Bohemia, in the circle of Chrudim, with a ſmall territory annexed: fourteen miles eaſt of Chrudim, and twenty-two ſouth-ſouth-eaſt of Konigingratz.

HO'HENSCHAU, a town and caſtle of Germany, in Upper Bavaria; near it are iron mines and forges: thirty miles weſt of Saltzburg, and forty-two ſouth-eaſt of Munich.

HO'HENSTADT, a town of Moravia, in the circle of Olmutz: ſix miles ſouth-weſt of Schomberg.

HO'HENSTAIN, a town of Germany, in Auſtria: eight miles weſt of Crems.

HO'HENSTEIN, a town of Germany, on the Upper Rhine, and county of Catzenelnbogen: once a ſtrong place, but now in ruins.

HO'HENSTEIN, a town of Germany, in Holſtein: three miles ſouth-weſt of Oldeburg.

HO'HENSTEIN, a town of Pruſſia, in the province of Oberland, with a caſtle: ſixty-ſix miles ſouth-ſouth-weſt of Konigſberg.

HO'HENSTEIN, a town of Germany, in Upper Saxony, and margraviate of Meiſſen: eight miles eaſt-north-eaſt of Pirna, and five ſouth of Stolpen. Lat. 50. 56. N. lon. 31. 56. E. Ferro.

HO'HENSTEIN, a town of Germany, in Upper Saxony, and lordſhip of Schonburg: ſeven miles eaſt of Glauchau, and ſeven weſt of Chemnitz.

HOHENTRU'DINGEN, a town of Germany, in Franconia, and principality of Anſpach: fifteen miles ſouth of Anſpach.

HO'HENTWEIL, a fortreſs of Germany, in Swabia, and duchy of Wurtemberg, inſulated in the landgraviate of Nellenburg: eight miles north-eaſt of Schaffhauſen, and ſix north-weſt of Radolfszell.

HO'HENWART, a town of Germany, in Bavaria: nine miles ſouth of Ingolſtadt, and twenty-eight north-north-weſt of Munich.

HO'HENWARTH, a town of Germany, in Auſtria: five miles ſouth-eaſt of Meiſſau.

HOHENZOL'LERN, a principality of Germany, in Swabia, divided into branches, Hohenzollern Heckingen, and Hohenzollern Sigmaringen.

HOHI'MAR, a town of Tranſilvania: nine miles ſouth of Weiſenburg.

HOHL'FELD (————), a ſingularly ingenious mechanic, born of poor parents, at Hennerndorf, in the mountains of Saxony, in 1711. He learned the trade of lace-making at Dreſden, but early diſcovered a turn for mechanics by conſtructing various kinds of clocks. From Dreſden he removed to Berlin to follow his occupation. As he was an excellent workman, and invented ſeveral machines for ſhortening his labour, he found ſufficient time to indulge his inclination for mechanics; and he made there, at the ſame time that he purſued his uſual buſineſs, air-guns and clocks.

In 1748, he became acquainted with the celebrated Sulzer,

zer, at whoſe deſire he undertook the conſtruction of a machine for noting down any piece of muſic when played on a harpſichord. A machine of this kind had been before invented by Mr. Von Unger; but Hohlfeld, from a very imperfect deſcription, completed one without any other aſſiſtance than that of his own genius. Of this machine, now in poſſeſſion of the Academy of Sciences at Berlin, Sulzer gave a figure, from which it was afterwards conſtructed in England. This ingenious piece of mechaniſm was univerſally approved, though ſeveral things may be wanting to render it complete; but no one was ſo generous as to indemnify the artiſt for his expences, or to reward him for his labour.

About the year 1756, the Pruſſian miniſter, count de Podewils, took him into his ſervice, chiefly for the purpoſe of conſtructing water-works in his magnificent gardens at Guſow. There he invented his well-known threſhing-mill, and another for chopping ſtraw more expeditiouſly. He alſo diſplayed his talent for invention, by conſtructing a machine, which, being faſtened to a carriage, indicates the revolutions made by the wheels. Such machines had been made before, but his far exceeded every thing of the like kind. Having loſt this machine by a fire, he invented another, ſtill more ſimple, which was ſo contrived as to be buckled between the ſpokes of the wheel. This piece of mechaniſm was in the poſſeſſion of Sulzer, who uſed it on his tour, and found that it anſwered the intended purpoſe. In 1765, when the duke of Courland, then hereditary prince, reſided at Berlin, he paid a viſit to Hohlfeld, and endeavoured to prevail on him to go to Courland, by offering him a penſion of eight hundred rix-dollars; but this ingenious man was ſo contented with his condition, and ſo attached to his friends, that he would not merely for ſelf-intereſt quit Berlin. His refuſal, however, obtained for him a penſion of one hundred and fifty dollars from the king.

Beſides the before-mentioned machines, he conſtructed, occaſionally, ſeveral uſeful models. Among theſe were a loom for weaving figured ſtuffs, ſo contrived that the weaver had no need for any thing to ſhoot through the woof; a pedometer for putting in the pocket; a convenient and ſimple bed for a ſick perſon, which was of ſuch a nature, that the patient, with the ſmalleſt ſtrength, could at any time raiſe or lower the breaſt, and, when neceſſary, convert the bed into a ſtool; and a carriage ſo formed, that if the horſes took fright, or ran away, the perſon in it could, by a ſingle puſh, looſen the pole, and ſet them at liberty. The two laſt models have been loſt. Every machine that this ſingular man ſaw, he altered and improved in the ſimpleſt manner. All his own inſtruments he made himſelf, and repaired them when damaged. But, as he was fonder of inventing than of following the plans of others, he made them in ſuch a manner that no one except himſelf could uſe them. Several of his improvements were, however, imitated by common workmen, though in a very clumſy manner. It is worthy of remark, that he never beſtowed ſtudy upon any thing; but, when he had once conceived an idea, he immediately executed it. He comprehended, in a moment, whatever was propoſed; and, at the ſame time, ſaw how it was to be accompliſhed. He could, therefore, tell in an inſtant whether a thing was practicable; if he thought it was not, no perſuaſion or offer of money could induce him to attempt it. He never purſued chimeras, like thoſe mechanics who have not had the benefit of education or inſtruction; and, though this may be aſcribed to the intercourſe he had with great mathematicians and philoſophers, there is every reaſon to believe, that he would have equally guarded againſt them, even if he had not enjoyed that advantage. The ſame quickneſs of apprehenſion which he manifeſted in mechanics, he ſhowed alſo in other things. His obſervations on moſt ſubjects were judicious, and peculiar to himſelf; ſo that it may be ſaid, without exaggeration, that he was born with a philoſophical mind.

With regard to his moral character, he was very different from thoſe of the ſame claſs. Though he ſtill retained ſomething of the manners of his former condition, his mild and civil deportment rendered his company and converſation agreeable. He poſſeſſed a good heart, and his life was ſober and regular. Though he was every day welcome at the beſt tables, he ſtaid for the moſt part at home, through choice; went to market for his own proviſions, which he cooked himſelf; and was as contented over his humble meal as Curius was over his turnips. A little before his death, he had the pleaſure of ſeeing a curious harpſichord he had made, and which was purchaſed by his Pruſſian majeſty, placed in an elegant apartment in the new palace of Potſdam.. As he had for ſome time neglected this inſtrument, the too great attention which he beſtowed on putting it in order, contributed not a little to bring on that diſeaſe which at laſt proved fatal to him. His clock having become deranged during his illneſs, he could not be prevented, notwithſtanding the admonition of his friend and phyſician, Dr. Stahls, from repairing it. Cloſe application occaſioned ſome obſtructions which were not obſerved till too late; and, an inflammation taking place, he died, in 1771, at the houſe of count de Podewils, in the 60th year of his age.

HOHN, a river of Germany, in Weſtphalia, which runs into the Lehn, near Werdohl, in the county of Mark.

HOHN'STEIN, a county of Germany, ſituated in Thuringia, which takes its name from an ancient chateau. The ancient counts were deſcendants of Charles, duke of Lorraine, of the family of Charlemagne. This family becoming extinct, the eſtates are divided between the counts of Stollberg, and the duke of Brunſwick Luneburg.

HOI'DEN, *ſ.* [*hoeden*, Welſh; *fœmina levioris famæ*, Lat.] An ill-taught aukward country girl.

*To* HOI'DEN, *v.n.* To romp indecently.—Some of them would get a ſcratch; but we always diſcovered, upon examining, that they had been *hoidening* with the young wenches. *Swift.*

*To* HOISE, *to* HOIST, *v.a.* [*hauſſer*, Fr.] To raiſe up on high.—They looſed the rudder bands, and *hoiſed* up the mainſail to the wind, and made toward ſhore. *Acts* xxvii. 40.

What haſte ſhe made to *hoiſt* her purple ſails,
And to appear magnificent in flight. *Dryden.*

HOIS'TING, *ſ.* The act or proceſs of lifting up, the operation of drawing up any body by the aſſiſtance of one or more tackle.

HOI'TY-TOI'TY, *interj.* An exclamation of contempt.—*Hoity-toity!* what have I to do with dreams? *Congreve.*

HOKE-DAY. See HOCK-DAY.

HOLABRUN', a town of Germany, in Auſtria: two miles north of Sonneberg.

HOLABRUN', a town of Germany, in Auſtria: ſeven miles north of Korn Neuburg.

HO'LANDS, a town of Norway, in the dioceſe of Chriſtianſand: eight miles ſouth of Stavangar.

HOLA'TEN, a town of Poland, in the palatinate of Volhynia: twenty-four miles ſouth-weſt of Lucko.

HOL'BEACH, a ſmall town in Lincolnſhire, with a market on Thurſday; and fairs on May 7, and the ſecond Tueſday in September. It is ſeated in a flat among the dykes, and is of great antiquity, as appears from the remains of walls and pavements that have been dug up, together with urns and coins. The church is a noble Gothic building, with a lofty tower and ſpire. It is twelve miles ſouth of Boſton, and 115 north of London. Holbeach-Thurn is ſouth-eaſt of Holbeach, in the marſhes

HOL'BECK, a ſeaport town of Denmark, in the iſland of Zealand, ſituated in the Gulf of Iſefiord, with a good harbour, from which great quantities of corn are annually exported. In 1290, this town was deſtroyed by a fleet from Norway: thirty miles weſt of Copenhagen. Lat. 55. 42. N. lon. 11.44. E. Greenwich.

HOL'BEIN (Hans), a very eminent painter, born at Baſil in 1498. His father was a painter at Augſburg, and the ſon received his education under him. Though he never viſited Italy, by the force of his genius alone he freed himſelf from the Gothic ſtyle of his country; and he painted equally well in oil, water-colours, and diſtemper. He poſſeſſed a wonderful fertility of invention, yet he had patience to give an exquiſite finiſh to his works; and ſcarcely any maſter has equalled him in the truth and livelineſs of his fleſh-colour. He early obtained reputation at home, by ſeveral works in the town-houſe, and ſome excellent portraits; among which was that of the illuſtrious Eraſmus, then reſiding at Baſil. A diſſipated mode of living, however, threw this diſtinguiſhed painter into indigence; and he lived uneaſily with his wife, whoſe temper was probably ſoured by his miſconduct. Under theſe circumſtances he attracted the notice of the earl of Arundel, then on his return from Italy, who invited him to viſit England. The advice of Eraſmus ſeconded this invitation; and in 1526, furniſhed with recommendatory letters to ſir Thomas More, he quitted his family and native place, and paſſed by Antwerp to England. More received him kindly; and kept him nearly three years at his houſe at Chelſea, painting portraits of the lord chancellor and his friends. King Henry VIII. having ſeen ſome of his family performances, took the painter into his own ſervice, and gave him an apartment in the palace, with a competent ſalary. He was employed in a variety of works, chiefly portrait; and after the death of queen Jane Seymour, he was ſent by the king into Flanders to draw the picture of the ducheſs-dowager of Milan, who had been recommeneded to Henry for a wife. He had afterwards a like commiſſion to lady Anne of Cleves; and the beauty he gave her portrait induced Henry to ſend for the original, with whom, however, he was ſo much diſguſted, that he rejected her from his bed. This diſappointment is ſuppoſed to have cauſed the fall of the miniſter, lord Cromwell; but the painter, who was more to blame, retained his favour at court. A ſtory is told of Holbein's throwing down ſtairs a nobleman who intruded upon him while he was painting a lady in ſecret, and of his obtaining his pardon for the offence from the king, who obſerved, "that of ſeven peaſants he could make as many lords, but not one Holbein." He continued to reſide in England till his death, in 1554, at the age of fifty-ſix. Of Holbein's very numerous works, a full catalogue is given by Mr. Walpole. In the town-houſe of Baſil are eight pieces of Chriſt's Paſſion, which are much admired. The Dance of Death, though ſhown as his in a church-yard at Baſil, was certainly painted before his time; but he copied the idea with great improvements in a ſet of drawings engraved by Hollar. His large pieces in England are, a picture in Surgeon's-hall, of Henry VIII. granting the charter to the company; and another in the hall of Bridewell-hoſpital, repreſenting Edward VI. preſenting to the lord-mayor of London his charter of donation of that excellent charity. He painted two large pieces in diſtemper, for the Eaſterling merchants in London, the ſubjects of which were, the reſpective triumphs of riches and poverty. The pictures have periſhed, but drawings of them are preſerved, which diſplay great power of fancy and expreſſion. His other works are moſtly portraits, and are to be found in a variety of collections, where they are highly valued.

HOL'BERG (Louis), a celebrated writer, born at Bergen in Norway, in 1681. His father, a lieutenant-colonel in the army, and his mother, both dying before he had attained the tenth year of his age, he was patroniſed by his mother's brother, who ſent him to Copenhagen, and directed his ſtudies to the principles of theology. In this city he learned French and Italian, went through the different examinations of the clergy with credit, and went back to his own country, where he became private tutor in the family of the ſuffragan of the biſhop of Bergen. Scarcely had he enjoyed this appointment a month, when he conceived a diſguſt at his employment; which was ſtill farther ſtrengthened by an ardent deſire of travelling. He accordingly ſold every thing he could convert into money, and, though all he could raiſe amounted to no more than ſixty dollars, he took a paſſage by ſea to Holland. Having exhauſted his finances at Amſterdam, and in a reſidence at Aix-la-Chapelle for his health, he was obliged to procure a livelihood by his ſkill in muſic. After conſiderable difficulty, he directed his courſe to Chriſtianſand, and on his arrival there commenced a teacher of languages. Here a clergyman, one of his relations, received him into his houſe, where he ſtaid the whole winter. In the ſpring he embarked for England; and after viſiting London, he proceeded to Oxford, where he found himſelf at firſt embarraſſed; but, making himſelf known to the ſtudents by his ſkill in languages and in muſic, he got a great many of them as pupils. Having improved himſelf at Oxford as much as poſſible, he took a paſſage in a Swediſh ſhip to Helſingor, from which he travelled by land to Copenhagen, where he was engaged to accompany the ſon of a counſellor of ſtate to Dreſden, with recommendations to baron von Lowendahl, in whoſe houſe he reſided. From Dreſden he returned by the way of Leipſic, Halle, Brunſwick, and Hamburg; and, as he had acquired great celebrity by his travels, admiral Gedde offered him the place of tutor to his ſons. Poverty compelled him to embrace this offer; but at the end of a year, being admitted into the college of medicine, he reſigned his employment. He ſoon after recommenced his travels, and went by ſea to the Netherlands; whence proceeding on foot to Bruſſels, he arrived much fatigued at the capital of France. At Paris he continued a year and a half; when, having heard that one could travel from Paris to Rome with twenty dollars, he reſolved to pay a viſit to that city, and performed the greater part of the journey on foot. Having ſpent the winter there, he ſet out on his return to Paris, by the way of Florence, Bologna, Turin, and Lyons. On his return to Copenhagen, he had ſtill to ſtruggle with narrow circumſtances. In the mean time he publiſhed, in the Daniſh language, An Introduction to the Law of Nature and Nations; and ſhortly after, fortune began to favour him with her ſmiles. He obtained a public appointment which raiſed him above poverty, being made profeſſor of metaphyſics; which was followed by a place in the Conſiſtory, which gave him a higher rank, and made a farther addition to his income.

Hitherto Holberg had applied chiefly to juriſprudence, hiſtory, and languages; but he now reſolved to try his talents in poetry. He began with ſatirical compoſition, and his firſt attempt was the well-known heroi-comic poem called *Peter Paars*; which is ſtill read with ſatisfaction by the Swedes and Danes. His reputation as a writer being now eſtabliſhed, he gave to the public a great many other productions, all of which met with a favourable reception, and were tranſlated into different foreign languages. In 1735, he became rector of the univerſity of Copenhagen; and on the death of Bartholin, in 1737, he was entruſted with the management of its finances. Having now acquired ſome property by his literary labours, he purchaſed an eſtate in Iceland, and, on taking poſſeſſion of it, turned his thoughts towards improving it. As he had a handſome income, lived economically, and was never married, he amaſſed a conſiderable fortune, ſeventy thouſand dollars of which he beſtowed on the Academy of Soroe in Iceland, for the purpoſe of educating young nobility; on which account the king, in 1747, declared him a baron; and the academy afterwards celebrated his memory by an annual oration. He alſo ſettled ſixteen thouſand dollars, the intereſt of which was to be employed in providing eſtabliſhments for young women at Copenhagen. He died in 1754, in the ſeventy-firſt year of his age. His writings are very numerous, and have been much ſought after and approved. He was the author of Klimm's Subterranean Travels; which were tranſlated into ſeven different languages. It is a romance or allegory on the plan of Gulliver's Travels, but ſaid to have more genuine wit and *naiveté* He wrote many dramatic pieces which are ſtill acted, not only in Denmark, but in Germany, and other countries. His other writings are, 1. Hiſtory of the Jews from the Creation to the preſent Time, Copenhagen, 1742, 2 vols. 4to. 2. *Epigrammata, Libri VII. Hafn.* 1750, 8vo. 3. Moral Thoughts, Copenh. 1744, 8vo. 4. Parallel Hiſtory of various Heroines and other celebrated Females, after the Manner of Plutarch, 1745. 5. Miſcellaneous Poems, 1747. 6. *Hiſtoria Navalis Danorum & Norvegorum.* 7. Letters on Hiſtory, Politics, Metaphyſics, Morality, and different Miſcellaneous Subjects, Copenh. 1749, 2 vols. 8vo. 8. Moral Fables, 1749, 8vo. 9. *Lettre de M. le Baron Holberg, qui contient quelques Remarques ſur les Mémoires concernant la Reine Chriſtine, nouvellement publiés (par M. Arkenholz) à Leipſ.* 1753, 8vo. 10. *Conjectures ſur les Cauſes de la Grandeur des Romains, nouvelle Hypotheſe, oppoſée à quelques autres ci-devant publiées ſur le même Sujet,* 1753, 8vo.

HOL'BURNHEAD, a cape of Scotland, on the north coaſt of the county of Caithneſs. Lat. 58. 35. N. lon. 0. 9. W. Edinburgh.

HOL'CROFT (Thomas), born of obſcure parents, who ſpelled their name *Ouldcraft*, which he reſtored to its true orthography. His father was a ſhoe-maker; to which craft the ſon always bore a peculiar reſpect. When about twenty-five years old, Mr. Holcroft conceived a paſſion for the ſtage; and in the profeſſion of a player he continued, not with much ſucceſs, till after the production of the play of Duplicity, in 1781. Immediately on the exhibition of this comedy, he withdrew from the ſtage as an actor, and for ſeveral years devoted his attention principally to dramatic compoſition. His writings of this kind were as follow: 2. The Noble Peaſant, an opera. 3. The Choleric Fathers, an opera. 4. The Follies of a Day, a comedy, tranſlated from the French of Beaumarchais. 5. Seduction, a comedy, 1786. 6. The German Hotel, a drama, tranſlation, 1790. 7. The School for Arrogance, a comedy, partly from the French of Deſtouches, 1791. 8. The Road to Ruin, a comedy, and the beſt of his dramatic writings, 1792. 9. Love's Frailties, a comedy, 1794. 10. The Deſerted Daughter, a comedy, 1795. 11. The Man of Ten Thouſand, a comedy, 1796. 12. The Force of Ridicule, a comedy, 1796. 13. He is Much to Blame, a comedy, very ſucceſsful, 1798. 14. Knave or Not, a comedy, 1798. 15. Deaf and Dumb, a comedy, from the French, very ſucceſsful, 1801. 16. The Tale of Myſtery, an after-piece, from the French, 1802. 17. Hear Both Sides, a comedy, 1803. 18. The Vindictive Man, a comedy, 1806.

Mr. Holcroft alſo exerciſed his talent, with advantage to his reputation, in the novels of Anna St. Ives, publiſhed 1792, and Hugh Trevor, publiſhed 1794. He alſo produced a third novel, entitled, Brian Perdue, in 1807. The public is further indebted to the pen of this ready writer for many tranſlations. 1. The Private Life of Voltaire, 12mo. 2. Memoirs of Baron Trenck, 3. vols. 12mo. 3. Secret Hiſtory of the Court of Berlin, by the Count de Mirabeau, 2 vols. 8vo. 4. Tales of the Caſtle, by Madame de Genlis, 5 vols. 12mo. 5. Poſthumous Works of Frederic II. King of Pruſſia, 13 vols. 8vo. 6. An Abridged Diſplay of the Phyſiognomy of Lavater, 3 large vols. 8vo.

The great action of the life of Mr. Holcroft, was unboubtedly his voluntary ſurrender to the indictment for high-treaſon, preferred againſt him in the autumn of the year 1794. He ſpent the principal part of the years 1799, 1800, and 1801, in Germany and France; and the obſervations collected by him, in his travels, he afterwards publiſhed in 2 vols. 4to. He died at his houſe in Clipſtone-ſtreet, Marybone, on the 23d of March, 1809. The ſurviving (ſecond) wife of Mr. Holcroft, is the niece of the celebrated Mercier, author of the Tableau de Paris, and a member of the French legiſlature. By this lady Mr. Holcroft left ſix children.

HOLCUS, *ſ.* [from ὁλκος, Gr. a furrow.] INDIAN MILLET; in botany, a genus of the claſs polygamia, order monoecia, natural order of gramina or graſſes. The generic characters are—I. Hermaphrodite flowers, ſeſſile. Calyx: glume one-flowered, two-valved, ſubovate, obtuſe, coriaceous, awnleſs; outer valve large, concave, ſlightly three-toothed at the tip, embracing the inner valve, which is oblong, rolled up on the ſides. Corolla: glume two-valved, tender, villoſe, leſs than the calyx; outer valve ſmalleſt, placed within the inner calycine valve, in moſt of the ſpecies bifid at the tip, and awned; awn from the cleft of the glume, long or ſhort, jointed, twiſted; ſometimes none. Nectary three-leaved; two of the leaflets cartilaginous, truncate; the third oppoſite, ovate or lanceolate, villoſe. Stamina: filaments three, capillary, very tender; antheræ oblong, bifid. Piſtillum: germ ovate; ſtyles two, capillary, diverging; ſtigmas oblong, feathered. Pericarpium: none; but the glumes of the corolla and calyx are rolled about the ſeed and incloſe it. Seed: ſolitary, ovate, covered, armed with the awn of the corolla, which however eaſily falls off. II. Male flowers peduncled, ſolitary or in pairs accompanying the hermaphrodite, ſmaller. Calyx: glume two-valved; valves ovate-lanceolate, ſharpiſh, chaffy, awnleſs; the outer valve concave, embracing the inner, which is narrower. Corolla: glume two-valved, ſmaller, more tender; outer valve within the inner valve of the calyx, ſhorter, two-toothed, awnleſs; the inner valve doubled up on the edges. Piſtillum: germ ſmall, angular, abortive; ſtyles two, briſtle-ſhaped; ſtigmas none.—*Eſſential Character.* Hermaphrodite. Calyx, glume one or two-flowered; corolla, glume awned; ſtamina three; ſtyles two; ſeed one. Male. Calyx, glume two-valved; corolla none; ſtamina three.

*Species.* 1. Holcus ſpicatus, or ſpiked holcus: glumes two-flowered, awnleſs; flowers in pairs, involucred with a pencil, ſpike ovate-oblong. Culm two feet high, the thickneſs of a ſwan's quill, covered with the ſheaths of leaves; both of them are hiſpid. Leaves uſually ten in number, a finger's breadth, hiſpid. Spike very thick with very ſhort pedicels, having at the top a bundle of briſtles, within which are two ſeſſile flowers. Calyx two-valved, membranaceous, two-flowered. Outer petal of the hermaphrodite flower mucronate; of the male blunt. Style longer than the flowers, woolly, ſlightly bifid at top. Anthers oblong. This is an annual graſs, and a native of the Eaſt Indies. Cultivated by Compton, biſhop of London, at Fulham.

2. Holcus bicolor, or two-coloured holcus: glumes ſmooth, black; ſeeds globular, white awned. This is an annual graſs, bearing a great reſemblance to the next ſpecies, but very diſtinct from it by the black calyxes and the ſeeds of a ſnowy whiteneſs.

3. Holcus ſorghum, or Indian millet: glumes villoſe, ſeed compreſſed awned. Panicle contracted, ovate, upright, but as it ripens drooping. Calyx green, pubeſcent, Awn brown at bottom, ſmooth and whitiſh at top. Seed naked, free, ſubglobular, compreſſed a little on both ſides, ſmooth without ſhining, of a milky whiteneſs with a black umbilical dot. There are ſeveral varieties of ſorghum, as of moſt cultivated plants. The moſt remarkable, beſides H. bicolor, is the red-ſeeded one, cultivated among the Caffres. Of this the calyx when ripe, is cartilaginous, pale cheſtnut-coloured, very ſmooth, ſhining, only half the length of the ſeed; which is naked, obovate-globular, much acuminate towards the baſe, red, not ſhining.

Miller deſcribes the *ſorghum* and *ſaccharatus* together, and indeed they differ ſo little as ſcarcely to merit being conſidered as diſtinct ſpecies. According to him the ſtalks of theſe plants riſe five or ſix feet high, are ſtrong, reedy, and like thoſe of the maize, or turkey-wheat, but ſmaller. The leaves are long and broad, having a deep furrow through the centre, where the midrib is depreſſed on the upper ſurface, and is very prominent below. The leaves are two feet and a half long, and two inches broad in the middle, embracing the ſtalks with their baſe. The flowers come out in large panicles at the top of the ſtalks, reſembling, at firſt appearance, the male ſpikes of the turkey-wheat; theſe are ſucceeded by large roundiſh ſeeds, which are wrapped round with the chaff. They are both natives of India, where this grain is much uſed to feed poultry, and is frequently ſent to Europe for the ſame purpoſe. This is much cultivated in Arabia, and moſt parts of Aſia Minor. It has been introduced into Italy, Spain, Swiſſerland, and ſome parts of Germany; alſo into China, Cochin-china, and the Weſt Indies, where it grows commonly five or ſix feet high, or more, and, being eſteemed a hearty food for labourers, is called *negro guinea-corn*. Its long awns or briſtles defend it from the birds. In England, the autumns are ſeldom dry and warm enough to ripen the ſeed well in the field. In Arabia it is called *dora* or *durra*; the flour is very white, and they make good bread of it, or rather cakes, about two inches in thickneſs. The bread which they make of it in ſome parts of Italy is dark and coarſe. In Tuſcany it is uſed chiefly for feeding poultry and pigeons; ſometimes for ſwine, kine, and horſes. Cæſalpinus ſays, that cattle fed on the green herb are apt to ſwell and die, but thrive on it when dried. They make bruſhes of it in Italy, which Ray obſerved in the ſhops at Venice. It was cultivated here in 1596, in John Gerarde's garden.

4. Holcus halepenſis, or panicled holcus: glumes ſmooth, hermaphrodite, flowers awnleſs; female awned. Native of Syria. Cultivated at Oxford in 1699 by Jacob Bobart, from ſeed ſent over by Huntington. Scheuchzer had his ſpecimens from Triumfetti and Juſſieu, and gives a very long deſcription. Scopoli refers to Scheuchzer's name, and deſcribes it as an Andropogon. Allioni adopts Scopoli's name, and ſays that it is wild near Turin, and in other parts of Piedmont and Montferrat.

5. Holcus nitidus, or neat holcus: glumes one-flowered villoſe, all the flowers awnleſs. Native of the Eaſt Indies, and has the habit of the preceding, but is ſmaller in all its parts.

6. Holcus ſaccharatus, or yellow-ſeeded holcus; glumes villoſe, all the ſeeds awned. Native of the Eaſt Indies. Cultivated in China and Cochin-china. Browne calls it *guinea-wheat*, and ſays it had been lately introduced into Jamaica.

7. Holcus mollis, ſoft holcus, or creeping ſoft-graſs: glumes two-flowered, almoſt naked; hermaphrodite, floret awnleſs; male with a knee-jointed awn. Creeping ſoft-graſs reſembles the next ſpecies, ſays Linnæus, but the calyxes are more acute than in the other ſpecies, and rather acuminate. According to Schreber, the roots are creeping, like Triticum repens, or couch-graſs. Both flowers are hermaphrodite, contrary to Linnæus's ſpecific character, and both apparently produce fertile ſeeds. This graſs alſo rarely occurs but in and about woods and in hedges; whereas the lanatus is a very general graſs in meadows. Ray affirms that it is very common in corn-fields; but Mr. Curtis ſays that he has ſeldom ſeen it in that ſituation. It flowers in July, and is a worſe graſs than the *lanatus*, on account of its creeping roots. Haller makes it an Avena, to which genus, in the opinion of Dr. Stokes, its ſtructure ſhows it really to belong. Schreber, in his Spicilegium, makes it an Aira, to which Mr. Curtis alſo would refer it.

8. Holcus lanatus, woolly holcus, or meadow ſoft-graſs: glumes two-flowered, villoſe; hermaphrodite, floret awnleſs; male with a recurved awn. Root perennial, but not creeping. Stems from two to three feet high, upright, round, pubeſcent, with three or four joints. Leaves a quarter of an inch in breadth, greyiſh from being covered with ſoft hairs; the ſheath marked on the outſide with purple lines, and ſhining within; the ligule or membrane blunt or truncate, hairy on the outſide and about the edge. Panicle at firſt contracted, reddiſh, and drooping a little; but afterwards upright, ſpreading, and whitiſh. The velvet-like ſoftneſs of the whole plant, and the redneſs of the opening panicle, render this graſs very conſpicuous. It abounds in meadows, is frequent by road-ſides, and ſometimes grows on walls. It flowers in June and July. Haller ſpeaks highly of this graſs as food for cattle, but it is not at all eſteemed among us. The ſeed however, being eaſily collected, is ſometimes ſent to London in great quantities, as pure graſs-ſeed. Lightfoot ſays that the ſtalks are uſed for making ropes for fiſhing-boats in the iſle of Skye; but there are better graſſes for this purpoſe.

A gentleman's horſes having been much diſordered with a malady, which occaſioned an extraordinary diſcharge of urine, the hay on which they fed, being examined, was found to contain ſcarcely any other graſs but this; and on changing the hay the diſtemper ceaſed. This fact ought to be well aſcertained, before the Holcus lanatus is recommended, with Dr. Anderſon, as one of the moſt valuable kinds of meadow-graſſes; though ſince he calls it *creeping ſoft-graſs*, and talks of its running roots, he may mean H. mollis, which is one of the vileſt weeds, at leaſt in arable lands. Mr. Marſhall, in his Rural Economy of Yorkſhire, ſays that it is far from an eligible graſs for cultivation, is now entirely exploded by judicious huſbandmen, and has been ſupplanted by ray-graſs; the growers of the ſeeds being the only perſons who have profited by its cultivation, eighty buſhels having been produced from an acre. It goes there under the name of *white hay-ſeeds*. In his Minutes of the Midland Counties, he ſays it ranks high as a paſture-plant, for cattle at leaſt; that a piece which abounds in it to one half is eſteemed excellent for cheeſe; is favourable to the growing of young heifers, and the fatting of Scotch bullocks; and that cattle of every kind do well in it, but not horſes.

9. Holcus laxus, or weak holcus: glumes two-flowered, ſmooth, awnleſs, acuminate; panicle filiform, weak. This has the habit of AIRA. Native of Virginia and Canada.

10. Holcus ſtriatus, or ſtriated holcus: glumes two-flowered, ſtriated, awnleſs, acuminate; panicle crowded, oblong. Native of Virginia, in marſhes.

11. Holcus ſerratus, or ſerrate holcus: glumes two-flowered, pubeſcent, awnleſs; leaves ſerrate. Found at the Cape of Good Hope by Thunberg: who has alſo diſcovered ſeveral other ſpecies, not here enumerated.

12. Holcus odoratus, or ſweet-ſcented holcus: glumes three-flowered, awnleſs, acuminate; hermaphrodite, flower two-ſtamened. Native of wet paſtures in the colder parts of Europe, Canada, and Siberia. This graſs has a ſweet ſmell: it is collected into bundles, to lay among linen; and is hung over beds in ſome countries, with a view to procure ſleep.

13. Holcus redolens, or ſweet holcus: glumes three-flowered; ſide-florets, male awned, hairy at the edge; the middle one ſubhermaphrodite, awnleſs. In appearance quite ſimilar to the preceding, but differing in its involuted leaves, and florets of double the ſize. Native of Terra del Fuego and of New Zealand.

14. Holcus latifolius, or broad-leaved holcus: glumes three-flowered, the firſt floret unarmed, two prickly at the edge, leaves ſubovate. Found in China by Oſbeck.

15. Holcus pertuſus, or perforated holcus: ſpikes digitate, glumes with the outer valve punched with a hole in the middle. Native of the Eaſt-Indies.

16. *Guinea-graſs*.—Guinea-graſs, ſo called from its having been originally introduced into the Weſt Indies from the coaſt of Africa, is a ſpecies of Holcus, according to Browne. The characters of it, he ſays, agree pretty well with thoſe of Panicum, in general, but the flowers commonly grow very luxuriant; and, though often hermaphrodite, are generally obſerved to be male and female diſtinct, ſurrounded by ſeparate involucres, and ſtanding on diſtinct pedicels within the ſame calyx. The blades of this graſs, when flouriſhing, appear not unlike thoſe of wheat, only rather broader and longer; and the ſtalks, during the firſt growth, are alſo much like thoſe of wheat, but they get weaker and leſs, the oftener the graſs is fed upon or cut, till at laſt it becomes a fine, rich, and entire, ſwath. Guinea-graſs appears capable of thriving in any ſituation, in reſpect to climate and ſoil, and can bear the effects of dry or wet weather in a moſt remarkable manner. In wet weather it may be cut once in a fortnight, and ſometimes oftener, when the land is new or fertile.

In dry weather, it is long before it withers; and, when reduced to ſuch a ſtate as to ſeem totally deſtroyed, will revive with a ſlight ſhower in a few hours; when rain falls, though ſo ſparingly as to be of little or no ſervice to common paſtures, it will occaſion this to be fit for uſe in a few weeks; nay, in ſome ſituations not too much expoſed to the ſun, it will flouriſh from occaſional dews only. When ready to feed, it is from ſix to eight feet high, but it is generally fed or cut when only three or four. It agrees with all kind of ſtock; and horſes, mules, and kine, will fatten ſo faſt upon it, that the two former will be in good condition in a couple of months, or leſs; and the latter will become fit for the butcher in the courſe of three months.

Guinea-graſs is ſaid to have been brought from Africa to America by the Engliſh at the beginning of the preſent century; and the French introduced it thence into St. Domingo, &c. about the year 1768. It has made its way on the continent of North America, from Carolina to New England; and attempts have been made to introduce it into Europe; but it ſeems too tender to be of any advantage as fodder in England. In Jamaica it is now generally cultivated to ſupply both their ſtabled and working cattle; and ſir Archibald Campbell, who was governor of that iſland, carried the ſeed to the Eaſt Indies, where it was propagated with ſucceſs, and was of great ſervice to the cavalry; the horſes having before that been fed on the roots of graſs.

*Propagation and Culture.* Some ſpecies of theſe plants are propagated in a few gardens for the ſake of variety; but, as they are late in ripening their grain here, ſo they are not worth cultivating for uſe. The ſeeds ſhould be ſown on a warm border, or upon a gentle hot-bed, in March; and, when the plants come up, they ſhould be thinned and planted at the diſtance of a foot aſunder in the rows, and the rows ſhould be three feet diſtance; the culture after this, is to keep the ground clean from weeds, and draw the earth up with a hoe to the ſtems of the plants; if the ſeaſon proves warm, their panicles will appear in July, and the grain will ripen in September, but in bad ſeaſons the grain will not ripen here. If the ſeeds however were procured from Germany or Swiſſerland, climates not very different from our own, it ſeems not improbable but that ſorghum might be made to grow to advantage on ſome of the warmer ſoils of our iſland.

*Guinea-graſs.*—The manner of cultivating this graſs in the Weſt Indies, is to make the land intended for it perfectly bare by hoeing, and then to dig holes from three to five feet diſtance, according to the quality of the ſoil. The holes ſhould be large, and deep enough to bury a few roots of the graſs a good depth. The roots are taken from a neighbouring field or nurſery, and, the graſs being topped within three or four inches, they are put into the holes well covered with earth, and preſſed down by the foot. Care is taken to keep the plants free from weeds by repeated hoeings. The beſt months for planting are April and May, for the graſs will then ſeed in September and October, at which time it ſeeds moſt abundantly. The ground muſt be quite clean when the ſeed is ready to drop; and if the ſpaces between the roots are then ſtirred with the hoe, it will be found very beneficial. When the ſeed is all fallen, ſtock are turned in to tread it into the ground, and feed upon the graſs. In very rich and new land, the graſs at firſt will grow ſo rank as to produce very thick ſtalks, which, by running up the noſes of the ſtock, will prevent them from eating it ſo cloſe as they otherwiſe would. When however it is eaten as near the ground as poſſible, the remaining graſs, with the roots which were planted, are dug out with the hoe and burnt off. After this, the graſs, if favourable rains come, will grow from the ſeed, and, by covering the ground in May following, will be perfectly eſtabliſhed for ſeveral years, according to the quality of the land, to be cut for hay, or to ſtand for paſture. Whenever the graſs grows thin, holes may be opened in ſuch places, and roots again planted to ſupply it; and, by this attention, a field will ſcarcely ever be ſo totally worn out as to require the labour of being at any one time replanted. With very little care in its infancy, this graſs will overcome all other graſs and weeds; and in ground full of ſtones and rocks, though planted at great diſtances at random, as the ſoil admits, it will ſpread itſelf about them in a few months, and at laſt cover them entirely. If the ſtalks of guinea-graſs be buried a few inches deep, each joint of it will take root, and grow luxuriantly; or it may be propagated directly from ſowing the ſeed, the ground being previouſly prepared for that purpoſe; but the ſeed will lie many months in the ground before it makes its appearance. Some planters do not ſtock up the roots which are planted, when the graſs has ſeeded; and others depend upon what they afford, by continually feeding or cutting the graſs when at a certain height, without ever allowing it to ſeed.

HOLD, in the old gloſſaries, is mentioned in the ſame ſenſe with *wold*, i. e. a governor or chief officer; but in ſome other places for love, as *holdlic*, lovely. *Gibſon's Camd.*

*To* HOLD, *v. a.* preter. *held*; part. paſſ. *held* or *holden*; [*haldan*, Gothic; halðan, Sax. *henden*, Dut.] To graſp in the hand; to gripe; to clutch.—Lift up the lad, *hold* him in thy hand. *Geneſis.*

France, thou may'ſt *hold* a ſerpent by the tongue,
A faſting tyger ſafer by the tooth,
Then keep in peace that hand which thou do'ſt *hold*.
*Shakeſpeare.*

To connect; to keep from ſeparation.—The loops *held* one curtain to another. *Exod.* xxxvi. 12.—To keep; to retain; to gripe faſt; not to let go.—Prove all things: *hold* faſt that which is good. 2 *Theſ.* v.—To maintain as an opinion.—Thou haſt there them that *hold* the doctrine of Balaam. *Rev.*—To conſider; to regard:

I as a ſtranger to my heart and me
*Hold* thee from this for ever. *Shakeſpeare.*

To think of; to judge with regard to praiſe or blame:

This makes thee, bleſſed peace, ſo light to *hold*,
Like Summer's flies that fear not Winter's cold. *Fairfax.*

To receive, and keep in a veſſel:

She tempers dulcet creams, nor theſe to *hold*
Wants her fit veſſels pure. *Milton.*

To contain; to receive into its capacity: as, a hogſhead *holds* ſixty-three gallons; the ſack is too little to *hold* the grain.—To keep; not to ſpill.—Broken ciſterns that can *hold* no water. *Jerem.*—To keep; to hinder from eſcape:

For this infernal pit ſhall never *hold*
Celeſtial ſpirits in bondage. *Milton.*

To keep from ſpoil; to defend:

With what arms
We mean to *hold* what anciently we claim
Of empire. *Milton.*

To keep from loſs:

Man ſhould better *hold* his place
By wiſdom. *Milton.*

To have any ſtation:

And now the ſtrand, and now the plain, they *held*;
Their ardent eyes with bloody ſtreaks were fill'd. *Dryden.*

To poſſeſs; to have.—Aſſuredly it is more ſhame for a man to loſe that which he *holdeth*, than to fail in getting that which he never had. *Hayward.*—To poſſeſs in ſubordination.—He was willing to *hold* his ſeigniory for a yearly tribute. *Knolles.*—To ſuſpend; to refrain:

Death! what do'ſt! O *hold* thy blow!
What thou do'ſt, thou do'ſt not know. *Craſhaw.*

To ſtop; to reſtrain.—We cannot *hold* mortality's ſtrong hand. *Shakeſpeare.*—To fix to any condition:

His gracious promiſe you might,
As cauſe had call'd you up, have *held* him to. *Shakeſpeare.*

To keep; to ſave:

Stay but a little; for my cloud of dignity
Is *held* from falling with ſo weak a wind,
That it will quickly drop: my day is dim. *Shakeſpeare.*

To confine to a certain ſtate.—The Moſt High then ſhowed ſigns for them, and *held* ſtill the flood, 'till they were paſſed over. 2 *Eſdr.* xiii. 14.—To detain; to keep in confinement or ſubjection.—Him God hath raiſed up, having looſed the pains of death, becauſe it was not poſſible that he ſhould be *holden* of it. *Acts.*—To retain; to continue:

Theſe reaſons mov'd her ſtar-like huſband's heart;
But ſtill he *held* his purpoſe to depart. *Dryden.*

To practiſe with continuance:

Night
And chaos, anceſtors of nature, *hold*
Eternal anarchy. *Milton.*

Not to intermit:

Seed-time and harveſt, heat and hoary froſt,
Shall *hold* their courſe. *Milton.*

To ſolemnize; to celebrate.—He *held* a feaſt in his houſe like the feaſt of a king. 1 *Sam.*—To conſerve; not to infringe.—Her huſband heard it, and *held* his peace. *Numb.* xxx. 7.—To manage; to handle intellectually.—Some in their diſcourſe deſire rather commendation of wit, in being able to *hold* all arguments, than of judgment in diſcerning what is true. *Bacon.*—To maintain.—Whereupon they alſo made engines againſt their engines, and *held* them battle a long ſeaſon. 1 *Mac.* vi. 52.—To carry on conjunctively.—The Phariſees *held* a council againſt him. *Matthew.*—To proſecute; to continue.—He came to the land's end, where he, *holding* his courſe towards the weſt, did at length peaceably paſs through the ſtraits. *Abbot.*

*To* Hold *forth.* To offer; to exhibit; to propoſe.—Chriſtianity came into the world with the greateſt ſimplicity of thought and language, as well as life and manners, *holding forth* nothing but piety, charity, and humility, with the belief of the Meſſiah and of his kingdom. *Temple.*—To pretend; to put forward to view.—How joyful and pleaſant a thing it is to have a light *held* us *forth* from heaven direct our ſteps! *Cheyne.*

*To* Hold *in.* To reſtrain; to govern by the bridle.—I have lately ſold my nag, and honeſtly told his greateſt fault, which is, that he became ſuch a lover of liberty, that I could ſcarce *hold* him *in.* *Swift.*—To reſtrain in general.—Theſe men's haſtineſs the warier ſort of you doth not commend; ye wiſh they had *held* themſelves longer *in*, and not ſo dangerouſly flown abroad. *Hooker.*

*To* Hold *off.* To keep at a diſtance:

Although 'tis fit that Caſſio have his place;
Yet, if you pleaſe to *hold* him *off* a while,
You ſhall by that perceive him. *Shakeſpeare.*

*To* Hold *on.* To continue; to protract; to puſh forward.—If the obedience challenged were indeed due, then did our brethren both begin the quarrel and *hold* it *on.* *Saunderſon.*

*To* Hold *out.* To extend; to ſtretch forth.—The king *held out* to Eſther the golden ſceptre that was in his hand. *Eſth.* v. 2.—To offer; to propoſe.—Fortune *holds out* theſe to you as rewards. *Ben Johnſon.*—To continue to do or ſuffer:

He cannot long *hold out* theſe pangs,
Th' inceſſant care and labour of his mind. *Shakeſpeare.*

*To* Hold *up.* To riſe aloft.—The hand of the Almighty viſibly *held up*, and prepared to take vengeance. *Locke.*—To ſuſtain; to ſupport by influence or contrivance.—There is no man at once either excellently good or extremely evil, but grows either as he *holds* himſelf *up* in virtue, or lets himſelf ſlide to viciouſneſs. *Sidney.*—To keep from falling; materially.—We have often made one conſiderably thick piece of marble take and *hold up* another, having purpoſely cauſed their flat ſurfaces to be carefully ground and poliſhed. *Boyle.*

*To* HOLD, *v. n.* To ſtand; to be right; to be without exception.—To ſay that ſimply an argument, taken from man's authority, doth *hold* no way, neither affirmatively nor negatively, is hard. *Hooker.*

In words, as faſhions, the ſame rule will *hold*;
Alike fantaſtic, if too new or old. *Pope.*

To continue unbroken or unſubdued.—Our force by land hath nobly *held.* *Shakeſpeare.*—To laſt; to endure:

Never any man was yet ſo old,
But hop'd his life one winter more might *hold.* *Denham.*

To continue without variation.—He did not *hold* in this mind long. *L'Eſtrange.*—To refrain:

His dauntleſs heart would fain have *held*
From weeping, but his eyes rebell'd. *Dryden.*

To ſtand up for; to adhere.—Through envy of the devil came death into the world, and they that do *hold* of his ſide do find it. *Wiſd.* ii. 24.—To be dependant on.—The great barons had not only great numbers of knights, but even petty barons, *holding* under them. *Temple.*—To derive right:

'Tis true, from force the nobleſt title ſprings;
I therefore *hold* from that which firſt made kings. *Dryden.*

To maintain an opinion.—Men *hold* and poſſeſs without ever having examined. *Locke.*

*To* Hold *forth.* To harangue; to ſpeak in public; to ſet forth publicly.—A petty conjuror, telling fortunes, *held forth* in the market-place. *L'Eſtrange.*

*To* Hold *in.* To reſtrain one's ſelf.—I am full of the fury of the Lord: I am weary with *holding in.* *Jer.* vi. 11.—To continue in luck.—A duke, playing at hazard, *held in* a great many hands together. *Swift.*

*To* Hold *off.* To keep at a diſtance without cloſing with offers.—Theſe are intereſts important enough, and yet we muſt be wooed to conſider them; nay, that does not prevail neither, but with a perverſe coyneſs we *hold off.* *Decay of Piety.*

*To* Hold *on.* To continue; not to be interrupted.—The trade *held on* for many years after the biſhops became Proteſtants; and ſome of their names are ſtill remembered with infamy, on account of enriching their families by ſuch ſacrilegious alienations. *Swift.*—To proceed.—He *held on* 'till he was upon the very point of breaking. *L'Eſtrange.*

*To* Hold *out.* To laſt; to endure.—Truth, fidelity, and juſtice, are a ſure way of thriving, and will *hold out*, when all fraudulent arts and devices will fail. *Tillotſon.*—Not to yield; not to be ſubdued:

Pronounce your thoughts: are they ſtill fixt
To *hold* it *out*, and fight it to the laſt?
Or are your hearts ſubdu'd at length, and wrought,
By time and ill ſucceſs, to a ſubmiſſion? *Addiſon.*

*To* Hold *together.* To be joined.—Thoſe old Gothic caſtles, made at ſeveral times, *hold together* only, as it were, by rags and patches. *Dryden.*—To remain in union.—Even outlaws and robbers, who break with all the world beſides, muſt keep faith amongſt themſelves, or elſe they cannot *hold together.* *Locke.*

*To* Hold *up.* To ſupport himſelf.—All the wiſe ſayings which philoſophers could muſter up, have helped only to ſupport ſome few ſtout and obſtinate minds, which, without the aſſiſtance of philoſophy, could have *held up* pretty well of themſelves. *Tillotſon.*—Not to be foul weather:

Though nice and dark the point appear,
Quoth Ralph, it may *hold up* and clear. *Hudibras.*

To continue the ſame ſpeed.—When two ſtart into the world together, the ſucceſs of the firſt ſeems to preſs upon the reputation of the latter: for why could not he *hold up*? *Collier of Envy.*

*To* Hold *with.* To adhere to; to co-operate with.—There is none that *holdeth with* me in theſe things but Michael. *Daniel.*

Hold has ſometimes the appearance of an interjection; but is the imperative mood. Forbear; ſtop; be ſtill:

*Hold, hold!* are all thy empty wiſhes ſuch!
A good old woman would have ſaid as much. *Dryden.*

HOLD, *ſ.* The act of ſeizing; gripe; graſp; ſeizure. It is uſed with great frequency, both literally and figuratively, both for manual and intellectual agency. The verbs with which it is ofteneſt united, are *take, lay,* and *have.*—Uzzah put forth his hand to the ark of God, and *took hold* of it, for the oxen ſhook it. 2 *Sam.* vi. 6.—Find courage to *lay hold* on this occaſion. *Milton.*

He kept his *hold,*
Nor loſt 'till beauty was decay'd and old,
And love was by poſſeſſion pall'd and cold. *Granville.*

Something to be held; ſupport.—If a man be upon a high place, without rails or good *hold,* he is ready to fall. *Bacon.*—Power of keeping:

On your vigour now,
My *hold* of this new kingdom all depends. *Milton.*

Catch; power of ſeizing.—The law hath yet another *hold* on you. *Shakeſpeare.*—Priſon; place of cuſtody.—They laid hands on them, and put them in *hold* unto the next day. *Acts.*—Cuſtody:

King Richard, he is the mighty *hold*
Of Bolingbroke. *Shakeſpeare.*

Power; influence operating on the mind.—Rural recreations abroad, and books at home, are the innocent pleaſures of a man who is early wiſe; and give fortune no more *hold* of him than of neceſſity he muſt. *Dryden.*

Hold *of a Ship.* All that part which lies between the keelſon and the lower deck. *Harris.*

Now a ſea into the *hold* was got,
Wave upon wave another ſea had wrought. *Dryden.*

A lurking place: as, the *hold* of a wild beaſt or deer.—A fortified place; a fort; a ſafe reſidence.—Theſe ſeparated themſelves unto David, into the *hold* to the wilderneſs, men of might. *Chron.*—He ſhall deſtroy the ſtrong *holds. Jeremiah.*

HOLD'-DOOR, *adj.* Aſſiſting amorous intercourſe.—Brethren and ſiſters of the *hold-door* trade. *Shakeſpeare.*

HOL'DEN (Henry), an Engliſh Catholic divine, who went early into France, where he was admitted to the degree of doctor by the faculty of theology at Paris, in 1646. He was diſtinguiſhed for profound erudition, integrity, and virtuous manners, and died regretted by all who knew him in 1662. He was the author of, 1. *Analyſis Fidei,* a little work which was reprinted by Barbou in 1766, and contains a ſummary of the whole economy of religion, the principles and motives of faith, and their application to controverſial queſtions. 2. *Oratio H. H. quam paratam habebat ad Enunciationem in Examine Propoſitionis Arnaldinæ,* 1656. 3. Two Letters, of the ſame date, one addreſſed to M. Ferret, and the other to M. Arnauld, in which he maintains the doctrine of *efficacious grace.* 4. Marginal Notes on the New Teſtament, 1660, in two volumes 12mo. &c. The laſt-mentioned work is ſpoken of in high terms of commendation.

HOL'DEN, a townſhip of the American States, in Worceſter county, Maſſachuſetts; formerly the north-weſtern part of Worceſter, from which it is diſtant ſeven miles, and fifty-one miles weſt of Boſton. It contains by the cenſus 1080 inhabitants. It was incorporated in 1740. In the earthquake in 1755, there were ſeveral acres of land, in an obſcure place in the north-eaſt corner of the townſhip, quite ſurrounded by a viſible fracture in the earth, of a circular form, and of various width and depth. The ſmall river there had its bed raiſed ſo as to occaſion a conſiderable fall of water, where there was little or none before. The ſtump of a tree, that ſtood directly over the chaſm, on the eaſt was divided into two equal parts, one ſtanding on the outſide of the chaſm, the other upon the inſide; but not oppoſite to each other; the half within the chaſm being carried five feet forward, towards the river.

HOLD'ER, *ſ.* [from *hold.*] One that holds and gripes any thing in his hand.—The makers and *holders* of plows are wedded to their own particular way. *Mortimer.*—A tenant; one that holds land under another.

HOL'DER (William), a learned Engliſh divine, born in Nottinghamſhire, educated in Pembroke-hall, Cambridge, and in 1642 became rector of Blechingdon in Oxfordſhire. In 1660 he proceeded D. D. was afterwards canon of Ely, fellow of the Royal Society, canon of St. Paul's, ſub-dean of the royal chapel, and ſub-almoner to the king. Dr. Holder publiſhed The Elements of Speech; or an Eſſay on the natural Production of Letters: with an Appendix concerning perſons that are deaf and dumb, 1669, 8vo. In the appendix he relates by what methods he had brought a young gentleman of the name of Popham to ſpeak. In 1678 he publiſhed in 4to. A Supplement to the Philoſophical Tranſactions of July 1670. This was written to claim the merit of having taught Popham to ſpeak, which Dr. Wallis had alſo claimed to himſelf. Holder was well ſkilled in muſic; and wrote A Treatiſe of the natural Grounds and Principles of Harmony, 1694, 8vo. He wrote alſo A Diſcourſe concerning Time, with Application of the natural Day, lunar Month, and ſolar Year, &c. 1694, 8vo. He died January 24, 1696-7, and was buried in St. Paul's cathedral.

HOLDER-FO'RTH, *ſ.* An haranguer; one who ſpeaks in public:

Whence ſome tub *holders-forth* have made
In powd'ring-tubs the richeſt trade. *Hudibras.*

HOL'DERNESS, a diſtrict of England, in the county of York, forming a promontory between the Humber and the German Ocean.

HOL'DERNESS, a townſhip of the American States in Grafton county, New Hampſhire, ſituated on the eaſtern ſide of Pemigewaſſet river, incorporated in 1761. A corner of Squam Lake is in this townſhip; and Rattleſnake Mountain lies partly in this and Sandwich, the adjoining townſhip on the north-eaſt. It is ſixty-four miles north-north-weſt of Portſmouth.

HOLD'FAST, *ſ.* Any thing which takes hold; a catch; a hook.—The ſeveral teeth are furniſhed with *holdfaſts* ſuitable to the ſtreſs that they are put to. *Ray.*

HOLD'ING, *ſ.* Tenure; farm.—*Holdings* were ſo plentiful, and holders ſo ſcarce, as well was the landlord who could get a tenant. *Carew.*—It ſometimes ſignifies the burthen or chorus of a ſong:

The *holding* every man ſhall beat as loud
As his ſtrong ſides can volley. *Shakeſpeare.*

HOLDS'WORTH (Edward), a polite and elegant ſcholar, born about 1688, and educated at Wincheſter ſchool. He was thence elected demy of Magdalen college, Oxford, in July 1705; took the degree of M. A. in April 1711; became a college-tutor, and had many noble pupils. He died of a fever at lord Digby's houſe at Coleſhill in Warwickſhire, December 30, 1747. He was the author of the Muſcipula, a poem; of which there is a good tranſlation by Dr. John Hoadly, in vol. v. of Dodſley's Miſcellanies. He was the author alſo of Pharſalia and Philippi, or the two Philippi in Virgil's Georgics attempted to be explained and reconciled to Hiſtory, 1741, 4to. and of Remarks and Diſſertations on Virgil; with ſome other claſſical Obſervations, publiſhed with ſeveral notes and additional remarks by Mr. Spence, 1768, 4to.

HOLDS'WORTHY, a conſiderable town of Devonſhire, ſeated between two branches of the Tamer; diſtant 215 miles weſt-by-ſouth from London, forty-ſeven north-eaſt from Exeter, fourteen ſouth-weſt from Launceſton, and ſixteen north from Torrington. It has a market on Saturdays. The fairs are, on the 2d of April; 9th, 10th, 11th, of July, which is a very large fair; the 2d of October; and the firſt Wedneſday in November. A navigable canal from the harbour of Bude, paſſing through this town to different parts of the county, and uniting with other branches, hath lately added to the trade and opulence of the place.

HOLE, *ſ.* [*hol*, Dut. hole, Sax.] A cavity narrow and long, either perpendicular or horizontal.—The earth had not a *hole* to hide this deed. *Shakeſpeare.*—A perforation; a ſmall interſticial vacuity.—Look upon linen that has ſmall *holes* in it: thoſe *holes* appear black: men are often deceived in taking *holes* for ſpots of ink; and painters, to repreſent *holes*, make uſe of black. *Boyle.*—A cave; a hollow place:

Upon his bloody finger he doth wear
A precious ring that lightens all the *hole*. *Shakeſpeare.*

A cell of an animal.—A tortoiſe ſpends all his days in a *hole* with a houſe upon his head. *L'Eſtrange.*—A mean habitation. *Hole* is generally uſed, unleſs in ſpeaking of manual works, with ſome degree of diſlike:

When Alexander firſt beheld the face
Of the great cynic, thus he did lament:
How much more happy thou, that art content
To live within this little *hole*, than I
Who after empire, that vain quarry, fly. *Dryden.*

Some ſubterfuge or ſhift.—To this ſenſe may be referred the proverbial expreſſion of finding a *hole* to creep out at. *Maſon's Supplement.*

Arm-Hole. The cavity under the ſhoulder.—Tickling is moſt in the ſoles, and under the *arm-holes* and ſides. *Bacon.*

HOLE, a town of Norway, in the dioceſe of Aggerhuus: fifteen miles north-weſt of Chriſtiania.

HOLE TOWN, a town of the iſland of Barbadoes, ſituated on the weſt coaſt. Lat. 13. 12. N. lon. 58. 31. W. Greenwich.

HOLE GASS, a place in Swiſſerland, where William Tell ſhot the Auſtrian governor who by his tyranny gave birth to the republic. In memory of this event a chapel is built on the ſpot, near Kuſnack.

HO'LEN, a town of Norway, in the dioceſe of Aggerhuus: eighteen miles from Tonſberg.

HO'LENECK, a town of Germany, in the duchy of Stiria: ten miles ſouth of Voitſberg.

HO'LENPURG, or Hollenburg, a town of Germany, in Auſtria, on the Danube: five miles ſouth-eaſt of Mauttern.

HO'LENSTEIN, a town of Germany, in Bavaria, and lordſhip of Breiteneck: five miles north-weſt of Dietfurt.

HOLERACEÆ, *ſ.* [from *holus*, Lat. pot-herbs.] The name of the twelfth order in Linnæus's Natural Orders; and the fifty-third in his Fragments of a Natural Method; conſiſting of plants which are uſed for the table, and enter into the economy of domeſtic life.

HO'LESCHAU, a town of Moravia, in the circle of Prerau: eight miles ſouth-ſouth-eaſt of Prerau, and twenty ſouth-eaſt of Olmutz.

HOL'GATE, a river of England, which runs into the Swale, three miles weſt-ſouth-weſt of Richmond, in the county of York.

HOL'GLEITEN, a town of Germany, in the Tyrol: twenty miles weſt of Inſpruck.

HOL'IBUT, *ſ.* in ichthyology. See Pleuronectes.

HO'LIDAM, *ſ.* [*holy dame.*] Bleſſed lady. *Hanmer.*—By my *holidam* here comes Catharine. *Shakeſpeare.*

HOL'IDAY, *ſ.* The day of ſome eccleſiaſtical feſtival; anniverſary feaſt:

Rome's *holidays* you tell, as if a gueſt
With the old Romans you were wont to feaſt. *Waller.*

A day of gaiety and joy:

When my approach has made a little *holiday*,
And ev'ry face was dreſs'd in ſmiles to meet me. *Rowe.*

A time that comes ſeldom. In this ſenſe it is always an adjective.—Courage is but a *holiday* kind of virtue, to be ſeldom exerciſed. *Dryden.*—A day of reſt from ordinary occupation.—Suppoſe you had a mind to perſuade Mr. Maittaire to give you a *holiday*, would you bluntly ſay to him, Give me a *holiday*. *Cheſterfield.*—For the holidays now called *Red-Letter Days*, ſee ſtat. 5 and 6 Edw. VI. c. 3. The 5th of November to be kept as a day of thankſgiving, 3 *Jac.* I. *c.* 1. The 29th of May to be an anniverſary thankſgiving, 12 *Car.* II. *c.* 14. The 30th of January to be kept as an anniverſary day of humiliation, 12 *Car.* II. *c.* 30. The 2d of September to be annually kept as a faſt in London, 19 *Car.* II. *c.* 3.

HOL'IDAY (Dr. Barten), a learned divine and poet, born at Oxford about the year 1593. He ſtudied at Chriſt-church college, and in 1615 took orders. He had two benefices conferred on him in the dioceſe of Oxford. In 1618 he went as chaplain to ſir Francis Stewart, when he accompanied count Gondamore to Spain. Afterwards he became chaplain to the king, and before the year 1626 was promoted to the archdeaconry of Oxford, where he died in 1661. His works are, 1. Twenty Sermons, publiſhed at different times. 2. *Philoſophiæ polito-barbaræ Specimen*, 4to. 3. Survey of the World, a poem in ten books, 8vo. 4. A Tranſlation of the Satires of Juvenal and Perſius. 5. Technogamia, or the Marriage of the Arts, a comedy.

HO'LILY, *adv.* Piouſly; with ſanctity:

Thou would'ſt be great;
Art not without ambition, but without
The illneſs ſhould attend it: what thou would'ſt highly,
That would'ſt thou *holily*. *Shakeſpeare.*

Inviolably; without breach.—Friendſhip, a rare thing in princes, more rare between princes, that ſo *holily* was obſerved to the laſt of thoſe excellent men. *Sidney.*

HO'LINESS, *ſ.* Sanctity; piety; religious goodneſs.—Religion is rent by diſcords, and the *holineſs* of the profeſſors is decayed, and full of ſcandal. *Bacon.*

Then in full age, and hoary *holineſs*,
Retire great teacher, to thy promis'd bliſs. *Prior.*

The ſtate of being hallowed; dedication to religion; the title of the pope:

I here appeal unto the pope,
To bring my whole cauſe 'fore his *holineſs*. *Shakeſpeare.*

HOL'INGSHED (Ralph), the celebrated Britiſh chronicler, deſcended from a reſpectable family at Boſely in Cheſhire, and is ſaid by biſhop Tanner to have been brought up at Cambridge, and to have taken the degree of M. A. in 1544. He lived in ſome confidential capacity with Thomas Burdett, eſq. of Bramcote in Warwickſhire, in which place he died about 1580. He has given name to a compilation of chronicles of Engliſh hiſtory from the earlieſt times, of which the firſt edition was publiſhed at London in 1577, two volumes folio. The ſecond edition, of three volumes, was publiſhed in 1587, and brought down to the preceding year. John Stowe was concerned in the continuation of this work, after Holingſhed's death. Very conſiderable retrenchments from the firſt edition were made in the ſecond and third, of parts diſpleaſing to queen Elizabeth and her miniſters, by order of the privy-council; a proof how little hiſtorical truth can be expected under an arbitrary government. This circumſtance has made the firſt edition rare and valuable; but the ſuppreſſed ſheets have ſince been reprinted ſeparately.

HO'LITZ, a town of Hungary: thirty-two miles weſt-north-weſt of Topoltzen.

HO'LITZ, a town of Bohemia, in the circle of Chrudim: ten miles north-eaſt of Chrudim.

HOL'KABERG, a town of Sweden, in the province of Eaſt Gothland: thirty-five miles ſouth-weſt of Linkoping.

HOLL (Francis-Xavier), a learned German Jeſuit, born at Schwandorf in 1720. He appears to have devoted himſelf wholly to the ſtudy of the eccleſiaſtical law of

Germany, and for twenty-ſix years occupied the chair of profeſſor in that faculty, in the moſt celebrated univerſities of the empire. He died at Heidelberg, in 1784, when ſixty-four years of age. He was the author of various works; among which was one, entitled *Statiſtica Eccleſiæ Germanicæ*, 1779, 8vo. abounding in learned reſearch relative to the ancient and modern diſcipline, uſages, and laws, of the church, accompanied with uſeful and intereſting remarks.

HOL'LA, *interj.* [*hola*, Fr.] A word uſed in calling to any one at a diſtance:

> Liſt, liſt! I hear
> Some far off *holla* break the ſilent air. *Milton.*

*To* HOL'LA, *v. n.* [from the interjection. This word is now viciouſly written *hollo*; ſometimes *halloo.*] To cry out loudly:

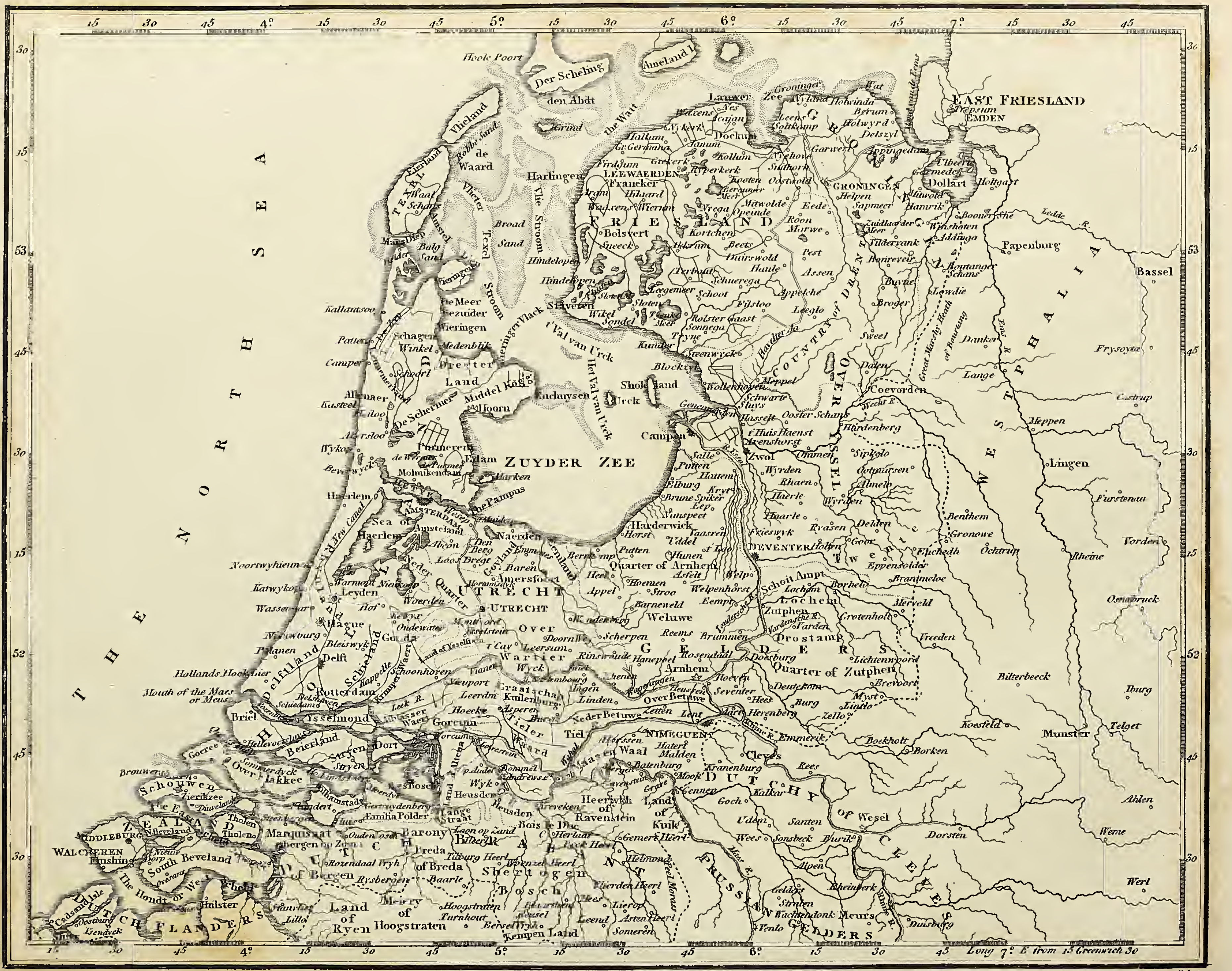
> But I will find him when he lies aſleep,
> And in his ears I'll *holla* Mortimer. *Shakeſpeare.*

HOL'LAND, a celebrated country of Europe, ſo called from the German word *Hohl*, which ſignifies *low*, *hollow*, or *marſhy*, whence came the appellation of the *Low Countries*. The people were called *Dutch*, from the German *Deutſch*, or *Teutſch*; but *Deutſchland* denoted the whole extent of Germany, though of later years it came to be reſtricted to the land occupied by this people, merely becauſe they ſpoke a dialect of the German language. Its aboriginal inhabitants appear to have been the Belgæ, who were conquered by the Romans in the year before Chriſt 47. It was afterwards taken poſſeſſion of by the *Batavi*, from whom the country derived its ancient name of Batavia. See the article Geography, vol. viii. p. 373. This province, conjointly with Zealand, influenced the five contiguous ſtates to unite with them in forming a compact for the eſtabliſhment of their freedom and independence; whence, for many ages they aſſumed the name of United Provinces. In the event of the French revolution, the provinces, falling under the controul of France, were modelled into a new form of government, and called the Batavian Republic. But when Napoleon Bonaparte aſſumed the ſovereignty over France, and determined to make all his brothers *kings*, he converted the Batavian republic into the Kingdom of Holland, placing his brother Louis on the new-erected throne.

This new-fangled kingdom of Louis Bonaparte, however, does not appear to have been erected upon a very ſtable foundation. Napoleon I. has already promulgated the ambitious deſign of uniting it with the empire of France; and of carving out a new kingdom for his brother Louis in Germany and Auſtria, formed of territories to be pruned away from the Auſtrian dominions. In the mean time the Engliſh, with a powerful fleet and army, have attacked the coaſt of Holland, taken Fluſhing, with the whole iſland of Walcheren, inveſted Antwerp; and, when theſe pages were ſent to the preſs, had nearly ſubjected the two new departments of Zealand and Brabant to the Britiſh arms. What may be the reſult of this vigorous effort, the wiſeſt politician cannot at preſent decide; but we beg to certify our numerous readers, that we propoſe to record the details of it under the article United Provinces; to which denomination, in all probability, the Dutch States will again ultimately return.

The Batavians are ſaid to have been a branch of the *Catti*, who inhabited a diſtrict on the banks of the Rhine, and borders of the Hercynian foreſt. Having been obliged to abandon their country on account of civil commotions, they came to eſtabliſh themſelves in an iſland, formed by the waters of the Rhine and the Wahal or Leck, and named their country *Batavia*, or *Betuwe*, from their chief or leader *Batton*, the ſon of their king. Theſe people ſerved in the Roman armies in the quality of auxiliary troops; and hiſtorians inform us, that ſome of them were at the battle of Pharſalia. They formed the ordinary guard of the emperor Auguſtus. The ſervices which they rendered Germanicus, in Germany, were ſo important, that the ſenate gave them the appellation of *brothers*. They had afterwards a conſiderable ſhare in the conqueſt of Britain, under Plaucius and Agricola. They ſtrengthened the party of Galba, and afterwards that of Vitellius; and it was principally to their valour that Julian the Apoſtate was indebted for the victory which he obtained over the Germans, near Straſburg. On the decline of the Roman empire, the Batavians, or Hollanders, having thrown off their yoke, came under the dominion of the Saxons, and then of Childeric I. king of France. The Normans and Danes were their next maſters, from the time of Charlemagne, and ravaged the country three times with fire and ſword. When they were driven out, Charles the Bald, emperor and king of France, erected Holland into a county, in the year 863, in favour of Thierry, duke of Aquitaine, who, five years after, was alſo made count of Zealand, by Louis king of Germany. In 1299, the county of Holland devolved to the counts of Hainaut; and, in 1436, it fell to Philip, ſurnamed the Good, duke of Burgundy, and afterwards to the emperor Maximilian; from him it deſcended to his grandſon the emperor Charles V. who, notwithſtanding his extreme ambition, thought proper to reſpect the privileges of the nation. His ſon and ſucceſſor was leſs prudent; he wiſhed to be as abſolute a ſovereign in the Low Countries as he was in Spain. Not contented with aboliſhing all the laws, and impoſing arbitrary taxes, he reſolved to eſtabliſh the Inquiſition. The deſpotiſm of the monarch produced the effects which might be expected. The diſcontent of all orders brought on a general inſurrection. The principal nobles, at the head of whom were the counts Egmont and Horn, aſſembled at Bruſſels, in order to ſtate their claims to Margaret of Parma, who then governed the Netherlands. That princeſs communicated their remonſtrances to the court of Madrid; which ſent for anſwer the duke of Alva, with a large army, and with orders to compel unconditional ſubmiſſion. In the midſt of the general conſternation, one man alone, William of Naſſau, prince of Orange, thought of taking up arms, while the others thought only of tamely ſubmitting; yet he had neither troops nor money to reſiſt ſuch a powerful monarch as Philip II. king of Spain. The whole country was in conſequence filled with blood and horror; counts Egmont and Horn were ignominiouſly executed, and the eſtate of the prince of Orange was confiſcated.

The prince of Orange, and his brother Louis of Naſſau, were labouring in the mean while to form alliances for the defence of the liberties of their country; but the duke of Alva, in 1569, having no enemy to oppoſe him, waſted the country with fire and ſword. He entered Bruſſels in triumph, and let looſe his vengeance againſt all who had in the leaſt aſſiſted, or been ſuppoſed to aſſiſt, the prince of Orange; and, not contented with this barbarity, he projected the ſcheme of rendering himſelf deſpotic, by erecting citadels in all the conſiderable towns, to be garriſoned by his ſoldiers. He began with Amſterdam, in which he laid the foundations of the caſtle; and he demanded the hundredth part of every man's eſtate to be paid for the ſupport of the army, beſides the tenth of all the merchandiſe, and the twentieth of all immoveables, to be annually levied as a ſtanding revenue. The provinces refuſed to ſubmit, and determined to defend their property to the laſt extremity. In 1571, however, the duke of Alva ordered the edict concerning the new taxes to be enforced at Bruſſels. The city was inſtantly filled with confuſion; the ſoldiers ſeized on the goods of the inhabitants by force; tradeſmen locked up their ſhops; and the peaſants refuſed to bring proviſions to the market. The ſtates offered to pay a ſubſidy of 2,000,000 of florins annually in lieu of the intended tax; but their offer was rejected. The drum beat to arms, and orders were iſſued to hang all who refuſed to comply. The ſoldiers were preparing to obey, when news providentially arrived of the ſurrender of Briel in the iſland of Voorn, to a ſquadron of ſhips of war that had been fitted out by the prince


THE NORTH SEA
ZUYDER ZEE
EAST FRIESLAND
EMDEN
Dollart
GRONINGEN
FRIESLAND
LEEWAERDEN
Franeker
Harlingen
Bolsvert
Sneeck
Staveren
Hindelopen
Der Scheling
Ameland I.
Vlieland
Texel
Hoole Poort
den Abdt
the Watt
Lauwer Zee
Delfzyl
Appingedam
COUNTRY of DRENT
Assen
Coevorden
OVER YSSEL
Steenwyck
Blockzyl
Campen
Zwol
DEVENTER
Hasselt
Hardenberg
Twente
Oldenzaal
WESTPHALIA
Papenburg
Meppen
Lingen
Rheine
Munster
Osnabruck
Bassel
Fryso yte
Lange
Danker
Great Marshy Heath of Bourtang
Benthem
Ochtrup
Vorden
Telget
Iburg
Ahlen
Weme
Werl
Dorsten
Borken
Bilterbeeck
Koesfeld
Wieringen
Medenblik
Enchuysen
Hoorn
Alkmaer
Purmerent
Edam
Marken
Monnikendam
Pampus
AMSTERDAM
Haerlem
Sea of Haerlem
New Canal
Noortwyhieun
Katwyk
Leyden
Hague
Delft
Delftland
Schieland
Rotterdam
Schiedam
Briel
Hollands Hock
Mouth of the Maes or Meus
Ysselmond
Dort
Gorcum
Gouda
Woerden
Schoonhoven
UTRECHT
Amersfoort
Naerden
Over Wartier
Neder Quarter
Vianen
Leerdam
Kuilenburg
Tiel
Bommel
Tieler Waard
Neder Betuwe
Over Betuwe
Arnhem
NIMEGUEN
Harderwick
Elburg
Hattem
Quarter of Arnhem
Veluwe
GELDERS
Quarter of Zutphen
Zutphen
Doesburg
Lochem
Groenlo
Lichtenvoord
Bredevoort
Doetinchem
Emmerik
Cleves
Rees
DUTCHY OF CLEVES
of Wesel
Wesel
Kalkar
Goch
Gennep
Land of Kuik
Grave
Heerwaarden
Ravenstein
Mook
PRUSSIAN GELDERS
Venlo
Straelen
Wachtendonk
Meurs
Rheinberk
Duisburg
Gelders
Peel Morass
Helmond
Bois le Duc
Heusden
Bosch
Shertogen
Maerkland
BRABANT
Breda
Barony of Breda
Tilburg
Bergen op Zoom
Marquisat of Bergen
Rozendaal
Steenbergen
Land of Ryen
Meirry of Hoogstraten
Hoogstraten
Turnhout
Kempen Land
Lillo
DUTCH FLANDERS
Hulster
Cadsand Isle
Sluys
Yzendyck
Oostburg
ZEALAND
WALCHEREN
MIDDLEBURG
Flushing
South Beveland
N. Beveland
Tholen
Schouwen
Zierikzee
Goeree
Overflakkee
Brouwershaven
Helvoetsluys
Beierland
Stryen
Biesbosch
Willemstadt
Klundert
Emilia Polder
Lange Straat
Land of Altena
The Hondt or Wester Schelde
Rhine R.
Waal
Maas
Lek R.
Wahal
Yssel
Ems R.
Vecht R.
Ledde R.
4°
5°
6°
7°
52
53
15
30
45
Long 7° E. from Greenwich
Neele sc.

HOLLAND.

of Orange. However unimportant the conqueſt of ſo inconſiderable a place might appear, it alarmed the duke of Alva, and produced the happieſt effect in Bruſſels. The duke, regarding it as the harbinger of further oppoſition, dropped his taxes for the preſent, and diligently applied himſelf to ſuppreſs the growing ſpirit of revolt. He withdrew the garriſon from Bruſſels, and detached it, under the command of Maximilian Hermin Boſſu, againſt the ſhips of war which were called *Gueux*. This officer, endeavouring to force Briel, was defeated by the Orange faction, and forced to retire with conſiderable loſs to the iſland of Beyerland. The prince of Orange, ſenſible of the advantage of poſſeſſing this iſland, exhorted the nobility of his party to fortify and garriſon it; his orders were obeyed, by which means he ſoon became maſter of Delfshaben on the oppoſite banks of the Meuſe.

The duke of Alva now ordered a ſquadron of ſhips to be equipped at Amſterdam, to bridle the inſolence of the Zealanders, while he buſied himſelf in raiſing an army to oppoſe the prince of Orange and Louis of Naſſau, who were raiſing auxiliaries in Germany and France. To augment the army in the field, he had draughted moſt of the garriſons; by which means the prince's friends gained poſſeſſion of North Holland; and Louis of Naſſau was projecting a ſcheme to ſurpriſe Mons, with the inhabitants of which he held a ſecret correſpondence. The deſign ſucceeded; which emboldened moſt of the cities and towns in Holland to declare againſt the Spaniards. The count de Bergues gained over ſeveral cities in Overyſſel, Guelderland, and Frieſland. In a word, the revolt became ſo general, that the duke of Alva ſoon found he could not long reſiſt the torrent. He therefore publiſhed an edict to appeaſe the people; ſetting forth, that he would conſent to remit the moſt oppreſſive taxes, if the ſtates could ſuggeſt any other means of raiſing the neceſſary ſupplies. He commanded the States-general to meet at the Hague, but his orders were diſregarded; and the States, in contempt of his authority, aſſembled at Dordrecht, inviting deputies from the prince of Orange, the nobility, and the towns that had declared againſt the governor. The prince of Orange, in the mean while, loſt no time in concentrating his army, and inſpiring all ranks with the ſpirit of liberty. He had long laboured to have the States-general convoked; and he now ſaw them not only aſſembled, but preparing to make head againſt the Spaniards. United in councils againſt the common enemy, every meaſure was taken for reducing the citadels of Ghent, Antwerp, and Maeſtricht, the chief places that now remained in the hands of the Spaniards. Ghent was taken on the 27th of November, by the aſſiſtance of a ſtrong reinforcement of troops and artillery ſent by the prince of Orange. At Antwerp the ſtates of Brabant were leſs ſucceſsful. The citadel was vigorouſly attacked; but, the mutineers and mercenaries of the Spaniſh army entering the citadel, a ſally was made, the beſiegers were driven from their trenches, great part of the town was conſumed by fire, and the reſt pillaged for three days with every ſpecies of brutality. It is affirmed that the treaſure carried off amounted to four millions of money, beſides an infinity of rich merchandiſe. This ſcandalous act of plunder and robbery of the defenceleſs inhabitants, ſeemed to unite all parties with the prince of Orange, to form the Pacification of Ghent: which was a confederacy of all the provinces to expel foreign ſoldiers; to reſtore the ancient form of government; to refer matters of religion to the ſeveral ſtates of the provinces; for ever to unite in one common intereſt with the provinces of Holland and Zealand, and renew the commerce and amity between them; to aſſemble the ſtates in the manner practiſed under the houſe of Burgundy and the emperor Charles V. to ſuſpend all the rigorous edicts of the duke of Alva on the ſubject of religion, until the States-general ſhould take the matter into conſideration; to releaſe all the natives made priſoners, mutually, without ranſom; and to reſtore all things upon the ſame footing as before the war, and the tyrannical government of the duke of Alva. To this pacification the other provinces of the Netherlands alſo united.

The States-general began with ſoliciting aid from the queen of England. Their ambaſſador had a gracious reception; and Elizabeth advanced them 20,000l. ſterling, on condition that the French ſhould not be invited into the Netherlands; that they would accept of reaſonable terms of accommodation if offered; and that the loan ſhould be repaid the enſuing year. Next a ceſſation of hoſtilities was agreed upon with don John of Auſtria, governor of the Netherlands; and the terms of the pacification were proclaimed at Bruſſels and Antwerp, on the 17th of February, 1576.

It muſt be obſerved, however, that, when this edict was ſigned, the provinces of Holland and Zealand, by the advice of the prince of Orange, made the following objections, viz. That the States-general had not eſtabliſhed the right of aſſembling this ſovereign tribunal in the perſons originally inveſted with that power by the conſtitution; that in ſome particular inſtances they had ſuffered an infraction of their privileges; that the Spaniſh troops were allowed to carry off the immenſe wealth they had acquired in the Netherlands, and by the deſtruction of the city of Antwerp in particular; that no ſtipulation was made in favour of thoſe diſpoſſeſſed of their eſtates, &c. For theſe reaſons the ſtates and the prince refuſed to ſign the edict, though they conſented to all the articles that did not contradict thoſe ſpecified. This raiſed a contention, by which the public peace was ſoon broken. Don John was ſtrenuous in recommending violent meaſures againſt the prince and his party. To this purpoſe he wrote a letter in cipher to the king of Spain, and preparations were made for a new and vigorous war. The Spaniſh troops were ordered to aſſemble at Milan; levies were made in Burgundy and Luxemburg; and a reſolution was taken of ſupporting don John with the whole power of the Spaniſh monarchy. To oppoſe this formidable power, the ſtates, in 1578, entered into a new treaty with the queen of England; by which that princeſs agreed to advance them 100,000l. ſterling, and to aſſiſt the provinces with five thouſand foot and one thouſand horſe, on condition that the loan ſhould be repaid with intereſt in eight months; that certain towns ſhould be ceded to her in ſecurity; and that the ſtates ſhould defray the expence of tranſporting their troops, and take them into pay, while they acted in their ſervice. Elizabeth, however, afterwards departed from theſe conditions, under pretence that the French would ſuſpect her having ſome deſigns on the Netherlands, and would for that reaſon unite their forces with thoſe of Spain againſt her. Inſtead of the Engliſh troops, ſhe now propoſed to ſend John Caſimir, count palatine, with three thouſand foot and three thouſand horſe; refuſing at the ſame time to pay the money ſtipulated, until the ſtates had conſented to this alteration.

Before this treaty was concluded, don John was joined by an army of ſixteen thouſand foot and two thouſand horſe, all choſen veterans, commanded by Alexander Farneſe, duke of Parma, the beſt general in the Spaniſh ſervice. Being thus ſuperior to the prince of Orange, the Spaniards gained ſeveral advantages; which, however, were more than balanced by the loſs of the city of Amſterdam. This place had been cloſely blocked up for ſeveral months by ſea and land, and at laſt concluded a treaty with the friends of the prince of Orange. That prince, however, perceiving that little confidence was to be placed in the unanimity of diſtant provinces rent by faction, different in religion, and divided by ambition, political maxims, and private intereſt, formed the ſcheme of more cloſely uniting the provinces, of which he was governor, and cementing them with thoſe more contiguous, in which the proteſtant intereſt prevailed. Such an alliance was ſubject to fewer difficulties than attended the more general one of uniting with the Netherlands; it was in fact the only meaſure that could be propoſed with ſafety, and it was proſecuted with that alacrity and addreſs for which prince William was deſervedly celebrated. On the 23d of January 1579, deputies from the provinces of Holland, Zealand, Utrecht, Frieſland, Grouingen, Overyſſel, and Guelderland, met at Utrecht, and ſigned the alliance ever ſince known by the name of the *Union of Utrecht*, the baſis of that commonwealth ſo renowned by the appellation of the UNITED PROVINCES. This treaty of alliance was founded upon the infraction of the pacification of Ghent ſolemnly acceded to by Philip, and the late invaſion of certain towns in Guelderland. It was not hereby intended to divide the ſeven provinces from all others, or to renounce the pacification of Ghent; its object was to preſerve the liberty ſtipulated in that pacification, by more vigorous operations, and united councils. The chief articles of this union are the following:

The ſeven provinces ſhall unite themſelves in intereſt as one province, never to be ſeparated or divided by teſtament; donation, exchange, ſale, or agreement; reſerving to each particular province and city all its privileges, rights, cuſtoms, and ſtatutes. In all diſputes ariſing between either of the provinces, the reſt ſhall interpoſe only as mediators. They ſhall aſſiſt each other with life and fortune againſt every foreign attempt upon any particular province, whether to eſtabliſh ſovereignty, the catholic religion, arbitrary meaſures, or whatever elſe may appear inconſiſtent with the liberties of the provinces and the intention of the alliance. All frontier-towns belonging to the United Provinces ſhall, if old, be fortified at the expence of the provinces; if new, at the joint expence of the union. The public impoſts and duties ſhall be farmed for three months to the higheſt bidder, and employed with the king's taxes in the public ſervice. No province, city, or member of the union, ſhall contract an alliance with any foreign prince or power, without the concurrence of all the other members. Foreign powers ſhall be admitted into the alliance, only by the conſent of all the contracting parties. As to religion, no man ſhall be oppreſſed on the account of conſcience. All the inhabitants, from the age of eighteen to ſixty, ſhall be trained and diſciplined to war. Peace and war ſhall be declared by the unanimous voice of all the provinces; other matters that concern the internal policy ſhall be regulated by a majority. The States ſhall be held in the uſual conſtitutional manner, and coinage ſhall be deferred to future determination. Finally, the parties agree, that the interpretation of theſe articles ſhall remain in the States-general; but, in caſe of their failing to decide, in the ſtadtholder.

This alliance was ſo univerſally approved, that in a ſhort time the cities of Ghent, Nimeguen, Arnheim, Leewarden, Venlo, Ypres, Antwerp, Breda, Bruges, with ſeveral other towns, beſides a great number of noblemen and perſons of diſtinction, embraced and ſigned the union. Thus the foundation of a commonwealth was laid, but in a fluctuating and uncertain ſtate of affairs, when men were actuated by different paſſions, views, and intereſts; intimidated by the great ſtrength of the Spaniſh monarchy, and ſupported chiefly by a zealous adherence to liberty, and firm reſolution to periſh in defence of freedom. The firſt coin ſtruck after this alliance was expreſſive of the ſituation of the infant republic: on it was repreſented a ſhip labouring amidſt the waves, unaſſiſted by ſails or oars, with this motto, *Incertum quo fata ferant*.

It was expected, that the important object of this alliance would have attracted the attention of the Walloons, and indeed of all the catholic inhabitants of the Netherlands: it in fact did ſo, but in a different manner from what was imagined. The Walloons not only refuſed to accede to the union, but they made the ſtrongeſt remonſtrances to the States-general upon the danger, impropriety, and illegality, of ſuch a confederacy. It appears from Strada and Bentivoglio, that the duke of Parma was at the bottom of their intrigues. He ſtimulated and prompted their meaſures, inſpiring them with a jealouſy of the proteſtant deſigns on the catholic religion. In the end, he contracted an alliance with them; and thereby confirmed by his own example the legality and neceſſity of the union of Utrecht. Immediately they began levying an army; but ſtill kept up appearances with the confederated provinces, though it was obvious that hoſtilities muſt ſoon commence. To prevent the effuſion of blood, the emperor, as mediator, ſet on foot another negociation; but Philip would allow no reaſonable terms of accommodation, and give no ſecurity for liberty of conſcience. Inſtead of granting equitable conditions, he laboured to detach the prince of Orange from the union; made him extraordinary propoſals; offered to reſtore him to all his eſtates, indemnify his loſſes, raiſe him to the height of power, and give him the firſt place in his eſteem and favour. But William was too wiſe to rely on the promiſes of a king who had ſhown himſelf perfidious. He determined to ſhare the fate of the United Provinces, to fulfil his engagements, and the hope conceived of his conduct by the people.

The duke of Parma was no leſs vigilant to diſconcert his projects. He diſpatched Gonzaga and Mondragon with 8000 men to lay ſiege to Marſien. The town was taken by aſſault; the governor hanged; and forty-five of the chief inhabitants were tortured to death, for having valiantly defended themſelves, and faithfully diſcharged their duty. It is ſaid the duke of Parma diſavowed this bloody proceeding, ſo inconſiſtent with the character of a hero. The Spaniſh army next inſulted Antwerp, where the prince of Orange then was. The States army was entrenched near Borgerhont, a poſt attacked without ſucceſs by the duke of Parma, after a briſk ſkirmiſhing of two hours between the armies. La Noue, however, the Dutch general, not chooſing to expoſe himſelf to continual alarms from the enemy's cavalry, retired under the cannon of Antwerp. On La Noue's retreat, the duke of Parma inveſted Maeſtricht. The ſiege began on the 8th of March, and continued without remiſſion to the 29th of June; during which time the garriſon ſuſtained frequent aſſaults, and made divers bloody ſallies, by which they were ſo much fatigued, that during a parley the town was ſurpriſed and taken. For three days Maeſtricht was a ſcene of the utmoſt deſolation and horror, the Spaniſh ſoldiers committing every exceſs and enormity, in deſpite of all the endeavours of the general to reſtrain their licentiouſneſs. With ſuch diligence did the duke apply himſelf night and day to this ſiege, that, unable to ſupport the fatigue, he was ſeized with a fever, which had nearly proved fatal. At laſt the prince of Orange determined on calling in a foreign power, and opened a treaty with the duke of Anjou. The queen of England was alſo offered the ſovereignty; but Elizabeth declined it for political reaſons. The duke of Anjou was for ſome time oppoſed by a great number of the reformed, on account of the ſhare his mother had in the horrid maſſacre of the proteſtants at Paris. All arguments to remove their prejudices were in vain. This determined the prince of Orange to have recourſe to the States-general, to whom he ſent a long remonſtrance, pointing out the cauſes why the confederacy did not produce the intended effect; and exhorting them to conſider well the affair reſpecting the duke of Anjou. In conſequence, the States-general referred the prince's remonſtrances to the provincial ſtates and cities; and, after long deliberations, it was at length determined, in 1580, to call in the duke of Anjou, as the only reſource in ſo great a calamity. Accordingly the year began with a ſolemn treaty, whereby the United Provinces renounced their allegiance to Philip, and acknowledged Francis Hercules de Valois, duke of Alençon and Anjou, for their lawful ſovereign. Deputies were ſent to the duke of Anjou to congratulate him on his acceſſion. As to the provinces of Holland and Zealand, they were left wholly in the hands of the prince of Orange, whoſe power as ſtadtholder was in no reſpect limited by the duke's ſovereignty. When the king of Spain was informed of this open defection of the Provinces, he attributed the whole to the prince of Orange, and proceeded directly to proſcribe him; he confiſcated his eſtate, upbraided him with ingratitude, and attempted to ſtain his character with ignominy. He even promiſed a reward of 25,000 crowns to whoever ſhould bring the prince of Orange to Madrid, either dead or alive; the ſame to his heirs, in caſe the perſon periſhed in the enterpriſe; and he declared all thoſe proſcribed, their eſtates confiſcated, their honours and dignities aboliſhed, who adhered to William prince of Orange a month after the publication of this edict.

The following year the States, after long deliberations at the Hague, publiſhed an edict, excluding king Philip from any ſovereignty, right, or authority, over the Netherlands. This writing appeared on the 26th of July 1581, under the title of *The Abdication of Philip king of Spain.* It was extremely well drawn up; ſtated in the ſtrongeſt terms the mutual privileges of the king and people; proved that the allegiance of the latter was voided by the breach of contract on the ſide of the former; enumerated the oppreſſive and tyrannical acts of his government; ſet aſide his authority for the moſt cogent reaſons; forbade money to be coined in his name; and took every other ſtep towards independence. It was in vain for Philip to remonſtrate: he knew the States were to be convinced only by the ſword; to this therefore he reſorted. The duke of Parma blocked up Cambray ſo cloſely, that the garriſon was reduced to the extremity of living upon horſes, dogs, and cats, and all the vermin they could catch. At length the duke of Anjou marched with a body of ten thouſand foot and four thouſand horſe, and approached Cambray. The viſcount de Turenne, and count Voulandois, undertook to force themſelves with a body of men into the town; but they were ſurrounded and taken priſoners by the Spaniards. This diſappointment did not diſcourage the duke of Anjou; he ſtill preſſed forward with intention to attack the Spaniſh lines: but the duke of Parma, not caring to hazard a battle, deſerted his works, and retired to Bouchain. As ſoon as the duke of Anjou entered the city, he took an oath to govern it agreeably to its ancient laws, and to preſerve the citizens in the full poſſeſſion of all their rights.

On the 10th of February 1582, the duke of Anjou arrived at Fluſhing, where he was received by the princes of Orange and d'Eſpinoi. Next day they ſet out for Antwerp with a magnificent retinue, and went up the Scheld attended by fifty barges. His reception at Antwerp was ſplendid, and even exceeded the preparations made for Philip himſelf on his being appointed to the government in the Netherlands by Charles V. his father. A theatre was erected before the walls of the citadel, in which was placed a chair of ſtate, covered with cloth of gold. There the duke was ſeated, and the conditions were read to him, upon which he was received as duke of Brabant. When he had ſworn to obſerve the articles, he was clothed with the ducal robe, and his head adorned with the ducal coronet by the prince of Orange. The feſtivity however was damped by a Biſcayan merchant, named Gaſpar Anaſtra, who villainouſly conſpired the death of the prince of Orange. He corrupted one of his domeſtics, by the promiſe of half the reward, to ſtrike the blow. The aſſaſſin entered the citadel; and as the prince was paſſing after dinner into another room, diſcharged a piſtol, and dangerouſly wounded him behind the ear. The prince was ſtunned with the force of the ball, and, before he recovered, the aſſaſſin was cut to pieces by his attendants. But, though for this time the prince eſcaped, he was, in 1584, aſſaſſinated at Delft, by Balthazar Gerrard or Guion, a perſon who had before ſerved him with fidelity and zeal. He was at that very time employed by the prince to carry letters into France, and had received money to bear his expences, with which he purchaſed piſtols to murder his benefactor. His puniſhment and mode of death was the moſt cruel of all the tortures that could be invented.

The United Provinces were now in a moſt deplorable ſituation. The duke of Anjou had been totally unable to reſiſt the duke of Parma; in conſequence of which many towns had been taken; and in other reſpects the States had ſuſtained immenſe loſſes. The duke of Anjou, chagrined and diſappointed, retired into France, where he died. But the loſs of the prince of Orange ſeemed to give the finiſhing ſtroke to the affairs of the States; and confuſion and anarchy began to reign in their councils. The provinces of Zealand and Holland alone endeavoured to repair the loſs, and ſhow their gratitude to prince William, by electing his ſon Maurice their ſtadtholder and captain-general by ſea and land. Maurice was only eighteen years of age; but appeared in every reſpect worthy of the high dignity which had been conferred upon him. The firſt ſtep taken by the confederates was a ſolemn renewal of the union of Utrecht; after which the moſt vigorous preparations were made for the defence of the country. But, before any thing of conſequence could be done, the duke of Parma had reduced Liſkenſhouk, Dendermonde, Vilvorde, Ghent, and Antwerp; which ſtruck the States with ſuch terror, that they again offered the ſovereignty to queen Elizabeth of England. This was again refuſed, though that princeſs engaged, by a new treaty, to aſſiſt the States both with men and money. An army was accordingly ſent into the Netherlands under the command of the earl of Leiceſter; but it does not appear that this was of very eſſential ſervice to the cauſe; for the conduct of that general was ſo exceedingly unfortunate, that he was not only baffled in every military enterpriſe, but drew upon himſelf a general odium. It is very probable indeed that the States could not long have ſupported themſelves in ſuch circumſtances, had not Philip raſhly engaged in a war with England, with whoſe naval power he could ſcarcely be enabled to cope by any ſuperiority in numbers whatever. The defeat of the Spaniſh armada, in 1588, gave ſuch a blow to the power of that nation, as totally diſabled them from carrying on the war in the Netherlands. Inſtead of ſending the proper aſſiſtance to the duke of Parma, that general received orders to haſten to the aid of the duke of Mayence, who had been defeated by the French king Henry IV. The duke was obliged to comply with this order, though he was ſenſible the loſs of the United Provinces muſt be the conſequence. Prince Maurice ſoon carried every thing before him; and by the end of the year 1591, the Dutch ſaw their frontiers extended, the whole country ſecured by rivers, and covered by fortified towns. Theſe advantages were followed by a deciſive victory gained by prince Maurice, in the year 1600, over the archduke Albert, who had been appointed the Spaniſh governor of the Netherlands. Philip II. of Spain died in 1598, leaving the affairs of his kingdom in the moſt diſtreſſed ſituation; notwithſtanding which, his ſucceſſor Philip III. was too haughty to conſent to peace, or allow that the States were free, though he was totally unable to keep them in ſubjection. At length, in 1606, the courts of Madrid and Bruſſels began to think of peace; a ſuſpenſion of hoſtilities took place; and in 1609 a treaty was concluded. In the firſt article of the treaty, the archduke, in his own and the king of Spain's name, acknowledged the United Provinces, and renounced all claim to ſovereignty over them, but in ſuch general terms as would admit of altercation. In the ſecond, a truce for twelve years, by ſea and land, through all the dominions of both parties, was concluded. By the third article, the parties were to remain in poſſeſſion of what they now held, without ceſſion or exchange. In the fourth, a general amneſty was ſtipulated, and full freedom of trade by ſea and land to each others' dominions granted. Philip of Naſſau, by the truce, entered into poſſeſſion of all his paternal eſtates in the Spaniſh Netherlands and Burgundy; while the States rewarded the faithful ſervices of Maurice with a penſion of 25,000 florins, to be paid annually out of the public treaſury, beſides an appointment of 60,000 francs as governor-general.

No ſooner were the Dutch freed from their extreme danger, and felt the bleſſings of liberty, than diſſenſions took place among themſelves. The diſputes betwixt the Arminians and Calviniſts produced violent diſturbances, which frequently ended in the perſecution of the former. In 1621 war was renewed with Spain; and it may be remarked, that during the whole courſe of it, the ſubjects of the republic traded to the Spaniſh ports, as if there had been an entire friendſhip ſubſiſting between the two nations. It was no uncommon practice with them to ſupply towns with proviſion that were beſieged by their own armies; and to furniſh the enemy with ammunition and other neceſſaries, without which they could not carry on the war. Their apology for this conduct was, that thus they kept in their own hands the profits by which other nations would be enriched. By purſuing this line of conduct, making as many prizes as they could by force, and at the ſame time making as much profit of their enemies as could be obtained by a lucrative trade, it is no wonder that the republic ſhould rival in wealth the greateſt nations of Europe. In 1628 the Spaniards met with a dreadful blow by the capture of their flota from Mexico. This was the greateſt prize the Hollanders had ever met with, being valued at no leſs than 15,000,000 livres. From this time the Spaniards were every where defeated and baffled in almoſt every enterpriſe they undertook; nevertheleſs they carried on the war, with an obſtinacy hardly to be believed, for twenty years longer. At laſt, in 1648, a treaty was concluded, by which the Spaniſh monarch again renounced all right and ſovereignty over the States-general of the United Provinces, who were thenceforth declared a free and independent republic; and that both ſides ſhould remain in the unmoleſted poſſeſſion of what they held ſeverally at the ſigning of the treaty.

From this time the commerce of Europe contributed eſſentially to the enrichment of the United Provinces. By invariably purſuing maxims of prudence, of induſtry, and frugality, the republic attained the higheſt pitch of grandeur. Amſterdam became the emporium of Europe, and the richeſt city in the univerſe. The States diſpatched miniſters and conſuls to China, Siam, and Bengal, to the Great Mogul, the king of Perſia, the khan of Tartary, the Grand Signior, the czar of Muſcovy, and the princes of Africa. They were conſidered as an important weight in the ſcale of nations; and no treaty was concluded without their ambaſſadors. The triple alliance with England and Sweden, into which they had entered, gave Louis XIV. ſuſpicion that they propoſed to ſet bounds to his ambition, and clip thoſe bold pinions which had ſo ſwiftly conveyed his conqueſts over the Low Countries. The French king was ſhocked at the preſumption and pride of a republic juſt ſtarted out of obſcurity, and gained, in the ſpace of a century, from the ocean. But what was moſt alarming to Louis, was the probability that the Dutch would ruin the manufactures of France, and his new-eſtabliſhed commerce of the Indies. His jealouſy diſcovered itſelf in divers inſtances; and the penſioner De Witt, who at that time had the leading of affairs, his brother, and his party, did all in their power to remove thoſe prejudices; but the unhappy differences which then prevailed in the United Provinces fruſtrated all their endeavours. Louis in the mean while ſought every opportunity of breaking with the Dutch; leſs perhaps from any dread of their power, or ability to injure him, than with a view to enlarge his dominions by the entire conqueſt of the Low Countries. He knew that the whole ſtrength of the republic conſiſted in her marine; that her frontier was weak, her provinces divided, and the chief power in the hands of men inveterately ſet againſt the family of Orange, the ancient ſaviours of the republic. His firſt attempt was to diſſolve the triple alliance, and diſengage from it Charles II. king of England. In this buſineſs the ducheſs of Orleans was employed: ſhe went to England under pretence of viſiting the king her brother; and her negociation was ſucceſsful. In the mean time Louis poſſeſſed himſelf of Lorraine, under pretence that duke Charles was forming alliances in the empire againſt France.

The following year was ſpent in negociations with the emperor of Germany, Spain, and Sweden, with the electors of Cologne and Brandenburg, with the biſhop of Munſter, and other ſpiritual and German princes. The deſign of Louis was to prevent their acceding to the triple alliance; from which he had already weaned one power, the moſt conſiderable of the whole. In Sweden, Louis's negociations were equally ſucceſsful; for he prevailed ſo far with Charles XI. as to obtain a ſtipulation, that if the emperor, or any of the princes of the empire, joined their forces to the Dutch, a Swediſh army ſhould march into the very heart of Germany and join the French, in order to force thoſe princes to obſerve the treaty of Weſtphalia.

Of all the Germanic body, the elector of Brandenburgh alone intereſted himſelf for the ſafety of the States-general. The peace of Weſtphalia had prevented this enterpriſing prince from extending his dominions in Germany. He had long aſpired at the ſtadtholderſhip of Holland; and, though that office had been for ſix years ſuppreſſed, yet he flattered himſelf, that in caſe of a war he might obtain it, perpetuate it in his family, and in time reduce Holland by dint of force, intrigue, and ſtratagem. With this view, he rejected the propoſals of France, endeavouring by every poſſible method to inſinuate himſelf into the friendſhip and confidence of the States. He therefore concluded a treaty with them, whereby it was ſtipulated that he ſhould aſſiſt the republic with twenty-five thouſand men. Beverning, the Dutch ambaſſador at Madrid, had the addreſs to diſconcert all the ſchemes of France at that court, and engaged the queen of Spain to furniſh money and troops for the defence of the United Provinces. Thus was the face of Europe ſurpriſingly changed. France and England, who had contributed largely to the raiſing and aggrandizing the republic, were now incited to deſtroy her; while Spain, which for an age had been endeavouring to ſuppreſs her, was arming for her ſupport. Pierre de Groot, the Dutch miniſter at the Hague, was employed to penetrate into Louis's deſigns; he gave his conſtituents notice that he foreſaw a terrible ſtorm ready to fall upon them, which they might nevertheleſs break by ſeaſonable ſubmiſſions and proper acknowledgments. Upon this the States wrote to the king, endeavouring to appeaſe his wrath; but, finding him inexorable, they prepared for receiving him, and provided for the ſecurity of the provinces.

As ſoon as matters were ripe for execution, Louis ordered an army of one hundred thouſand men to file off towards the Rhine. Before the opening of the campaign, and previous to his declaration of war, he divided his army into four columns; commanding one in perſon, with the marſhal Turenne under him. Another was led by the prince of Condé, aſſiſted by the marſhals Humieres and Bellefonds; the third was headed by Crequi; and the fourth marched to Weſtphalia under the conduct of the duke of Luxemburgh, to join the biſhop of Munſter. As the marſhals Crequi, Bellefonds, and Humieres, refuſed to receive orders from Turenne, they were baniſhed; but, after ſix months exile, were recalled, at the inſtance of the whole body of marſhals in France, upon their making proper ſubmiſſions.

Such an army drawing towards their frontiers could not but terrify the Dutch, now torn with civil factions. The partiſans of the Orange family were for aboliſhing the perpetual edict, and raiſing William III. to the dignity enjoyed by his predeceſſors; but the De Witt faction oppoſed him violently, though they could not prevent the young prince from being choſen captain-general and high-admiral. Many perſons hoped that William's new dignity would incline his uncle Charles II. of England, to return to the triple alliance: but that hope was fruſtrated by the conduct of his majeſty; who, in conjunction with Louis, declared war againſt the States-general on the 7th of April, 1671. A month after, the elector of Cologne and biſhop of Munſter followed the example of the two kings. The Dutch put themſelves in the beſt poſture of defence that circumſtances would admit. Maeſtricht was ſtrongly garriſoned; the prince of Orange had aſſembled an army of twenty-five thouſand men, with which he advanced to the banks of the Iſſel, and the Dutch fleet cruiſed off the mouth of the Thames, to prevent the junction of the naval forces of England and France, which amounted to one hundred and fifty ſhips. All Europe fixed their eyes upon the firſt motions of two powerful kings, ſeconded by the beſt generals of the age.

The French king joined his army at Charleroy. It conſiſted of 110,000 men, under the command of marſhal Turenne, as captain-general. Holland could only be attacked by the Rhine or the Meuſe; and the generals and miniſters differed by which of theſe inlets they were to make the firſt impreſſion. At laſt, after ſeveral deliberations, it was determined to make the attack by both theſe avenues at one and the ſame time, in order the more to diſconcert their enemies. It is probable that Turenne always oppoſed the ſiege of Maeſtricht; for we find him immediately after the ſurrender of Maſcik ſtrongly diſſuading the king from that enterpriſe, in oppoſition to the ſentiments of the prince of Condé. At laſt he prevailed; and it was reſolved in council to advance towards the Rhine, and beſiege at the ſame time the towns of Rhinberg, Veſſel, Orſoi, and Burick. Theſe places were all well fortified, and deemed the keys of Holland; however, the Dutch did not appear diſturbed at their being inveſted, as they did not immediately belong to the United Provinces. They were beſides in hopes that any attempts upon the territory of Cleves, would haſten the preparations of the elector of Brandenburgh, and even rouſe the emperor into a ſenſe of the danger he was in from the ambitious deſigns of Louis. Nothing could oppoſe armies ſo well appointed, led by generals ſo ſkilful and ſo experienced. The four towns ſurrendered within a few days of each other; and Rhinberg, that held out longeſt, opened its gates on the 7th of June. A few days after, the town and fort of Rhees, and the town of Emerick, ſurrendered; upon which Louis reſolved to paſs the Rhine by a ford, over which the cavalry were to ſwim. This bold enterpriſe was projected and conducted by Condé; who, in the face of two regiments of foot, and ſeveral ſquadrons of horſe, under general Wartz, intrenched on the oppoſite ſide, effected the paſſage, in the ſame order, and with as much regularity, as if he had marched his troops on dry land. The enemy made a ſtout reſiſtance; but were driven from their poſt, after having killed the duke de Longueville on the ſpot, and wounded the prince of Condé, which diſabled him for ſome time from attending the ſervice, and obliged him moſt unwillingly to reſign the command of his army to Turenne.

It is almoſt incredible with what rapidity towns and fortreſſes yielded to the fortune of his majeſty's arms. The reduction of Betau, the moſt fruitful country of the United Provinces, and the ſurrender of Tolhus fort, obliged the prince of Orange to abandon the Iſſel, leſt he ſhould be attacked in the rear, and to retire to the very heart of the country, as far as Rhenen, in the province of Utrecht. By this means the town of Arnheim, the forts of Knotſemborough, Voorn, St. André, and Shenck, the ſtrongeſt in the Netherlands, with a variety of other forts and towns, ſurrendered as ſoon as ſummoned; and at laſt Nimeguen, garriſoned by eight thouſand fighting men, was inveſted. After the citizens had for eight days exhibited ſignal proofs of courage in defence of their liberties, they were forced to yield to the ſuperior ſkill of Turenne.

In the mean time, the biſhop of Munſter and elector of Cologne having joined that body of troops under the command of the duke of Luxemburgh, the united army entered the province of Overyſſel, and by dint of cruelty and terror reduced the towns as ſoon as he appeared before them. Animated by that implacable rage which conſtantly attends religious wars, the two prelates obliged the duke to exert a ſeverity, by no means ſuited to his nature, againſt heretics and the rebellious ſubjects of the houſe of Auſtria. Next the king's forces penetrated into the province of Utrecht, where their conqueſts went on with the ſame rapidity, and put the capital of the province in the utmoſt danger. To retard its fate, the Dutch could imagine no other expedient than opening their ſluices, and overflowing the country. The other towns followed the example of Utrecht; and Holland, Brabant, and Dutch Flanders, was one vaſt connected lake, the towns riſing like iſlands in the midſt of the waters. Farther to ſtem the torrent of Louis's conqueſts, the people were perſuaded that the only barrier was to lodge the ſupreme authority in the hands of the prince af Orange. They accordingly obliged the ſtates of Holland and Weſt Frieſland to unite the dignity of ſtadtholder to thoſe of captain-general and high-admiral, with which the prince was already inveſted. They likewiſe ſent remonſtrances ſo pathetic to the king of England, that Charles, moved with the ſituation of the republic, and jealous of the deſigns of Louis, diſpatched the duke of Buckingham and earl of Arlington to quiet the fears of the Dutch, and inſiſt upon the French king's penetrating no farther into Holland. In caſe of Louis's refuſal, Charles declared he would break the alliance; as he perceived that, inſtead of ſecuring Zealand to the Engliſh, agreeably to the treaty, the deſigns of France were to unite the whole republic to their own monarchy. His Chriſtian majeſty in fact paid no great regard to the menaces of his ally: but, as perſiſting obſtinately to advance into a country which the inundation rendered impaſſable might terminate in the ruin of all his ſchemes, he ſeemed, out of compliment to the king of England, to liſten to terms of accommodation; which, after all his victories, could not fail of proving advantageous. In the ſpace of three months he had conquered the provinces of Guelderland, Overyſſel, and Utrecht, taken about fifty towns and forts, and made twenty-four thouſand priſoners. The priſoners were releaſed for a trifling ranſom; and the French army, reduced and exhauſted by continual drains, were ſent to garriſon the conquered places.

A negociation was ſet on foot at Boxtel, near Bois-le-duc, whither the French king, attended by the Engliſh ambaſſadors and the Dutch deputies, repaired: but the terms required of the republic were ſo hard and unqualified, that they were rejected with diſdain by the Dutch; who, animated by their ſtadtholder, reſolved to wait a change of fortune in the midſt of the waters. They uſed every expedient to rouſe the princes of Germany in their defence; and the elector of Brandenburgh, the neareſt and moſt intereſted prince, prepared to take the field. The undaunted courage, the vigilance, the public ſpirit, of the prince of Orange, gained him the entire confidence and affection of the republic; and excited their reſentment againſt the two brothers De Witts, his implacable enemies, whom they accuſed of receiving penſions from Louis. The ſuggeſtion was falſe; but poſſibly their jealouſy of the houſe of Orange had carried thoſe two great politicians too far in their complaiſance to the French monarch. The penſionary was attacked in the ſtreet by the populace; but by his perſonal bravery he broke through the crowd, and ſaved his life, though covered with wounds. Soon after the ſedition broke out afreſh, and the partiſans of the houſe of Orange again ſtirred up the animoſity of the republic againſt the De Witts. Several crimes were laid to the penſioner's charge, but he juſtified himſelf. Suborned witneſſes accuſed his brother of an attempt to poiſon the prince of Orange. Cornelius was impriſoned, and treated with great barbarity. While he was under the torture, he ſung that ode of Horace, *Juſtum et tenacem propoſiti virum*. His brother took him out of priſon after ſentence of baniſhment was pronounced; but the tumult roſe high, and both the De Witts were cruelly torn in pieces in the ſtreets. William of Orange ſeemed touched at this terrible ſacrifice; he made the penſionary's eulogium, and ordered the murderers to be proſecuted; however, the clemency he ſhowed them, the advantages he obtained by the maſſacre, and the animoſity he bore the De Witts, convinced all men that he did not diſcountenance the murder.

William of Orange, in the mean time, daily ingratiated himſelf more. He gave up his whole fortune for the ſafety of the ſtate; and exerted himſelf with ſuch prudence and ability, that all Europe began to unite againſt the two kings. By the month of July every prince in Germany was in motion to ſuccour the Dutch. The emperor, the king of Denmark, the elector of Brandenburg, the duke of Brunſwick Lunenburg, and the landgrave of Heſſe, immediately ordered their troops to join; ſeveral of the other princes were likewiſe preparing to take the field. All were jealous, England began to waver, and there was not a power in Europe upon whom Louis XIV. could heartily rely. The army of Brandenburg, commanded by the elector in perſon, and the forces of the empire under the famous Montecuculi, joined near Heidelſheim, and compoſed a body of forty thouſand men. Turenne, who had been appointed generaliſſimo of the French king's army on his return to Paris, marched to prevent the enemy from croſſing the Rhine. For three months were the elector and Montecuculi employed in abortive attempts to effect a paſſage at Mentz, Coblentz, Straſburgh, and other places. This anſwered the purpoſe of making a powerful diverſion in favour of the Dutch, though they could not accompliſh their deſign of joining the prince of Orange. After repeated diſappointments, the imperial army directed its march to Weſtphalia; and Turenne followed, in order to keep the biſhop of Munſter up to his engagements. For half the campaign, he, with a body of ſixteen thouſand men, baffled every ſtratagem of the elector and Montecuculi, the latter the moſt renowned general of the empire, at the head of an army near triple in number. He obliged him to go into winter-quarters, in a country haraſſed and exhauſted; and confirmed the biſhop of Munſter in the alliance of France, at the very time he was on terms with emperor. He obliged the elector of Brandenburg, who took the chief command during Montecuculi's illneſs, to abandon the ſiege of Werle; took Unna, Kamen, Altena, Berkembam, and ſeveral other towns and fortreſſes. By continuing his operations, he forced the elector out of his winter-quarters again into the field, chaſed him from poſt to poſt, until he obliged him to quit Weſtphalia, repaſs the Weſer, and retire with precipitation into the biſhopric of Hildeſheim. After taking poſſeſſion of the elector's towns in Weſtphalia, he purſued him into the biſhopric of Hildeſheim; and at length, by mere dint of ſuperior genius, forced him to ſeek ſhelter in his hereditary dominions. All this was effected after Louvois had appointed the marſhal's army quarters in Alſace and Lorrain, amidſt the rigours of a ſevere winter, oppoſed by a ſuperior enemy, by the artifices of Louvois, and ſeconded only by his own prudence, and the affection of his troops, which he maintained in defiance of all the difficulties, hardſhips, and dangers, they encountered. It was indeed ſuppoſed, that Montecuculi was prevented from giving Turenne battle by the remonſtrances of prince Lobkowitz, the emperor's ambaſſador, influenced by the gold of Louis. Certain indeed it is, that Montecuculi's illneſs aroſe from his chagrin at ſeeing all his projects fruſtrated by the dilatory conduct of the court of Vienna. Louis's negociations diſturbed Europe no leſs than his arms. His creatures ſwarmed in every court. Leopold could not be prevented from declaring in favour of Holland; but his miniſters were bought off from ſeconding the emperor's intentions. The whole Engliſh nation exclaimed againſt the alliance of their king with France; but Charles ſtood in need of French gold to ſupply his extravagance and profligacy. The elector of Bavaria had indeed been compelled by Louis to retire to his capital; but it was by dint of intrigue that he was forced from his alliance with Holland, and conſtrained to ſign a peace with France.

While Turenne was thus employed on the Rhine, Condé, having recovered of his wounds, returned to the command of the army in Holland. He beſieged and took Maeſtricht in thirteen days. Having repaired the fortifications, he propoſed making himſelf maſter of ſeveral other towns; but the inundations every where ſtopped his courſe. All his attempts to draw off the waters were in vain; and he was forced to content himſelf with preſerving, without pretending to extend, the conqueſts which had been made. In the mean time, Spain declared in favour of the Dutch: and prevailed upon the emperor to act more decidedly in the cauſe of Holland, and defence of the liberties of Europe. The prince of Orange was reinforced by ten thouſand Spaniards; and Philip concluded a treaty with the States at the Hague, whereby he declared war againſt France, engaged the emperor to make a powerful diverſion on the Rhine, ſtipulated not to accept of peace before the Dutch had retrieved all their loſſes, and obtained from them a promiſe to liſten to no terms of accommodation before his Spaniſh majeſty was reinſtated in all his poſſeſſions in the Low Countries previous to the peace of the Pyrenees. Montecuculi was ordered to advance with thirty thouſand men to Franconia; and Turenne, joining the troops of Cologne and Munſter, paſſed the Main, and took poſt in the electorate of Mentz. The prince of Orange receiving no impediment from Condé, who was forced on account of the inundations to repaſs the Meuſe, thought this a proper time for action. He ordered ſome troops to file off ſecretly to Amſterdam and Muyden; lined with infantry the intrenchments which ſecured the paſſage to Holland; and to deceive the duke of Luxemburg, who commanded in Utrecht, ſent ſome forces by ſea to attack Bommel. The duke, not penetrating the prince's deſign, came to ſuccour the place; and William, finding his ſtratagem ſucceed, marched to Naerden, and with twenty-five thouſand men inveſted and took the place before the duke could provide for its ſecurity. Upon this ſucceſs, the Dutch took courage, fortune inclined in their favour, and in a ſhort time all the horrors of war were removed from the interior parts of the United Provinces to the Spaniſh Netherlands. Neither the experience nor conſummate addreſs of Turenne, the genius of Vauban, nor the indefatigable vigilance of Louvois, could repair the error committed in ſending the grand army to garriſon the conquered towns. Even Condé's fire ſeemed extinguiſhed in the waters with which the Dutch had drowned their country. Inſtead of penetrating farther, he was obliged to retreat. Turenne could not prevent the junction of Montecuculi and the prince of Orange, nor the loſs of Bonne. This junction, and the declaration of Spain, obliged the armies of France to abandon the three provinces with ſtill more rapidity than they had conquered them. The triumphal arch at St. Dennis was hardly erected as a monument of Louis's victories, before the fruits of thoſe victories were relinquiſhed. In a word, the parliament of England would no longer ſuffer Charles to be the mercenary tool of France; the late ill ſucceſs cooled the elector of Cologne and the biſhop of Munſter in their friendſhip; and Louis, forſaken by all his allies, found himſelf under the neceſſity of maintaining ſingly a war againſt Germany, Spain, and the United Provinces. At length, alſo, the revolution in 1688, when William III. ſtadtholder of Holland, became king of England, brought on a much cloſer affinity between the two nations than had ever taken place before. By means of this connection, William formed a plan of humbling his great adverſary Louis XIV. who had ſo implacably brought his country to the verge of ruin. For this purpoſe he renewed the war in 1689, and commanded the army in perſon. However, he was overmatched by the abilities of Luxemburg the French general; who oppoſed him, and obliged him to conclude a peace in 1697. His enmity to the French king, however, was not yet extinguiſhed. The remaining part of his life he employed in forming the moſt powerful confederacy againſt that monarch; and ſo much was he wrapped in this project, that even in his dying moments it ſeemed to prevail over every other conſideration. His meaſures were adopted by his ſucceſſor queen Anne; and the French monarchy had nearly ſunk under the united efforts of the forces of Britain, Holland, and Germany, headed by Marlborough and Eugene; till at length, in 1713, the treaty of Utrecht contributed to reſtore the peace of Europe.

Holland was now for a long while permitted to enjoy a ſuſpenſion from military levies and contributions, which enabled her to proſecute her commercial intereſts with energy and effect. Happily for the country, that ſtate of repoſe continued, until the general war about the Auſtrian ſucceſſion embroiled the whole continent of Europe. From the inſidious deſigns of mareſchal Saxe in marching into Dutch Brabant, the ſtates took the alarm, and the friends of the prince of Orange did not omit ſo favourable an opportunity of getting him declared ſtadtholder; a dignity which had been laid aſide ſince the death of William III. The beneficial effects of this meaſure ſoon appeared. A fleet was equipped; a militia raiſed: the exportation of naval ſtores prohibited, and orders were iſſued for commencing hoſtilities againſt France without delay. The French arms were, however, at firſt ſucceſsful, and the taking of Bergen op Zoom threw the United Provinces into the utmoſt conſternation. During the winter, however, a congreſs met at Aix-la-Chapelle, in 1747, which ended in the peace of that name, the general baſis of which was the mutual reſtitution of all conqueſts made ſince the beginning of the war, and a releaſe of priſoners without ranſom. See the article ENGLAND, vol. vi. p. 720.

In the war which broke out in 1756, between the French and the Engliſh, the States-general wiſely determined on remaining neutral; nor was it until the great aſcendancy which the commerce of their Eaſt-India Company enabled them to acquire on that continent, that they were involved in a conteſt with the Engliſh. The avarice of the republic, and that graſping ſpirit which no principles could reſtrain, or treaties moderate, induced to form a conſpiracy, the moſt atrocious, for the extirpation of their rivals. The Engliſh were, however, upon their guard, and not only completely deſtroyed a body of land-forces which the Dutch had ſent up the river Slughley, but gave battle to a ſquadron of ſeven ſhips of the line, and obliged the whole to ſtrike, after an obſtinate engagement, though their opponents had only three Eaſt-India ſhips manned and armed for the purpoſe. This deſtruction of the whole armament induced the ſettlement in India to ſubmit to ſuch terms as the government of Calcutta thought proper to impoſe; and the States-general diſclaimed to the Britiſh miniſtry, in Europe, all idea of hoſtile intentions.

In 1766, the dignity of ſtadtholder having been made perpetual, the prince of Orange, on attaining the twenty-firſt year of his age this year, took the adminiſtration upon him, an event affording much addition of ſtrength to the proteſtant cauſe. The great rejoicings on this occaſion, through all the United Provinces, ſtrongly demonſtrated the great weight which the princes of that houſe bore in the republic. The ſtadtholder ſoon afterwards married the princeſs royal of Pruſſia, an event the moſt pleaſing to the whole provinces, as they by this meaſure formed an alliance with a great and powerful neighbour, whoſe diſpoſition, if not a certain friend, was always to be dreaded.

During the conteſt between Great Britain and her colonies in America, the Dutch cautiouſly avoided being drawn into the confederacy which had been formed againſt the mother-country, but they certainly took every means of ſupplying the revolted ſtates with ſtores of every deſcription, to which their conſtant thirſt of gain excited them. It was this conduct that excited the Engliſh to the capture of St. Euſtatius; an event which brought on an immediate war with Holland: the ſevere and unwarrantable conduct of the Britiſh commanders, in the confiſcation of all the property found there, to the amount of three millions ſterling, was an outrage not to be paſſed by. Although the nation had been long diſuſed to war, and were very ill prepared for it, when hoſtilities commenced, it ſoon appeared that their ſailors had not loſt that courage which diſtinguiſhed them. An engagement between the two fleets was fought with the moſt deſperate obſtinacy, off the Dogger Bank, which continued for three hours and a half, with equal advantage; when the Dutch commander, having ſecured the retreat of his valuable convoy, drew off his ſhips, but the Engliſh fleet was too much diſabled to purſue them. The iſland of St. Euſtatius was alſo ſoon after retaken by the aſſiſtance of the French: but the Dutch ſuſtained ſome ſevere loſſes in the capture of their Eaſt Indiamen. The neglect of keeping up the navy now excited much diſcontent againſt the government, which was at that time principally under the direction of duke Louis of Brunſwick Wolfenbuttle, field-marſhal of Holland, and captain-general during the minority of the prince of Orange.

The ſucceſs which the emperor of Germany had met with reſpecting the demolition of the Dutch Barrier, determined him, in 1781, to advance further claims upon the ſtate; and, to enforce his demand, he began with ſeizing the Dutch forts in the neighbourhood of Sluys. His real object ſeems to have been the opening of the Scheldt, a meaſure of infinite importance to the Auſtrian poſſeſſions: and for ſucceeding, no time ſeemed more favourable. The provinces were haraſſed with civil diſſenſions. The conteſts between the prince of Orange and the ariſtocracy were kept up with conſiderable acrimony. The power of the ſtadtholder was rapidly declining, and there ſeemed neither energy, wiſdom, nor policy, to counteract his ruin. The commotions became at laſt ſo ſerious, that the duke of Brunſwick was compelled to reſign all command, and retire to Aix-la-Chapelle. The determination of the emperor ſeemed fixed. He declared the navigation of the Scheldt free, and ordered a ſhip to ſail down the river, and, upon its ſeizure by the Dutch, loſt no time in putting his army in motion, with all the appearance of commencing an immediate war. Through the interference of the French court, conferences were opened at Verſailles, and the demands of the emperor were finally commuted for ten millions of florins.

In 1784, the States of Holland adopted one of the boldeſt objects in their ſyſtem of politics againſt the ſtadtholder; a moſt intimate alliance being then formed between the government of Verſailles and that of the Hague. The treaty ſtipulated that either party ſhould ſupply the other with an auxilliary force upon being attacked, and the expences to be defrayed by the government furniſhing the aſſiſtance. The whole of the articles, taken together, ſeem to amount nearly to a counterpart of the celebrated family-compact. The internal commotions which led to theſe meaſures firſt diſplayed themſelves in 1780; and the foundation of them had probably been laid much earlier. Two parties, for the laſt two centuries, had been continually ſtruggling for ſuperiority. The firſt of theſe was the family of Orange; the ſecond, that of the States and of the town-councils. From the death of the De Witts, of Barnevelt, and of William II. the republic had declined, and, inſtead of venerable patriots and diſtinguiſhed conquerors, Europe had for the laſt century been accuſtomed to regard them as a nation of merchants, purſuing the acquiſition of wealth, in contempt of every other quality or accompliſhment. It cannot be doubted, that the oligarchy had, for many years previous to 1780, entertained the deſign of excluding the ſtadtholder, and of ſtripping him of his authority. Their plan was to watch with attention the occaſions that might ariſe, and, inſtead of boldly directing the progreſs of events, merely to ſeize and improve ſuch as might ariſe. To prepare the public mind for the execution of this ſcheme, they ſucceeded in fixing a contempt upon the miniſters, and even, in ſome meaſure, upon the ſtadtholder. This was thought the more neceſſary, as the people were in general attached to their prince, and it was doubtful whether the army would not adhere to him. Accordingly, in 1783, they contrived that the different burghers ſhould form themſelves into a free corps, with the character of volunteers, taking care that the commanders ſhould be cloſely connected with themſelves. This ſpirit, when once ſet on foot, rapidly extended itſelf through all the provinces; and in ſome towns the corps conſiſted of the richeſt, the moſt conſiderable, and moſt reponſible, citizens. The firſt object which now excited the attention of the oligarchy was the conſtitution of the magiſtracy and the town-ſenates. The power of the ſtadtholder, excluſive of his influence in the election of the ſenates, was very conſiderable. He poſſeſſed the appointment of inferior officers in the navy; of officers in the army from the colonel to the enſign, and a voice in the diſpoſition of all other places of honour and emolument. It was the intention of his enemies to abridge his authority both in the army and the State; and to veſt the ſupreme power in the republic. The prince of Orange was neither blind to their deſigns, nor inactive to prevent a meaſure which ſtruck at his prerogative: but, when the revolution which occurred in France came to be contemplated in Holland, it re-inſpired the hopes of the diſaffected, which were for the preſent only kept down by the approach of war. No ſooner did intelligence arrive of the aſſault of the Thuilleries, and the impriſonment and execution of the king of France, than the States-general recalled their ambaſſador; and, in conjunction with Great Britain, reſolved to oppoſe the opening of the Scheldt, an event likely, beyond every other, to affect the proſperity of Holland. Upon the diſmiſſal of the French ambaſſador from the Hague, in 1793, war was declared in France againſt Great Britain and Holland jointly; but the complaints againſt the latter were directed ſolely againſt the prince of Orange. The firſt efforts of the French were therefore directed to the expulſion of the ſtadtholder; and Dumourier marched towards Holland, with an army of thirteen thouſand men. It was well known that there were many of the Dutch ready to join the French arms, and not a moment therefore was to be loſt. Breda, Klundert, and Gertruydenberg, after a ſhort reſiſtance, ſurrendered. Williamſtadt, however, made a reſolute defence; and the arrival of the duke of York with a body of Britiſh troops, ſaved Holland from the miſeries of invaſion, and forced the French to retire within their own territories.

In 1794, the French, having been ſingularly ſucceſsful againſt the Auſtrians, once more commenced their march towards Holland, under the command of Pichegru and Moreau. Sluys was ſpeedily taken, the Engliſh repulſed at Boxtel, and Bois-le-duc and Crevecœur ſurrendered. On the 19th of October, the Engliſh were attacked and defeated at Puffiech; after which they retired behind the Wahal; while the invading army, encouraged by the natives, prepared to beſiege the neighbouring garriſons, notwithſtanding the advanced ſeaſon of the year. Venloo was taken, and Maeſtricht ſoon afterwards ſurrendered, as did Nimeguen on the 8th of November, after a very ſhort ſiege, though covered by the army of the duke of York. The ſuperiority of the French having induced the allied armies to retire, the French determined on croſſing the Wahal. But this was no eaſy enterpriſe. The water on every ſide oppoſed obſtacles, nearly inſurmountable to an invading army; and the ſtadtholder, if reduced to deſpair, might probably recur to the ſame means againſt the French republic, that his predeceſſors had employed with ſucceſs againſt the monarchy. In other countries, a mild ſeaſon is in general neceſſary for the purpoſes of conqueſt; but nothing leſs than an intenſe froſt here, which, by converting the water into ſolid ice, might facilitate the tranſport of armies, cannon, and ammunition, could effect the deſtruction of the houſe of Naſſau. The froſt, however, ſet in with an aſtoniſhing degree of rigour, and general Pichegru availed himſelf of that opportunity to order two brigades to march acroſs the ice to the iſle of Bommel, which, with Fort Saint Andrew, immediately ſurrendered; as did alſo the town of Grave.

A few days after, Pichegru croſſed the Wahal, with his whole army, in the neighbourhood of Nimeguen; and Gorcum, the head-quarters of the prince of Orange, was threatened with an aſſault. The ſuperiority of the enemy in point of numbers was ſo great, that not all the gallantry of the Engliſh army, and the exertions of its officers, though they obtained ſeveral brilliant ſucceſſes, were able to ſtop the progreſs of the enemy. The allies retreated behind the Leck, and abandoned the province of Utrecht to the enemy. The ſituation of the prince of Orange was now deplorable. He had publiſhed many animated addreſſes to the people, entreating them to riſe in arms and defend their country, but no exhortations could inſpire the Dutch with a ſpirit of reſiſtance; and his plan of a grand inundation round Amſterdam was vehemently oppoſed, though the only means of ſaving that city. The diſcontented party now began to raiſe their heads, and the ſtadtholder, finding it impoſſible to reſiſt the ſtorm, deſired leave to withdraw; and, after waiting for a ſhort time the event of a negociation, he ſailed for England, where, in 1795, he found an aſylum worthy of the country. Such are the ways of Providence! in the year 1688, a prince of Orange came to England to obtain a crown; and in the year 1795, a prince of Orange fled hither for protection.

While the ſtadtholder was thus forced to fly from a country, where his anceſtors by their intrepidity and patriotiſm had rendered themſelves adored, a French officer with diſpatches from Pichegru entered Amſterdam, and repaired to the houſe of the burgomaſter. The tree of liberty was planted the next morning, while de Winter took poſſeſſion of the fleet, which he was afterwards deſtined to command. A complete revolution was thus effected through the Seven United Provinces. At Utrecht the adminiſtration was changed without the leaſt diſorder; new municipal officers were choſen by the burghers, and the orders of the nobility and clergy ſuppreſſed. Events, nearly ſimilar, occurred at the ſame time in the other principal towns. Pichegru entered Amſterdam in triumph, and was received with acclamation. The principal cities were next occupied by French troops; and, to complete the wonders of the campaign, a body of horſe and a detachment of light artillery actually advanced along the ice, and forced a ſquadron of men of war, frozen in a ſtrait of the Zuyder Zee, to ſurrender.

The conqueſt of Holland by the French, and the treaty of alliance which ſpeedily followed this event, produced an entire change in the connection between that country and England. War was conſequently declared by the latter, and a great number of Dutch veſſels were detained, and all the property of that nation in England ſeized. All the Dutch colonies in Aſia were alſo captured after a ſhort and ineffectual reſiſtance. Holland naturally looked up to the French for protection; while France, requiring loans and reſources of every kind, continued, by means of the wealth of her new ally, to ſupport her own neceſſities. Though by the treaty a ſtipulated ſum only was required from the Dutch as an indemnification for the expences of the war, this price of redemption, enormous as it was, ſerved rather to excite than allay the rapacity of the French; and new demands were made under the various forms of loans, requiſitions of clothing and proviſions, voluntary contributions, ſubſidies, and the forced circulation of aſſignats. The treatment of the Dutch troops in the French ſervice was alſo peculiarly unjuſt. They were placed in the moſt expoſed ſituations in every battle, and in the exchange of priſoners their intereſts were invariably neglected. In 1799, the republic ſeems to have reached the loweſt ebb of depreſſion. The people, worn out with unceaſing exactions, the annihilation of commerce, the loſs of their colonies, and the arbitrary acts of the government, became impatient for a change in the ſyſtem of affairs. Theſe diſcontents were miſtaken, by the ſtadtholderian party, for a general inclination in the people to re-eſtabliſh the old form of government; and ſtrong repreſentations were in conſequence made to England, of the expediency of ſending into Holland a ſufficient force to aſſiſt the friends of the ſtadtholder, and reſcue the republic from the bondage of France. Theſe repreſentations, coinciding with the inclinations of the Britiſh government, produced, in the autumn of the year, an expedition into Holland; for the operations and event of which, ſee the article ENGLAND, vol. vi. p. 781–782: and the article FRANCE, vol. vii. p. 842–843.

The Britiſh army had no ſooner retired from the ſhores of Holland, than every meaſure was taken to oppreſs, and confiſcate the property of, the unfortunate party which had exerted itſelf in the ſtadtholderian intereſt. In 1801, the conſtitution and government aſſumed a new form; and, under the authority and direction of the firſt conſul of France, the United Provinces for ever ſunk their name, and took that of BATAVIAN REPUBLIC; in which character it could only be conſidered as a province of the overgrown republic of France, which directed all its councils, and levied contributions upon the country at pleaſure. This, however, was not ſufficient. Napoleon Bonaparte, ſtill jealous of the Britiſh army and navy, and of the ſtadtholder's intereſt, and having no confidence in the unſtable attachments of the wily Dutch, reſolved to place the country more within his own graſp, by making his brother a nominal king, and placing a ſtanding army at his elbow, whoſe ſwords might with eaſe maintain the laws of arbitrary ſubjection.

In 1806, therefore, a plan was concerted between the conſtituted authorities of the Batavian republic and the emperor of France, whereby a new form of government was decided upon, at the head of which Louis Bonaparte, one of the brothers of Napoleon, was to be placed as king, and the country thenceforth called the KINGDOM OF HOLLAND: under this regulation the Seven United Provinces, and Batavian Republic, were ſunk in the new kingdom, which was immediately divided into the following

| *Departments.* | *Conſiſting of* | *Chief Towns.* |
|---|---|---|
| 1 Groningen | The Province of Groningen, compriſing Wied, and Weſt-Woldingerland. | Groningen. |
| 2. Frieſland | The Province of Frieſland and Ameland. | Leewarden. |
| 3. Overyſſel | Overyſſel and the country of Drenthe. | Zwol, or Aloſt. |
| 4. Guelderland | Guelderland, Kuilemberg, and Buren. | Arnheim. |
| 5. Utrecht - | Utrecht and Veanen. | Utrecht. |
| 6. Holland - | Holland, Iſſelſtein. | The Hague. |
| 7. Brabant - | Dutch Brabant. | Bois le Duc. |
| 8. Zealand - | Zealand. | Middleburg |

Thus the departments are named after the ancient provinces, with the addition of the duchy of Brabant, which is added to the kingdom of Holland. But in 1807, it being found that the term *Holland*, by being applied both to the department or province, and alſo to the kingdom at large, created oftentimes confuſion; it was therefore decreed, that the province of Holland ſhould be ſplit into two departments, inſtead of one, by the names of the "Department of the Amſtel," and the "Department of the Meuſe;" and that the county of *Drente* ſhould alſo be converted into a department; and the name HOLLAND in future to denote only the kingdom itſelf, compriſing theſe ten departments. The kingdom is alſo formed into four military cantonments, whereby every part is ſubjected to military law.—For detailed accounts of theſe departments or provinces, and the cities and towns contained therein, ſee under their reſpective names in this Encyclopædia.

The formation of the land and waters in and about Holland, has long been a ſubject of curious inveſtigation to the geologiſt and philoſopher. Upon inſpecting the maps of ancient Gaul by d'Anville, it will be perceived that the Rhine divided itſelf into two grand branches at Burginaſium or Schenk, about five miles north-weſt of the Colonia Trajana, now an inconſiderable hamlet called Koln, near Cleves. The ſouthern branch joined the Meuſe at the town of Moſa or Meuvi; while the northern paſſed by Durſtadt, Utrecht, and Leyden, into the ocean. From the northern branch was led the canal of Druſus, which originally joined the Rhine to the Iſſil, a river that flowed into a conſiderable inland lake called Flevo, now a ſouthern portion of the Zuyder Zee. The canal of Druſus being neglected, and left to the operations of nature, the Rhine joined the Iſſil with ſuch force, that their conjunct waters increaſed the lake of Flevo to a great extent; and, inſtead of a river of the ſame name, which ran for near fifty Roman miles from that lake to the ſea, there was opened the wide gulf which now forms the entrance. This northern and chief mouth of the Rhine was, at the ſame time, weakened and almoſt loſt by the diviſion of its waters; and even the canal of Druſus was afterwards almoſt obliterated by the depoſition of mud, in the ſame manner as ſome of the ancient mouths of the Nile have diſappeared in the Delta of Egypt.—See the article EGYPT, vol. vi. p. 366–368.

The ſouthern branch of the Rhine, which flowed into the eſtuary of the Meuſe, as above-mentioned, was anciently called Vahalis, now the modern Wahal; the ancient iſle of the Batavi being included between the two branches of the Rhine, and thus extending about one hundred Roman miles in length, by about twenty-two at the greateſt breadth. The eſtuaries of the Meuſe and the Scheldt have alſo been opened to great inroads from the ocean; and the latter in particular, which anciently formed a mere delta, with four or five ſmall branches, now preſents the iſlands of Zealand, and the moſt ſouthern of thoſe of Holland, divided by wide creeks of the ſea. This remarkable irruption is ſuppoſed to have happened at the time that the Goodwin Sands aroſe, by the diffuſion and conſequent ſhallowneſs of the water. Theſe great changes may be conceived to have made a ſlow and gradual progreſs; and none of them ſeem ſo ancient as the time of Charlemagne. Some are ſo recent as the fifteenth century; for in 1421 the eſtuary of the Meuſe, or Maeſe, ſuddenly formed a vaſt lake to the ſouth-eaſt of Dort, overwhelming ſeventy-two large villages, with one hundred thouſand inhabitants, who periſhed in the deluge.

By a ſubſequent change the Rhine was again ſubdivided; and a chief branch fell into the Leck, which joins the eſtuary of the Meuſe between Dort and Rotterdam, and muſt now be regarded as the northern mouth of that noble river; while the Vahalis or Wahal continues to be the ſouthern; both branches being loſt in a comparatively ſmall ſtream, the Meuſe. There was a third or central branch, which ſhould rather be conſidered as the main ſtream of the Rhine, which poured its waters by a direct courſe into the North Sea; but this central mouth or channel having been in courſe of ages ſtopped up by the depoſition of ſand, and the accumulation of peat and clay from the waſhing of rivers, and the adjoining continent, formed at length the whole of the land which conſtitutes the *province* of Holland, properly ſo called. For particulars of this curious phenomenon, ſee the article EARTH, vol. vi. p. 197.

The Rhine and the Meuſe give riſe to almoſt all the running waters in the country, except the Ems, which has its ſource in the department of Utrecht. In the conſtruction of their canals, the Dutch have ſhown of what human induſtry is capable, and what is its recompence; but their dykes are ſtill a more extraordinary monument in the eyes of ſtrangers. Theſe artificial banks are generally raiſed about thirty feet above the level of the adjoining land, which ſeems in a manner encloſed by this ſpecies of ramparts. The expences of keeping the dykes in order is paid by the whole nation, and every diſtrict is taxed according to the utility it derives from them, and the proportion of the extent of country it ſhelters from the waters. Under the denomination of *dam*, the Dutch comprehend every ſort of dyke raiſed to confine the waters of a river, or a lake; for which reaſon it is, that moſt of the names they have given to their cities and towns, end in *dam*. Rotterdam owes its names to the dyke raiſed upon the Rotte, a river near the town. Amſterdam receives her's from the dyke on the Amſtel. It is the ſame with Saardam, Schiedam, Monnikendam, and many others. From ſo much water, cold and humidity in general characterize the climate of Holland. Many naturaliſts have aſſerted, that the extreme moiſture of Holland contributes materially to ſhorten human life. The celebrated baron Haller advances boldly, that "Holland is an unhealthy country, and life is ſhort." The aſſertion is refuted however by facts; in Holland, as in other countries, we have ſeen accounts of individuals who have lived to a very advanced age; and a judicious writer of our day, M. Walcknaer, obſerves, that the ſobriety and regular uniform life of the inhabitants give them a longer duration of years than in many other countries where the air is more ſalubrious.

The agriculture of Holland conſiſts almoſt excluſively in the cultivation of meadows and gardens; its low, damp, ſpongy, ſoil, joined to an atmoſphere loaded with vapours, often rainy, and for a long time cold, leaves ſcarcely any other reſource: it is carried to a very high perfection, and gives conſiderable profits. Horticulture is in great eſteem in Holland; for the Dutch are fond of both fruit and flowers. Their gardeners excel in the art of producing a great deal from a little ground. Without the help of artificial heat, they would be deprived of many things which give a ſuperiority to other countries. By this help, Holland ſupplies what ſhe otherwiſe could not; and in the midſt of winter affords every thing which can contribute to the luxury of the rich. In the month of January, grapes are ſold as high as forty florins the pound. In a country ſo little favoured by nature, it is eaſy to judge how neceſſary induſtry muſt be to the ſupport of the inhabitants. Notwithſtanding its ſterility, Holland is, perhaps, with reſpect to its extent, (only 1928 ſquare leagues, of which 303 are overflowed, or covered with water,) the country moſt thickly peopled. Its population is eſtimated at two millions; the province of Holland alone contains nearly one half of that number. Monſ. Walcknaer (from whom this calculation is taken) makes 1380 inhabitants to every ſquare acre. A third of this population ſubſiſts by commerce and navigation. The two other thirds are compoſed of people employed in cultivation, and in rearing cattle, and in trades and manufactures.

When we enter the habitation of a Dutch peaſant, we are as much ſurpriſed at the cleanlineſs, as at the comfort, which reigns in it; it is chiefly in Holland, properly ſo called, in that part known by the name of the Beemſter, and in Weſt-Frieſland, that we are the more ſtruck with this ſpectacle, which forms ſuch a contraſt with the ſtate of poverty and humiliation to which this intereſting claſs of ſociety is even now reduced in moſt countries of Europe.

The manufacture of linens in the provinces of Groningen, Overyſſel, and Frieſland, occupies the firſt rank in this principal branch of induſtry. Thoſe linens, which receive the name of *Holland*, are diſtinguiſhed by their fineneſs, whiteneſs, and evenneſs. It is not however the caſe, that all the linens which the Dutch export, are made amongſt themſelves. A very principal part is manufactured in the duchy of Berg, Weſtphalia, Oſnabruck, and that neighbourhood, particularly Munſter; but as all theſe linens go to the bleach-fields at Haarlem, where they receive their finiſhing dreſſings, the Dutch profit by this circumſtance, to ſell them as their own. Theſe bleach-fields extend from Haarlem to Alkmaar; and the extreme whiteneſs which they give their linens, is attributed to the quality of the waters of the downs, and of the earth on which they are expoſed.

Paper was a very conſiderable article of trade in Holland; the Dutch were in the habit of ſupplying France, Spain, and Portugal, with conſiderable quantities; but at preſent, owing to ſeveral cauſes, they ſcarcely uſe any other than French paper for books of a ſmall ſize, and frequently for thoſe of a larger. The ſervices rendered to printing by the Dutch, are well known. The editions of Virgil and Terence, from the preſs of the Elzeviers, are a chef d'œuvre in this art; but, ſince that, printing has been on the decline in Holland. Amſterdam, however, and ſome few other towns, ſtill have ſome diſtinguiſhed preſſes. Bookſelling was, for more than a century, a very chief branch for trade in Holland; but this advantage, which ſhe derived from peculiar circumſtances, has diſappeared with the liberty of the preſs which firſt brought it there.

Holland derived conſiderable revenues from ſeveral branches of commerce, which now, owing to the ſtate of Europe, are almoſt, if not wholly, annihilated. Her fiſheries were carried on to a great extent. That of the whale affords but the poor remains of what it formerly was: in 1771, from the different ports in Holland, one hundred and ten veſſels were fitted out for Greenland, and forty for Davis's Streights: in 1785 there were no more than ſixty-eight; and the fiſhery continued on the decline till 1799, when the Engliſh intercepted the convoy on its return from Greenland, and completed its deſtruction Amſterdam and Rotterdam enjoyed the greateſt ſhare of the whale-fiſheries. The wealth of this commerce is now chiefly enjoyed by the Engliſh and Americans; ſome few other powers have a ſmall part; of this number are the Danes, and the Portugueſe and Spaniards in their colonies in North and South America. The produce of the fiſheries was important to Holland; it is aſcertained, that it ſupported at leaſt twenty thouſand families; the number of veſſels which ſailed annually from the ſeveral ports employed in the fiſheries, was eſtimated at from five to ſix hundred. The Eaſt and Weſt India trade was alſo a mine of wealth to Holland; they had a conſiderable ſhare of it. The Eaſt and Weſt India Companies ſtill exiſt; but deprived of her colonies by the Engliſh, as well as of her fleet, Holland derives no benefit from the New World.

The principal trade of Holland, is now that with Germany. The navigation of the Rhine, luckily, gives the Dutch an opportunity of engroſſing the trade with the different countries that river paſſes, and alſo of the other rivers in Germany, which empty their waters into the Rhine. It opens to them an eaſy communication with the departments of the Saarre, the Rhine, and Moſelle, Mount Tonnerre, and Frankfort, which, before the war, they ſupplied with the productions of the north and ſouth At that period, Cologne engroſſed the principal traffic of the Rhine: from that river the Dutch received their timber for building, which came down in immenſe floats every year from Andernach to Dort. The conſumption of this article in Holland may eaſily be gueſſed, by giving a glance at its ſhipping, at the buildings which ſtand upon piles, at the dykes, and the multitude of mills which ſerve for ſo many different purpoſes.

Tobacco is an article of ſome conſequence, even now; that of Amersfort, and its vicinity, in the department of Utrecht, is of a ſuperior quality, and holds the firſt place in trade after that of Virginia. The leaf is large, ſoft, unctuous, and of a good colour. It has the rare advantage of communicating its flavour to tobaccos of an inferior quality; there is a great deal of this latter ſort in Holland, but that which grows in the department of Guelderland paſſes for the worſt. The Dutch are not, however, confined to the tobacco which their own ſoil produces; they conſume a great quantity beſides, which they get from North America, principally from Maryland; and ſome from the Carraccas. The tobacco, both in leaf and manufactured, is exported in conſiderable quantities to Germany, and the north of Europe. The manufactory of it was for a long time an object of great importance to Holland; the city of Amſterdam alone, at one period, employed no leſs than three thouſand hands; but this branch of trade has alſo much decayed from what it originally was. Pipes, pens, tiles, bricks, and earthenware, are the chief articles now manufactured in Holland; the pottery of Bergen op Zoom is in great eſtimation; and that of Delft likewiſe, which gives its name to the yellow ware.

If we attentively examine what were the ſources from which Holland derived her riches, it is eaſy to obſerve, that, beſides the principal cauſes which have contributed to paralyſe the commerce of the country, there are others which are independent even of theſe circumſtances. The great increaſe of money, augmenting the price of labour, could not fail to affect thoſe manufactories which were already leſſened by the erection of ſimilar ones in the neighbouring ſtates, during the laſt century. It is well known, that in Denmark, Sweden, and Ruſſia, certain branches of induſtry were unknown, even at the concluſion of the ſeventeenth century. The Dutch Eaſt-India Company chiefly felt the effects of this decreaſe. The almoſt excluſive progreſs which the Engliſh made in India, leſſened its traffic, and conſequently the returns and profits. That which ſupported the trade of Holland, down to the period of the French revolution, was the immenſe capital to be found in that country. Amſterdam became the general bank, and preſcribed the courſe of exchange to Europe; the facility with which the merchants could draw upon their correſpondents in that city, for the amount of the goods they ſold, has preſerved in Holland certain branches of commerce, which otherwiſe would not have flouriſhed.

Under the new conſtitution, every religious ſect is equal in the eye of the law; and their reſpective miniſters are all equally excluded from any of the functions dependent on the government. The provincial ſynods are nine in number, forming a total of fifty-three claſſes, to which are attached fifteen hundred and ſeventy preachers. The Roman catholics have three hundred churches, which are attended by four hundred prieſts. The Arminians are ſpread through the provinces of Guelderland, Holland, Utrecht, and Frieſland; this ſociety conſiſts of thirty-four communities, at the head of which are forty-three preachers. The other ſects chiefly tolerated in Holland, are the Lutherans, the Anabaptiſts, the Moravian brethren, diſtinguiſhed by the name of the Evangelical Fraternity, the Greeks, Arminian Chriſtians, Quakers, and the Jews. Of all the ſtates of Europe, Holland is the one where the Jews have, for a long time back, been admitted to a civil exiſtence; they are divided, as elſewhere, into German and Portugueſe Jews. The latter are the richeſt; their manners are more poliſhed, and they are farther removed than the Germans from the vices and cuſtoms with which this nation is reproached in certain parts of Europe. By a decree paſſed in 1796, the Jews, like the Catholics, have acquired certain political rights. Amſterdam owes a great part of its flouriſhing ſituation to the Portugueſe Jews; they are looked upon as the moſt enlightened among the Iſraelites, and at this day we could enumerate many men of ſcience and learning among them. The remark which ſir William Temple made on Holland, is extremely to the purpoſe: "There may be countries where religion does more good; but I am pretty certain there are none where it does ſo little harm."

The Dutch language, as we obſerved above, is a dialect of the German. Though it may appear faulty to ſtrangers, yet it is infinitely more rich in ſubſtantives than any other language, ancient or modern, the Greek alone excepted. The whole of the ſciences can be expreſſed in Dutch, without borrowing a ſingle word from the Greek or Latin. The French is, however, now ſo much in uſe, that all negociations between Holland and other ſtates are carried on in that language. French, Engliſh, and German, are commonly ſpoken over Holland.

Public juſtice is adminiſtered in Holland, as to the civil law, like moſt other countries; but the criminal juriſprudence does honour to human nature, without encouraging diſorders. The Dutch judges never forget that the criminal is a man: as incorruptible as the law, they pronounce with ſeverity, but always with regret. There is no country in Europe where fewer crimes are committed; and juſtice has rarely occaſion to make uſe of extreme rigour. Continual employment, no doubt, contributes to this preſervation of good order, as well as the vigilance of the magiſtrates. The management of their priſons leaves nothing to wiſh for: in this inſtance, Holland offers a moſt perfect model. There are houſes of confinement for every ſort of crime. That known by the name of the *Werkhuis*, at Amſterdam, is a pattern in its way; it is a large building divided into two parts, one of which is called the *Raſphuis*; the priſoners being employed in raſping dying woods: it ſerves to employ thoſe who have been guilty of petty crimes. The other, known by the name of the *Spinhuis*, is appropriated to females of a diſſolute and vicious life, who are there compelled to earn their bread by ſpinning. The town of Bergen-op-Zoom contains a priſon excluſively reſerved for the military, who have been guilty of crimes; they are employed on public works.

The eſtabliſhments of public charities are very numerous throughout Holland. There is not a town which has not its *Werkhuis*, or its orphan-houſe; and many villages have them likewiſe. Several diſpenſaries have been eſtabliſhed, where medicines are diſtributed *gratis* to the poor; and there is a central hoſpital for the vaccine inoculation. Speedy aſſiſtance is given to perſons found drowned, which, in a country ſo interſected by water, too frequently happens. In fact, every day is giving riſe to ſome inſtitution of public utility. An eſtabliſhment, deſtined to the ſupport of diſabled ſeamen, was much wanting in Holland. King Louis has lately commanded that a large building, at Delfshaven, on the banks of the Meuſe, which formerly belonged to the Eaſt-India company, ſhould be appropriated to this moſt eſſential purpoſe.

Fidelity and good faith form the diſtinguiſhing characteriſtic of the Hollander. He is naturally phlegmatic, laborious, and perſevering in his reſolutions. It is ſufficient to look over the early annals of the United Provinces, in order to form a judgment of what a nation is capable of undertaking, which wiſhes to ſhake off the yoke of tyranny. Neither ought we to deſcribe them as a people in whom avarice has ſtifled every noble and generous ſentiment. It is true, however, that the manners of the Dutch are much changed within a century. We do not ſee them toiling inceſſantly, with the loſs of eaſe and comfort, to heap up wealth, in order to leave it to their heirs; but it is no leſs true, that Holland is ſtill the country where luxury has made the leaſt progreſs. It is but very rare that their expences can equal their revenue; and, when that is the caſe, the Dutch think the year very badly employed: this mode of living takes away from a man's credit and reputation, as much as a wanton and profuſe extravagance does in other parts of Europe. A Dutchman, therefore, is loſt in the opinion of the public, when it is known that he has diſſipated his fortune, either through unforeſeen circumſtances or his own miſconduct.

It is to this economy that the Dutch muſt attribute the beauty and utility of their public works, the multiplicity of bridges and high roads. This economy enables the community at large to pay the taxes, which by this means are leſs ſenſibly felt than elſewhere. In no country are commercial engagements more religiouſly obſerved, and no where are domeſtic virtues held in higher eſtimation. Far from blaming in the Dutch thoſe qualities which they have maintained even to the very day we write, we ſhould on the contrary applaud them for having preſerved that ſpirit of order, which is inſeparable from real economy, and render them the juſtice which is their due. Far from dreaming of excurſions of pleaſure, or of viſiting foreign countries for a more ſalubrious air, the Dutchman is only happy amidſt his ſhipping and canals; and if, through intereſted motives, he is induced to leave his native ſoil, he delights to find in his new abode a ſimilar local ſituation, and its accuſtomed habits; it is for this reaſon that Holland, from its low, flat, marſhy, poſition, makes him forget the ſpace which divides him from the Texel. "The Dutch, (ſays M. Garrat, in his Memoir on Holland,) have, I may ſay, built Holland; they almoſt appear to ſay to themſelves, What we have done, is well done."

Bread is not, as in other countries, the principal food of the people; it conſtitutes but a ſmall part of their daily wants; a whole Dutch family will not conſume in a day ſo much as a common labourer would ſcarcely think enough for one meal. Beſides the grain of which bread is uſually made, the people make uſe of buck-wheat and barley, whether ground or whole; of this there is a very great conſumption. Potatoes are alſo much cultivated, and in great eſteem. The Dutch conſume a vaſt quantity of ſalted meat, which is held in higher eſtimation than perhaps any where elſe; their mode of curing it being ſo excellent. The hams of this country, but particularly thoſe of Guelderland, are in high repute among foreigners. They conſume large quantities of geeſe and wild-ducks. Whatever may be the reaſon, the conſumption of fleſh-meat by no means equals that of fiſh, which conſtitutes a moſt eſſential part of their food. In ſeveral diſtricts of Holland, the ordinary diet of the people is fiſh, with the addition of potatoes and flour. Animal food, in general, bears a very high price in Holland. Beer is the principal drink; but the conſumption is much leſs ſince the introduction of tea and coffee. If the uſe of beer, however, has decreaſed, mead and other liquors made from honey and ſugar have fallen more into diſuſe, ſince the Dutch have found the means of procuring wines at a reaſonable price, which they import from France, Spain, and Germany. They uſe great quantities of ſpirituous liquors, particularly geneva, which they are proud to conſider as a national liquor.

Cold, dreary, and inert, as this country might be deemed, it has to boaſt of ſeveral eminent ſeats of learning; and has produced many diſtinguiſhed characters in the republic of letters. The moſt large and reſpectable Latin ſchools are at Rotterdam, Breda, Middleburg, Groningen, &c. The univerſities are five: Leyden, Utrecht, Harderwyck, Franecker, and Groningen; with two inferior colleges at Amſterdam, and Deventer. There is alſo an academy of ſciences at Haarlem. Among thoſe of this country who have been eminent for ſcience and literature, or rank as diſtinguiſhed writers, it is incumbent upon us to mention the great Eraſmus, the reſtorer of letters in Weſtern Europe, who was born at Rotterdam in 1467. Johannes Secundus, or Hans de Twede, one of the moſt elegant of modern Latin poets, was a native of the Hague; as the renowned Grotius was of Delft. Boerhaave, the celebrated phyſician, was born at Voorhoot, near Leyden. Dort produced Paul Merula, a diſtinguiſhed antiquary, who at the beginning of the ſeventeenth century firſt diſcriminated the real origins of European nations. Adrian Junius, or Yung, who explored the antiquities of his native country, was of Hoorn, on the Zuyder Zee. Among other eminent names may be mentioned Meurſius of Lauſden, Douſa of Leyden, Henſius of Ghent, and the younger Voſſius. Hoogeveen of Leyden died in 1794, after having acquired the reputation of being the firſt Greek ſcholar in Europe. This liſt might be eaſily increaſed; but the biographical illuſtrations in this Encyclopædia, render ſuch an enumeration unneceſſary.

HOL'LAND, a diſtrict of England, in the county of Lincoln, ſituated in the ſouth-eaſt part, with the German Sea on the eaſt, and the counties of Cambridge, Northampton, and Norfolk, on the ſouth, divided into Upper and Lower, both of which conſiſt of fens, bogs, and marſhes, drained and interſected in various ways by ditches and canals. The air is unwholeſome, but made much better in parts which are well drained; the water is brackiſh, ſo that in moſt places rain-water is preſerved in reſervoirs for family uſe; and in the ſummer vaſt ſwarms of inſects fill the air, and prove exceedingly offenſive. The land, after being drained, forms good paſture and meadow land, and, if cultivated, produces good crops of corn. Large flocks of geeſe are bred, and form a conſiderable article of commerce, as well for their quills and feathers as for the birds themſelves, great numbers of which are driven to the London markets; there are alſo many large decoys for wild ducks, widgeons, &c. The principal towns are Boſton, Spalding, Crowland, and Holbeach.

HOL'LAND, a town of Pruſſia, in the province of Oberland, ſtrongly fortified, ſituated near the river Weeſke. This town was built by ſome gentlemen who fled from Holland in the year 1296, after the murder of count Florent V. It ſuffered much in the wars between the Poles and the Swedes: fifty-two miles ſouth-weſt of Konigſberg.

HOL'LAND, a townſhip of the American States, in Hampſhire county, Maſſachuſetts, which, until incorporated in 1785, was the eaſt pariſh of South Brimfield; and is bounded ſouth by Tolland county, in Connecticut, eaſt by Worceſter county, and northward by Brimfield: ſeventy-five miles ſouth-weſt of Boſton.

HOL'LAND (NEW). See NEW HOLLAND.

HOL'LAND, *ſ.* Fine linen made in Holland:

Some for the pride of Turkiſh courts deſign'd
For folding turbans fineſt *holland* bear. *Dryden.*

HOL'LAND, *adj.* Belonging to Holland; made of linen imported from Holland.

HOL'LAND (Philemon), commonly called the "Tranſlator-general of his age," was educated in the univerſity of Cambridge, and took the degree of M. D. He tranſlated Livy, Pliny's Natural Hiſtory, Plutarch's Morals, Suetonius, Ammianus Marcellinus, Xenophon's Cyropædia, and Cambden's Britannia, into Engliſh; and the geographical part of Speed's Theatre of Great Britain into Latin. The Britannia, to which he made many uſeful additions, was the moſt valuable of his works. It appears from the date of the Cyropædia, that he continued to tranſlate till he was eighty years of age. He died in 1636, aged eighty-five.

HOL'LAND's POINT, a point on the weſt ſide of Cheſapeak Bay, in North America, in the ſtate of Maryland: twenty miles ſouth of Annapolis.

HOL'LANDER, *ſ.* A native of Holland; an inhabitant of Holland.

HOL'LAR (Wenceſlaus), an eminent engraver, born at Prague in 1607. He was particularly diſtinguiſhed for his views of towns on the Rhine, Neckar, and Danube, which were greatly admired. In 1636, that patron of the arts, Howard earl of Arundel, going on an embaſſy to the emperor of Germany, heard of Hollar's fame, and brought him to England. He immediately entered into full employment; for, beſides making engravings of the pictures in the Arundelian collection, he was engaged to execute views of Greenwich and Richmond, and other ſimilar works. In 1640 he entered into the ſervice of the royal family, and gave the prince of Wales leſſons in deſign. He publiſhed portraits of the king and queen from pictures of Vandyke; but he was leſs ſucceſsful in large pieces than in ſmall ones. The nearer, ſays Mr. Walpole, his works approach to wanting a magnifying glaſs, the nearer they advance to perfection. He died in March 1677.

HOL'LATT, a town of Germany, in Auſtria, on the Danube: ſix miles north-north-weſt of Bruck.

HOL'LENBACH, a town of Germany, in Franconia, and principality of Hohenlohe: ſeventeen miles north-eaſt of Ohringen.

HOL'LENBERG, a town of Germany, in the duchy of Carinthia: four miles ſouth of Clagenfurt.

HOL'LEYS, a town of the American States in North Carolina: twenty-eight miles north-eaſt of Fayetteville.

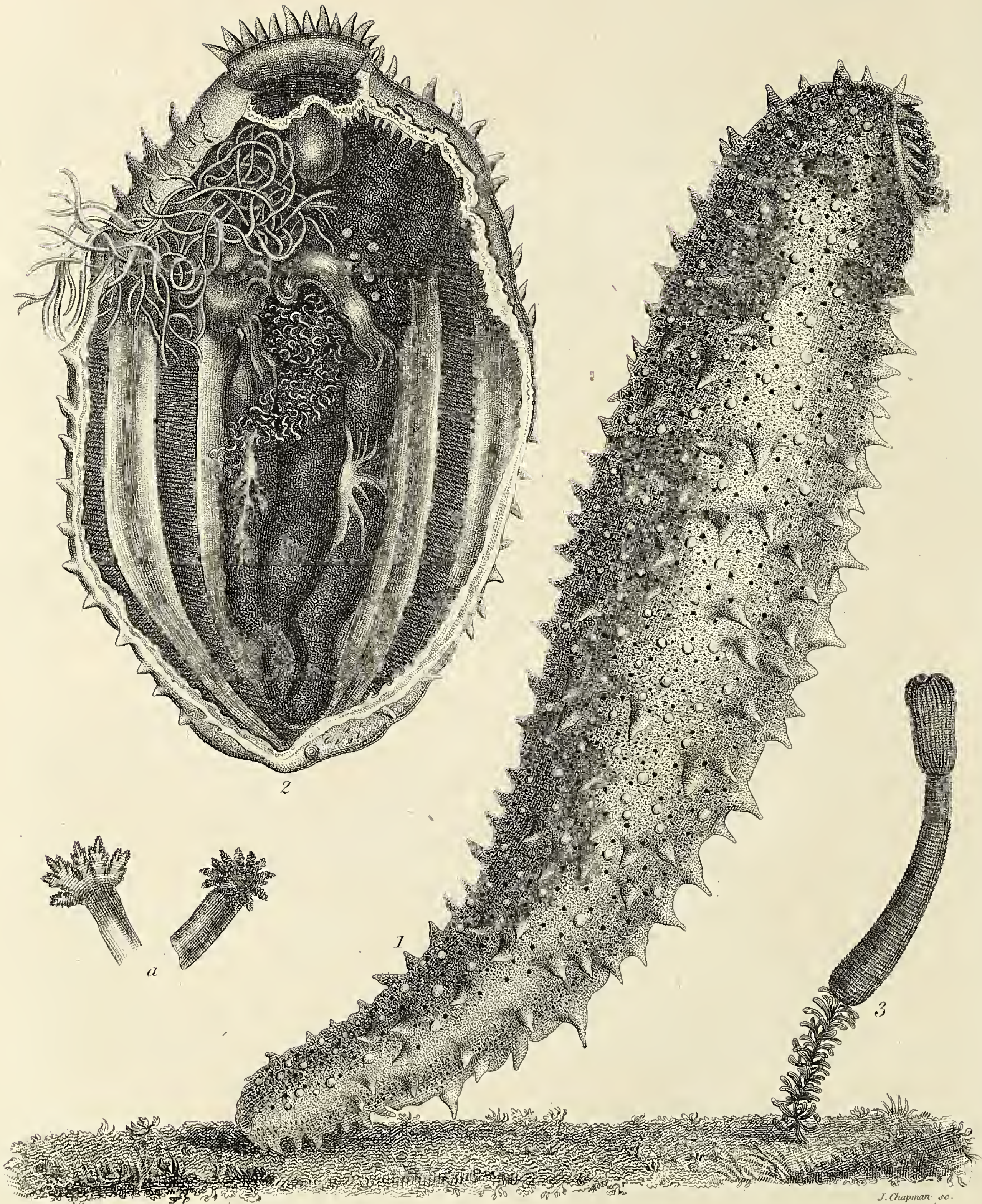
HOLL'FELD, a town of Germany, in Franconia, and biſhopric of Bamberg: fifteen miles eaſt of Bamberg, and ſixteen weſt of Bayreuth.

HOL'LI, *ſ.* The Indian name of what the Spaniards call *alli*, a reſinous liquor, diſtilling from a palm-tree called chilli: and uſed in dyſenteries.

HOL'LIN, a town of Bohemia, in the circle of Koningratz: two miles north-weſt of Gitſchin.

HOL'LIS, the *Niſitiſſet* of the Indians, a townſhip of the American States, in Hillſborough county, New Hampſhire, ſituated on the Maſſachuſetts line, incorporated in 1746, and contains by the cenſus 1441 inhabitants: ſeventy miles ſouth-weſt of Portſmouth, and forty-five north-weſt of Boſton.

# HOLOTHURIA.



J. Chapman sc.

*Holothuri Elegans, and Priapus.*

London, Published as the Act directs, July 19th 1806, by J. Wilkes.

HOL'LISTON, a townſhip of the American States, in Middleſex county, Maſſachuſetts: twenty-four miles ſouth-by-weſt of Boſton. The firſt ſettlements were made here in 1710; and in 1724 the town was incorporated by its preſent name, in honour of Thomas Hollis of London, one of the patrons of Cambridge Univerſity; and it now contains 875 inhabitants.

HOLL'MAN (Samuel Chriſtian), profeſſor of philoſophy in the univerſity of Gottingen, born at Stettin in 1696. After acquiring the principles of literary knowledge at Dantzic, he went, in 1718, to the univerſity of Wittenburg, where he read lectures, and at Greifswald and Jena. In 1734 he was invited to be public profeſſor of philoſophy in the univerſity of Gottingen, then juſt founded; and on the eſtabliſhment of the Society of the Sciences, he was the firſt regular member of the philoſophical claſs. In 1784, being then in his eighty-eighth year, he gave over public lectures, but ſtill continued to employ himſelf on other literary labours till his death, in September, 1787, having been profeſſor fifty-three years. The univerſity of Gottingen was under great obligations to this learned man, and with Haller he contributed to diffuſe throughout Germany a taſte for natural philoſophy and natural hiſtory. In theſe departments he wrote ſeveral excellent eſſays, which were publiſhed in the Tranſactions of the Royal Societies of Gottingen and of London, and in the Gottingen Literary Journal. As a philoſopher, he diſtinguiſhed himſelf by various elementary works and diſſertations, the principal of which are: 1. *Inſtitutiones Philoſophicæ, in uſum Auditorum, Goettin.* 1727–1728, 8vo. 2. *Inſtitutiones Pneumatologiæ & Theologiæ naturalis,* 1741, 8vo. 3. *Philoſophiæ Rationalis ſive Logica, multum aucta & emendata,* 1746, 8vo. 4. *Prima Philoſophia ſive Metaphyſica, multum aucta & emendata,* 1747, 8vo. 5. *Philoſophiæ naturalis primæ Lineæ, auctius editæ,* 1749, 8vo. 6. *Juriſprudentiæ naturalis primæ Lineæ,* 1751. 7. *Collectio Tractatuum de ſtupendo Naturæ Myſterio Anima humanæ, ſibi ipſi ignota,* 1752, 8vo. 8. *Philoſophiæ moralis ſive Ethices, primæ Lineæ,* 1768, 8vo.

HOL'LODALE, a river of Scotland, which runs into the North Sea, between the counties of Sutherland and Caithneſs, and five miles ſouth-eaſt from Stratby Head.

HOL'LOW, *adj.* [from *hole.*] Evacuated: having a void ſpace within; not ſolid.—To view with *hollow* eye and wrinkled brow. *Shakeſpeare.*

He frets, he fumes, he ſtares, he ſtamps the ground.
The *hollow* tow'rs with clamours ring around. *Dryden.*

Noiſy, like ſound reverberated from a cavity:

The ſouthern wind,
Now by his *hollow* whiſtling in the leaves,
Foretels a tempeſt. *Shakeſpeare.*

Not faithful; not ſound; not what one appears.—Who in want a *hollow* friend doth try? *Shakeſpeare.*

He ſeem'd,
But all was falſe and *hollow.* *Milton.*

HOL'LOW, *ſ.* Cavity; concavity.—I ſuppoſe there is ſome vault or *hollow,* and ſome paſſage to it. *Bacon.*

Himſelf, as in the *hollow* of his hand,
Holding, obedient to his high command,
The deep abyſs. *Prior.*

Cavern; den; hole:

Who art thou, that lately did'ſt deſcend
Into this gaping *hollow* of the earth? *Shakeſpeare.*

Pit.—A fine genius for gardening thought of forming ſuch an unſightly *hollow* into ſo agreeable a ſcene. *Addiſon.*—Any opening or vacuity.—He touched the *hollow* of his thigh. *Gen.* xxii. 25.—Paſſage; canal.—The little ſprings and rills are conveyed through little channels into the main *hollow* of the aqueduct. *Addiſon on Italy.*

*To* HOL'LOW, *v. a.* To make hollow; to excavate:

Trees, rudely *hollow'd,* did the waves ſuſtain,
Ere ſhips in triumph plow'd the watry plain. *Dryden.*

*To* HOLLOW, *v. n.* [This is written by neglect of etymology for *holla.* See HOLLA.] To ſhout; to hoot.—I paſs for a diſaffected perſon and a murderer, becauſe I do not hoot and *hollow,* and make a noiſe. *Addiſon.*

He with his hounds comes *hollowing* from the ſtable,
Makes love with nods, and kneels beneath a table. *Pope.*

HOL'LOW-HEART'ED, *adj.* Diſhoneſt; inſincere; of practice or ſentiment differing from profeſſion.—What could be expected from him, but knotty and crooked *hollow-hearted* dealings? *Howel.*

The *hollow-hearted,* diſaffected,
And cloſe malignants, are detected. *Hudibras.*

HOL'LOW ROOT. See ADOXA and FUMARIA.

HOL'LOWING, *ſ.* The act of ſcooping out any thing, ſo as to make it hollow.

HOL'LOWLY, *adv.* [from *hollow.*] With cavities. Unfaithfully; inſincerly; diſhoneſtly:

O earth, bear witneſs,
And crown what I profeſs with kind event,
If I ſpeak true; if *hollowly,* invert
What beſt is boaded me to miſchief! *Shakeſpeare.*

HOL'LOWNESS, *ſ.* [from *hollow.*] Cavity; ſtate of being hollow.—If you throw a ſtone or a dart, they give no ſound; no more do bullets, except they happen to be a little hollowed in the caſting, which *hollowneſs* penneth the air. *Bacon.*—Deceit; inſincerity; treachery.—When experience ſhall have ſhown us the hardneſs of moſt hearts, the *hollowneſs* of others, and the baſeneſs and ingratitude of almoſt all, we ſhall find that a friend is the gift of God, and that he only who made hearts, can unite them. *South.* Concave form:

Nought is there under heav'ns wide *hollowneſſe,*
That moves more deare compaſſion of mind
Than beautie brought t'unworthie wretchedneſſe,
Through envie's ſnares, or fortune's freaks unkind. *Spenſ.*

HOLLS, a lake of Norway, in the dioceſe of Aggerhuus: ſeventy miles north of Chriſtiania.

HOL'LY, *ſ.* in botany, ſee ILEX. KNEE HOLLY, ſee RUSCUS. SEA HOLLY, ſee ERYNGIUM.

HOL'LYHOCK, *ſ.* in botany. See ALCEA.

HOLLZKIR'CHEN, a town of Germany, in Franconia, and county of Wertheim: nine miles eaſt of Wertheim, and fourteen ſouth-weſt of Wurzburg.

HOLM, [Sax. *hulmus, inſula amnica,*] denotes an iſle or fenny ground, according to Bede; or a river-iſland. And where any place is called by that name, and this ſyllable is joined with any other in the names of places, it ſignifies a place ſurrounded with water; as the Faltholmes and Stepholmes in the Severn near Briſtol; but, if the ſituation of the place is not near the water, it may then ſignify a hilly place; *holm,* in Saxon, ſignifying alſo a hill, or cliff.

HOLM, one of the ſmaller Orkney iſlands: half a mile eaſt of Weſtra.

HOLM, one of the ſmaller Orkney iſlands: one mile and a half weſt from Eda.

HOLM, a ſmall iſland among the Orkneys, betwen Pamona and Hoy.

HOLM ABBY, or HOLM'S CULTRAM, a ſmall town in the county of Cumberland, ſituated on the ſide of an arm of the ſea, with a market on Saturdays: twenty-ſeven miles north-weſt of Penrith, and 310 north of London.

HOLM OAK, *ſ.* in botany. See QUERCUS.

HOLM, SEA, *ſ.* in botany. See ERYINGIUM.

HOLM'ESTRAND, a town of Norway, in the province of Aggerhuus: thirty miles ſouth of Chriſtiania. Lat. 59. 30. N. lon. 10. 30. E. Greenwich.

HOLMS, two ſmall iſlands of Scotland, among the Orkneys, about a mile ſouth from the iſland of Sanda.

HOLMSKIOL'DIA, *ſ.* in botany, a genus of the claſs didynamia, order angioſpermia. The eſſential generic characters are—Calyx five-toothed, dilated, very much ſpread; corolla ringent; capſule many-ſeeded.

Holmſkioldia ſanguinea, a ſingle ſpecies. It is a ſhrub with ſquare branches; leaves oppoſite, ovate or heart-ſhaped, acute, ſerrate, dotted; peduncles axillary, oppoſite, many-flowered, leafy; calyx and corolla red. Native of Bengal.

HO'LO, a town of Sweden, in the province of Sudermanland: twenty-four miles ſouth-weſt of Stockholm.

HOL'OCAUST, *ſ.* [from ολος, Gr. the whole, and καιω, to burn or conſume.] A burnt ſacrifice; a ſacrifice of which the whole was conſumed by fire, and nothing retained by the offerer.—Let the eye behold no evil thing, and it is made a ſacrifice; let the tongue ſpeak no filthy word, and it becomes an oblation; let the hand do no unlawful action, and you render it a *holocauſt. Ray.*

HOL'OCRON, in ancient geography, a mountain of Macedon.

HOLOCZOW'SKA, a town of Poland, in the palatinate of Lemberg: fifty-two miles eaſt of Lemberg.

HOLOFER'NES, lieutenant-general of the armies of Nebuchadonoſor king of Aſſyria, who, having in a remarkable encounter overcome Arphaxad king of the Medes, ſent to all the neighbouring nations demanding them to ſubmit to his authority. Then, putting himſelf at the head of a powerful army, he paſſed the Euphrates, entered Cilicia and Syria, and ſubdued thoſe provinces. Being reſolved to make a conqueſt of Egypt, he advanced towards Judæa, little expecting to meet with any reſiſtance from the Jews. In the mean time, he was informed that they were preparing to oppoſe him; and Achior, the commander of the Ammonites, repreſented to him that the Hebrews were a people protected in a particular manner by Almighty God, ſo long as they were obedient to him; and therefore he ſhould not flatter himſelf with expectations of overcoming them. Holofernes, enraged at this diſcourſe, commanded Achior to be conveyed within ſight of the walls of Bethulia, and tied to a tree, and left there, whither the Jews came and releaſed him. In the mean time Holofernes formed the ſiege of Bethulia; and having cut off the water which ſupplied the city, and ſet guards at the only fountain which the beſieged had near the walls, the inhabitants were ſoon reduced to extremity, and reſolved to ſurrender, if God ſhould not ſend them ſuccour in five days. Judith, being informed of their reſolution, conceived the deſign of deſtroying Holofernes in his camp. She took her fineſt attire, and went out of Bethulia with her maid-ſervant; and being brought to the general, ſhe pretended that ſhe could no longer endure the exceſſes of the Jews; and that ſhe came to ſurrender herſelf to him. As ſoon as Holofernes ſaw her, he was taken with her beauty; and invited her to a great feaſt, which he prepared for the purpoſe of enjoying her. But he drank ſo much wine, that inebriety unfitted him for his paſſion. Judith, in the night, decapitated him with his own ſword; and, ſtealing from the camp, returned to Bethulia with the head of Holofernes. As ſoon as it was day, the beſieged made a ſally upon the enemies, who, going into their general's tent, found his headleſs body wallowing in its blood. They then diſcovered that Judith had deceived them, and, flying with precipitation, left the camp abounding with rich ſpoils; the Jews purſued them, killed a great number, and returned loaded with booty. See the book of *Judith.*

HOL'OGRAM, and HOL'OGRAPH, [from ολος, Gr. all, and γραφω, to write.] Something written wholly in the hand-writing of the perſon who ſigns it. The word is chiefly uſed in ſpeaking of a teſtament written in the teſtator's own hand. The Romans did not approve of holographic teſtaments; and, though Valentinian authoriſed them, they were not uſed where the civil law was in full force.

HOLOM'ETER, *ſ.* [from ολος, Gr. whole, and μετρόν, a meaſure.] A mathematical inſtrument of general uſe in menſuration.

HOL'OMIN, a ſmall iſland of Scotland, near the weſt coaſt of the iſland of Mull.

HO'LON. See HILEN.

HO'LON, a town of China, of the third rank, in the province of Pe-tche-li: twelve miles weſt-ſouth-weſt of Tching-ting.

HOLOPHLYC'TIDES, *ſ.* [from ολος, Gr. whole, and φλυκτις, a puſtule.] Little pimples all over the body.

HOLOSCHŒ'NUS, *ſ.* in botany. See SCIRPUS.

HOL'OSIC, a town of Poland, in the palatinate of Lemberg: forty miles weſt-north-weſt of Lemberg.

HOLOS'TEA, *ſ.* in botany. See STELLARIA.

HOLOS'TEUM, *ſ.* [from ολος, Gr. all, and οστεον, bony; ſaid to be ſo called *per antiphraſin*, from its tenderneſs.] In botany, a genus of the claſs triandria, order trigynia, natural order of caryophyllei, (caryophylleæ, *Juſſ.*) The generic characters are—Calyx: perianthium five-leaved; leaflets ovate, permanent. Corolla: petals five, two-parted, blunt, equal. Stamina: filaments three, filiform, ſhorter than the corolla, antheræ roundiſh. Piſtillum: germ roundiſh; ſtyles three, filiform; ſtigmas bluntiſh. Pericarpium: capſule one-celled, ſubcylindric, gaping at the tip. Seeds: very many, roundiſh. Calyx five-leaved; petals five; capſule one-celled, ſubcylindrical, opening at the top.

*Species.* 1. Holoſteum cordatum, or heart-leaved holoſteum: leaves ſubcordate. Stems decumbent, creeping, ſomewhat rigid at bottom. Leaves oppoſite, orbiculate-cordate, ſubſeſſile. Native of Jamaica and Surinam. In the former it is common, and thrives very luxuriantly. Browne calls it the *larger American chickweed*; and ſays, that it grows in tufts, and ſeldom riſes above ten or twelve inches from the ground; that the ſmaller birds feed much upon the ſeeds, but that it is ſeldom put to any other uſe, except that large wads of the freſh plant heated over a gentle fire are ſometimes applied to hard and painful ſwellings, in order to relax the parts and diſpoſe the obſtructions to a reſolution.

2. Holoſteum diandrum, or two-ſtamened holoſteum: ſtems procumbent, very rigid; leaves roundiſh, flowers two-ſtamened. This plant is very ſmall, ſeldom riſing above ſix or ſeven inches from the ground. Native of Jamaica, but not common; annual.

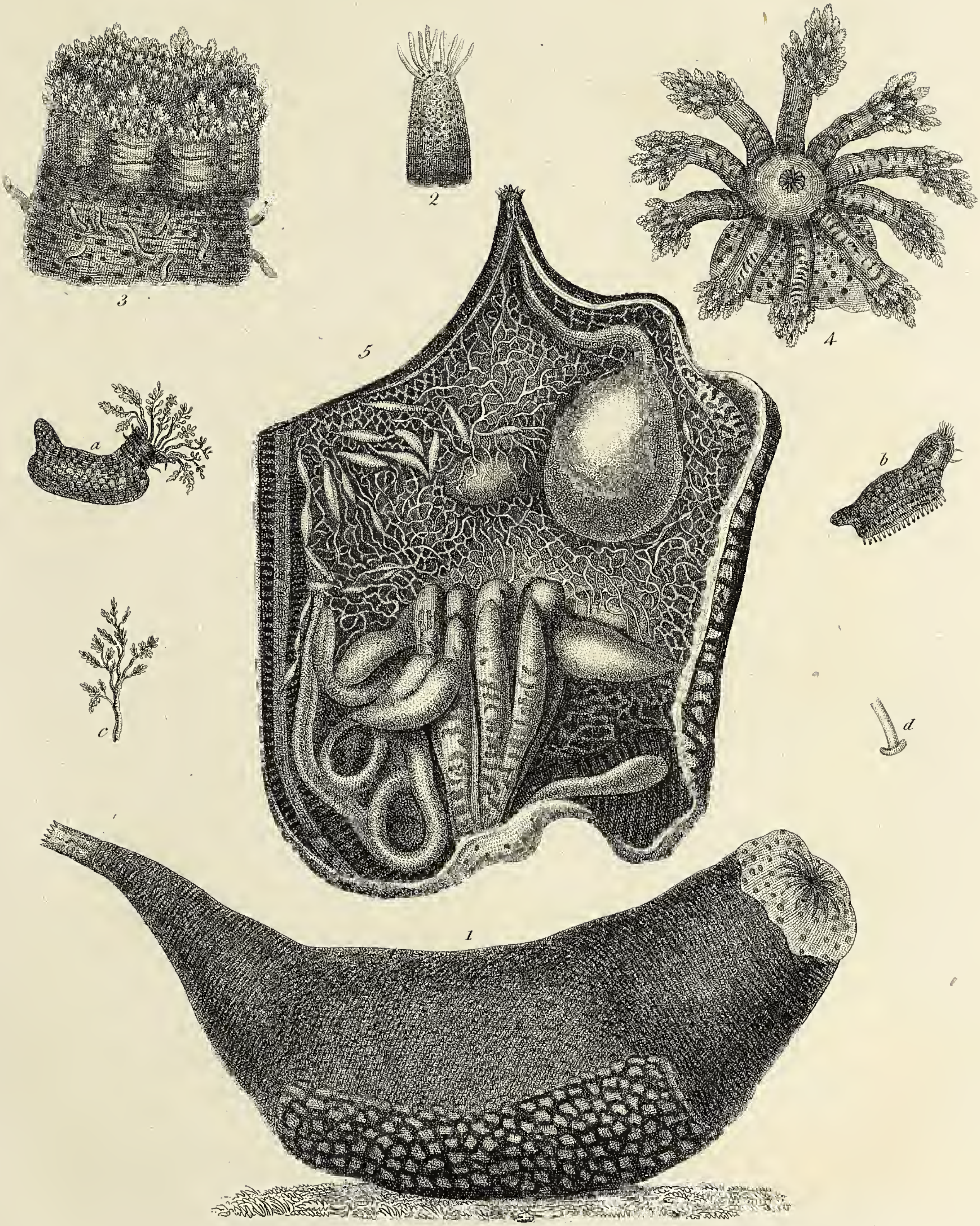
3. Holoſteum ſucculentum, or ſucculent holoſteum: leaves elliptic, fleſhy. Native of New York.

4. Holoſteum hirſutum, or hairy holoſteum: leaves orbiculate, hirſute. Native of Malabar.

5. Holoſteum umbellatum, or umbelled holoſteum: flowers umbelled. Native of Spain, Italy, France, Germany, Swiſſerland, and England; where it was firſt noticed on walls at Norwich, and on walls and banks in the neighbourhood, by Mr. John Pitchford in ſpring 1765. It was alſo found near Bury in Suffolk, by ſir Thomas Grey Cullum, bart. It is an annual plant, flowering in April and May. See ACROSTICHUM, JUNCUS, PLANTAGO, and POLYCARPON.

HOLOTHU'RIA, *ſ.* [from ολος, Gr. whole, and ουρα, a tail.] In helminthology, a genus belonging to the order of molluſca, the characters of which are: body detached, cylindrical, thick, naked, and open at the extremity; mouth ſurrounded by fleſhy branched tentacula or feelers. The ſpecies are all inhabitants of the ſea, and have the faculty of expanding or contracting at pleaſure. The anterior aperture ſerves them both as a mouth and a vent; and from the hinder one they reject the water ſucked in at the orifice or mouth: the tentacula ſerve as feelers for their food, and are retractile. Moſt of them give out luminous ſcintillations, or a ſtrong phoſphoric light, which appears to ariſe from the variety and ſplendour of their colours. All the ſpecies die in about two hours after they are taken out of the ſea, when the brightneſs of their colours is conſiderably diminiſhed. There are twenty-three ſpecies now aſcertained, viz.

1. Holothuria elegans, the moſt elegant of this curious genus of gelatinous animals. The body is elongated and



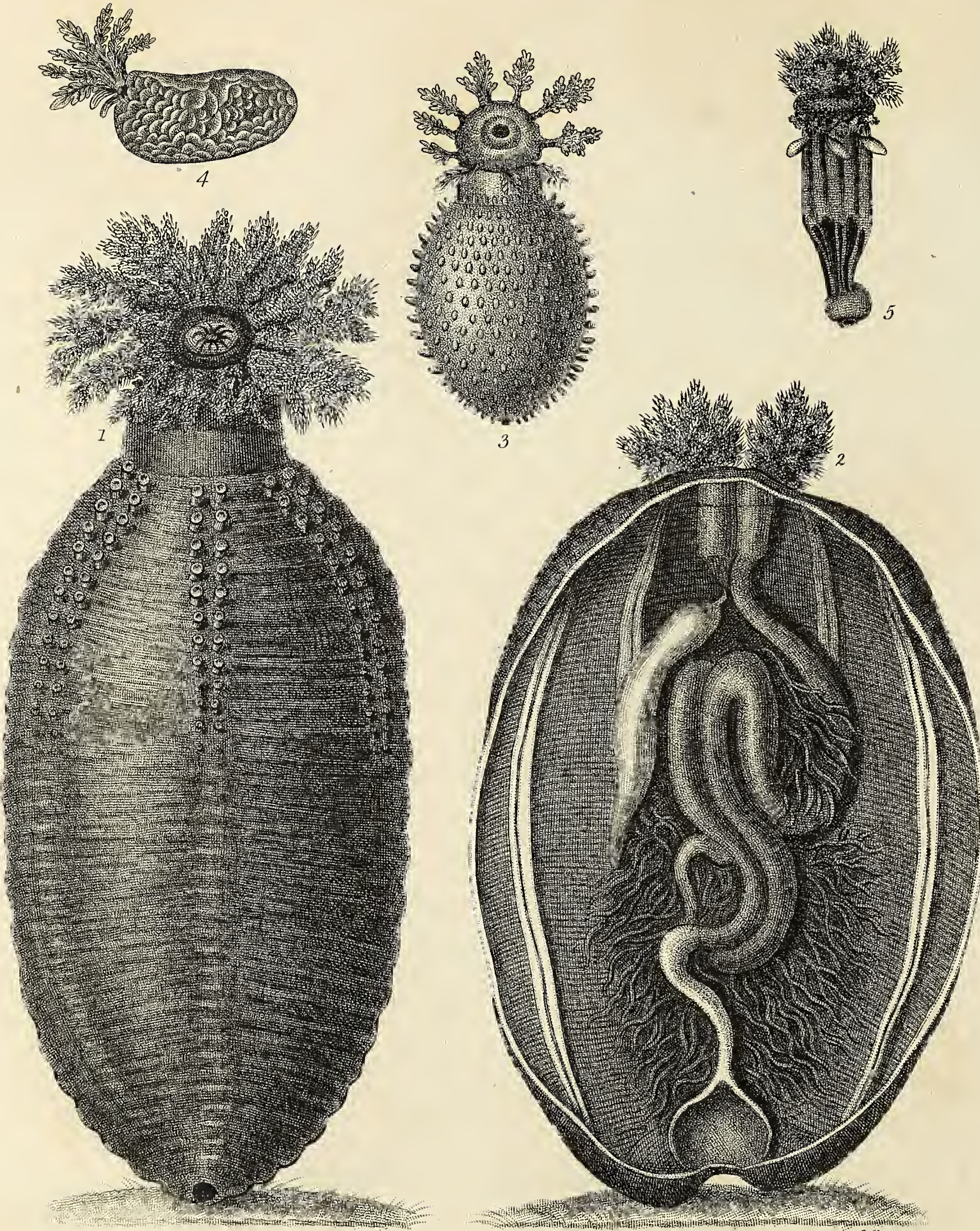
J. Chapman sculp

Holothuria Phantapus.

London Published as the Act directs Aug.t 2. 1806 by J. Wilkes

# HOLOTHURIA.

Plate III.



J. Chapman

*Holothuria Pentactes, Papillosa, Squamata, and Penicillus.*

London Published as the Act directs August 26th 1806 by J. Wilkes.

cylindrical, in form not unlike a cucumber, and will often grow to a foot in length. It is covered all over with white papillæ, which are retractile; ſo that, when protruded, they have the appearance and effect of prickles; when retracted, they appear like pellucid drops on the ſurface of the ſkin; when the animal dies, theſe prickles, and even the rudiments of them, entirely diſappear. The mouth, or upper orifice, is furniſhed with twenty tentacula, which are ſtellate or branched, and ſerve as feelers to detect and graſp its food; they being all retractile, like the horns of ſnails. The whole animal has the power of extending or contracting itſelf at pleaſure; ſo that, when in ſearch of food, it is ſeen in an elongated or cylindrical form; when filled, and at reſt, in a broad or oval form. When touched, it manifeſts its ſenſe of being diſturbed, by ſwelling its body. The colour of its back is a reddiſh brown; ſides and belly whitiſh grey; band round the mouth, and the anal or poſterior orifice, dull red. This curious ſpecies is correctly delineated in the Holothuria Plate I. fig. 1, in its expanded or elongated ſtate. Fig. 2, repreſents the ſame animal in its contracted ſtate, with the belly diſſected open, in order to ſhow the ſtructure of its internal organs. In the upper part, juſt below the mouth, hangs a bag, which receives all the indigeſtible parts of its food, and returns them through the ſame opening; but the excrementitious fluid or water taken into the inteſtines, which are large and capacious, and of a blackiſh-green colour, is ſquirted out with the force of a ſiphon, through the anal orifice. The layers of muſcular fibre which line the cuticle, form ſtripes of yellowiſh and red, and ſhow the annular furrows or wrinkles, on the red parts, which give the animal the power of locomation, by alternately contracting and extending its body, like the ſnail or earth-worm. The liver is yellowiſh-brown, covered with convoluted cirri; below which is the ovarium, charged with its young. At *a*, is ſhown two of the tentacula, removed from the orifice of the mouth, and greatly magnified, to exhibit the ſtellated feelers when put in action, or extended to catch its prey, which conſiſts of ſmall marine ſhell and other animals, of various kinds. This principally inhabits the Northern Seas; and in the higher latitudes it partakes almoſt entirely of a hoary whiteneſs.

2. Holothuria priapus; a ſmall but curious ſpecies, differing greatly from all its congeners. One part of the body is about four inches long, yellowiſh-brown, made up of numerous annular rings or ſtriæ, from which it derives its power of motion. The other part of the body conſiſts of a large gland, about an inch and a half or two inches long, thicker than the other part, inflated, and covered with longitudinal ſtriæ, or in an oppoſite direction to thoſe of the other part of the body, and of a reddiſh colour. Theſe longitudinal ſtriæ are twenty-four in number, terminating in an annular ring, which forms a concave orifice, furniſhed with numerous recurvated ſpines within. The orifice at the extremity of the other part, or body properly ſo called, is ſurrounded by three wrinkled ſtriæ, from which it has the faculty of protruding and retracting at pleaſure, a large faſciculus or maſs of tentacula, as repreſented in the aforementioned Engraving, at fig. 3. This is an inhabitant of the Indian and Mediterranean Seas.

3. Holothuria phantapus, a moſt ſingular ſpecies, endued with the power of affixing itſelf immoveably to any foreign body. Externally, and in the adult ſtate, it is of a braſſy or yellowiſh colour; but by means of a black mucous matter which exudes through the pores of the ſkin, its general appearance is that of a dark diſcoloured bronze. When contracted and at reſt, its ſhape is rather ovate, obtuſe at one end, and conic or tapering at the other; but it has the power of extending itſelf into a cylindrical form, by means of numerous wrinkles or ſtriæ with which the muſcles of the anterior and poſterior parts are furniſhed; and the muſcles of the body being made up with tranſverſe ſtriæ, are calculated to give greater exertion either to the head or tail, as occaſion may require. The anterior end is of a pale pink colour, covered with deep red papillæ; in the centre of which is the orifice or mouth of the animal, furniſhed with ſtrong fleſhy tentaculæ, conſiſting of ten branches, fimbriated at the extremities, retractile, and apparently endued with a very delicate ſenſe of feeling. The poſterior extremity is perforated for the excluſion of water, and is of a reddiſh colour, ſurrounded with ſmall tentacula. The abdomen or belly is flattened, and covered all over with lead-coloured papillæ, which act as ſuckers, and enable the animal to affix itſelf immoveably to a rock or other ſubſtances, where it is deſtined to wait for its prey, amidſt the daſhing waves of the turbulent ocean. This ſpecies is delineated on the Holothuria Plate II. at fig. 1, in its contracted or quieſcent ſtate. Fig. 2, ſhows the poſterior extremity, ſomewhat magnified, with the ſmall tentacula exſerted. Fig. 3, repreſents the anterior part, or orifice of the mouth, magnified, with the ten branched tentacula prepared for protruſion. Fig. 4, exhibits the tentacula when completely protruded, and fully expanded to ſeize its prey. Fig. 5, is a diſſection of the body, by profeſſor Müller, ſhowing the beautiful anaſtomoſes of the veſſels in the membrane which covers the muſcles, with the arrangement of the inteſtines and other viſcera. It inhabits the Norway and Mediterranean Seas. At *a*, is delineated one of the young of this ſpecies, which is at firſt covered over with a kind of thin ſcales, that afterwards fall off, but which ſhine like burniſhed gold. Its poſterior part is not completely evolved; but the anterior is ſhown in the full vigour of throwing out its tentacula in ſearch of food. At *b*, the ſame young phaſitapus is ſhown with the tentacula retracted, and at reſt, but with the peduncles of the belly thrown out, to attach itſelf ſecurely to its temporary reſting-place. At *c*, is ſhown one of the young tentacula; and at *d*, one of the peduncles or ſuckers; both magnified. It is a pleaſing as well as curious ſight, to ſee theſe little creatures ſhining like ſtars round the duſky parent, on the broken rocks and ſhingles of the ſea-ſhore.

4. Holothuria frondoſa: ſo named from the tentacula being frondoſe, or in the ſhape of fronds, or fern-leaves. Body ſmooth, ovate-oblong; and yellowiſh-green; tentacula ten, larger than the head; with three apertures behind the head, approximate, and a lateral one more remote. Inhabits the North Seas.

5. Holothuria tremula, or quivering holothuria: from eight to twelve inches in length. Its figure is cylindric when in action; but contracted into a ball when at reſt. The back is dark brown, covered with pyramidal nipples, of a dark colour at their baſis, but white at their apex. They are of two different ſizes; the larger occupy the length of the back, in number fourteen on each ſide. The ſmaller are ſcattered without order, in every part of the back. Out of them all exſudes a whitiſh mucilage, ſerving to lubricate the body. Hence all the nipples ſeem to be ſo many glands furniſhed with an excretory duct, the aperture of which is ſo minute as not to be diſcoverable by the help of a common magnifier. The belly is of a pale brown, ſet all over with cylindric tentacula, in ſuch numbers that the head of a pin could ſcarcely find room between them. They are of a ſhining whiteneſs, except the extremity, which is of a dark colour, and ſhaped like a ſocket. By the help of theſe the creature fixes its body at the bottom of the ſea, or at the foot of rocks, ſo as not to be forced away by waves or tempeſts. It is a native of the Adriatic and Mediterranean Seas.

6. Holothuria phyſalis: body ovate, ſomewhat triangular, carinated, or keel-ſhaped. It has very much the appearance of a tranſparent bladder, of conſiderable ſize, and of a fine roſe-colour inclining to purple, green on the back, with a ſort of fimbriated keel formed in feſtoons, and placed like a ruff on the upper part. By raiſing this appendage above the water, it makes it ſerve the purpoſe of a ſail. A number of pendulous cirri or feelers proceed from the under ſide, which enable it either to ſeize and

devour its prey, or to *caſt anchor*, and fix itſelf on the moving ſurface of the waves. It inhabits the Atlantic Ocean.

7. Holothuria Thalia: body oblong, yellowiſh green, with a ſquare creſt or comb, and entire lateral lines. Inhabits the American and Weſt-Indian Seas.

8. Holothuria caudata: body oblong, greeniſh, with a round depreſſed creſt or comb, and lateral interrupted lines; poſterior part ending in a projection or tail. Inhabits the American and Indian ocean.

9. Holothuria denudata: body oblong, yellowiſh-green, with interrupted lateral lines, and without creſt or tail. Inhabits the American ocean. This and the two preceding are of an uncertain genus; the body in each of them is rounded, and ſlowly tapering to both ends; front three to four inches long, and about one in diameter; tranſparent, of a firm gelatinous conſiſtence, and hollow; opening by a ſmall triangular aperture next the head, and a narrow round one at the other extremity; they have a ſpiral milky line down the back, under this another larger opake one, and on each ſide below theſe another ſmaller purple one. They are moſtly found ſingle, and ſometimes ſticking lengthways together, ſuppoſed in the act of copulation.

10. Holothuria pentactes: in form ſomewhat reſembling the Sepia genus; but it has the power of changing or varying its ſhape, by extending its body to a long and cylindrical figure, or of contracting it into a cone, or a broad oval. It derives this faculty from the tranſverſe wrinkles or ſtriæ with which its whole body is made up, the fibres of which unite with, or are tied into, five longitudinal elaſtic bands or ſtripes, which give it the figure of a pentagon; whence its name. On the upper extremity of each of theſe longitudinal bands, are placed a ſeries of papillæ, in pairs, which extend about one third of the length of the body, and have the faculty of throwing out ſmall retractile filaments, by which they can at pleaſure affix themſelves to any extraneous ſubſtance. The mouth or orifice is encompaſſed with an elegant fringe of ramified tentacula, of changeable colours, partaking of red, yellow, and ſilvery white, with a reddiſh-yellow band round the neck. The colour of the whole animal is a reddiſh brown, which is interchangeably deeper or lighter, in proportion as it extends or contracts its form. The longitudinal bands are of a deeper red, varied with white tranſverſe ſtripes beneath the papillæ; which are whitiſh at the top, and deep cheſnut at the baſe. This ſpecies is found in all the European Seas; and is delineated on the Holothuria Plate III. fig. 1. At fig. 2, the ſame animal is ſhown diſſected open, to exhibit the inteſtinal canal, tubes of the tentacula, &c.

11 Holothuria papilloſa: a ſmall ſpecies, egg-ſhaped, and of a yellowiſh colour. The whole body is every where covered with ſpinous papillæ; whence its name. The orifice or mouth is furniſhed with ten dilatable tentacula, in the ſhape of fronds. It has a pale pink colour round the neck; mouth encircled with a deep red fleſhy muſcle, bordered with white; tentacula red and white: correctly delineated in the Engraving at fig. 3. It inhabits the North Sea.

12. Holothuria Spallanzani: a very curious ſpecies, lately diſcovered amongſt the other inhabitants of the Mediterranean Sea, by the ingenious naturaliſt and traveller Spallanzani; whence it has aſſumed his name.

13. Holothuria ſquamata, a ſmall ſpecies, covered all over with ſquamæ or ſcales; whence its name. It is of a bright yellow, and ſhines like burniſhed gold. It adheres firmly to rocks; and is furniſhed with eight branched tentacula, of a lighter yellow than the body. In its quieſcent or contracted ſtate, it has the appearance of a large yellow maggot, or grub. It is delineated on the Engraving at fig. 4, as it appears when in action, with the tentacula dilated. Theſe inhabit the Northern Ocean.

14. Holothuria penicillus: a minute ſpecies, with the body cruſtaceous or bony, formed like a vaſe, and fluted with reddiſh-brown and bluiſh-white. The orifice or mouth is red; and puts forth eight tentacula; each furniſhed at the top with briſtly filaments, not unlike a pencil-bruſh; whence it received its name. It has a brown and orange indented collar; beneath which is a ring of tentacula or feelers in the ſhape of grain, which are pendulous and retractile. It is found immoveably fixed to rocks or ſtones by its baſe; and, when contracted, aſſumes the ſhape of a button. It has a place among the inhabitants of the North Sea; and is correctly delineated on the Engraving at fig. 5.

15. Holothuria fuſus: a very ſmall and ſlender ſpecies, furniſhed with ten radiate tentacula; body fuſiform, ferruginous, rough with minute ſcales, and beſet with very ſhort fibres; protruding a cup-ſhaped hollow body, furniſhed beneath with a neck, and dilated above into an orb, perforated in the middle with a black foramen; which is the orifice or mouth; the tentacula are denticulate at the ſides. Inhabits the deeps of the Northern Seas.

16. Holothuria inhærens: decorated with longitudinal whitiſh ſtripes, and furniſhed with twelve red tentacula. Body long, narrow, pellucid, and covered with innumerable viſcid papillæ, by means of which it ſticks to whatever it touches; the tentacula are fleſhy, lanceolate, and denticulate or ſlightly branched on each ſide. Inhabits the Northern and Red Seas.

17. Holothuria lævis: furniſhed with ſilvery-white tentacula; body with five rows of lines and dots; ſoft, ſmooth, whitiſh, pellucid, from one to ſix inches long; tentacula eight-cleft at the tip. Inhabits the Greenland Seas, among rocks; hides itſelf frequently in the clay, protruding every other one of its tentacula, and contracting the others.

18. Holothuria minuta: the ſmalleſt of the genus; furniſhed with twelve ſlender tentacula; body covered with five rows of papillæ or warts. Inhabits the Greenland Seas, with a ſandy bottom; and moves very ſlowly by means of its extended papillæ. This ſpecies is only four lines long, glabrous, ſubmembranaceous, whitiſh, and reddiſh; tentacula ſometimes yellowiſh, and ſix-cleft at the tip.

19. Holothuria forcipata: five inches long; both ends narrow and conic, the anterior one forcipated; body ſoft, lubricous, with a thin ſkin covered with innumerable fine dots; forceps rigid, ochre-yellow, with curved fangs. Inhabits the Greenland Seas, with a clayey bottom; and is often the food of the Cottus ſcorpio.

20. Holothuria zonaria: body oblong, depreſſed; with a fleſh-coloured mouth or ſheath, and a whitiſh hyaline pouch; body marked with five yellow zones; whence its name. Inhabits the ſea round Antigua.

21. Holothuria vittata: from ſix to eight inches long; decorated with white bands dotted with brown; tentacula lanceolate, and toothed at the ſides. Inhabits the Red Sea; and adheres faſt to the hands, by means of its viſcid papillæ.

22. Holothuria maxima: body near a foot long, rigid, and nearly ſquare; above convex; beneath flat, and edged with white; tentacula filiform, and cut like petals at the tip. Inhabits the Red Sea.

23. Holothuria impatiens: a ſmall ſpecies, furniſhed with twenty tentacula, filiform, ſeven-cleft, and denticulate at the tip; body hardiſh, cinereous, varied with ſpots and bands, rough, with hemiſphærical warts, whitiſh in the middle, and approximate; tentacula hyaline, dotted with black. Inhabits the ſhores of the Red Sea, under ſtones, or in the pores of the Spongia officinalis.

HOLOW'NE, a town of Poland, in the palatinate of Chelm: twenty-eight miles north-eaſt of Chelm.

HOLP. The old preterite and participle paſſive of *help*. —His great love, ſharp as his ſpur, hath *holp* him. *Shakeſp.*

HOL'PEN. The old participle paſſive of *help*.—In a long trunk the ſound is *holpen*, though both the mouth and the ear be a handful from the trunk. *Bacon.*

HOLPOL'CHI KIAMEN, a poſt of Chineſe Tartary, in the country of the Eluths. Lat. 45. 28. N. lon. 117. 33. E. Ferro.

HOL'RAS, a town of Norway, in the dioceſe of Chriſtianſand: twelve miles ſouth-weſt of Chriſtianſand.

HOL'SMUNDEN, or HOLTZMUNDEN, a town of Germany, in Lower Saxony, and principality of Wolfenbuttel, on the Werra: twenty-one miles weſt of Eimbeck, and twenty-eight north-weſt of Gottingen.

HOL'STEBROE, a town of Denmark, in North Jutland, ſituated on a river not deep enough to be navigable, which runs into the North Sea. The principal trade of the inhabitants conſiſts in corn, oxen, and horſes: ſixty-eight miles north of Ripen, and twenty-four weſt of Wiborg.

HOL'STEIN (Duchy of), a country of Germany, in Lower Saxony. Including the lordſhip of Pinneberg, it is bounded on the north by the duchy of Sleſwick and the Baltic, on the eaſt by the Baltic, on the ſouth by the duchy of Lauenberg, the territories of Lubeck, and Hamburg and the Elbe, and on the weſt by the Elbe and the German Sea; about ſeventy miles in length from eaſt to weſt, and forty-eight in breadth from north to ſouth. Its ſituation between the Baltic and the German Ocean expoſes it to frequent ſtorms, which occaſions heavy expence to the land-owners, in raiſing dykes to prevent inundations, eſpecially in the diſtricts bordering on the German Sea and the Elbe. Theſe diſtricts conſiſt of excellent marſh land, producing wheat, barley, oats, beans, peaſe, and rape-ſeed, in great plenty. The meadows and paſtures feed great numbers of cattle, both milch kine, and thoſe to be fatted for the butcher. The other parts of the country are ſtill more fertile. Holſtein is divided into four provinces, namely, Holſtein Proper, Stormar, Ditmartſen, and Wagria. The three firſt of theſe were formerly called *Nordalbingia*, or *Saxony beyond the Elbe*. The Saxons of this country were a free people, till they were ſubdued by Charlemagne, who tranſported ten thouſand families into Brabant, Flanders, and Holland. A treaty was made between this prince and the king of Denmark, which fixed the river Eider as the common boundary of their two empires. The country on the ſouth of the river was called *the Marche*, and a margrave appointed to defend it. Lothario, duke of Saxony, who afterwards became emperor, erected Holſtein Proper and Stormar into a county, in favour of the count of Scauenburg, in 1106; whoſe ſon, Adolphus II. incorporated Wagria with Holſtein, and peopled his eſtates with ſtrangers from Holland and Weſtphalia. The territories were afterwards divided into ſeparate principalities. One of the princes who reigned here obtained from the king of Denmark the inveſtiture of Sleſwick. This branch became extinct, and the people elected Chriſtian I. king of Denmark, who became duke of Sleſwick, and count of Holſtein; which was ſoon after erected into a duchy. His poſterity reigned here in the ſame manner as over Denmark. The branch of Holſtein Gottorpf, founded by the ſecond ſon of king Frederic I. was often diſturbed by that which reigned in Denmark; and in 1720, the reigning prince was entirely diſpoſſeſſed of his dominions. This prince had eſpouſed Anne, eldeſt daughter of Peter I. emperor of Ruſſia. In 1743, his ſon, Charles Ulric, was by his mother's ſiſter, Elizabeth, empreſs of Ruſſia, declared grand duke of Ruſſia, and took the name of Peter Feodorowitz. The king of Denmark maintained his authority as duke of Holſtein Gluckſtadt, while Peter Feodorowitz ſupported his authority over Holſtein Gottorpf. The principal trading towns are Altona, Gluckſtadt, and Kiel. The exports of Holſtein are wheat, barley, malt, ſtarch, buck-wheat, peaſe, beans, rape-ſeed, horned cattle, ſheep, rams, ſwine, horſes, poultry, butter, cheeſe, veniſon, and fiſh.

HOL'STEIN (Luke), a learned German, born at Hamburg in 1596. After receiving a liberal education in his own country, he went to Paris, where he acquired a high reputation for learning and ingenuity, and was converted by father Sirmond, from the Lutheran religion in which he had been brought up, to the Catholic faith. From Paris he went to Rome, where he was patroniſed hy cardinal Francis Barherini, who procured him a canonry of St. Peter's; and by pope Urban he was appointed librarian of the Vatican. He died at Rome in 1661, when ſixty-five years of age. In 1630, he publiſhed at Rome, The Life of Pythagoras, by Porphyry, in Greek and Latin, 8vo. with a curious diſſertation on the life and writings of Porphyry, and obſervations on the life of Pythagoras. In 1638, he publiſhed an edition of The Moral Sentences of Demophilus, Democrates, and Secundus, in Greek, with a Latin tranſlation; and in 1651, A Letter from Chriſtian Ranzovius to Calixtus, a Lutheran Miniſter, explaining the reaſons why he had become a Catholic. At the time of his death he had prepared for the preſs, a new edition with notes, diſſertations, prefaces, and a gloſſary, of St. Benedict of Aniane's *Codex Regularum Monaſticarum & Canonicarum*; which was printed at Rome in 1662, and at Paris in 1663. In the year laſt mentioned was alſo publiſhed, at Paris, A Collection of Canons, Acts of Councils, Letters of Popes, and other eccleſiaſtical Monuments, arranged and reviſed by Holſtenius, with Notes, in two parts. Among the papers which were left behind him, were alſo found materials for a new edition of Stephen of Byzantium's Geography, which were firſt given to the public at Rome, in 1666, and afterwards at Levden, in 1684, under the title of, *Lucæ Holſtenii Notæ & Caſtigationes in Stephani Byzantini Gentilia; ſive de Urbibus Inſcripta, ex Editione Theodori Ryckii*, folio.

HOL'STER, *ſ.* [from heolꞅꞇeꞃ, Sax. a hiding place.] A caſe for a horſeman's piſtol:

In's ruſty *holſters* put what meat
Into his hoſe he could not get. *Hudibras.*

HOL'STON, the largeſt branch of Tenneſſee river, in North America, riſes in Virginia, and joins that river twenty-two miles below Knoxville. It is upwards of three hundred yards wide at that town, is about two hundred miles in length, and receives in its courſe ſeveral conſiderable rivers and ſtreams. Holſton is navigable for boats of twenty-five tons, for upwards of one hundred miles, as high as the mouth of the North Fork; where iron-works have been recently erected upon a large ſcale. At the mouth of this river, on the north ſide, ſtands Fort Grainger. Lat 36. 27. N. lon. 83. 8. W. See TENNESSEE.

HOL'STON, a ſettlement of the American States, on the river above mentioned, in the State of Tenneſſee, containing by the cenſus 28,649 inhabitants. The land is generally ſertile, but the face of the country is much broken. Placed between two large mountains, it ſeldom ſuffers for want of rain. It abounds with iron ore. A capital furnace and forge have lately heen erected near the Virginia line, a bloomery below the mouth of Watawga, and another twenty-five miles above the mouth of the French Broad. There are ſundry lead-mines in the ſettlement, one in particular on the French Broad, that produces ſeventy per cent. pure lead. Long Iſland on Holſton river is 340 miles ſouth-weſt of Richmond in Virginia.

HOLT, whether at the beginning or ending of the name of any place, ſignifies that it is or hath been woody, from the Sax. holꞇ, a wood; or ſometimes poſſibly from the Saxon hol, *i. e.* hollow; eſpecially when the name ends in *tun* or *dun*. *Gibſon.*

HOLT, *ſ.* [Saxon.] Woodland. It ſeems more particularly to mean woody high land.—Rough hills, and foreſt *holts* were ſadly ſeen to weep. *Drayton.*

O'er *holt* and heath
We went, through deſerts waſte, and foreſts wide. *Fairfax.*

About the rivers, vallies, *holts*, and crags,
Among the ozyers and the waving flags,
They neerely pry. *W. Browne.*

HOLT, a neat and reſpectable town in the county of Norfolk, diſtant 123 miles from London, and twenty-one from Norwich. It has a market on Saturdays, which is well ſupplied, particularly with corn. There are alſo two fairs, viz. April 25, and November 25, which continue two days each. The ſituation of the town, being on a hill which riſes conſiderably above the level of the ſurrounding country, renders it remarkably healthy. The quarter-ſeſſions for the county are held here twice a-year, viz. at Michaelmas, and Chriſtmas; and the ſeſſions-houſe is uſed as an aſſembly-room for the monthly aſſemblies, and other public-meetings. Here is a free-ſchool, founded about 1546, by ſir John Greſham, knt. lord mayor of London, with a handſome endowment, for thirty free ſcholars. The patronage and government of it is in the Fiſhmongers' company, in London, under whom are alſo twenty-four viſitors, appointed by the company for life, from among the gentlemen who reſide in the neighbourhood. To this ſchool belong a ſcholarſhip and fellowſhip in Sydney College, Cambridge.

HOLT, a town of Norway, in the dioceſe of Chriſtianſand: thirty-two miles north-north-eaſt of Chriſtianſand.

HOLT, a town of North Wales, in the county of Denbigh: three miles north-eaſt of Wrexham.

HOLT, a town of Germany, in Weſtphalia, and duchy of Cleves: twenty-ſeven miles ſouth-eaſt of Cleves. Lat. 51. 39. N. lon. 24. 12. E. Ferro.

HOLT (ſir John), an eminent Engliſh lawyer and judge, ſon of ſir Thomas Holt, ſerjeant at law, born in 1642, at Thame in Oxfordſhire. He received his early education at Abingdon, of which place his father was recorder. Thence he removed to Oriel college, Oxford, which he left without taking a degree, and entered at Gray's-inn for the ſtudy of the law. He became diſtinguiſhed as a barriſter, and in 1685 was made recorder of London, and ſoon after was called to the degree of a ſerjeant of law. His refuſal to give aſſiſtance to ſome of the arbitrary meaſures of James II. occaſioned his removal from the office of recorder. His known principles, however, cauſed him to be elected a member of the convention-parliament of 1688, and he was appointed one of the managers for the commons at the conferences held with the lords concerning the vacancy of the throne. In 1689 he was raiſed to the dignity of lord chief-juſtice of the King's-bench, and in the ſame year was admitted into the privy-council. He refuſed the poſt of high-chancellor, offered him on the death of lord Somers, and continued to preſide in the court of King's-bench till his death in March 1709. Lord-chief-juſtice Holt, is memorable among the Engliſh judges, as one who to a thorough knowledge of the law joined an invincible firmneſs and reſolution in ſupporting its authority. With that on his ſide, he feared not the indignation of any body of men, however powerful; which he more than once ſhowed in contentions with both houſes of parliament, whoſe aſſumed prerogatives he regarded as invalid when contradictory to the common law of the land. He was an intrepid aſſertor of the rights and liberties of the ſubject, and was particularly jealous of the interference of the military power in the execution of the laws. In the delivery of his opinions he was remarkably clear, and his arguments were ſingularly cogent and convincing. In 1708 he publiſhed Sir John Keyling's Reports of Caſes in Pleas of the Crown, together with three modern caſes, illuſtrated with notes of his own.

HOL'TALEN, a town of Norway, in the dioceſe of Drontheim: fifty-four miles ſouth of Drontheim.

HOL'TENKLINGEN, a town of Germany, in the duchy of Holſtein: nine miles ſouth of Segeberg, and three weſt-ſouth-weſt of Oldeſlohe.

HOLT'HAUSEN, a town of Germany, in Weſtphalia, and biſhopric of Paderborn: two miles weſt of Buren.

HOLTZ'HAUSEN, a town of Germany, in Weſtphalia, and biſhopric of Munſter: eight miles north-weſt of Munſter.

HOLTZ'KIRCHEN, a town of Germany, in Upper Bavaria: twenty-five miles eaſt of Weilhaim, and eighteen ſouth-ſouth-eaſt of Munich.

HOL'VAN, a town of Aſiatic Turkey, in Curdiſtan: fifty miles ſouth-eaſt of Kerkuk.

HOL'WELL (John-Zephaniah), a gentleman diſtinguiſhed by his writings, born about the year 1709. He went to Bengal at an early period of life as a writer in the ſervice of the Engliſh Eaſt-India company, and gradually roſe in office, till, in 1756, he was ſecond in the council at Fort William. At that time a diſpute with the nabob of Bengal induced the nabob to lay ſiege to that fort with a powerful army; when Mr. Holwell was one among the number of one hundred and forty-ſix perſons, who were ſhut up in the Black-hole, in Calcutta, where moſt of them died, as related under the article HINDOOSTAN, p. 86, of this volume; but for the full particulars of that horrid affair, ſee the article CALCUTTA, vol. iii. p. 610. When Calcutta was reſtored to the Britiſh dominion, Mr. Holwell raiſed a monument, at his own expence, to the memory of the unhappy victims who died on that occaſion. On his return to England he wrote various tracts upon the concerns of the India company, which, being temporary in their ſubjects, have ceaſed to be intereſting. He alſo entered deeply into the hiſtory and mythology of the natives of Hindooſtan, and gave to the public much curious information on theſe particulars in a work entitled Intereſting Hiſtorical Events relative to the Provinces of Bengal, &c. publiſhed in 1765, 1767, and 1771, 8vo. He wrote alſo, Diſſertations on the Origin, Nature, and Purſuits, of intelligent Beings, &c. 1788, 8vo. An Account of the Manner of inoculating for the Small-pox in the Eaſt Indies, with ſome Obſervations on the Mode and Practice of treating that Diſeaſe in thoſe Parts, 1768, which contains ſome valuble matter. Another work of his, publiſhed in 1786, is a pamphlet entitled A New Experiment for the Prevention of Crimes, which chiefly conſiſts in propoſed premiums for virtue. Every thing written by Mr. Holwell diſplays a very benevolent heart, and a liberal mind. He retained a great fund of ſpirits to an advanced age, though labouring under many infirmities, and died in November 1798, much reſpected among his acquaintance. He was a fellow of the Royal Society.

HO'LY, *adj.* [haliᵹ, Sax. *heyleigh*, Dut. from hal, healthy, or in a ſtate of ſalvation.] Good; pious; religious:

See where his grace ſtands 'tween two clergymen!
And ſee a book of prayer in his hand;
True ornaments to know a *holy* man. *Shakeſpeare.*

Hallowed; conſecrated to divine uſe:

Bare was his hoary head; one *holy* hand
Held forth his laurel crown, and one his ſceptre. *Dryden.*

Pious; immaculate.—Common ſenſe could tell them, that the good God could not be pleaſed with any thing cruel; nor the moſt *holy* God with any thing filthy and unclean. *South.*—Sacred:

An evil ſoul producing *holy* witneſs,
Is like a villain with a ſmiling cheek. *Shakeſpeare.*

HO'LY-CRUEL, *adj.* Cruel through holineſs.—Be not ſo *holy-cruel. Shakeſpeare.*

HO'LY-GHOST, *ſ.* [haliᵹ and ᵹaſꞇ, Sax.] The third perſon of the adorable Trinity.

HO'LY-GRAYLE, *ſ.* [a ſemi-literal tranſlation of the French *Saint Graal*, which is a literal variation of *Sang real.*] The true blood of Chriſt:

Hither came Joſeph of Arimathy,
Who brought with him the *Holy-grayle.* *Spenſer.*

HO'LY ISLAND, an iſland in the German Sea, near the eaſt coaſt of England, and about eight miles ſouth-eaſt from Berwick-upon-Tweed, eight miles in circumference. It is otherwiſe called *Lindisfarne*, and was once the ſee of a biſhop; the ruins of the cathedral are yet viſible. On the ſouth coaſt is a convenient bay, which frequently proves a ſhelter to veſſels from Greenland and the Baltic. On one ſide of the bay is a ſmall town, defended by a fort, and on the oppoſite ſide a caſtle. The dioceſe was afterwards removed to Durham. Lat. 55. 34. N. lon. 1. 52. W. Greenwich.

Chapman Sc.

LORD CHIEF JUSTICE HOLT.

London Published March 27.1809. by J.Wilkes.

HO'LY ROOD, a bay and pond in Newfoundland iſland. The bay is at the head of Conception Bay.

HO'LY ROOD, or Holy Cross, *ſ.* A feſtival kept on the 14th of September, in memory of the exaltation of our Saviour's croſs.

HOL'Y THURS'DAY, *ſ.* The day on which the aſcenſion of our Saviour is commemorated, ten days before Whitſuntide.

HO'LY WEEK, *ſ.* The week before Eaſter, in which the paſſion of our Redeemer is commemorated.

HOLYHEAD', a ſea-port town of North Wales, ſituated on the north-weſt extremity of the iſle of Angleſea, near the Iriſh Sea; diſtant twenty-five miles from Caernarvon, ninety-two weſt-by-north from Cheſter, one hundred and eighteen north-weſt of Shrewſbury, and two hundred and ſeventy-two north-weſt of London. It has a good market on Saturdays, and one fair in the year, commencing the 25th of July, and continuing three days. The church is of great antiquity, and the wall which ſurrounds it is ſtill more ſo, having been built by the Romans above ſeventeen hundred years ago. The ſervice of the church is performed in the Welſh language, except on Friday, when prayers are read in Engliſh, and likewiſe the third Sunday in every month, on which day is alſo preached an Engliſh ſermon. Here is a free-ſchool, with an endowment of ſix pounds a-year, for which the maſter is to inſtruct ſix poor children in reading, writing, &c. Here is no freſh-water except from rain; nor any bread but what comes from Ireland. On the rocks grow large quantities of kali, ſo valuable for making kelp; and in the neighbourhood there is a large vein of white fuller's earth. The ſalt-water is here found in a ſtate of the utmoſt purity; and the air in general is remarkably clear and ſalubrious. Fiſh is plenty, freſh, and proviſions cheap; ſo that Holyhead, in the ſummer months, is by nature poſſeſſed of every advantage which may induce the valetudinarian or the economiſt to make it a temporary retreat. His majeſty's packet-boats are ſtationed here, for the purpoſe of conveying the mail to and from Dublin; they ſail regularly ſix times a-week, wind and weather permitting. On Tueſdays no packet ſails, becauſe no mail is ſent from London on Sundays. The paſſage is uſually performed in about twelve hours. The town takes its name from a cape, or promontory, which is joined to the reſt of the iſland of Angleſea by a narrow ſlip. Lat. 53. 23. N. lon. 4. 45. W. Greenwich.

HO'LYWELL, a town of North Wales, in the county of Flint, ſaid to contain upwards of two thouſand inhabitants: it has a market on Fridays, and a grant for three fairs, on April 23, Tueſday after Trinity, and September 2. It is diſtant eleven miles eaſt from St. Aſaph, fifty-two north-weſt from Shrewſbury, and two hundred and twelve north-eaſt from London. The ſituation of the town is pleaſant and healthy. Behind it is a lofty hill, extremely productive of lead ore. Towards the ſea is a beautiful valley, bounded by woods; the end terminating on one ſide with the venerable abbey. The town received its name from St. Winnifred's well, concerning which ſo many fables and ſuperſtitious tales have been told. The ſpring guſhes forth with great impetuoſity, and diſcharges twenty-one tons of water in a minute. It is perhaps the fineſt cold bath, and at the ſame time the moſt elegant, in the kingdom. It drives ſeveral mills at a ſmall diſtance for different manufactures, viz. braſs, copper, cotton, &c. which works are here become ſo conſiderable as to be ſcarcely inferior to any in the kingdom. Over the ſpring there is a chapel, built by the counteſs of Derby, mother of Henry VII. which ſtands upon pillars, and on the windows are painted the hiſtory of St. Winnifred's life. The approach to the well is remarkably picτureſque, along a little valley, bounded on one ſide by hanging woods, beneath which the ſtream hurries towards the ſea, unleſs where interrupted by the frequent manufactories; its origin is diſcovered at the foot of a ſteep hill. The ſpring boils up with vaſt impetuoſity, and is formed into a beautiful polygonal well covered by a ſuperb arch, ſupported by pillars. The roof is exquiſitely carved in ſtone. Immediately over the fountain is the legend of St. Winnifred, on a pendant projection, with the arms of England at the bottom: numbers of fine ribs ſecure the arch, whoſe interſections are coupled with ſculpture. The ſpring never freezes, or ſcarcely varies in the quantity of water, in droughts, or after the greateſt rains. The ſtream formed by this fountain runs with a rapid courſe to the ſea, which it reaches in little more than a mile's diſtance: and the induſtry of this century, as obſerved before, has made its waters of much commercial utility.

HO'LYWOOD (John), or Halifax, or Sacrobosco, was, according to Leland, Bale, and Pitts, born at Halifax in Yorkſhire; according to Stainhurſt, at Holywood near Dublin; and, according to Dempſter and Mackenzie, in Nithſdale in Scotland: though there may perhaps have been more than one of the name. Mackenzie informs us, that, having finiſhed his ſtudies, he entered into orders, and became a canon regular of the order of St. Auguſtin, in the famous monaſtery of Holywood in Nithſdale. The Engliſh biographers, on the contrary, tell us that he was educated at Oxford. They all agree however in aſſerting, that he ſpent moſt of his life at Paris; where, ſays Mackenzie, he was admitted a member of the univerſity, June 5, 1221, under the ſyndics of the Scotch nation; and ſoon after was elected profeſſor of mathematics, which he taught with applauſe for many years. According to the ſame author, he died in 1256, as appears from the inſcription on his monument in the cloiſters of the convent of St. Maturine at Paris. He was contemporary with Roger Bacon, but probably older by about twenty years. He was certainly the firſt mathematician of his time; and he wrote, 1. *De Sphæra Mundi*; a work often reprinted, and illuſtrated by various commentators. 2. *De Anni Ratione, ſeu de Computo Eccleſiaſtico.* 3. *De Algoriſmo*, printed with *Comm. Petri Cirvilli Hiſp.* Paris, 1498.

HOL'ZAPSEL, a town of Germany, in Weſtphalia, and capital of a county of the ſame name, ſituated between the electorate of Treves and Naſſau Dietz, on the borders of the Lahn, erected into a principality of the empire by Ferdinand III. The town is ſituated on the Lahn, at the foot of a mountain, on which is the tower of an ancient caſtle, the original ſeat of the princes of Naſſau: four miles north-eaſt of Naſſau. Lat. 50. 22. N. lon. 25. 30. E. Ferro.

HOLZ'HAUSEN, a town of Germany, in Auſtria: three miles north of Wells.

HOLZ'KIRCHEN, a town of Germany, in Swabia, and county of Oettingen Wallerſtein Wernitz: four miles and a half ſouth of Oettingen, and eleven north of Donauwert.

HOM'AGE, *ſ.* [*hommage*, Fr. *homagium*, low Lat.] Service paid and fealty profeſſed to a ſovereign, or ſuperior lord:

Call my ſovereign your's,
And do him *homage* as obedient ſubjects. *Shakeſpeare.*

Obeiſance; reſpect paid by external action:

A tuft of daiſies on a flow'ry lay
They ſaw, and thitherward they bent their way;
To this both knights and dames their *homage* made,
And due obeiſance to the daiſy paid. *Dryden.*

*To* HOM'AGE, *v. a.* To reverence by external action; to pay honour to; to profeſs fealty. The ſtat. 12 Car. II. c. 24, which was made to free the ſubject from the burthen of knight's ſervice, and the oppreſſive conſequences of tenures *in capite*, amongſt other proviſions, wholly diſcharges all tenures from the incident of homage; not becauſe homage itſelf was any grievance, but becauſe, though not wholly, yet it was more properly an incident to knight's ſervice, which that ſtatute aboliſhed. But, while homage continued, it was far from being a mere ceremony; for the performance of it, where due, materially concerned both lord and tenant in point of intereſt and advantage. See the article Tenure.

In the original grants of lands and tenements by way of fee, the lord did not only oblige his tenants to certain ſervices, but alſo took a ſubmiſſion with promiſe and oath, to be true to him as their lord and benefactor; and this ſubmiſſion, which is the moſt honourable, being from a freehold tenant, is called *homage*. Stat. 17 *Edw.* II. ſt. 2. The lord of the fee for which homage is due, takes homage of every tenant, as he comes to the land or fee: but women perform not homage but by their huſbands, as homage eſpecially relates to ſervice in war; and a corporation cannot do homage, which is perſonal, and they cannot appear but by attorney; alſo a biſhop or religious man may not do homage, only fealty; but the archbiſhop of Canterbury does homage on his knees to the king at his coronation.

When ſovereign princes did homage to each other for lands held under their reſpective ſovereignties, a diſtinction was always made between *ſimple* homage, which was only an acknowledgment of tenure, and *liege* homage, which included fealty, and the ſervices conſequent upon it. Thus when Edward III. in 1329, did homage to Philip VI. of France, for his ducal dominions on that continent, it was for a time warmly diſputed of what ſpecies the homage was to be, whether *liege* or *ſimple* homage. Edward choſe only to do *ſimple* homage. 1 *Comm.* 367. c. 10.

HOM'AGE JURY, *ſ.* A jury in a court-baron, conſiſting of tenants that do homage to the lord of the fee; and theſe by the feudiſts are called *pares curiæ:* they enquire and make preſentment of defaults and deaths of tenants, admittances, and ſurrenders, in the lord's court, &c. See the article COURT-BARON, vol. v. p. 298.

HOM'AGEABLE, *adj.* Liable to do homage; belonging to homage. *Scott.*

HOM'AGER, *ſ.* [*hommager*, Fr.] One who holds by homage of ſome ſuperior lord:

Thou bluſheſt, Antony; and that blood of thine
Is Cæſar's *homager*. *Shakeſpeare.*

HOMA'LIUM, *ſ.* [ſo named by Jacquin from ομαλης, Gr. equality, on account of the proportion obſerved in the ſtamens.] In botany, a genus of the claſs polyandria, order trigynia, natural order of roſaceæ, *Juſſ.* The generic characters are—Calyx: perianthium one-leafed, ſix or ſeven-cleft; clefts ovate-lanceolate, ſharp, ſpreading very much. Corolla: petals ſix or ſeven, ovate, flat, a little longer than the calyx, ſpreading very much; nectary, glands ſix or ſeven, flat, alternate with the petals. Stamina: filaments eighteen to twenty-eight, ſubulate, upright, the length of the corolla, of which three or four are inſerted into the receptacle among the glands before the baſe of the petals; antheræ roundiſh, ſmall. Piſtillum: germ roundiſh, villoſe, immerſed in the baſe of the calyx; ſtyles three, upright; ſtigmas ſimple. Pericarpium: capſule woody, ovate, one-celled. Seeds: very many, and very ſmall.—*Eſſential Character.* Calyx ſix or ſeven-parted; corolla ſix or ſeven-petalled; ſtamens twenty-one, in three bodies; pericarpium one-celled, many-ſeeded.

*Species.* 1. Homalium racemoſum, or cluſtered homalium: leaves ſerrate; racemes axillary and terminating; flowers peduncled. This is a lofty branching tree, with the habit and leaves of the elm. Flowers racemed, flat. Stamens ſometimes eighteen, ſo that there are three before each petal. Native of Martinico and Jamaica.

2. Homalium racoubea, or racoubea homalium: leaves toothed, coriaceous; racemes terminating; flowers ſubſeſſile. This is a ſhrub, with a trunk of about three or four feet high, and four or five inches in diameter; the bark is whitiſh; the branches tortuous and ſpreading, and ſeven or eight feet in length; the leaves alternate, green, ſmooth, oval, and toothed, with rather pointed tips; the footſtalks are ſhort, and have each two ſmall caducous ſtipules at their baſe. The flowers are borne on ſpikes ſpringing from the boſoms of the upper leaves: they are ſeſſile, and of a yellow colour. Native of Guiana.

HOMALOCEN'CHRUS, *ſ.* in botany. See LEERSIA.

HO'MAN, or O'MAN, a town of Africa, in the kingdom of Fez, and province of Habat, between Alcaçarquiber and Arzilla.

HOM'BERG, a town of Germany, in Franconia, and biſhopric of Wurzburg: three miles north of Carolſtadt, and ſixteen north-north-weſt of Wurzburg.

HOM'BERG, or HOM'BURG, a town of Germany, in Weſtphalia, and duchy of Berg: twenty-four miles eaſt-ſouth-eaſt of Cologne.

HOM'BERG, a town of Germany, on the Upper Rhine, and principality of Heſſe Caſſel. It contains an iron-forge and a glaſs-manufactory: twenty miles ſouth of Caſſel, and eleven ſouth-ſouth-eaſt of Fritzlar. Lat. 50. 48. N. lon. 27. E. Ferro.

HOM'BERG VOR DER HOHE, a town of Germany, on the Upper Rhine, which gives title to a branch of the houſe of Heſſe, called Heſſe Homberg; granted, with its territory, in 1622, by Louis V. landgrave of Heſſe Darmſtadt, in lieu of a penſion of 20,000 dollars: ſeven miles north of Frankfort on the Maine, and ſeventeen ſouth of Wetzlar. Lat. 50. 9. N. lon. 26. 22. E. Ferro.

HOM'BERG (William), an eminent phyſician and chemiſt, born at Batavia, where his father, in 1652, held an appointment of conſiderable truſt under the Dutch Eaſt-India company. When his father quitted India, he returned with him to Amſterdam; and was ſoon after ſent to ſtudy the law at Jena, and at Leipſic; and in 1674, he was admitted to the bar at Magdeburg; but, though he attended to buſineſs, objects of natural hiſtory ſoon began to attract his attention, and to excite his curioſity. Otto Guericke, burgomaſter of Magdeburg, being celebrated on account of his experiments, and the invention of the air-pump, Homberg went under him, to be inſtructed in experimental philoſophy. After this he reſolved to travel, and went firſt to Italy. He ſtaid a year at Padua, where he applied to medicine, and particularly to anatomy and botany. At Bologna he made experiments on the ſtone which takes its name from that city, and diſcovered the method of making it luminous, which had been almoſt loſt. At Rome he formed an acquaintance with Marc Antony Cælio, an able mathematician, aſtronomer, and mechaniſt, who was exceedingly dexterous in making large lenſes. Homberg applied to the ſame art, and alſo to painting, ſculpture, and muſic, in all of which he made a conſiderable progreſs. From Italy he went to France, where he ſoon acquired the eſteem of the learned; and he then proceeded to England, where he was aſſociated for ſome time with the celebrated Mr. Boyle. On his return to Holland, he improved himſelf in anatomy under De Graaf; after which he rejoined his family, who at that time reſided at Quidlinburg, and ſoon after took the degree of M.D. at Wittemberg. His relations urged him to ſettle, and to purſue the practice of the art he had ſtudied; but his mind was ſtill bent on travel; and, being deſirous of ſtudying mineralogy, he proceeded to examine the mines of Saxony, Bohemia, Hungary, and Sweden. His Swediſh majeſty having erected a chemical laboratory at Stockholm, Homberg laboured in it with M. Hierna, firſt phyſician to the king, and had the happineſs of contributing to the ſucceſs of this new eſtabliſhment. His father ſtill wiſhed him to return, and to ſettle in his own country; but the love of ſcience carried him to the extremity of the north, to Holland, and from Holland to France, where he viſited thoſe provinces which he had not ſeen during his firſt tour. He finally ſettled in Paris, where he ſoon acquired a diſtinguiſhed rank among the moſt eminent philoſophers. The abbé Bignon, being director of the academy of ſciences in 1691, got Homberg admitted a member, and gave him the uſe of the laboratory of the academy, where he had an opportunity of purſuing his reſearches unmoleſted. In 1702, the duke of Orleans, wiſhing to make himſelf acquainted with chemiſtry and experimental philoſophy, took Homberg into his ſervice, and aſſigned to him a penſion, with a laboratory fitted up in the completeſt manner. In 1704, the duke made him his firſt phyſician; and in 1708, he married Margaret Angelica Dodart, daughter of M. Dodart, an eminent phyſician. Some years after he was attacked by a dyſentery, of which he died in 1717, at the age of ſixty-three. Beſides being thoroughly verſed in natural philoſophy and chemiſtry, Homberg was well acquainted with hiſtory and with languages. Every thing he wrote diſplays the character of his mind, which was capable of an attention that enabled him to make obſervations which might have eſcaped others. His method of explaining facts was ſimple, but accurate and preciſe. He never publiſhed any large work, but he furniſhed a great many curious and intereſting papers to the Academy of Sciences, which are publiſhed in their Memoirs.

HOM'BURG, a town of Germany, on the Upper Rhine, and in the duchy of Deux Ponts, founded in 1682. It had formerly a caſtle and ſome fortifications, which are now deſtroyed: five miles north-north-weſt of Deux Ponts, and thirty-ſix weſt-north-weſt of Landau. Lat. 49. 21. N. lon. 24. 56. E. Ferro.

HOM'BURG, or HOCH'ENBURG, a town of Germany, in Franconia, and biſhopric of Wurzburg, ſituated on the Maine: fifteen miles weſt-ſouth-weſt of Wurzburg.

HOM'BY, a town of the American States, in Virginia: twenty miles ſouth-ſouth-eaſt of Leeds.

HOME, *ſ.* [ham, Sax.] His own houſe; the private dwelling.—Something like *home* that is not *home* is to be deſired; it is found in the houſe of a friend. *Temple.*

*Home* is the ſacred refuge of our life,
Secur'd from all approaches but a wife. *Dryden.*

His own country.—Their determination is to return to their *homes*, and trouble you no more. *Shakeſpeare.*

At *home* the hateful names of parties ceaſe,
And factious ſouls are weary'd into peace. *Dryden.*

The place of conſtant reſidence:

Flandria, by plenty made the *home* of war,
Shall weep her crime, and bow to Charles reſtor'd. *Prior.*

*Home* united to a ſubſtantive, ſignifies domeſtic, or of the ſame country.—Let the exportation of *home* commodities be more in value than the importation of foreign. *Bacon.*

HOME, *adv.* To one's own habitation.—One of Adam's children lights on a glittering ſubſtance; *home* he carries it to Adam. *Locke.*—To one's own country.—When Mr. Gray left Venice, which he did the middle of July following, he returned *home*. *Maſon's Life of Gray.*—Cloſe to one's own breaſt or affairs.—He that encourages treaſon, lays the foundation of a doctrine that will come *home* to himſelf. *L'Eſtrange.*—This is a conſideration that comes *home* to our intereſt. *Addiſon.*—To the point deſigned; to the utmoſt; cloſely; fully.—Accuſe him *home* and *home*. *Shakeſpeare.*—Men of age object too much, adventure too little, and ſeldom drive buſineſs *home* to the full period; but content themſelves with a mediocrity of ſucceſs. *Bacon.*

Break through the thick array
Of his throng'd legions, and charge *home* upon him.
*Addiſon.*

United to a ſubſtantive, it implies force and efficacy:

Poiſon may be falſe;
The *home* thruſt of a friendly ſword is ſure. *Dryden.*

HOME (David), a diſſenting miniſter in France, deſcended from a reſpectable family in Scotland. He received his education in France, where he was admitted to the miniſtry, and ſettled for ſome time with the Calviniſt church at Duras, in Lower Guienne, and afterwards with that of Gergeau, in the Orleanois. He was employed by James I. king of England, to attempt a reconciliation between the miniſters Tilenus and Du Moulin, who had engaged in a warm conteſt on the ſubject of juſtification; and alſo to attempt the impracticable taſk of uniting all the proteſtant divines in Europe in one ſyſtem of religious belief. The time of his death is unknown The moſt conſiderable of his productions is *Apologia Baſilicæ, ſeu Machiavelli Ingenium Examinatum,* 1626, 4to. There are alſo attributed to him two ſatires againſt the Jeſuits. Several of his poetical compoſitions are printed in the *Deliciæ Poetarum Scotorum.*

HOME (Henry, lord Kames), an eminent Scotch judge, born of an ancient family in the county of Berwick, in 1696. He received his early education in his father's houſe, and at a proper age purſued the ſtudy of the law in the univerſity of Edinburgh. The acuteneſs of his genius, and the ſucceſs with which he applied to profeſſional ſtudies, were diſplayed by a number of publications on the civil and Scotch law, which obtained great applauſe. The firſt of theſe, in 1728, conſiſted of Remarkable Deciſions of the Court of Seſſions; which, in 1741, he augmented into a digeſted view of all the deciſions of the ſame court, in the form of a dictionary, 2 vols. folio. His Eſſays upon ſeveral Subjects in Law, in 1732, exhibited him as a deep thinker upon thoſe topics. In 1757, he publiſhed his uſeful work, The Statute Law of Scotland abridged, with Hiſtorical Notes, 8vo. But the moſt curious of his productions appeared in 1759, under the title of Hiſtorical Law Tracts, 8vo. containing fourteen ſeparate treatiſes upon intereſting ſubjects connected with the judicial and conſtitutional hiſtory of the country. In 1760 he publiſhed Principles of Equity, folio; in 1766 and 1780, he gave additional collections of Deciſions of the Court of Seſſion; and in 1777, Elucidations reſpecting the Common and Statute Law of Scotland. Theſe proofs of indefatigable induſtry and knowledge, juſtly raiſed him to the firſt rank in his profeſſion; and he was advanced, in 1752, to the bench of judges of the court of ſeſſion; on which promotion he took the title of lord Kames.

The inquiſitive and ſpeculative genius of lord Kames, was not however confined to the ſcience of the law. From his youth he had a great turn for metaphyſical diſcuſſions; and maintained a correſpondence on thoſe ſubjects with biſhops Berkeley and Butler, Dr. Clarke, and other eminent logicians. He became an author in this branch in 1752, when he publiſhed Eſſays on the Principles of Morality and Natural Religion. In this ingenious performance, he maintained the doctrine of philoſophical neceſſity, which had become obnoxious by being adopted by writers who rejected revealed religion; and, though he cloſely allied it with the ſtricteſt duties of morality and religion, he underwent many attacks on its account. His Introduction to the Art of Thinking, 12mo. 1761, is accounted a valuable work for young perſons. It conſiſts of maxims and general obſervations on human nature, and the conduct of life, illuſtrated by examples. In 1762, he gave to the public his Elements of Criticiſm, 3 vols. 8vo. a truly original performance, which, diſcarding all arbitrary rules of literary compoſition derived from authority, eſtabliſhes a new theory upon the principles of human nature. The foundation is laid with much metaphyſical acuteneſs, though he ſometimes falls into a ſtrain of over-refinement; but it was well received by the public. He next publiſhed Sketches of the Hiſtory of Man, 2 vols. 4to. 1773; a work of much ingenuity and entertainment, which compriſes many ſubjects of the greateſt importance relative to human life.

Among the purſuits which occupied the time of this ſingularly active perſon, a favourite one was agriculture, which he followed in a practical way, and on a large ſcale. The ideas which theory and experience ſuggeſted to him upon this ſubject, he gave to the public in a work entitled The Gentleman Farmer, being an Attempt to improve Agriculture by ſubjecting it to the Teſt of rational Principles, 8vo. 1777. This book contains ſo many uſeful precepts, the reſult of experience, that it may be conſidered as a valuable addition to the general ſtock of agricultural knowledge. Amid all his purſuits, the habit of writing attended him to the very cloſe of life; and in 1781 he publiſhed Looſe Hints upon Education, chiefly concerning the Culture of the Heart. This publication he did not long ſurvive, dying in December 1782, at the age of eighty-ſix. Lord Kames was as much diſtinguiſhed by his vivacity in converſation, as by the extent of his literary labours; and to a very advanced age he was the life of all companies, in which no topic could be ſtarted above or below his power of diſcuſſion. In all his works he aſſiduouſly traces final cauſes, and adduces them as proofs of the wiſdom and goodneſs of the Creator.

HOME (John), a miniſter in the Scots church, was deſcended of a reſpectable, and formerly illuſtrious, family. He was born in the vicinity of Ancrum, in Roxburghſhire, in 1724, and received the firſt rudiments of education at the parochial ſchool, where the late Dr. Buchan, author of Domeſtic Medicine, was the companion of his ſtudies. It was Mr. Home's inclination, and the deſire of his parents, that he ſhould enter the church: he therefore attended the philoſophical and theological claſſes of the univerſity of Edinburgh for ſeveral years. But his ſtudies were for a while ſuſpended by the public commotions of the year 1745. On the approach of the inſurgents, the citizens of Edinburgh aſſembled, formed themſelves into an aſſociation for the ſupport of their ſovereign, and the defence of their city. Mr. Home was one of about twenty ſtudents of the univerſity who offered their ſervices as volunteers, to act againſt the common enemy. But intimidated by the number of their opponents, or adverſe to the hardſhips of a military life, the college company ſoon diſbanded. Mr. Home, however, retained his arms, and marched with a detachment of the royal army to Falkirk; where, in the battle fought in its neighbourhood, in which the rebels vanquiſhed the king's troops, he was taken priſoner, and confined for ſome time in the caſtle of Doune. From this place of captivity he effected his eſcape; and, the battle of Culloden having blaſted all the hopes of the pretender's adherents, tranquillity and order were ſoon reſtored. Mr. Home reſumed his ſtudies, and was licenſed to preach the goſpel in 1747. About the year 1750, he was ſettled miniſter of the pariſh of Athelſtaneford, in Eaſt Lothian, and was the immediate ſucceſſor of Robert Blair, author of The Grave. Accuſtomed to the buſtle of a city, and the ſociety of men of letters, Mr. Home found himſelf rather diſagreeably ſituated, in an obſcure village, where he had no opportunity of diſtinguiſhing himſelf. From the vicinity of his reſidence to Edinburgh, he was in the practice of frequently reſorting to the capital, to enjoy the company of men of talents. Several of theſe had inſtituted a ſociety for literary and philoſophical diſquiſition, of which Mr. Home was an original and diſtinguiſhed member. This inſtitution comprehended ſeveral of the moſt eminent characters of the day. Among others, were Alexander Wedderburn, afterwards earl of Roſslyn, and lord high chancellor of Great Britain; Ferguſon, the philoſopher; Hume and Robertſon, the hiſtorians; and Blair, the rhetorician and divine; men whom it would be ſuperfluous here to panegyriſe. It was about this period that Mr. Home, in his retirement, began ſeriouſly to court the dramatic muſe. The firſt tragedy he wrote was Agis, founded on a portion of the Lacedæmonian hiſtory. He went to London with the manuſcript, in hopes of getting it introduced on the ſtage, but in this he was diſappointed, inſurmountable objections having been made to the plot. Our poet, not at all diſcouraged by this failure, conceived the plan of another play, laid the plot in Scotland, and made his hero one of his own countrymen. In preſenting this to the London manager, he had the mortification of a ſecond refuſal. Notwithſtanding the abilities of Garrick as a dramatiſt, his opinion of the merit of plays was not infallible. He rejected the tragedy of Douglas, as being too ſimple in its fable, and deſtitute of ſtage effect. By ſuch repeated diſcouragement, the ardour of Home was by no means ſuppreſſed. Being acquainted with the leading characters in Scotland, a ready reception of his play at Edinburgh was ſecured. At the firſt repreſentation of Douglas, at the theatre in Canongate, on the 14th of December 1756, Mr. Home and ſeveral of his clerical brethren were preſent. Of this circumſtance the zealots of the day ſpeedily got notice. That a clergyman ſhould write a play, and that miniſters of the goſpel ſhould witneſs its performance, were crimes unheard of in the annals of the church. The hue and cry of bigotry was immediately raiſed. All that ignorance could conceive, prejudice effect, or malice invent, was tried to ſuppreſs the play in its birth. It was violently decried as a production of immoral tendency, and furniſhing, by its cataſtrophe, an encouragement to ſuicide. The clergy ordered a paſtoral admonition to be delivered from their pulpits, on the ſin and danger of attending the theatre. The author was ſummoned to appear before the bar of the preſbytery; his friends were peremptorily dragged before their tribunal, ſome of them diſmiſſed with cenſure, and others ſuſpended from their office. While ſuch was the ſtate of affairs in Scotland, Douglas having been performed to crowded houſes during the greater part of the ſeaſon, and fully gratifying the moſt ſanguine hopes of the author, it was, through the intereſt of David Hume, brought forward on the London ſtage. Garrick having now diſcovered his miſtake, made unuſual exertions to introduce it to public notice and approbation. It ſoon became a ſtandard tragedy, and maintains its ground on the Britiſh ſtage to the preſent day. The clamours of his enemies having not yet ſubſided in Scotland, Mr. Home, ſeeing no proſpect of overcoming their prejudices, preached his farewell ſermon to his congregation, on the 5th of June 1757. The diſcourſe was ſo pathetic, that it drew tears from moſt of his audience. To prevent further proceedings in the church courts againſt him, he gave in the reſignation of his charge to the preſbytery of Haddington two days after. Before the concluſion of 1757, Mr. Sheridan, then manager of the Dublin theatre, ſent over to Mr. Home a gold medal, with a ſuitable inſcription, acknowledging his ſingular merit in having enriched the Engliſh ſtage with the tragedy of Douglas. With his living, Mr. Home appears for a while to have abandoned his native land; for he now repaired to London, where he produced ſeveral other tragedies, under the patronage of Garrick, who wrote prologues to ſome, epilogues to others, and warmly intereſted himſelf in the fate of them all. But they are all greatly inferior to his Douglas. Agis, the firſt of his dramatic pieces, was finely acted, and aſſiſted by ſpectacle, otherwiſe it is probable that it would not have been performed a ſecond night. His third tragedy was founded on the cruel treatment which the two Setons, ſons of the governor of Berwick, had experienced from the Engliſh. At Garrick's ſuggeſtion, the title was altered (and conſequently the characters, and ſeveral local paſſages) from the Siege of Berwick, to the Siege of Aquileia; for he very naturally conceived, that any national alluſions might tend to foment the jealouſy which then unfortunately ſubſiſted between the Scots and Engliſh. It was acted in 1759. Some of the paſſages are very fine, but upon the whole, it is a tame performance. The Fatal Diſcovery was produced in 1769, and reluctantly permitted during nine nights. Though Alonzo had the advantage of Mrs. Barry's admirable acting, it ſhared the ſame fate; the author mentions in his preface, that ſhe received applauſe greater than ever ſhook a theatre. Mr. Home's laſt production, Alfred, lived only three nights. Lord Bute having repreſented Mr. Home to his majeſty as a man of talents, his name was placed on the penſion-liſt, nearly at the ſame time with that of Dr. Johnſon. He lived in a ſtate of retirement from this period to the time of his death. Nearly half a century after Douglas had been written, when the author had returned to, and was ſettled in, his native country, Maſter Betty, better known by the name of the Young Roſcius, commenced his theatrical labours at Edinburgh, in the character of Young Norval. The author attended the repreſentation, and declared, that that was the firſt time he had ever ſeen the part of Douglas played according to his ideas of the character when he

J. Chapman, Sc.

HOMER.

*Taken from a Gem presented to the British Museum by the Earl of Exeter.*

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conceived and wrote it. Mr. Home, at the advanced age of ſeventy-eight, publiſhed his long-meditated work, entitled, The Hiſtory of the Rebellion in Scotland, in 1745–6, in which he recorded the exploits and remarks of his youth. Of this work it is ſufficient to obſerve, that the principles are juſt, and the opinions liberal. For a conſiderable time prior to his death, Mr. Home's mind, as well as body, ſeemed to be much impaired. He lived in the moſt ſecluded manner, ſo much ſo, that the houſe he inhabited had all the marks of a deſerted dwelling. So long as he continued to poſſeſs ſufficient ſtrength, he uſed to walk for a certain time every day; the moſt acute phyſiognomiſt, however, who met him, could ſcarcely have traced any remains of the author of Douglas. He ſeemed to pay no attention to what was paſſing, and to poſſeſs little more than mere exiſtence. In this diſtreſsful ſtate, he lingered for many years. He died at Merchiſton-houſe, on the 4th of September 1808, in the eighty-fifth year of his age. A life ſo little varied by incident as that of Mr. Home, affords few materials for biography. Fidelity to his friends, and generoſity to his enemies, were conſpicuous traits in his character. As a man of letters, he will be known to poſterity by his tragedies, and eſpecially by his Douglas, which will probably retain a place among the moſt approved compoſitions of that claſs, and will long continue to delight and intereſt on the ſtage as well as in the cloſet.

HO'ME-BORN, *adj.* Native; natural:

Though to be thus elemented, arm
Theſe creatures from *home-born* intrinſic harm. *Donne.*

Domeſtic; not foreign:

Num'rous bands
With *home-born* lies, or tales from foreign lands. *Pope.*

HO'ME-BRED, *adj.* Native; natural.—God hath taken care to anticipate every man, to draw him early into his church, before other competitors, *home-bred* luſts, or vicious cuſtoms of the world, ſhould be able to pretend to him. *Hammond.*—Not poliſhed by travel; plain; rude; artleſs; uncultivated.—Only to me two *home-bred* youths belong. *Dryden.*—Domeſtic; not foreign:

This once happy land,
By *home-bred* fury rent, long groan'd. *Phillips.*

HO'ME-FELT, *adj.* Inward; private:

Happy next him who to theſe ſhades retires,
Whom nature charms, and whom the muſe inſpires,
Whom humbler joys of *home-felt* quiet pleaſe,
Succeſſive ſtudy, exerciſe, and eaſe. *Pope.*

HOME-KEE'PING, *adj.* Staying at home.—*Home-keeping* youth have ever homely wits. *Shakeſpeare.*

HO'ME-MADE, *adj.* Made at home; not manufactured in foreign parts.—A tax laid on your native product, and *home-made* commodities, makes them yield leſs to the firſt ſeller. *Locke.*

HOM'ELEN, a town of Germany, in Weſtphalia, and biſhopric of Liege: four miles weſt of Maeſtricht.

HO'MELILY, *adv.* Rudely; inelegantly.

HO'MELINESS, *ſ.* Plainneſs; rudeneſs; coarſeneſs.—Homer has opened a great field of raillery to men of more delicacy than greatneſs of genius, by the *homelineſs* of ſome of his ſentiments. *Addiſon.*

HO'MELY, *adj.* Plain; homeſpun; not elegant; not beautiful; not fine; coarſe; rude. It is uſed both of perſons and things.—Our ſtomachs will make what's *homely* ſavory. *Shakeſpeare.*—It is for *homely* features to keep home. *Milton.*—It is obſerved that there is none ſo *homely* but loves a looking-glaſs. *South.*

Now Strephon daily entertains
His Chloe in the *homelieſt* ſtrains. *Swift.*

HO'MELY, *adv.* Plainly; coarſely; rudely:

Thus, like the god, his father, *homely* dreſt,
He ſtrides into the hall, a horrid gueſt. *Dryden.*

HO'MER, *ſ.* A Hebrew meaſure of about three pints.—A *homer* of barley-ſeed ſhall be valued at fifty ſhekels of ſilver. *Lev.* xxvii. 16.

HO'MER, the ſublime author of the "Iliad," and the "Odyſſey," ſurnamed the *Prince of Poets,* and the *Father of Poetry.* Yet famous as his works remain, and long cheriſhed as hath been his memory, ſtill his hiſtory lies buried in impenetrable darkneſs. We know not where he was born, nor (with any degree of preciſion) at what time he lived. If we conſider him in the light in which he is tranſmitted to us by ancient writers, we muſt be contented to paſs from one abſurdity to another; and, in the multiplied and contradictory accounts, ſubſtitute fabulous aſſertion for rational narration. It may ſatisfy the ſceptical reader to be informed by Suidas, that no leſs than *ninety* cities claimed the honour of having given him birth. In Euſtathius, we read that he was born in Egypt, and that he was nurſed by a prieſteſs of Iſis, from whom he imbibed honey inſtead of milk. In Heliodorus, that he was the ſon of Mercury. Others aſcribe to him a direct and lineal deſcent from Apollo. But theſe were the extravagant theories of men, who, unable to expreſs how much they admired the poet, have exceeded all bounds of probability in their accounts of him. The mind, apparently dazzled by ſuch excellence, loſes the common idea of the man in the imaginary ſplendour of perfection; and, unwilling that he ſhould ever be mentioned in a language beneath its conception, gives us fable for hiſtory. The poetical genealogy, which may be ſeen in Suidas, proves that the advocates for Greece even ſurpaſſed the others in exaggerated fiction, in proportion as the refinement of the Greeks was ſuperior to that of the Egyptians. Every writer who has pretended to give us an account of Homer, however he may differ from others in his narrative, is equally ſtudious in aſcribing to him a celeſtial origin, and the moſt marvellous adventures. Euſtathius, Heliodorus, Hermias, Diodorus Siculus, Suidas, Plutarch, and Ælian, offered to the mind only confuſed and contradictory compilations of the moſt abſurd allegories. His life ſeems to have been invented, rather than written; and every biographer, in the abſence of regular hiſtory, has not failed to exhibit an hypotheſis of his own. In the poems which are indiſputably Homer's, he has no where ſpoken directly of himſelf; nor was there in his time any hiſtorian (at leaſt, we know of none) to record his name, and the events of his life. Herodotus alone (who, by his own account, lived about 400 years after Homer) has tranſmitted to us ſomething in the form of a probable narrative: but *probable* only in this, that, diveſted of thoſe fabulous deſcriptions and incidents which abound in other writers, it is a ſimple narrative of circumſtances, which might have compoſed the life of any other man, as well as of Homer. It reſts upon as meagre a foundation, and is as little ſupported by authority, as any of the reſt. If, therefore, we ſtate from Herodotus that all he ſays hiſtorically of Homer, it is not becauſe we believe his account to be entitled to greater credit than that of any other ancient.

Homer, according to him, was born at Smyrna, about 106 years after the ſiege of Troy, and 622 before the expedition of Xerxes into Greece. His father is not mentioned: but his mother Crytheis proving with child in conſequence of an illicit connection, ſhe was ſent to Smyrna, a colony from Cuma. Some time after her removal, accompanying a proceſſion of women to a feſtival celebrated near the river Meles, ſhe was unexpectedly delivered of Homer, to whom ſhe gave the name of Meleſigenes, from the place of his birth. In proceſs of time, under the tuition and inſpection of Phemius, who had married his mother, he advanced with ſuch rapidity in all the arts and improvements of his age, and betrayed ſuch extraordinary intelligence, as to become the common wonder, not only of his countrymen, but of all the ſtrangers who reſorted to Smyrna, attracted by its proſperous trade. Homer appears to have poſſeſſed a great deſire of informing himſelf of the manners and cuſtoms of different nations; this he judged would be of conſiderable uſe in the deſign he had formed, of making poetry the great buſineſs of his life. But a defluxion in his eyes, which afterwards occaſioned total blindneſs, compelled him to remain ſome time in Ithaca, where he is ſaid to have collected thoſe ſtories of Ulyſſes which became the ground-work of the Odyſſey. He then returned to Smyrna; where, falling into poverty and neglect, he relieved his neceſſities by begging, and reciting his verſes. At Cuma, in conſequence of ſome ſucceſs in this employment, he was encouraged to addreſs the government for a maintenance; but was anſwered, that if they made it a cuſtom of taking all the Ομηροι, or blind ſtrollers, under their protection, their city would in a little time be filled with ſuch uſeleſs creatures. To this circumſtance the unfortunate bard owed his name. Irritated at his diſappointment, he departed for Phocæa; and, on leaving Cuma, prayed the gods that there might never ariſe among his countrymen a poet to celebrate ſo ungrateful a people. At Phocæa he applied more intenſely to poetry, and obtained the protection of Theſtorides, who promiſed him ſubſiſtence, upon condition that he ſhould be permitted to tranſcribe his poems. But in protecting the poet, he had no other view than to obtain from him as many of his pieces as he could; and, when he had collected a ſufficient number, he departed for Chios, and there opened a ſchool, where he recited the verſes of Homer as his own, and obtained infinitely greater emolument and fame than the original author himſelf. Homer was informed of the ſtratagem, and reſolved to ſail himſelf for Chios to detect the impoſture. But he remained ſome time at Boliſſus, where he compoſed ſeveral of his lighter pieces, particularly the Batrachomyomachia. At Chios he met with unuſual ſucceſs; and, after defeating the iniquitous project of Theſtorides, he himſelf maintained a flouriſhing ſchool. Having now attained ſome degree of eaſe in his circumſtances, he married, and continued at Chios for ſome years. It was then that he is ſuppoſed to have written his greater poems; and his fame, no longer confined to Ionia, quickly ſpread into Greece. Having complimented the city of Athens in ſome of his verſes, he received an invitation to viſit it, which he accepted; and paſſed a winter at Samos, in his way thither. In the ſpring he ſailed again for Athens; but landing at Ios, he was taken ill, died, and was buried on the ſea-ſhore.

Such is, briefly, the account we have of Homer by Herodotus. But this is attributing to him a ſtrange anachroniſm, of which he could ſcarcely have been guilty: by placing Homer 622 years before the expedition of Xerxes; whereas he himſelf, who was alive at the time of that expedition, tells us, in his hiſtory, that Homer lived only 400 years before him. This ſingular inconſiſtency has been noticed by various modern writers; but has not ſerved to convince them of the impoſſibility of ever aſcertaining the age in which Homer lived, nor prevented them from advancing the moſt ſingular paradoxes in ſupport of their opinions. In general, they ſeem to take their riſe from an error common to both ancient and modern critics, of aſcribing to Homer a much earlier period than that in which he really exiſted. What has chiefly led them into a belief of this high antiquity of the poet, has been the ſimple, rough, and often ſavage, manners of his heroes; and a groundleſs ſuppoſition, that he has deſcribed the cuſtoms prevalent in his own age. It has been ſuggeſted, that the firſt intereſting ſtories he had heard when a boy were of the exploits at Troy, and that he had finiſhed both his poems about half a century after the town was taken. But the manners which he deſcribes cannot be adduced as a proof of the age in which he lived; for, by the rules of his art as an epic poet, it would have been abſurd if, writing of an ancient event, he had not adapted the characters of his perſonages to the times in which he laid the plan of his poems. Virgil, who wrote ſo long after him, gives the ſame ſimple manners to his heroes. All tragic poets, in ancient and in modern times, have endeavoured to ſuit the manners and ſentiments of their characters, to the country and the era in which they are ſuppoſed to have lived. Why then ſhould we ſuppoſe that Homer might not do the ſame? and that, though living himſelf in a poliſhed age, he had the good ſenſe not to aſcribe to the rough warriors of Ilium the refined manners of his own contemporaries. It was eaſier for him to give to his heroes the leſs poliſhed caſt of an age long before his own, than to have anticipated, in idea, a ſtate of refinement in language, in metre, and in the arts, which Greece could not have attained till a conſiderable time after. There are ſuch internal evidences in his poems of refinement, as ſtand in direct contradiction to the roughneſs of his characters. The invocation of the Muſes in the ſecond book, demonſtrates that he lived long after the ſiege of Troy; and this would ſeem almoſt incontrovertibly corroborated by an expreſſion which he uſes, and which has been noticed by Velleius Paterculus, "that mankind was but half ſo ſtrong in his age, as in that of which he wrote." This expreſſion, grounded on the ſuppoſed gradual degeneracy of our nature, diſcovers the long interval between the poet and his ſubject. The various articles of elegance and luxury deſcribed in the Odyſſey, betray a much later age than is uſually aſſigned him; and infer that he muſt have lived in more civilized times than can be conſiſtent with the ſimplicity which he attributes to his heroes. The appearances of luxury and elegance in the Æneid, are nothing compared to thoſe in Homer; and, although the Greek orders of architecture might not then be invented, yet the ideas of magnificence conſpicuous in his palaces, might have been borrowed from the practice of much later periods than thoſe he deſcribes, from times more poliſhed in arts, as well as more civilized in manners.

This concluſion will appear the more reaſonable, when we conſider the language of Homer, which, with the exception of a few words, is equal to the Greek of the preſent times. The formation of the language into tenſes, caſes, and numbers, was already perfect and completed. This evidently proves that the Greeks had, long before his time, arrived at a conſiderable ſtate of improvement. It was impoſſible that the language ſhould attain ſuch excellence, as to require little amendment or addition, unleſs thoſe who ſpoke it had alſo acquired equal excellence in the arts of ſocial life, and of civil government. It is the real perception of things, which gives birth to their reſpective ideas in the mind, and theſe again to outward expreſſions, by words combined into ſignificant ſentences. That the uſe of a language to expreſs all the improvements of civilization, ſhould precede the actual birth and progreſs of civilization itſelf, is a paradox that no man can urge that has not adopted ſome hypotheſis inconſiſtent with the real truth. Homer certainly wrote in the dialect which prevailed in Aſia, down to the moſt improved times of the Grecian colonies there. And we cannot ſuppoſe that the language of thoſe Ionic ſettlers, ſhould become any ways fixed and pure, till long after the ſettlement of the coloniſts themſelves. But, without entering any further into this diſpute, it is enough to ſay, that we muſt ſtill have recourſe to the Arundelian marble, which affords the beſt computation of thoſe early ages; and this, by placing Homer when Diognetus ruled in Athens, makes him flouriſh a little before the Olympiads were eſtabliſhed; about three hundred years after the taking of Troy, and one thouſand before the Chriſtian era.

The queſtion reſpecting the country of Homer, is one of ſtill greater difficulty. The internal evidence of the poems may, and, as we have ſeen, occaſionally do, ſerve to contradict thoſe aſſertions, which aſſign him a period inconſiſtent with the elegance of his language, and the refinement of his ideas. But the number of places which have diſputed the honour of having given him birth, renders it impoſſible, at this diſtance of time, ſatisfactorily to aſcertain the preciſe place. To mention all the cities and provinces which ſeverally ſet up a claim, to collect all the ridiculous aſſertions and documents which have been advanced as proofs from each, would require the minute curioſity and patient elaboration of his ancient commentator Didymus. If the queſtion was involved in ſo much obſcurity, as to induce the emperor Adrian to apply to the gods themſelves for an explanation, it was not to be expected that all the efforts of the critics ſhould be able to elucidate it. To direct us in this inquiry, we have no certain guide in the poems themſelves. The city of Smyrna, and the iſland of Chios, appear to preſent the leaſt objectionable claims to the honour for which they contended. Of the numerous candidates, theſe are the only two, whoſe pretenſions can be ſeriouſly examined. Each had its authors to record its title. The inhabitants of Chios relied on the teſtimony of Simonides and Theocritus. They had their Homeridæ, whom they conſidered as the deſcendants of Homer, and a temple erected to his memory in the environs of Boliſſus. They could boaſt the indirect authority of Thucydides, who aſcribes to him the Hymn to Apollo, in which he repreſents himſelf as the blind man inhabiting Chios. Leo Allatius, who wrote expreſsly on this ſubject, after weighing the pretenſions of all the candidates, decides for Chios. But the claim of Smyrna was ſtill better founded. All the profeſſed lives of Homer, by Herodotus, Plutarch, and Proclus, concur in repreſenting him as a native of that city. This is confirmed by the general belief afterwards entertained, and expreſſed in the different writings of Cicero, Strabo, and A. Gellius. Indeed ſo violent were the Smyrnæans in maintaining this honour, that it was neceſſary for all, who wiſhed to eſcape the fate of Zoilus, to give it implicit credit. But the claim of Smyrna admits, we think, a ſtill clearer proof from the poems themſelves, which abound in metaphorical deſcriptions, congenial to a native of Aſia. The earth reſounding with the march of the army, like the thunders of Jove on the mountain which covered the giant Typhœus; the deſcription of a wind, blacker than night, ſhooting along the air with tempeſts in its train;—of inſatiate Diſcord beſtriding the earth, and lifting its head into the ſkies;—theſe, and many other ſuch images, which are to be found in the Iliad, atteſt their Aſiatic origin, and do not accord with what we may preſume to have been the chaſter ſtyle and ſeverer manners of the Greeks of that age.

It has been much agitated by modern critics, whether the art of writing was known in Homer's time; and, if not, by what means a poem of ſuch length was originally preſerved, and has ſince been ſo miraculouſly handed to poſterity, in its preſent ſtate. That ſuch a poem could have been ever retained in the memory of man, and thus, by oral tradition alone, be tranſmitted from one generation to another, it is impoſſible to aſſert. It is equally difficult to contend, that the works of Homer were collected together at different times, and in detached portions, and that they were not finally completed till at a very late period, and with very conſiderable difficulty. There is a connection throughout the Iliad at leaſt, a clear deduction of events, a *lucidus ordo* in the arrangement and diſtribution of all its parts, that effectually deſtroy ſuch a ſuppoſiton, and make it no preſumption to ſay, that the poem is nearly ſuch as it came from the pen or dictation of its author. If we adopt the common notion, that Homer was accuſtomed to ſing or recite his poems in the aſſemblies of the Greeks, and that the frequency of ſuch recitals imprinted them on the memory of his auditors; we are not at liberty to reject other paſſages of his ſuppoſed life, equally improbable and uncertain. That ſuch a cuſtom was familiar in the earlier ages of Orpheus, Linus, and Muſæus, is poſſible, and is confirmed by the fact, that, of theſe poets, the works of the two laſt are entirely loſt, and of the firſt we have only ſome trifling fragments. But in placing Homer at a later period, a period of greater civilization, and when the art of writing was known and cultivated, it is no longer neceſſary to reſort to ſuch tales, to account for the preſervation of his works. And if it be urged, that of the twenty-four letters of the Ionic alphabet, only twenty were known in Homer's time, it may be contended that the four letters afterwards added by Simonides were not eſſential to pronunciation; two of them being the vowels H and Ω, to diſtinguiſh theſe long ſounds from the ſame vowels E and O; the other two were Z and Ψ, the ſounds of which could juſt as well have been expreſſed by Σ and ΠΣ, as the S is even ſtill in Engliſh, French, and Italian, often pronounced like Z, though all theſe languages have the character Z to denote its particular ſound. The want therefore of theſe four letters was no impediment to Homer's knowing the Greek alphabet as well as we do. And when it is recollected, that he was ſuppoſed to be a native of Ionia, a province on the confines of Perſia, and other eaſtern nations, where the arts and ſciences were earlier cultivated than in Greece, it is reaſonable to ſuppoſe, as far as any hypotheſis can now be eſtabliſhed, that the Iliad and the Odyſſey, the only poems which can with any certainty be attributed to him, immediately, or very ſoon, received that form in which we now ſee them; and were preſerved by the admiration of cotemporaries and of ſucceeding ages, by multiplied copies and tranſcriptions. It is to this anxiety to preſerve unimpaired the writings of Homer, ſays the learned Wolfius, that we are indebted for their preſent perfection; while the works of ſo many and more recent authors have deſcended to us imperfect, or are irrecoverably loſt.

It has been generally ſuppoſed that Lycurgus, the great legiſlator of Lacedæmon, was the firſt who introduced theſe poems into Greece. It is pretended by Plutarch, that he had the firſt ſight of Homer's poems while travelling in Aſia, and that he obtained them from the deſcendants of Creophilus, a ſuppoſed cotemporary and companion of Homer. Lycurgus, in the view he entertained of giving a new ſyſtem of laws to his countrymen, might probably ſuppoſe that poetry would have great effect in influencing and civilizing their minds; and this idea had already engaged him to patronize the ſongs of Thales the Cretan, which inſpired obedience and concord. As the conſtitution he meditated was to be entirely of a martial nature, the poems of Homer might be of conſiderable uſe to him: they encouraged his deſign, the moral they inculcated was unity, the air they breathed was military, and their ſtory had this particular recommendation to the Spartans, that they ſhowed Greece in arms, and Aſia ſubdued, under the banners and conduct of one of their own monarchs, who commanded all the Grecian kings. For three centuries after the time of Lycurgus, we collect nothing concerning them. Athens at length claimed the honour of reſcuing the father of letters from the injuries of time, and of reſtoring Homer to himſelf. In the days of Solon his works were divided into two diſtinct poems, and received the arrangement in which we now behold them. This diviſion of the two poems into one, and of each into books, has been attributed by Plato to Hipparchus, the ſon of Piſiſtrates, though Cicero gives the honour entirely to Piſiſtrates himſelf; and this is confirmed by Pauſanias, Joſephus, Ælian, and Suidas. From this period, we are enabled to ſpeak of them with hiſtorical certainty, without having recourſe to conjectures. The works of this great poet now became the care of kings. Alexander aſſiſted at a ſtrict review of them by Anaxarchus and Calliſthenes; either becauſe he probably conſidered them as a treaſure of military knowledge; or, as has been conjectured, he promoted the propagation of them, as a book, which, treating of the ſons of the gods, might make the intercourſe between them and mortals become a familiar notion, at a time when he himſelf was ambitious of being thought the ſon of Jupiter. See the article ALEXANDER, vol. i. p. 268.

Egypt, under the Ptolemies, was the country which afterwards held the works of Homer in the greateſt eſteem. Theſe kings were deſcended from Greece, and retained a paſſionate veneration for their original country. They encouraged letters, and erected the greateſt library in the world. A number of learned men were appointed to reviſe the writings of Homer. The firſt of theſe was Zenodotus, librarian to the firſt Ptolemy; and, as a poet and grammarian, well qualified for the undertaking. But, according to Suidas, Ariſtarchus, the preceptor of Ptolemy Euergetes, not being ſatisfied with this copy, nor with that of his diſciple Ariſtophanes, determined to begin another. He reſtored ſome verſes to their former reading, rejected others, which he marked with obeliſks as ſpurious, and proceeded with ſuch induſtrious accuracy, that, notwithſtanding there were ſome who wrote againſt him, poſterity has generally acquieſced in it. So highly eſteemed was this copy, that the name of Ariſtarchus was applied to every candid and judicious critic; while that of Zoilus, who about the ſame time wrote many envious and ill-natured criticiſms on Homer, has been treated with merited contempt. It was not only in Egypt, but, ſays Suidas, Syria and other parts of Aſia became familiar with the name and poems of Homer; which at length, according to Ælian, extended even to Perſia and India.

"But theſe poems, (ſays a recent author,) ſo long and ſo highly valued and eſteemed, ſuffered a material depreciation on the appearance of Chriſtianity. The idolatry which had infected the globe, was now to be deſtroyed; and the ſyſtem of mythology, of which Homer appeared to be the father, was equally to be aboliſhed. Not only was his fame in a great degree impaired, but he was conſidered by the rigid fathers of the Chriſtian church, as the man by whom the world had been betrayed into folly and error. He is accuſed by Juſtin Martyr, of having wilfully ſuperinduced his own fables on the inſpired writings of Moſes. The rebellion of the giants was thought to be taken from the preſumptuous erection of the tower of Babel, and the caſting of Ate, or ſtrife, out of heaven, was compared with the fall of Lucifer. His fineſt beauties were conſidered only the more pernicious, as favouring thoſe errors which had ſo long miſled the minds of men, and derogatory to that purer faith, which it was intended to eſtabliſh. Thus the reading of Homer was diſcouraged or forbidden, and himſelf reprobated as the great maſter of hereſy and fable. It has been remarked that St. Auſtin, in applying the expreſſion *dulciſſimè vanus*, to Homer, parted with regret from the peruſal of an author who had probably been the delight of his younger days, and that, though his zeal urged him to reprobate the heathen writers, his underſtanding was not blind to the ſuperior beauties of the poem he condemned. But when every religious diſpute had ceaſed, and the nations of the earth bowed with ſubmiſſion and reverence to the ſuperior efficacy of the Chriſtian faith; after many ages of darkneſs, when literature ſeemed extinguiſhed, and ſcience lay dormant, the name and poems of Homer again revived. The effect of his fables and fictions on the ſentiments of mankind was no longer dreaded. His mythology came to be conſidered as only a beautiful machinery by which any poet might be allowed to enliven the obſcurity, or obviate the ſterility, of his ſubject. They were no longer viewed in a religious light; but were valued for their principles and maxims of civil government and life, which might be applied to every age. And, notwithſtanding the mild cenſure of Plato, the extravagant abuſe of Scaliger, and the impotent attacks of more recent critics, they appear to have re-aſſumed their dignity in the world, and fixed themſelves on a baſis which it is not in the power of time to injure or remove."

In enumerating the editions of Homer, we ſhall only mention thoſe which include the Iliad and the Odyſſey, as being the only productions of that immortal poet that are admitted to be genuine; and thoſe editions only which are conſidered the beſt. The firſt in propriety is the Ilias & Odyſſea, Gr. fol. Editio Princeps, 1488, in the Britiſh Muſeum.—Another copy, with the Greek Scholia, 4to. Baſil, 1535, 1543, 1551.—Ilias & Odyſſea, Gr. and Lat. with the Scholia, 2 vols. 4to. Amſt. 1656; a very beautiful and correct edition.—Ilias & Odyſſea, by Barnes, 2 vols. 4to. Cantab. 1711. Dr. Barnes ſpent his whole fortune on this publication, which maintains its diſtinction, not merely from its magnitude and the erudition of the editor, but from the complete Greek Scholia ſubjoined to the text.—Homeri Opera, Oxon. Gr. Ilias, 8vo. 1714; Odyſſea, 1705. This is one of the moſt correct editions of Homer.—Homeri Opera, Gr. and Lat. cum nova verſione & notis Sam. Clarke, London, 2 vols. 4to. 1729–1740. If this edition had the Scholia, it would be preferable to that of Barnes.—Ilias & Odyſſea, Gr. 2 vols. fol. Glaſgow, 1758. One of the moſt ſplendid editions, as well as the moſt correct. Mr. Lunn, of Soho-ſquare, has a ſuperb copy of this edition, with deſigns by Flaxman, and magnificently bound by Staggemeier.—Ilias & Odyſſea, Oxon, 1780, 5 vols. large 8vo. with the Hymns and Index complete, alſo ſome of the more valuable Scholia: a beautifully printed book.—Iliad and Odyſſey, with notes, by Wakefield, 11 vols. London, 1796.—Homeri Opera, cura F. A. Wolfii, Hal. Sax. 1794–1805, with the excellent Prolegomena.—Homeri Carmina, cura C. G. Heyne, Lipſ. 8 vols. 1802.

As to the particular merits of Homer and his works; and the beauties and defects of the machinery whereon he has conſtructed the Iliad, much difference of opinion prevails. Conſiderable cenſure has been induced, by the unnatural mixture of gods with men; and becauſe the object of the poem is to immortalize an event inglorious in its origin, and to inflame the human mind with thoſe lofty ideas of battles and warfare, which are often deſtructive of the peace of ſociety.

In anſwer to theſe objections, La Harpe, in his "Lectures at the Lyceum," contends, "That it is the buſineſs of a poet to elevate vulgar minds above the groveling ideas of men, by every analogy to the refinement and virtues of ſupernatural beings; and to thoſe who are not contented with the gods of Homer, we may ſay: What would you have had him do? could he frame a mythology different from that of his country, and delineate other manners than thoſe which he knew to ſubſiſt? It is indiſputable that, in thoſe heroic times, muſcular force was the chief qualification of combatants; who being covered with braſs and iron, he who could eaſily ſupport the ſtrongeſt and moſt weighty armour, give the moſt vigorous blow, and pierce the cuiraſs and buckler of his antagoniſt with the greateſt force, was a formidable being, a hero. This quality, once acknowleged, ſettled his pretenſions and his rank; and thus we may account for our frequently finding one very brave warrior in the Iliad, confeſſing that another is his ſuperior, and retreating from his preſence. In Homer, Æneas is not aſhamed to ſay to Achilles: "I know very well that thou art more valiant than I am;"—which means no more than, I know that that thou art the ſtrongeſt. It it true that he adds: "yet, if ſome god protect me, I ſhall vanquiſh thee;" and this is the moſt general principle throughout the Iliad; every thing proceeds from the *gods*—ſtrength, wiſdom, and ſucceſs. Achilles ſays to Patroclus: "Avoid attacking Hector; he has always near him ſome guardian *god* who protects him." There is not one hero in the Iliad, Achilles excepted, who does not retreat before another. Thoſe who are the moſt brave (Diomede and Ajax) are diſtinguiſhed by retiring fighting; and it is obſervable, for the honour of the poet, that, notwithſtanding this divine aſſiſtance, which ſeems to confound all degrees of heroiſm, he preſerves a grandeur of character in all his perſonages, ſuitable to the repreſentation which he gives of them."

The Rev. Dr. Blair, F.R.S. and Profeſſor of Rhetoric and Belles Lettres in the univerſity of Edinburgh, thus celebrates the immortal bard:

"Homer claims, on every account, our firſt mention, as the father not only of epic poetry, but, in ſome meaſure, of poetry in general. Whoever ſits down to read Homer, muſt conſider that he is going to read the moſt ancient book in the world, next to the Bible. Without making this reflection, he cannot enter into the ſpirit, nor reliſh the compoſition, of the author. He is not to look for the correctneſs and elegance of the Auguſtan age. He muſt diveſt himſelf of our modern ideas of dignity and refinement, and tranſport his imagination almoſt three thouſand years back in the hiſtory of mankind. What he is to expect, is a picture of the ancient world. He muſt reckon upon finding characters and manners that retain a conſiderable tincture of the ſavage ſtate; moral ideas, as yet, imperfectly formed; and the appetites and paſſions of men brought under none of thoſe reſtraints, to which, in a more advanced ſtate of ſociety, they are accuſtomed; but bodily ſtrength, prized as one of the chief heroic endowments; the preparing of a meal, and the appeaſing of hunger, deſcribed as very intereſting objects; and the heroes boaſting of themſelves openly, ſcolding one another outrageouſly, and glorying, as we ſhould now think very indecently, over their fallen enemies.

"The ſubject of Iliad, muſt unqueſtionably be admitted to be, in the main, *happily choſen*. In the days of Homer, no object could be more ſplendid and dignified than the Trojan war. So great a confederacy of the Grecian States under one leader, and the ten-years ſiege which they carried on againſt Troy, muſt have ſpread far abroad the renown of many military exploits, and intereſted all Greece in the traditions concerning the heroes who had moſt eminently ſignalized themſelves. He has not choſen for his ſubject the whole Trojan war; but, with great judgment, he has ſelected one part of it, the quarrel betwixt Achilles and Agamemnon, and the events to which that quarrel gave riſe; which, though they take up forty-ſeven days only, yet include the moſt intereſting and moſt critical period of the war. By this management, he has given greater unity to what would have otherwiſe been an unconnected hiſtory of battles. He has gained one hero, or principal character, Achilles, who reigns throughout the work; and he has ſhown the pernicious effect of diſcord among confederated princes. At the ſame time, I admit that Homer is leſs fortunate in his ſubject than Virgil. The plan of the Æneid includes a greater compaſs, and a more agreeable diverſity of events; whereas the Iliad is almoſt entirely filled with battles.

"The praiſe of high invention has, in every age, been given to Homer, with the greateſt reaſon. The prodigious number of incidents, of ſpeeches, of characters *divine* and human, with which he abounds; the ſurpriſing variety with which he has diverſified his battles, in the wounds and deaths, and little hiſtory-pieces of almoſt all the perſons ſlain, diſcover an invention next to boundleſs. But the praiſe of judgment is, in my opinion, no leſs due to Homer, than that of invention. His ſtory is all along conducted with great art. He riſes upon us gradually; his heroes are brought out, one after another, to be objects of our attention. The diſtreſs thickens, as the poem advances; and every thing is ſo contrived as to aggrandize Achilles, and to render him, as the poet intended he ſhould be, the capital figure.

"But that wherein Homer excels all writers, is the characteriſtical part. Here, he is without a rival. His lively and ſpirited exhibition of characters, is, in a great meaſure, owing to his being ſo dramatic a writer, abounding every where with dialogue and converſation. It is under the head of characters, that Homer's gods, or his machinery, according to the critical term, come under conſideration. The gods make a great figure in the Iliad; much greater indeed than they do in any other epic poem; and hence Homer has become the ſtandard of poetic theology. Concerning Homer's machinery, we muſt obſerve, that it was not his own invention. Like every other good poet, he unqueſtionably followed the traditions of his country. The age of the Trojan war approached to the age of the gods, and demi-gods, in Greece. Several of the heroes concerned in that war, were reputed to be the children of theſe gods. Of courſe, the traditionary tales relating to them, and to the exploits of that age, were blended with the fables of the deities. Theſe popular legends Homer very properly adopted; though it is perfectly abſurd to infer from this, that therefore poets ariſing in ſucceeding ages, and writing on quite different ſubjects, are to follow the ſame ſyſtem of machinery.

"In the hands of Homer, it produces, on the whole, a noble effect; it is always gay and amuſing; often lofty and magnificent. It introduces into his poem a great number of perſonages, almoſt as much diſtinguiſhed by characters as his human actors. It diverſifies his battles greatly by the intervention of the gods; and, by frequently ſhifting the ſcene from earth to heaven, it gives an agreeable relief to the mind, in the midſt of ſo much blood and ſlaughter. Homer's gods, it muſt be confeſſed, though they are always lively and animated figures, yet ſometimes want dignity. In the deſcription of battles, Homer particularly excels. He works up the hurry, the terror, and confuſion, of them in ſo maſterly a manner, as to place the reader in the very midſt of the engagement. It is here, that the fire of his genius is moſt highly diſplayed; inſomuch, that Virgil's battles, and thoſe of moſt other poets, are cold and inanimated in compariſon of Homer's.—M. la Motte, indeed, endeavours to bring the merit of the Iliad very low. But his principal objections turn on the debaſing ideas which are there given of the gods, the groſs characters and manners of the heroes, and the imperfect morality of the ſentiments; but this, as Voltaire obſerves, is like accuſing a painter for having drawn his figures in the dreſs of the times. Homer painted his gods, ſuch as popular tradition then repreſented them; and deſcribed ſuch characters and ſentiments, as he found among thoſe with whom he lived."

The compariſon of the "Iliad of Homer" with the "Paradiſe Loſt" of Milton, as recently given by the Rev. George Walker, F. R. S. in the firſt volume (new ſeries) of the Mancheſter Tranſactions, may be worth the reader's notice.—"Theſe poems are not unlike in ſeveral reſpects. As Homer's has been obſerved to be the hiſtory of gods, Milton's may be ſaid to be that of devils. The gods of the one, and the devils of the other, are nearly of equal credit; the former altogether, and the latter for the greater part, being the creatures of a popular and fabulous ſuperſtition. Homer had his Pantheon, Milton his Pandæmonium, each their courts and councils, and each a ſupreme regent. But wherein they differ, the difference is immenſe in the eſtimation of the two poems, with reſpect to their ſupernatural machinery. Willing or unwilling, man was ſubject to the caprice and violence of Homer's gods, and theſe gods uſurped over the whole field of human action:—while only by the conſent of his own will could man be ſubjected to the influence of Milton's devils; and, if ſuffering under this influence, had ſtill his refuge in an almighty, wiſe, and beneficent, Being. From the tyranny of Homer's gods, man had no refuge whatever. In the court of Homer's heaven, all was diſcord and miſrule; god was oppoſed to god, and all the pretended power of Jove was impotent to reconcile the contending deities, or by awe reduce them to ſubmiſſion. Milton's Satan was truly ſovereign, and an union of ſentiment and deſign pervaded the whole of his gloomy domain. Milton's devils, though wicked beyond the ſtile of Homer's gods, are uniformly grand, they exhibit that ſublime of terrific which the epic aſpires to. Homer's gods, though wicked enough, are as fooliſh and freakiſh as they are wicked; they are not ſuperior to what we may conceive of the loweſt rabble in Milton's hell. I enter not into the heaven of Milton; and, perhaps, it would have been as well, if he had not ſo familiarly unveiled that ſacred region. But there Homer preſents no parallel, and the compariſon fails. The picture of man alſo in the two poems is greatly in favour of Milton, and ſhows the advantage which is derived to the mind that has received a purer and nobler faith. Indeed to illuſtrate this advantage, and by contraſt excite a ſtronger impreſſion of the *meanneſs*, and *groſſneſs*, and *worthleſſneſs*, of Homer's ſupernatural machinery, was my direct view in this compariſon."

Of Homer's philoſophical *judgment*, Mr. Knight, in his Inquiry into the Principles of Taſte, ſpeaks as follows: "The author of the Iliad has deſcribed with aſtoniſhing accuracy every thing, in which error or inaccuracy might be detected, either by experience or demonſtration. The ſtructure of the human body; the effects of wounds; the ſymptoms of death; the actions and manners of wild beaſts; the relative ſituations of cities and countries; and the influence of winds and tempeſts upon the waters of the ſea, are all deſcribed with a preciſion, which, not only no other poet, but ſcarcely any technical writer upon the reſpective ſubjects of anatomy, hunting, geography, and navigation, has ever attained. The hyperboles are all in the actions of his gods and heroes; in which, exaggeration could not be detected; but in every object and every circumſtance, which it was poſſible for his audience practically to know, the moſt ſcrupulous exactneſs, in every minute particular, is religiouſly obſerved. There are near twenty deſcriptions of the various effects of wind upon water; all different, and all without one fictitious or exaggerated circumſtance; no *fluctus ad ſidera tollit*, or *imo conſurgit ad æthera fundo*, which even Virgil, the moſt modeſt of his imitators, has not avoided; but the common occurrences of nature, raiſed into ſublimity by being ſelected with taſte, and expreſſed with energy."

With reſpect to the tomb of Homer, which has been celebrated for ſo many ages in the the iſland of Ios, or Nios, M. Heyne, of Gottingen, from a recent examination on the ſpot, has ſatisfactorily ſhown, that this monument repreſents the life of Achilles. On one of its four ſides, that hero appears receiving the inſtructions of the Centaur Chiron in archery; on another, he is teaching the daughters of Lycomedes to play on the lyre; on the third, he is diſcovered by the art of Ulyſſes; and the fourth ſide, exhibiting the fight of two Centaurs with a lion and a lioneſs, may be conſidered as an emblem of the battles deſcribed in the Iliad. M. Heyne relates, from poets and mythologiſts, the various events in the life of Achilles repreſented on this monument; which he compares with the very few remains of antiquity that relate to the ſame ſubjects. It is not improbable that the inhabitants of Ios erected it, in order to maintain their pretenſions to the poſſeſſion of the aſhes of Homer; thinking the life of Achilles was a ſubject very proper to be repreſented on the tomb of his encomiaſt.

HO'MER, a military townſhip of the American States, in Onondaga county, New York, ſituate on the head waters of the north-weſt branch of Chenengo river.

HOME'RIC, or HOMERICAL, *adj.* Belonging to Homer, deſcribed by Homer.

HO'MERITE, one of a certain race of Arabian kings.

HOM'FELD, a town of Germany, in Weſtphalia, and county of Lippe: nine miles eaſt of Lemgow.

HO'MESOKEN, *ſ.* An old law term, the privilege which a man has in his own houſe, the ſecurity a man enjoys in his own houſe which ought not to be invaded; the crime of aſſaulting a man in his own dwelling.

HO'MESPUN, *adj.* Spun or wrought at home; not made by regular manufacturers:

Inſtead of *homeſpun* coifs were ſeen
Good pinners edg'd with colberteen. *Swift.*

Not made in foreign countries.—He appeared in a ſuit of Engliſh broad-cloth, very plain but rich: every thing he wore was ſubſtantial, honeſt, *homeſpun*, ware. *Addiſon.*—Plain; coarſe; rude; homely; inelegant.—We ſay, in our *homeſpun* Engliſh proverb, He killed two birds with one ſtone. *Dryden.*

Our *homeſpun* authors muſt forſake the field,
And Shakeſpeare to the ſoft Scarlatti yield. *Addiſon.*

HO'MESPUN, *ſ.* A coarſe, inelegant, rude, untaught, ruſtic, man. *Not in uſe.*

What hempen *homeſpuns* have we ſwaggering here,
So near the cradle of the fairy queen? *Shakeſpeare.*

HO'MESTALL, *ſ.* [*home* and *ſtall.*] An incloſed yard to fodder cattle in near a houſe:

Through ev'ry *homeſtall* and through ev'ry yard
(His midnight walks) panting, forlorn he flies. *Somerville.*

HO'MESTEAD, *ſ.* [ham, and ſtede, Sax.] The place of reſidence; the houſe:

Both houſe and *homeſtead* into ſeas are borne,
And rocks are from their own foundations torn. *Dryden.*

HO'MI, a town of China, of the ſecond rank, in the province of Yun-nan: 1203 miles ſouth-ſouth-weſt of Peking. Lat. 23. 44. N. lon. 120. 48. E. Ferro.

HOMICI'DAL, *adj.* [from *homicide.*] Murderous; bloody:

The troop, forth iſſuing from the dark receſs,
With *homicidal* rage, the king oppreſs. *Pope.*

HOM'ICIDE, *ſ.* [*homicide*, Fr. *homicidium*, Lat.] Murder; manquelling.—Homicide, by the law of England, is of three kinds; juſtifiable, excuſable, and felonious. The firſt has no ſhare of guilt at all; the ſecond very little; but the third is the higheſt crime againſt the law of nature that a man is capable of committing. 4 *Blackſt. Comm. c.* 14.

1. JUSTIFIABLE HOMICIDE may be owing to ſome unavoidable neceſſity, without any will, intention, or deſire, and without any inadvertence or negligence, in the party killing, and therefore without any ſhadow of blame.—Homicide is juſtifiable where an officer, in the execution of his office, either in a civil or criminal caſe, kills a perſon that aſſaults and reſiſts him. 1 *Hal. P. C.* 494. Alſo where an officer, or any private perſon, attempts to take a man charged with felony, and is reſiſted; and, in the endeavour to take him, kills him. Likewiſe a riot, or rebellious aſſembly, the officers endeavouring to diſperſe the mob are juſtifiable in killing them, both at common-law, and by the riot-act, ſtat. 1 Geo. I. c. 5. And in caſe a ſtranger interpoſes to part the combatants in an affray, giving notice to them of that intention, and they aſſault him; if in the ſtruggle he ſhould chance to kill, this would be juſtifiable homicide; for it is every man's duty to interpoſe for the preſervation of the public peace, and for the prevention of miſchief. *Foſt.* 272. Where the priſoners in a gaol, or going to gaol, aſſault the gaoler or officer, and he in his defence kills any of them, it is juſtifiable, for the ſake of preventing an eſcape. 1 *Hal. P. C.* 496. If treſpaſſers in foreſts, parks, chaſes, or warrens, will not ſurrender themſelves to the keepers, they may be ſlain, by virtue of the ſtat. 21 Edw. I. ſt. 2. *de malefactoribus in parcis*; and 3 and 4 Will. and Mary, c. 10. If a perſon having actually committed felony will not ſuffer himſelf to be taken, but ſtand on his own defence, or fly, ſo that he cannot poſſibly be apprehended alive by thoſe who purſue, whether private perſons or public officers, with or *without* a warrant from a magiſtrate, he may be lawfully ſlain by them. So if even an innocent perſon be indicted of a felony, where no felony was committed, yet, if he will not ſuffer himſelf to be arreſted by an officer who has a warrant, he may be lawfully killed; for there is a charge againſt him on record, to which he is bound at his peril to anſwer. 1 *Hawk. P. C. c.* 28. Where a ſheriff, &c. attempting to make a lawful arreſt in a civil action, or to retake one who has been arreſted and made his eſcape, is reſiſted by the party, and unavoidably kills him in the affray, it is juſtifiable homicide. 1 *Rol. Rep.* 189. And in ſuch caſe the officer is not bound to give back, but may ſtand his ground and attack the party. 1 *Hawk. P. C. c.* 28. But no private perſon of his own authority can arreſt a man for a civil matter, as he may for felony, &c. Neither can the ſheriff himſelf lawfully kill thoſe who barely fly from the execution of any civil proceſs. 1 *Hawk. c.* 28. And

in all theſe caſes, there muſt be an apparent neceſſity on the officer's ſide, viz. that the party could not be arreſted or apprehended, the riot could not be ſuppreſſed, the priſoners could not be kept in hold, the deer-ſtealers could not but eſcape, unleſs ſuch homicide were committed: otherwiſe, without ſuch abſolute neceſſity, *it is not juſtifiable.*

Such homicide as is committed for the prevention of any forcible and atrocious crime, is juſtifiable by the law of nature, and alſo by the law of England, as it ſtood ſo early as the time of Bracton, and as it is ſince expreſsly declared by ſtat. 24 Hen. VIII. c. 5. If any perſon attempts a robbery or murder of another, or attempts to break open a houſe in the night time, (which extends alſo to an attempt to burn it,) and ſhall be killed in ſuch attempt, the ſlayer ſhall be acquitted and diſcharged. 1 *Hal. P. C.* 488. And not only the maſter of a houſe, but a lodger or a ſojourner, who kills an aſſailant intending to commit murder or robbery, is within the protection of the law. This reaches not to any crime unaccompanied with *force*, as picking of pockets, or to the breaking open of any houſe in the day time, unleſs it carries with it an attempt of robbery alſo. 4 *Blackſt. Comm. c.* 14.

Juſtifiable homicide of a *private* nature, in the juſt defence of a man's perſon, houſe, or goods, may happen either by the killing of a wrong-doer, or an innocent perſon. And firſt, the killing of a wrong-doer in the making of ſuch defence, may be juſtified in many caſes; as where a man kills one who aſſaults him in the highway to rob or murder him; or the owner of a houſe, or any of his ſervants, or lodgers, &c. kill one who attempts to burn it, or to commit therein murder, robbery, or other felony; or a woman kills one who attempts to raviſh her; or a ſervant coming ſuddenly, and, finding his maſter robbed and ſlain, falls upon the murderer immediately and kills him; for he does it in the height of his ſurpriſe, and under juſt apprehenſions of the like attempt upon himſelf; but in other circumſtances, he could not have juſtified the killing of ſuch an one, but ought to have apprehended him, &c. 1 *Hawk. P. C. c.* 28.

Neither can a man juſtify the killing another in defence of his houſe or goods, or even of his perſon, from a bare private treſpaſs; and therefore he that kills another, who, claiming a title to his houſe, attempts to enter it by force and ſhoots at it, or that breaks open his windows in order to arreſt him, or that perſiſts in breaking his hedges after he is forbidden, is guilty of manſlaughter; and he, who in his own defence kills another that aſſaults him in his houſe in the day-time, and plainly appears to intend to beat him only, is guilty of homicide *ſe defendendo*, for which he forfeits his goods, but is pardoned of courſe; yet it ſeems, that a private perſon, and, *à fortiori*, an officer of juſtice, who happens unavoidably to kill another endeavouring to defend himſelf from, or ſuppreſs, dangerous rioters, may juſtify the fact, inaſmuch as he only does his duty in aid of public juſtice. According to Mr. Serjeant Hawkins, a perſon who without provocation is aſſaulted by another in any place whatſoever, in ſuch a manner as plainly ſhows an intent to murder him, as by diſcharging a piſtol, or puſhing at him with a drawn ſword, &c. may juſtify killing ſuch an aſſailant, as much as if he had attempted to rob him. 1 *Hawk. P. C. c.* 28. *Dalt.* 98. *Cro. Car.* 338.

The Roman law alſo juſtifies homicide, when committed in the defence of the *chaſtity* either of one's ſelf or relations. The Engliſh law alſo juſtifies a woman in killing one who attempts to raviſh her; *Bac. Elem.* 34; and ſo too, the huſband or father may juſtify killing a man, who attempts a rape upon his wife or daughter; but not if he takes them in adultery by conſent, for the one is forcible and felonious, but not the other. 1 *Hal. P. C.* 485. And there ſeems no doubt but the forcibly attempting a crime of a ſtill more deteſtible nature, may be equally reſiſted by the death of the unnatural aggreſſor. For the one uniform principle, that runs through our own and all other laws, ſeems to be this; that where a crime, in itſelf capital, is endeavoured to be committed *by force*, it is lawful to repel that force by the death of the party attempting. 4 *Blackſt. Comm. c.* 14. In theſe inſtances of juſtifiable homicide, it may be proper to obſerve, that the *ſlayer* is in no kind of fault whatſoever, not even in the minuteſt degree; and is therefore to be totally acquitted and diſcharged, with commendation rather than blame. 1 *Hawk. P. C. c.* 28.

2. HOMICIDE *per infortunium*, or MISADVENTURE, is where a man doing a lawful act, without any intention of hurt, unfortunately kills another; as where a man is at work with a hatchet, and the head thereof flies off and kills a ſtander-by; or where a perſon qualified to keep a gun, is ſhooting at a mark, and undeſignedly kills a man; for the act is lawful, but the effect accidental. 1 *Hawk. P. C. c.* 29. So where a perſon is moderately correcting his child, a maſter his apprentice or ſcholar, or an officer puniſhing a criminal, (as by whipping,) and happens to occaſion his death, it is only miſadventure; for the act of correction was lawful; but if he exceeds the bounds of moderation, either in the manner, the inſtrument, or the quantity, of puniſhment, and death enſues, it is manſlaughter at leaſt; and in ſome caſes (according to the circumſtances) murder; for the act of *immoderate* correction is unlawful. 1 *Hal. P. C.* 473. Where an officer of the impreſs ſervice in the navy fires at a boat in order to bring her to, and kills a man, it is impoſſible that the offender ſhould be made guilty of more than manſlaughter, eſpecially if he fires in the manner uſual upon ſuch occaſions. *Cowp.* 832. *per Ld. Manſfield.*

A tilt or a tournament, the martial diverſion of our anceſtors, was however an unlawful act; and ſo are boxing and ſword-playing, the ſucceeding amuſements of their poſterity; and therefore if a knight in the former caſe, or a gladiator in the latter, be killed, ſuch killing is felony of manſlaughter. Likewiſe to whip another's horſe whereby he runs over a child and kills him, is held to be accidental death in the rider, for he has done nothing unlawful; but it is manſlaughter in the perſon who whipped the horſe; for the act was a treſpaſs, and at beſt a piece of idleneſs of inevitably dangerous conſequence. 1 *Hawk. P. C. c.* 29. Where one lawfully uſing an innocent diverſion, as ſhooting at butts, or at a bird, &c. by the glacing of an arrow, or ſuch like accident, kills another, this is only homicide by miſadventure. *Keilw.* 108. *Bro. Cor.* 148. See *Kelynge* 4. So where a perſon happens to kill another in playing a match of foot-ball, wreſtling, or ſuch like ſports which are attended with no apparent danger of life, and intended only for the trial, exerciſe, and improvement, of the ſtrength, courage, and activity, of the parties. *Crom.* 29 *a.* 11 *H.* 7. 23 *a.*

Homicide in ſelf-defence, or *ſe defendendo*, upon a ſudden affray, is alſo excuſable, rather than juſtifiable, by the Engliſh law. This ſpecies of ſelf-defence muſt be diſtinguiſhed from that already mentioned, as calculated to hinder the perpetration of a capital crime; which is not only a matter of excuſe, but of juſtification. But the ſelf-defence, which we are now ſpeaking of, is that whereby a man may protect himſelf from an aſſault or the like, in the courſe of a ſudden quarrel, by killing him who aſſaults him: and this is what the law expreſſes by the word *chance-medley.* This right of natural defence does not imply a right of attacking; for, inſtead of attacking one another for injuries paſt or impending, men need only have recourſe to the proper tribunals of juſtice; they cannot therefore legally exerciſe this right of preventive defence, except in ſudden and violent caſes, when certain and immediate ſuffering would be the conſequence of waiting for the aſſiſtance of the law. Wherefore, to excuſe homicide by the plea of ſelf-defence, it muſt appear that the ſlayer had no other poſſible, or, at leaſt, *probable*, means of eſcaping from his aſſailant.

There is one ſpecies of homicide *ſe defendendo*, where the party ſlain is equally innocent as he who occaſions his death; and yet this homicide is alſo excuſable from the great univerſal principle of ſelf-preſervation, which prompts every man to ſave his own life preferably to that of another, where one of them muſt inevitably periſh. As, among others, in that caſe mentioned by lord Bacon, where two perſons being ſhipwrecked, and getting on the ſame plank, but finding it not able to ſave them both, one of them thruſts the other from it, whereby he is drowned. He who thus preſerves his own life at the expence of another man's, is excuſable, through unavoidable neceſſity, and the principle of ſelf-defence; ſince their both remaining on the ſame weak plank is a mutual, though innocent, attempt upon, and endangering of, each other's life. 4 *Blackſt. Comm. c.* 14.

The circumſtances wherein theſe two ſpecies of homicide, by miſadventure and ſelf-defence, agree, are in the blame and puniſhment. For the law ſets ſo high a value upon the life of a man, that it always intends ſome miſbehaviour in the perſon who takes it away, unleſs by the command or expreſs permiſſion of the law. In the caſe of miſadventure, it preſumes negligence, or at leaſt a want of ſufficient caution, in him who was ſo unfortunate as to commit it; who is therefore not altogether faultleſs. And as to the neceſſity which excuſes a man who kills another *ſe defendendo*, lord Bacon entitles it *neceſſitas culpabilis*, and thereby diſtinguiſhes it from the former neceſſity of killing a thief or a malefactor. *Bac. Elem. c.* 5. For the law intends that the quarrel or aſſault aroſe from ſome unknown wrong, or ſome provocation, either in word or deed; and ſince, in quarrels, both parties may be, and uſually are, in ſome fault, and it ſcarcely can be tried who was originally in the wrong, the law will not hold the ſurvivor entirely guiltleſs. But it is clear, in the other caſe, that, where I kill a thief that breaks into my houſe, the original fault can never be upon my ſide. The law beſides may have a further view, to make the crime of homicide more odious, and to caution men how they venture to kill another upon their own private judgment, by ordaining that he who ſlays his neighbour, without an expreſs warrant from the law ſo to do, ſhall in no caſe be abſolutely free from guilt.

3. Felonious Homicide, is an act of a very different nature from the two former, being the killing of a human creature, of any age or ſex, without juſtification or excuſe. This offence may be committed either by killing one's ſelf, or another perſon. *Self-murder* is juſtly ranked among the higheſt crimes; but the party muſt be of years of diſcretion, and in his ſenſes, otherwiſe it is no crime. As to the puniſhment which human laws inflict on this crime; they can only act upon what he has left behind him, his reputation and fortune; on the former, by an ignominious burial in the highway, with a ſtake driven through his body; on the latter, by the forfeiture of all his goods and chattels to the king. Our laws have always had ſuch an abhorrence of this crime, that not only he who kills himſelf with a deliberate and direct purpoſe of ſo doing, but alſo in ſome caſes he who maliciouſly attempts to kill another, and in purſuance of ſuch an attempt unwillingly kills himſelf, ſhall be adjudged in the eye of the law a *felo de ſe*; for, wherever death is cauſed by any act done with a murderous intent, it makes the offender a murderer. 1 *Hawk. P. C. c.* 27. By the rubric in the Common Prayer, before the burial office, (confirmed by ſtat. 13 and 14 Car. II c. 4.) perſons who have laid violent hands upon themſelves ſhall not have that office uſed at their interment. See the article Felo de se, vol. vii. p. 302.

*Manſlaughter*, is the unlawful killing of another, without malice, either expreſs or implied; which may be either voluntarily, upon a ſudden heat; or involuntarily, but in the commiſſion of ſome unlawful act. 1 *Hal. P. C.* 466. And hence it follows, that in manſlaughter there can be no acceſſories before the fact; becauſe it muſt be done without premeditation. As to the voluntary branch; if upon a *ſudden* quarrel two perſons fight, and one of them kills the other, this is manſlaughter; and ſo it is, if they, upon ſuch an occaſion go out and fight in a field; for this is one continued act of paſſion, and the law pays that regard to human frailty, as not to put a haſty and deliberate act upon the ſame footing with regard to guilt. 1 *Hawk. P. C. c.* 31. So alſo if a man be greatly provoked, as by pulling his noſe, or other great indignity, and immediately kills the aggreſſor, though this is not excuſable *ſe defendendo*, ſince there is no abſolute neceſſity for doing it, to preſerve himſelf; yet neither is it murder, for there is no previous malice; but it is manſlaughter. *Kelyng.* 135. But in this, and in every other caſe of homicide upon provocation, if there be a ſufficient cooling-time for paſſion to ſubſide, and reaſon to interpoſe, and the perſon ſo provoked afterwards kills the other, this is deliberate revenge, and not heat of blood, and accordingly amounts to murder. *Foſt.* 296. So if a man takes another in the act of adultery with his wife, and kills him directly upon the ſpot; this is not abſolutely ranked in the claſs of juſtifiable homicide, as in caſe of a forcible rape, but it is manſlaughter. 1 *Hal. P. C.* 486. It is however the loweſt degree of it, and therefore in ſuch a caſe, the court directs the ſmalleſt fine to be inflicted, becauſe there cannot be a greater provocation. *Raym.* 212.

The ſecond branch, or involuntary manſlaughter, differs alſo from homicide excuſable by miſadventure, in this; that miſadventure always happens in conſequence of a lawful act; but this ſpecies of manſlaughter in conſequence of an unlawful one. As if two perſons play at ſword, and one of them kills the other; this is manſlaughter, becauſe the original act was unlawful; but it is not murder, for the one had no intent to do the other any perſonal miſchief. 3 *Inſt.* 56. So where a perſon does an act, lawful in itſelf, but an unlawful manner, and without due caution and circumſpection; as when a workman flings down a ſtone or piece of timber into the ſtreet, and kills a man; this may be either miſadventure, manſlaughter, or murder, according to the circumſtance under which the original act was done: if it were in a country village where few paſſengers are, and he calls out to all people to have a care, it is miſadventure only; but if it were in London, or other populous town, where people are continually paſſing, it is manſlaughter, though he gives loud warning; and murder, if he knows of their paſſing, and gives no warning at all, for then it is malice againſt all mankind. *Kel.* 43. 3 *Inſt.* And, in general, when an involuntary killing happens in conſequence of an unlawful act, it will be either murder, or manſlaughter, according to the nature of the act which occaſioned it. If it be in proſecution of a felonious intent, or in its conſequences naturally tending to bloodſhed, it will be murder; but, if no more was intended than a mere civil treſpaſs, it will only amount to manſlaughter. 4 *Blackſt. Comm. c.* 14.

Our ſtatute law has ſeverely animadverted on one ſpecies of criminal negligence, whereby the death of a man is occaſioned. For by ſtat. 10 Geo. II. c. 31, if any waterman between Graveſend and Windſor receives into his boat or barge a greater number of perſons than the act allows, and any paſſenger ſhall then be drowned, ſuch waterman is guilty (not of manſlaughter, but) of felony; and ſhall be tranſported as a felon.

There is one ſpecies of manſlaughter, which is puniſhed as murder, the benefit of clergy being taken away from it by ſtatute; namely, the offence of mortally ſtabbing another, though done upon ſudden provocation. For by ſtat. 1 Jac. I. c. 8, when one thruſts or ſtabs another, who has not then a weapon drawn, or who hath not then firſt ſtricken the party ſtabbing, ſo that he dies thereof within ſix months after, the offender ſhall not have the benefit of clergy, though he did it not of malice aforethought. This ſtatute was made on account of the frequent quarrels, and ſtabbing with ſhort daggers, between the Scotch and the Engliſh, at the acceſſion of James I. and, being therefore of a temporary nature, ought perhaps to have expired with the miſchief which it meant to remedy. 1 *Lord Raym* 140. It was however continued indefinitely by ſtat. 3 Car. I. c. 4, and by ſtat. 16 Car. I. c. 4, till ſome other act ſhall be made touching the continuance or diſcontinuance thereof. It ſeems that, in point of ſolid and ſubſtantial juſtice, it cannot be ſaid that the mode of killing, whether by ſtabbing, ſtrangling, or ſhooting, can either extenuate or enhance the guilt; unleſs where, as in the caſe of poiſoning, it carries with it an internal evidence of cool and deliberate malice. But the benignity of the law hath conſtrued the ſtatute ſo favourably in behalf of the ſubject, and ſo ſtrictly when againſt him, that the offence of ſtabbing now ſtands almoſt upon the ſame footing, as it did at the common law. *Foſt.* 299, 300.

*Murder* is that ſhocking crime, in which the blood of the innocent ſufferer "crieth unto heaven for vengeance." It is by lord Coke and Hawkins defined to be, the killing a fellow-creature by lying in wait for him, *with malice prepenſed.* The killing may be by divers acts of cruelty and violence; but of all ſpecies of murder, the moſt deteſtable is that by poiſon; becauſe it can be the leaſt guarded againſt either by manhood or forethought. And therefore, by ſtat. 22 Hen. VIII. c. 9, it was made *treaſon*, and a more grevious and lingering kind of death was inflicted on it than the common law allowed; namely, *boiling to death*; but this act did not live long, being repealed by ſtat. 1 Edw. VI. c. 12; which declares, that all wilful killing by poiſoning of any perſon, ſhall be adjudged wilful murder, of malice prepenſed.

There was alſo, by the ancient common law, one ſpecies of killing held to be murder, which may be dubious at this day, ſince there has not been an inſtance wherein it hath been held to be murder for many ages paſt; namely by bearing falſe witneſs againſt another, with an expreſs premeditated deſign to take away his life, ſo as the innocent perſon be condemned and executed. *Bracton*, l. 3. *c.* 4. There is no doubt but this is equally murder *in foro conſcientiæ* as killing with a ſword; though the modern law (to avoid the danger of deterring witneſſes from giving evidence upon capital proſecutions, if it muſt be at the peril of their own lives) has not puniſhed it as ſuch. 3 *Inſt.* 48.

The uſage of fining the ville or the hundred for a murder, was common among the ancient Goths, in Sweden and Denmark, who ſuppoſed the neighbourhood, unleſs they produced the murderer, to have perpetrated, or at leaſt connived at, the murder; and, according to Bracton, it was introduced into this kingdom by Canute, to prevent his countrymen the Danes from being privily murdered by the Engliſh; and was afterwards continued by William the Conqueror, for the like ſecurity of his countrymen the Normans. *Bracton*, *l.* 3. *tr.* 2. *c.* 15. And therefore if, upon inquiſition had, it appeared that the perſon ſlain was an Engliſhman, (the preſentment whereof was denominated *Engleſcherie*,) the county ſeems to have been excuſed from this burthen.

A gaoler, knowing a priſoner to be infected with an epidemic diſtemper, confines another priſoner, againſt his will, in the ſame room with him, by which he catches the infection, of which the gaoler had notice, and the priſoner dies; this is a felonious killing. *Stra.* 856. So to confine a priſoner in a low, damp, unwholeſome, room, not allowing him the common conveniences which the decencies of nature require, by which the habits of his conſtitution are ſo affected as to produce a diſtemper of which he dies; this is alſo a felonious homicide. *Ld. Raym.* 1578. For although the law inveſts gaolers with all the neceſſary powers, for the intereſt of the commonwealth, they are not to behave with the leaſt degree of wanton cruelty to their priſoners. And thoſe were deliberate acts of cruelty, and enormous violations of the truſt the law repoſeth in its miniſters of juſtice. *Foſt.* 322.

If a man commits an act, of which the probable conſequence may be, and eventually is, death, ſuch killing may be murder, although no ſtroke be ſtruck, and though no killing may be primarily intended; as was the caſe of the unnatural ſon, who expoſed his ſick father to an inclement air, againſt his will, by reaſon whereof he died; 1 *Hawk. P. C. c.* 31: of the harlot, who laid her child under leaves in an orchard, where a kite ſtruck it and killed it; 1 *Hawl. P. C.* 432: and of the pariſh officers, who ſhifted a child from pariſh to pariſh, till it died for want of care and ſuſtenance; *Palm.* 545. So alſo, in general, any one who, aſſuming to take care of another, refuſes them neceſſary ſubſiſtence, or by any other ſeverity, though not of a nature to produce immediate death, as by putting the party in ſuch a ſituation as may poſſibly be dangerous to life or health, if death actually and clearly enſues in conſequence of it, *it is murder*. And this mode of killing is of the moſt aggravated kind, becauſe a long time muſt unavoidably intervene before the death can happen, and alſo many opportunities of deliberation and reflection. *Old Bailey, Feb. Seſſ.* 1776.

If a man hath a beaſt that is uſed to do miſchief; and he, knowing it, ſuffers it to go abroad, and it kills a man, even this is manſlaughter in the owner; but if he had purpoſely turned it looſe, though barely to frighten people, it is as much murder as if he had incited a bear or dog to worry them. 1 *Hal. P. C.* 431. So he who *wilfully* neglects to prevent a miſchief, which he may and ought to provide againſt, is, in judgment of the law, the actual cauſe of the damage which enſues; and therefore if a man have an ox or horſe, which he knows to be miſchievous, by being uſed to gore or ſtrike at thoſe who come near them, and do not tie them up, but leave them to their liberty, and they afterwards kill a man, according to ſome opinions, the owner may be indicted, as having himſelf killed him; and this is agreeable to the Moſaical law. However, it is agreed by all, that ſuch a perſon is guilty of a very groſs miſdemeanor. *Fitz. Corone* 311. *Exodus*, ii. 29.—But in order to make the killing murder, it is requiſite that the party die within *a year and a day* after the ſtroke received, or cauſe of death adminiſtered; in the computation of which, the whole day upon which the hurt was done ſhall be reckoned the firſt. 1 *Hawk. P. C. c.* 31.

The killing of one who is both wounded and dies out of the realm, or wounded out of the realm and dies here, cannot be determined at common law, becauſe it cannot be tried by a jury of the neighbourhood where the fact was done. But it is agreed, that the death of one who is both wounded and dies beyond ſea, and the death of him who dies here of a wound given there, may be heard and determined before the conſtable and marſhal, according to the civil law, if the king appoint a conſtable for that purpoſe. And it is clear that ſuch a fact, being examined by the privy council, may, by force of ſtat. 33 Hen. VIII. c. 23, he tried (in relation to the principal offenders, but not as to the acceſſories) before commiſſioners appointed by the king, in any county of England. *Co. Lit.* 75. *Cro. Car.* 247. A commiſſion was iſſued againſt captain Roche for killing Mr. Ferguſon at the Cape of Good Hope.

Murder at ſea was anciently cogniſable only by the civil law; but now, by force of ſtats. 27 Hen. VIII. c. 4, 28 Hen. VIII. c. 15, it may be tried and determined before the king's commiſſioners in any county of England, according to the courſe of the common law; yet the death of one who is at land, of a wound received at ſea, is neither determinable at common law, nor by force of either of theſe ſtatutes; but it may be tried by the conſtable and marſhal, or before the commiſſioners appointed in purſuance of the aforeſaid ſtatute of 33 Hen. VIII. c. 23. The commiſſioners to be appointed are the admiral, or his deputy, and four more (among whom two common-law judges are conſtantly appointed), the indictment being firſt found by a grand jury, and afterwards tried by another jury. This is now the only method of trying marine felonies in the court of admiralty; the judge of the admiralty ſtill preſiding therein, juſt as the lord mayor preſides at the ſeſſions in London. 4 *Blackſt. Comm.* 269.

By ſtat. 2 Geo. II. c. 21, it is enacted, that where any perſon ſhall be feloniouſly ſtricken or poiſoned upon the ſea, or at any place out of England, and ſhall die of the ſame in England; or where any perſon ſhall be feloniouſly ſtricken or poiſoned within England, and ſhall die of ſuch ſtroke or poiſoning upon the ſea, or out of England; an indictment thereof found by jurors of the county of England, in which ſuch death-ſtroke or poiſoning ſhall happen, whether it be found before any coroner upon view of ſuch dead body, or before juſtices of peace, or other juſtices who ſhall have authority to inquire of murders, ſhall be as effectual, as well againſt the principals as the acceſſories, as if ſuch ſtroke or poiſoning and death, and the offence of ſuch acceſſories, had happened in the ſame county; and every ſuch offender ſhall have the like defences (except challenges for the hundred) as if ſuch ſtroke or poiſoning and death, and the like offence of ſuch acceſſories, had happened in the ſame county where ſuch indictment ſhall be found.

To kill a child in its mother's womb, is now decided to be no murder, but a great miſpriſion: (ſee the article ABORTION, vol. i. p. 25.) but if the child be born alive, and dieth by reaſon of the potion or bruiſes it received *in the womb*, it ſeems the received opinion to be murder in ſuch as adminiſtered or gave them. 2 *Inſt.* 50. 1 *Hawk. P. C. c.* 31. It is alſo agreed, that where one counſels a woman to kill her child when it ſhall be born, who afterwards kills it in purſuance of ſuch advice, he is an acceſſory to the murder. *Dyer*, 186, 3 *Inſt.* 51. But, as there is one caſe where it is difficult to prove the child's being born alive, namely, in the caſe of the murder of baſtard children by the unnatural mother, it is enacted by ſtat. 21 Jac. I. c. 27, "that if a woman be delivered of a child, which, if born alive, ſhould by law be a baſtard; and endeavours privately to *conceal* its death, by burying the child or the like; the mother ſo offending, ſhall ſuffer death as in the caſe of murder, unleſs ſhe can prove by one witneſs at leaſt that the child was actually born dead." See the article BASTARD, vol. ii. p. 784.

The killing muſt be committed *with malice aforethought*, to make it the crime of murder. This is the grand criterion which now diſtinguiſhes murder from other killing; and this malice prepenſe, *malicia præcogitata*, is not ſo properly ſpite or malevolence to the deceaſed in particular, as any evil deſign in general; the dictate of a wicked, depraved, and malignant, heart; *Foſt.* 256: *un diſpoſition à faire un male choſe*; 2 *Rol. Rep.* 461. and it may be either expreſs, or implied in law. Expreſs, when one with a deliberate mind, and formed deſign, doth kill another; which formed deſign is evidenced by external circumſtances, diſcovering that inward intention; as lying in wait, antecedent menaces, former grudges, and concerted ſchemes to do him ſome bodily harm. 1 *Hal. P. C.* 451. This takes in the caſe of *deliberate* duelling, where both parties meet *avowedly*, with an intent to *murder*; thinking it their duty, as gentlemen, and claiming it as their right, to wanton with their own lives and thoſe of their fellow-creatures; without any warranty, either divine or human, but in direct contradiction to the laws both of God and man; and therefore the law has juſtly fixed the crime and puniſhment of murder on them, and their ſeconds alſo. 1 *Hawk. P. C. c.* 31. From hence it clearly follows, that if two perſons quarrel over night, and appoint to fight the next day, or quarrel in the morning, and agree to fight in the afternoon, or ſuch a conſiderable time after, by which, in common intendment, it muſt be preſumed that the blood was cooled, and then they meet and fight, and one kill the other, he is guilty of murder. And the law ſo far abhors all duelling in cold blood, that not only the principal who actually kills the other, but alſo his ſeconds, are guilty of murder, whether they fought or not. 1 *Hawk. P. C. c.* 31. *Dalt. c.* 93.

Any formed deſign of doing miſchief may be called malice; and therefore not only ſuch killing as proceeds from premeditated hatred or revenge againſt the perſon killed, but alſo in many other caſes, ſuch as is accompanied with thoſe circumſtances that ſhow the heart to be perverſely wicked, is adjudged to be of malice *prepenſe* or aforethought, and conſequently murder. Thus, if upon a ſudden provocation one beats another in an unmerciful and ſavage manner, ſo that he dies, though he could not intend his death, yet he is guilty of murder by expreſs malice; that is, by an expreſs evil deſign, the genuine ſenſe of *malitia*. As when a park-keeper tied a boy, that was ſtealing wood, to a horſe's tail, and dragged him along the park; when a maſter corrected his ſervant with an iron bar; and a ſchoolmaſter ſtamped on his ſcholar's belly; ſo that each of the ſufferers died; theſe were juſtly held to be murders, becauſe the correction being exceſſive, and ſuch as could not proceed but from a bad heart, it was equivalent to a deliberate act of ſlaughter. 1 *Hal. P. C.* 454.

If one kills an officer of juſtice, either civil or criminal, in the execution of his duty, or any of his aſſiſtants endeavouring to conſerve the peace, or any private perſon endeavouring to ſuppreſs an affray, or apprehend a felon, knowing his authority, or the intention with which he interpoſes; the law will imply malice; and the killer ſhall be guilty of murder. *Foſt.* 308. And if one intends to do another felony, and undeſignedly kill a man, this is alſo murder. 1 *Hal. P. C.* 465. Thus if one ſhoots at *A*, and miſſes him, but kills *B*. this is murder; becauſe of the previous felonious intent, which the law transfers from one to the other. The ſame is the caſe where one lays poiſon for *A*; and *B*, againſt whom the priſoner had no malicious intent, takes it, and it kills him; this is likewiſe murder. 1 *Hal. P. C.* 466. So alſo if one gives a woman with child a medicine to procure abortion, and it operates ſo violently as to kill the woman, this is murder in the perſon who gave it. 1 *Hal. P. C.* 429.

If two having malice fight, and the ſervant of one of them, not knowing of the malice, killeth the other, this is murder in the maſter, and manſlaughter in the ſervant; though if there be a conſpiracy to kill a man, but no malice againſt his ſervant; if the ſervant be ſlain, the malice againſt the maſter ſhall be conſtrued to extend to his ſervant; and the killing the ſervant is murder. *Dyer* 128.

The puniſhment of murder, in atrocious caſes, was for the murderer to be *immediately* hung upon a gibbet in chains near the place where the fact was committed; but this was no part of the *legal* judgment; it was therefore enacted, by ſtat. 25 Geo. II. c. 37, that the judge before whom any perſon is found guilty of wilful murder, ſhall pronounce ſentence immediately after conviction, unleſs he ſees cauſe to poſtpone it; and ſhall in paſſing ſentence direct him to be executed on the next day but one (unleſs the ſame ſhall be Sunday, and then on the Monday following), and that his body be delivered to the ſurgeons to be diſſected and anatomized; and that the judge may afterwards direct his body to be hung in chains: but in no wiſe to be *buried* without diſſection. And during the ſhort but awful interval between ſentence and execution, the priſoner ſhall be kept alone, and ſuſtained only with bread and water. But a power is allowed to the judge, upon good and ſufficient cauſe, to reſpite the execution, and relax the other reſtraints of the act. At a meeting of the judges to conſider of this act, there was ſome doubt whether hanging in chains might ever be made part of the ſentence; but on debate it was agreed by nine judges, that in all caſes within the act, the judgment for diſſecting and anatomizing only ſhould be part of the ſentence, and if it ſhould be thought adviſeable, the judge might afterwards direct the hanging in chains by ſpecial order to the ſheriffs, purſuant to the power given by the act.

By the Roman law, parricide, or the murder of one's parents or children, was puniſhed in a much ſeverer manner than any other kind of homicide. But the Engliſh laws treat it no otherwiſe than as ſimple murder, unleſs the child was alſo the *ſervant* of his parent. But, though the breach of natural relation is unobſerved, yet the breach of civil or eccleſiaſtical connections, when coupled with murder, denominates it a new offence, called *parva proditio*, or petit treaſon. And thus in the ancient Gothic conſtitution, we find the breach both of natural and civil relations ranked in the ſame claſs with crimes againſt the ſtate and ſovereign.

Petit treaſon, according to the ſtat. 25 Edw. III. c. 2, may happen three ways; by a ſervant killing his maſter, a wife her huſband, or an eccleſiaſtical perſon his ſuperior, to whom he owes faith and obedience. A ſervant who kills his maſter whom he has left, upon a grudge conceived againſt him during his ſervice, is guilty of petit treaſon, for the traiterous intention was hatched while the relation ſubſiſted between them, and this is only an execution of that intention. 1 *Hawk. P. C.* 89. So if a wife be divorced *à menſa et thoro*, ſtill the *vinculum matrimonii* ſubſiſts; and if ſhe kills ſuch divorced huſband, ſhe is a traitreſs. 1 *Hal. P. C.* 381. A wife divorced *cauſâ adulterii vel ſævitiæ*, is ſtill within this law, becauſe the bond of matrimony is not thereby diſſolved, and ſhe may again lawfully cohabit with her huſband. But a divorce *cauſâ conſanguinitatis vel pre-contractûs*, entirely diſſolves the nuptial tie, and annihilates the very character of wife. Therefore a wife *de facto* only, and not *de jure*, cannot commit this crime, for ſhe has no lawful lord to whom ſhe owes ſubjection and obedience. Neither can a huſband be guilty of this crime by killing his wife *de jure*, for there is no reciprocity of obedience and ſubjection. *Leach's Hawk. P. C.* i. *c.* 32.—The puniſhment of petit treaſon, in a man, is to be drawn and hanged, and in a woman was formerly to be drawn and burned; but which latter ſentence is now changed to hanging, by ſtat. 30 Geo. III. c. 48.

HOMILET'ICAL, *adj.* [ομιλητικος, Gr.] Social; converſible.—His life was holy, and, when he had leiſure for retirements, ſevere: his virtues active chiefly, and *homiletical*. *Atterbury*.

HOM'ILIST, *ſ.* A writer of homilies.

HOM'ILY, *ſ.* [*homilie*, Fr. ομιλια, Gr.] A diſcourſe read to a congregation.—*Homilies* were a third kind of readings uſual in former times; a moſt commendable inſtitution, as well then to ſupply the caſual, as now the neceſſary, defect of ſermons. *Hooker*.—If we ſurvey the *homilies* of the ancient church, we ſhall diſcern that, upon feſtival days, the ſubject of the *homily* was conſtantly the buſineſs of the day. *Hammond*.

Photius diſtinguiſhes *homily* from *ſermon*; in that the homily was performed in a more familiar manner, the prelate interrogating and talking to the people, and they in their turn anſwering and interrogating him, ſo that it was properly a converſation; whereas the ſermon was delivered with more form, and in the pulpit, after the manner of the orators. The practice of compiling homilies, which were to be committed to memory, and recited by ignorant or indolent prieſts, commenced towards the cloſe of the 8th century; when Charlemagne ordered Paulus Deaconus and Alcuinus to form homilies or diſcourſes upon the Goſpels and Epiſtles, from the ancient doctors of the church. This gave riſe to that famous collection entitled the *Homiliarium of Charlemagné*. There are ſtill extant ſeveral fine homilies, compoſed by the ancient fathers, particularly St. Chryſoſtom and St. Gregory.

HOM'INE CAPTO IN WITHERNAMIUM. A writ to take him that hath taken any bondman or woman, and led him or her out of the country, ſo that he or ſhe cannot be replevied according to law. *Reg. Orig.* 79.

HOM'INE ELIGENDO AD CUSTODIENDAM PECIAM SIGILLI PRO MERCATORIBUS EDITI. A writ directed to a corporation, for the choice of a new perſon to keep one part of the ſeal appointed for ſtatute merchants, when a former is dead, according to the ſtatute of Acton-Burnel. *Reg. Orig.* 178.

HOM'INE REPLEGIANDO. A writ to bail a man out of priſon. This writ lies where a perſon is in priſon, (not by ſpecial commandment of the king, or his judges, or for any crime or cauſe irreplevisable), directed to the ſheriff, to cauſe him to be replevied; in the ſame manner that chattels taken in diſtreſs may be replevied; and if the perſon be conveyed out of the ſheriff's juriſdiction, he may return, that the defendant hath eloined the plaintiff's body, ſo that he cannot deliver him; then the plaintiff ſhall have a capias in withernam to take the defendant's body, and keep him without bail or mainprize till he produces the party. 3 *Blackſt. Comm.* 129. c. 8. And if the ſheriff return *non eſt inventus* in that writ againſt the body, the plaintiff ſhall have a capias againſt the defendant's goods, &c. *New. Nat. Br.* 151. This writ is now ſeldom uſed to deliver a perſon out of cuſtody, being ſuperſeded by the more beneficial effects of the writ of *Habeas Corpus*, which ſee in vol. ix. p. 146.

HOM'INES, *ſ.* A term anciently applied to a ſort of feudatory tenants, who claimed a privilege of having their cauſes and perſons tried only in the court of their lord; and when Gerard de Canvil, anno 5 R. 1, was charged with treaſon and other miſdemeanors, he pleaded that he was *Homo comitis Johannis*, &c. and would ſtand to the law and juſtice of his court. *Paroch. Antiq.* 152.

HOM'ME, a river of the duchy of Luxemburg, which runs into a lake near Rochefort.

HOM'MEDAL, a town of Norway, in the dioceſe of Chriſtianſand: nineteen miles north-north-eaſt of Chriſtianſand.

HOMNO'NA, a town of Hungary: fourteen miles north-eaſt of Matusfalva.

HO'MO, [from *humus*, Lat. the earth, of which man is ſaid to be compounded; or from ομου, Gr. together, becauſe man is the moſt ſociable of beings; or from ομος, like, becauſe he was made in the image of God; or probably from חום *choma*, Syr. a general name for the animal race.] Man; in which term woman is alſo included. See the article MAN. He is placed by Linnæus at the head of the order of Primates, in his claſs MAMMALIA, which ſee.

HOMOCEN'TRIC, *adj.* The ſame as CONCENTRIC.

HOMODRO'MUS *Vectis*, in mechanics, a lever in which the weight and power are both on the ſame ſide of the fulcrum, as in the lever of the ſecond and third kind; being ſo called becauſe here the weight and power move both in the ſame direction, whereas in the heterodromus they move in oppoſite directions.

HOMŒOMER'ICAL PRINCIPLES, in philoſophy, certain principles, which, according to Anaxagoras, are in all mixed bodies.

HOMŒOM'ERY, *ſ.* [*homæomeria*, Lat. of ομοιομερεια, Gr.] Likeneſs of parts.

HOMOGE'NEAL, or HOMOGE'NEOUS, *adj.* [*homogene*, Fr. ομογενης, Gr.] Having the ſame nature or principles; ſuitable to each other.—Ice is a ſimilary body, and *homogeneous* concretion, whoſe material is properly water. *Brown*.—The light, whoſe rays are all alike refrangible, I call ſimple, *homogeneal*, and ſimilar: and that, whoſe rays are ſome more refrangible than others, I call compound, heterogeneal, and diſſimilar. *Newton*.

HOMOGE'NEALNESS, HOMOGENE'ITY, or HOMOGE'NEOUSNESS, *ſ.* [from *homogeneous*, or *homogeneal*.] Participation of the ſame principles or nature; ſimilitude of kind.—The mixtures acquire a greater degree of fluidity and ſimilarity, or *homogeneity* of parts. *Arbuthnot*.

HOMO'GENY, *ſ.* [ομογενια, Gr.] Joint nature. *Not uſed*.—By the driving back of the principal ſpirits, which preſerve the conſiſtence of the body, their government is diſſolved, and every part returneth to his nature or *homogeny*. *Bacon*.

HOMOL'OGOUS, *adj.* [*homologue*, Fr. ομολογος, Gr.] Having the ſame manner or proportions

HOMON'GYNOS, one of the names of Jupiter.

HOMON'YMOUS, *adj.* [*homonyme*, Fr. ομωνυμος, Gr.] Denominating different things; equivocal; ambiguous.—As words ſignifying the ſame thing are called ſynonymous, ſo equivocal words, or thoſe which ſignify ſeveral things, are called *homonymous*, or ambiguous; and when perſons uſe ſuch ambiguous words, with a deſign to deceive, it is called equivocation. *Watts.*

HOMON'YMY, *ſ.* [*homonymie*, Fr. ομονυνια, Gr.] Equivocation; ambiguity.

HOMOPH'AGI, *ſ.* [from *homo*, Lat. a man, and φαγω, Gr to eat.] Men-eaters; thoſe who feed on human fleſh. *Scott.*

HOMOPLA'TA, *ſ.* [from ωμος, Gr. the ſhoulder, and πλατα, the blade bone.] The ſhoulder-blade.

HOM'OROD, a town of Tranſilvania: fifteen miles north of Fogaras.

HOMORYS'MA, *ſ.* [from ομος, Gr. like.] A ſimilitude in figure, parts, and properties.

HOMOT'ONOUS, *adj.* [from ομοτονος, Gr.] Equable; ſaid of ſuch diſtempers as keep a conſtant tenour of riſe, ſtate, and declenſion. *Quincy.*

HOMOU'SIAN, *adj.* [from ομος, Gr. equal, and εσια, ſubſtance.] Conſubſtantial, having the ſame ſubſtance. *Scott.*

HOMOU'SIAN, *ſ.* In church hiſtory, one who held that the Son was of the ſame ſubſtance with the Father.

HOMOU'SION, *ſ.* Conſubſtantiality. *Phillips.*

HOM'RAN, a town of Arabia, in the province of Yemen, between Sana and Beit-el-Fakih.

HOMS, or EMS, a town of Syria formerly called *Emeſſa*, and a celebrated city; on the Orontes: ſix miles north-north-eaſt of Damaſcus.

HOMUN'CIONISTS, *ſ.* [from *homuncio*, a little man.] In church hiſtory, the Arians, ſo called becauſe they held that the image of God was impreſſed on the body, and not on the mind, of Chriſt. *Scott.*

HOMUN'CULUS, [dim. of *homo*, Lat. a man.] A dwarf.

HON-HOTOU', a lake of Chineſe Tartary, eight leagues in circumference. Lat. 48. 29. N. lon. 110. 32. E. Ferro.

HO'NA CHIT'TO, a river of North America, which riſes in Georgia, in lat. 32. N. between Pearl and Looſa Chitto rivers, runs ſoutherly 125 miles, and at the town of Manca in Weſt Florida, a few miles from its mouth, runs weſt to Miſſiſſippi river. Lat. 30. 25. N.

HO'NAIN (Ebn Iſaac), a Syrian writer and phyſician, of the Chriſtian family of Obadites, lived in the reign of the caliph Almotawakkel, about the middle of the ninth century. The caliph appointed him his firſt phyſician, and employed him in tranſlating the works of the Greek phyſicians into Arabic or Syriac. He corrected ſome of the former Syriac verſions, epitomiſed Paulus, and tranſlated the works of Hippocrates and Galen. His Arabic verſions were much ſuperior in accuracy to thoſe which had been before attempted in the Eaſtern languages, and ſerved as originals to the Hebrew tranſlations. Honain retired to Bagdad towards the cloſe of his life, where he died, when one hundred years old.

HONCKE'NYA, *ſ.* in botany, a genus of the claſs octandria, order monogynia, the characters of which are—Calyx five-leaved; petals five; nectaries reſembling the ſtamina; capſule briſtly, five-celled, five-valved, many-ſeeded; ſeeds coated.

Honckenya ficifolia: a ſingle ſpecies. Stem covered with brown down; leaves alternate, clothed with fulvous down underneath; upper-ones obtuſe, toothed; lower-ones three or five lobed, toothed; flowers terminal, three together. Native of Guinea.

HOND, a town of Hungary: ten miles north-weſt of Tokay.

HON'DA BAY, a bay on the north coaſt of the iſland of Cuba: ſeventy miles weſt of Havannah.

HON'DA BAY, a bay on the eaſt coaſt of the province of Honduras, northward of Cape Gracios-a-Dios.

HON'DA RI'O, a river of Yucatan, which empties into the bay of Honduras. This river, by the peace of 1783, was the northern boundary of the tract ſouthward of Balleſſe river, ceded by the Spaniards to the Britiſh, to cut and carry away logwood.

HOND'EKOOTER (Melchior), a famous Dutch painter, born at Utrecht; excelled in painting animals, and eſpecially birds. He was trained up to the art by his father; but ſurpaſſed not only him, but all his cotemporaries in a very high degree. After his father's death, he received inſtructions from his uncle John Baptiſt Weeninx; but his principal inſtructor was Nature, which he ſtudied with intenſe application. His pencil was neat and delicate; his touch light; his colouring natural, lively, and tranſparent; and the features of his fowls were expreſſed with ſuch a ſwelling ſoftneſs, as might readily and agreeably deceive the eye of the ſpectator. He died at Utrecht in 1695, aged fifty-nine.

HON'DIUS (Jodocus), an engraver and geographer, born in 1563, at Wackene in Flanders, whence his parents removed to Ghent. At eight years of age he began to draw and engrave upon ivory and copper, without a maſter; and ſuch was his progreſs, that he came to be regarded as one of the ableſt workmen of his time. The prince of Parma, while engaged in the ſiege of Antwerp, ſent for him, and employed him in making ſome bronze ſtatues, with which he was ſo well ſatisfied, that he preſſed him to viſit Rome. Hondius, however, did not comply; but, after the ſurrender of Ghent, came to England, where he applied himſelf to coſmography, and to various branches of art. He publiſhed, 1. *Theatrum Artis Scribendi*, 2. *Orbis Terrarum Deſcriptio Geographica.* 3. *Gerhardi Mercatoris Atlas.* 4. *Italiæ Hordiernæ Deſcriptio*; and engraved maps for ſeveral works of the time. He removed to Amſterdam, where he died in 1611, at the age of forty-eight.

HON'DIUS (Abraham), a diſtinguiſhed painter, born at Rotterdam, in 1638. He painted in a variety of branches, but chiefly excelled in the repreſentation of animals, eſpecially in hunting-pieces. He had a manner peculiar to himſelf, bold and free, with abundance of ſpirit, but deviating into extravagance of colouring, and ſometimes incorrect in the drawing. He is, however, placed next to Rubens and Snyders as a painter of animals. He alſo poſſeſſed a ſuperior talent in painting conflagrations and artificial lights, and executed a capital piece of the burning of Troy. He came to England, where he died in 1695. One of his beſt works performed here was a Dog-market, in which he gave characteriſtic figures of thirty ſpecies or varieties of that animal.

HON'DTSCHOOTE, a town of France, in the department of the North, and chief place of a canton, in the diſtrict of Bergues: two leagues and a half ſouth-eaſt of Dunkirk, and five north-weſt of Ypres. On the 6th of September, 1793, a part of the army of the allies, under the command of general Freytag, was ſurpriſed and totally routed by the French. The general himſelf, and prince Adolphus Frederic, ſon of the king of England, were taken priſoners, but ſoon after reſcued.

HONDU'RAS, a province of New Spain, or Mexico, in North America, having the bay of its name and the North Sea on the north; Yucatan on the north-weſt; and the Moſquito Shore on the north-eaſt; Nicaragua and Guatimala on the ſouth, and Vera Paz on the weſt. It is about one hundred leagues long and eighty broad. It abounds with honey, cotton, fine wool, dye-woods in particular, and has ſome gold and ſilver mines. The rivers overflow like the Nile, and enrich the land. The air is good, except near the lagoons and low grounds. The ſoil in many parts bears Indian corn thrice a-year; and the vineyards bear twice a-year; for immediately after the vintage they cut them again; and the ſecond grapes are ripe before Chriſtmas. Among other vegetables, are large gourds, which the Indians call hibueras, and the firſt diſcoverer ſeeing many of them floating along the coaſt, called the bay *Golfo de Hibueras*, and the province itſelf *Hibuera*; yet afterwards, finding very deep water at the great cape of this country, they called it *Cabo de Honduras*, that is, *The Promontory of Depth*, and the country itſelf *Honduras.* Valladolid is the chief town, where the governor and biſhop reſide. Truxillo is alſo a fine town, and very ſtrong by nature; and Omoah is ſtrongly fortified; as are alſo Gracias-a-Dios and St. Jago. The Spaniards claim this country; but the Engliſh have been long in poſſeſſion of the logwood tract in the Bay of Honduras, cutting large quantities of it every year. And the Moſquito Indians to the eaſt of this province have entered into treaties with the Engliſh, received them into their country, and done them ſeveral ſervices. Beſides, the Spaniards have no forts in this bay or in the country of the Moſquitos, only two ſmall towns.

HONDU'RAS (Sea of,) that part of the North Sea bounded north by the iſland of Cuba, ſouth by the Moſquito Shore, ſouth-weſt by the bay of Honduras, weſt by the peninſula of Yucatan, north-weſt by the gulf of Mexico, eaſt-north-eaſt by Jamaica and the Caribbean Sea.

HONDU'RAS (Bay of,) noted for cutting of logwood, as that of Campeachy formerly was. It lies in the province of the ſame name, and opens betwixt Cape Honduras in lat. 13. 30. N. and Cape Catoche, the eaſternmoſt point of Yucatan in lat. 21. 30. N. The diſtance between theſe capes is two hundred and ſeventy miles. The great lake of Nicaragua has an outlet into it by the river Anuzelos, or Angelos, only navigable by ſmall craft. In this bay are ſeveral ſmall iſlands, particularly the Pearl Iſlands, a little to the north, but the pearls fiſhed up are not in ſuch quantities as formerly, nor ſo large. Sugar river alſo, a ſmall river from Veraguas, falls into it. It has its name from the quantity of ſugar-works, with which the country abounds. The part of the country where the Engliſh cut their logwood is a continued flat, and a great part of it a moraſs, with ſeveral lagoons, which are very often overflowed. The cutters amount to upwards of ſixteen hundred men; but form no regular colony; yet they chooſe a chief, who cannot have leſs authority, luxury, or emolument, or whoſe ſubjects are more diſobedient. The quantity of wood annually furniſhed by the bay has been valued at twenty thouſand tons. The Engliſh export only about ſix thouſand; but the principal branch of the trade was till lately carried on by the Dutch, whoſe annual clear profit uſed to amount to about ninety thouſand pounds ſterling. The bay is ſprinkled with an infinity of ſhoals, rocks, and cluſters of drowned iſlands, which abound with great numbers of green turtle. There are ſeveral channels between them, among which a ſhip ſhould not venture without an experienced pilot. The manati is frequently met with here, and that called the Jew-fiſh, which is ſomething like the cod, but thicker in proportion, and much better eating. They have very broad ſcales, and ſome of them weigh eighty pounds, or upwards.

HONDU'ROS, a town of the iſland of Cuba: ſixty-three miles north-eaſt of Bayamo.

HONE, *ſ.* [This word M. Caſaubon derives from *ακονη*, Gr. Junius from *hogſaen*, Welſh; Skinner from hæn, Sax. a ſtone; hænan, to ſtone.] A whetſtone for a razor.—A *hone* and a parer to pare away graſs. *Tuſſer.*

*To* HONE, *v. n.* [honᵹian, Sax.] To pine; to long for any thing.

HO'NE-WORT, *ſ.* in botany. See SISON.

HO'NEBURG, a town of Germany, in Weſtphalia, and biſhopric of Oſnabruck: one mile north of Oſnabruck.

HON'EST, *adj.* [*honeſte*, Fr. *honeſtus*, Lat.] Upright; true; ſincere.—An *honeſt* phyſician leaves his patient, when he can contribute no further to his health. *Temple.*

What art thou?
—A very *honeſt*-hearted fellow, and as poor as the king.
*Shakeſpeare.*

Chaſte.—Wives may be merry, and yet *honeſt* too. *Shakeſpeare.*—Juſt; righteous; oppoſed to violence.—An *honeſt* man, like the true religion, appeals to the underſtanding, or modeſtly confides in the internal evidence of his conſcience. The impoſtor employs force inſtead of argument, impoſes ſilence where he cannot convince, and propagates his character by the ſword. *Junius.*

HON'ESTLY, *adv.* Uprightly; juſtly:

It doth make me tremble,
There ſhould thoſe ſpirits yet breathe, that when they cannot
Live *honeſtly*, would rather periſh baſely. *Ben Jonſon.*

With chaſtity; modeſtly.

HON'ESTY, *ſ.* [*honeſteté*, Fr. *honeſtas*, Lat.] Juſtice; truth; virtue; purity:

Thou ſhalt not have thy huſband's lands.
—Why then my *honeſty* ſhall be my dower. *Shakeſpeare.*

HON'ESTY, *ſ.* in botany. See LUNARIA.

HON'EY, *ſ.* [huniᵹ, Sax. *honig*, Dut. *honec*, *honag*, Ger.] A thick, viſcous, fluid ſubſtance, of a whitiſh or yellowiſh colour, ſweet to the taſte, ſoluble in water, and becoming vinous on fermentation, inflammable, liquable by a gentle heat, and of a fragrant ſmell. Of honey, the firſt and fineſt kind is virgin honey, not very firm, and of a fragrant ſmell: it is the firſt produce of the bee, obtained by draining the combs without preſſing. See the article APIS, vol. i. p. 794–798.

So work the *honey*-bees,
Creatures that by a ruling nature teach
The art of order to a peopled kingdom. *Shakeſpeare.*

Sweetneſs; luſciouſneſs:

A *honey*-tongue, a heart of gall
Is fancy's ſpring, but ſorrow's fall. *Shakeſpeare.*

Sweet; ſweetneſs; a word of tenderneſs:

*Honey*, you ſhall be well deſir'd in Cyprus;
I've found great love amongſt them. Oh, my ſweet,
I prattle out of faſhion, and I dote. *Shakeſpeare.*

All veſſels of honey are to be marked with the name of the owner, and be of a certain content, under penalties; and, if any honey ſold be corrupted with any deceitful mixture, the ſeller ſhall forfeit the honey, by ſtat. 23 Eliz. c. 8.

Several of the ancient writers, particularly Xenophon and Diodorus Siculus, have mentioned inſtances of deleterious effects being produced by the uſe of honey, ſuppoſed to have been ſucked in by the bees from poiſonous plants; and Dr. Barton, profeſſor of natural hiſtory in the univerſity of Pennſylvania, obſerved a ſimilar kind of honey in the weſtern parts of Pennſylvania, near the river Ohio. The following, as far as he was able to aſcertain, are the ſymptoms produced by honey of this deſcription: in the beginning comes on a dimneſs of ſight or vertigo, ſucceeded by a delirium, which is ſometimes mild and pleaſant, and ſometimes ferocious; ebriety, pain in the ſtomach and inteſtines, convulſions, profuſe perſpiration, foaming at the mouth, vomiting, and purging; and, in a few inſtances, death has followed. In ſome perſons, a vomiting is the firſt effect of the poiſon. When this is the caſe, it is probable, that the perſons ſuffer much leſs from the honey than when no vomiting is induced. Sometimes the honey has been obſerved to produce a temporary palſy of the limbs; an effect which has been remarked in animals that have eaten of thoſe vegetables from whoſe flowers the bees obtain this pernicious honey. Death, however, is very ſeldom the conſequence of eating this kind of honey. The violent impreſſion which it makes upon the ſtomach and inteſtines often induces an early vomiting or purging, which are both favourable to the ſpeedy recovery of the ſufferer. The fever which it excites is frequently relieved by the profuſe perſpiration, and perhaps by the foaming at the mouth. In ſome caſes, intoxication was the only effect which followed the uſe of this dangerous honey. The ſigns pointed out by the bee-hunters, as diſtinguiſhing the poiſonous from the wholeſome, appear to Dr. Barton to be very fallacious; and he is not yet acquainted with any means of obviating the effects produced by the uſe of the former. The plants, from the flowers of which the bees are capable of extracting a deleterious honey, are principally the Kalmia anguſtifolia and latifolia of Linnæus; the Kalmia hirſuta of Walter; the Andromeda marina, and ſome other ſpecies of this genus; to which the author adds the Rhododendron maximum, or Pennſylvanian laurel, the Azalea nudiflora, and the Datura ſtramonium. Thus a reaſon is ſufficiently aſſigned, why the honey produced in ſome diſtricts is highly ſuperior to that made in others.—See Tranſactions of the American Philoſophical Society, vol. v.

*To* HON'EY, *v. n.* To talk fondly:

Nay, but to live
In the rank ſweat of an inceſtuous bed,
Stew'd in corruption, *honeying* and making love
Over the naſty ſty. *Shakeſpeare.*

*To* HON'EY, *v. a.* To ſpread over with honey.

HON'EY-BAG, *ſ.*—The *honey-bag* is the ſtomach, which bees always fill to ſatisfy, and to ſpare, vomiting up the greateſt part of the honey to be kept againſt winter. *Grew.*

HON'EY-COMB, *ſ.* The cells of wax in which the bee ſtores her honey:

All theſe a milk-white *honey-comb* ſurround,
Which in the midſt the country banquet crown'd. *Dryden.*

HON'EY-COMBED, *adj.* Spoken of a piece of ordnance flawed with little cavities by being ill caſt:—A mariner having diſcharged his gun, which was *honey-combed*, and loading it ſuddenly again, the powder took fire. *Wiſeman.*

HON'EY-DEW, *ſ.* A ſweet mucilaginous or ſaccharine matter, called the honey of the aphides, which they depoſit on the leaves of various trees and plants. See the article Apis, vol. i. p. 789.

How *honey-dews* embalm the fragrant morn,
And the fair oak with luſcious ſweets adorn. *Garth.*

HON'EY-FLOWER, *ſ.* in botany. See Melianthus.

HON'EY-HEAVY, *adj.* Clammy.—Enjoy the *honey-heavy* dew of ſlumber. *Shakeſpeare.*

HON'EY-MOON, *ſ.* The firſt month after marriage, when there is nothing but tenderneſs and pleaſure.—A man ſhould keep his finery for the latter ſeaſon of marriage, and not begin to dreſs till the *honey-moon* is over. *Addiſon.*

HON'EY-MOUTHED, *adj.* Soft in ſpeech.—If I prove *honey-mouth'd*, let my tongue bliſter. *Shakeſpeare.*

HON'EY-STALK, *ſ.* Clover-flower, according to Johnſon's note on the paſſage in Shakeſpeare where it occurs; who yet gives the word no place in his Dictionary:

With words more ſweet, and yet more dangerous
Than baits to fiſh, or *honey-ſtalks* to ſheep. *Titus Andronicus.*

HON'EY-SUCKLE, *ſ.* in botany. See Lonicera.

*French* HON'EY-SUCKLE; ſee Hedysarum.

HON'EY-WORT, *ſ.* in botany. See Cerinthe.

HON'EYING, *ſ.* The act of ſpreading over with honey, or of talking ſondly.

HON'EYLESS, *adj.* Being without honey:

But for your words, they rob the Hybla bees,
And leave them *honeyleſs.* *Shakeſpeare.*

HONEYYO'E, a beautiful lake of the American States, in the Genneſſee country, in New-York ſtate, weſtward of Canandargua Lake: five miles long and three broad.

HON'FALISE, or Hoffalise, or Homfalise, a town of the duchy of Luxemburg, on a ſmall river which runs into the Ourte, with an ancient caſtle: twenty-five miles north-north-weſt of Luxemburg, and thirty ſouth of Liege.

HONFLEUR', a town of France, in the department of the Calvados, and chief place of a canton, in the diſtrict of Pont l'Eveque: five leagues and a quarter north of Liſieux, and two and a half north-north-eaſt of Pont l'Evequc. Lat. 49. 25. N. lon. 17. 53. E. Ferro.

HONG, a town of China, of the third rank, in the province of Kiang-nan: thirty-five miles north-north-eaſt of Fong-yang.

HONG-TCHEOU, a town of the kingdom of Corea: twenty miles ſouth-ſouth-eaſt of Haimen.

HONG-TONG, a town of China, of the third rank, in the province of Chen-ſi: fifteen miles north-north-eaſt of Pin-yang.

HONG-TSE, a large lake of China, in the province of Kiang-nan, whoſe waters empty themſelves into the Hoang ſixty miles from the ſea.

HONG-YA, a town of China, of the third rank, in the province of Se-tchuen: ſeventeen miles ſouth of Pou-kiang.

HONG-YUEN, a town of China, of the third rank, in the province of Quang-tong: thirty-two miles ſouth-ſouth-weſt of Chao-tcheou.

HON'GIE, a town of Poland, in the palatinate of Red Ruſſia: thirty miles weſt-ſouth-weſt of Halitſch.

HON'IED, or Hon'eyed, *adj.* Covered with honey:

The bee with *honied* thigh,
That at her flow'ry work doth ſing. *Milton.*

Sweet; luſcious:

When he ſpeaks,
The air, a charter'd libertine, is ſtill:
And the mute wonder lurketh in men's ears,
To ſteal his ſweet and *honied* ſentences. *Shakeſpeare.*

HON'ILLY, a mountain of Swiſſerland, in the canton of Berne: twenty-three miles eaſt-ſouth-eaſt of Thurn.

HONIMO'A, or Uliasser, one of the Molucca iſlands, about three leagues in length, and from one to one and a half wide. The land is fertile: the chief productions for commerce are rice and cloves.

HO'NINGDAEL, a town of Norway, in the dioceſe of Drontheim: eighty miles ſouth-weſt of Romſdal.

HON'ITON, an opulent and handſome town, ſituate on the ſouth-eaſt border of the county of Devon, diſtant 156 miles weſt from London. The river Otter waſhes its ſkirts; and, after a courſe of ten miles, paſſing the town of Ottery St. Mary, it falls into the Engliſh Channel at Otterton. The town lies on the great weſtern road, ſixteen miles eaſt of Exeter, in one of the fineſt parts of the county, in a vale adorned with the majeſtic promontories of Hembury-fort, St. Cyres, and Gittiſham-hills, whoſe variegated ſides always produce the charm of novelty; theſe, with a diſtant view of others beyond Exeter and Collumpton, give a *coup d'œil*, which, for graceſulneſs and beautiful ſcenery, may vie with Italy. Honiton is a borough by preſcription from Edward I.'s time; but, neglecting its right near four hundred years, it was, by William Pole, eſq. in the 16th of Charles I. reſtored to this conſtitutional privilege. A portreeve, choſen annually, is the returning officer. A dreadful fire broke out in this town on the 19th of July 1747, at three o'clock in the afternoon, and continued raging till four the next morning; whereby near three quarters of the town were reduced to aſhes, notwithſtanding the conveniency of water at each door; for the calamity was ſo ſudden, and the flame ſo violent, augmented by a ſtrong wind, that it extended itſelf ſeveral ways at once, to the utter ruin of many hundreds of the poor laborious inhabitants; beſides the great loſs in woollen manufactures, to the amount of 43,000l. Another fire broke out in 1765, which conſumed 160 houſes. And on Thurſday, Auguſt 24, 1797, another dreadful fire broke out, which raged with great fury for four hours, and was with difficulty extinguiſhed in the evening, after deſtroying near thirty houſes, among which was the bank. The houſes being now moſtly new-built, and covered with ſlate, gives the town a pleaſing effect at a diſtance. The market is on Saturdays; and a fair is held in July. Here was the firſt ſerge-manufactory in Devonſhire; but the people are now chiefly employed in the manufactory of lace, the broadeſt that is made in England, for which London affords a ready market. Here is a free-ſchool, well endowed; with a ſchool of induſtry for girls, ſupported by ladies, and a charity and Sunday-ſchool, eſtabliſhed by ſubſcription.

HON'NIKI, a town of Poland, in the palatinate of Red Ruſſia: twenty-four miles ſouth of Halicz.

HON'NINGEN, a town of Germany, on the Lower Rhine, and archbiſhopric of Treves: fifteen miles north-north-weſt of Coblentz.

HONOM'INIES, a river of the American States, in the north-weſt territory, which runs ſouth-eaſterly into Puan Bay. Between the head of this river and Lake Superior is a ſhort portage.

HON'ORARY, *adj.* [*honorarius*, Lat.] Done in honour; made in honour.—This monument is only *honorary*, for the aſhes of the emperor lie elſewhere. *Addiſon on Italy.*—Conferring honour without gain.—The Romans abounded with little *honorary* rewards, that, without conferring wealth and riches, gave only place and diſtinction to the perſon who received them. *Addiſon.*

HONORA'TUS, a ſaint in the Roman calendar, and biſhop of Marſeilles, of which city he was likewiſe a native, and flouriſhed about the year 490. He publiſhed many homilies, ſome of which were delivered extempore, and others regularly compoſed. He alſo wrote the lives of many eminent fathers of the church, of which the only one extant is that of St. Hilary, biſhop of Arles, which is inſerted in Surius.

HONO'RIUS, emperor of the Weſt, ſecond ſon of Theodoſius, born in 384. He obtained the title of Auguſtus, with his brother Arcadius, in 593, and ſucceeded to his portion of the empire at his father's death, in 395. See the article ROME.

HONO'RIUS I. II. III. and IV. popes of Rome. See the article ROME.

HONO'RIUS, ſurnamed the SOLITARY, a prieſt of the church of Autun, in Burgundy, who flouriſhed under the reign of the emperor Henry V. about the year 1120. He is eſteemed as the author of the following works: 1. *Liber de Luminaribus Eccleſiæ, ſive de Scriptoribus Eccleſiaſticis, &c.* Cologne, 1580, 8vo. 2. *Commentarii in Libros tres Salomonis*, 1540. 3. *Inevitabile, ſive Dialogus de Prædeſtinatione & Libero Arbitrio*, 1552, 8vo. 4. *Gemma Animæ, de Officio Miſſæ, ejuſque Cæremoniis*, Leipſic, 1514. 5. *Synopſis Mundi, ſive de Imagine Mundi, Lib. III.* Spires, 1583. 6. *Libellus de Hæreſibus*, Baſil, 1544. 7. *De Mundi Philoſophia, Lib. IV.* 8. *De Solis Affectibus Liber.* 9. *Series Romanorum Pontificum a S. Petro ad Innocentium II.* The above are all edited in the twentieth volume of the *Bibl. Patr.*

HONO'RIUS DE SANCTA MARIA, a learned French Carmelite friar, born at Limoges in 1651. After paſſing through a courſe of claſſical ſtudies, he entered into the Carmelite order, according to the reform of St. Thereſa, at the convent of the order at Toulouſe, in the year 1671. He was ſelected by the ſuperior of his order to teach philoſophy and theology in the province of Aquitaine. The philoſophical theſes which he maintained, were publiſhed at Clermont, in 1686; and his theological theſes appeared at Perpignan, in 1689, under the title of *Expoſitio Symboli Apoſtolorum Dogmatica, Hiſtorico-hæretica, Hiſtorico-poſitiva, & Scholaſtica, &c.* Beſides the ſtudy of the ſcriptures, the fathers, the councils, and eccleſiaſtical hiſtory, father Honorius was alſo particularly attached to that of myſtical theology, of which he undertook a defence in a treatiſe publiſhed at Bourdeaux in 1701, entitled *Diſſertation Apologétique*, &c. 12mo. This was the forerunner of a larger work which the author publiſhed at Paris, in 1708, entitled *Tradition des Pères & des Auteurs Eccleſiaſtiques ſur la Contemplation, contenant le Dogme & la Pratique de cet Exerciſe*, in 2 vols. 8vo. to which he added a third volume in 1714. The moſt important and uſeful of his publications is entitled *Reflexions ſur les Règles & ſur l'Uſage de la Critique, touchant l'Hiſtoire de l'Egliſe; les Ouvrages des Pères; les Actes des anciens Martyrs; les Vies des Saints, &c. avec des Notes hiſtoriques, chronologiques, & critiques*, in 3 vols. 4to. In 1718, he publiſhed *Diſſertations Hiſtoriques & Critiques ſur les Ordres Militaires, anciens & nouveaux, réguliers & ſéculiers, avec des Notes & des Figures.* Alſo, A Treatiſe on Indulgencies and the Jubilee; The Life of John de la Croix, a barefooted Carmelite; and a multitude of treatiſes in the controverſy occaſioned by the bull *Unigenitus.* He died at Liſle in 1729, when ſeventy-eight years of age.

HON'OUR, *ſ.* [*honneur*, Fr. *honor*, Lat.] Dignity; high rank:

Didſt thou not tell me, Griffith, as thou led'ſt me,
That the great child of *honour*, cardinal Wolſey,
Was dead? *Shakeſpeare.*

Reputation; fame.—A man is an ill huſband of his *honour*, that entereth into any action, the failing wherein may diſgrace him more than the carrying of it through can honour him. *Bacon.*—The title of a man of rank:

Return unto thy lord,
Bid him not fear the ſeparated councils:
His *honour* and myſelf are at the one;
And at the other is my good friend Cateſby. *Shakeſpeare.*

Subject of praiſe:

Thou happy father,
Think that the cleareſt gods, who make them *honours*
Of man's impoſſibilities, have preſerv'd thee. *Shakeſpeare.*

Nobleneſs of mind; ſcorn of meanneſs; magnanimity.—If by *honour* is meant any thing diſtinct from conſcience, 'tis no more than a regard to the cenſure and eſteem of the world. *Rogers.*

Now I ſhall ſee thy love; what motive may
Be ſtronger with thee than the name of wife?
—That which upholdeth him, that thee upholds,
His *honour*, oh, thine *honour*, Lewis, thine *honour*. *Shakeſpeare.*

Reverence; due veneration. To *do honour* is to treat with reverence.—This is a duty in the fifth commandment, required towards our prince and our parent, under the name of *honour*. *Rogers.*—Chaſtity:

Be ſhe *honour*-flaw'd,
I have three daughters, the eldeſt is eleven;
If this prove true, they'll pay for't. *Shakeſpeare.*

Dignity of mien:

Two of far nobler ſhape, erect and tall,
Godlike erect: with native *honour* clad,
In native majeſty, ſeem'd lords of all. *Milton.*

Glory; boaſt.—A late eminent perſon, the *honour* of his profeſſion for integrity and learning. *Burnet.*—Public mark of reſpect.—Such diſcourſes, on ſuch mournful occaſions as theſe, were inſtituted not ſo much in *honour* of the dead, as for the uſe of the living. *Atterbury.*

He ſaw his friends, who, whelm'd beneath the waves,
Their fun'ral *honours* claim'd, and aſk'd their quiet graves.
*Dryden.*

Privileges of rank or birth:

Henry the ſeventh, truly pitying
My father's loſs, like a moſt royal prince,
Reſtor'd to me my *honours*; and from ruins
Made my name once more noble. *Shakeſpeare.*

Civilities paid:

Then here a ſlave, or if you will, a lord,
To do the *honours*, and to give the word. *Pope.*

Ornament; decoration:

The ſire then ſhook the *honours* of his head,
And from his brows damps of oblivion ſhed. *Dryden.*

*Honour*, or *on my honour*, is a form of proteſtation uſed by the lords in judicial deciſions.—My hand to thee, my *honour* on my promiſe. *Shakeſpeare.*

Dr. Blair, in the third volume of his admirable Sermons, has given us the *true* definition of the term HONOUR.—"By the true *honour* of man (ſays this admirable writer,) is to be underſtood, not what merely commands external reſpect, but what commands the reſpect of the heart; what raiſes one to acknowledged eminence above others of the ſame ſpecies; what always creates eſteem, and in its higheſt degree, produces veneration. The queſtion now before us is, from what cauſe this eminence ariſes? By what means is it to be attained?" After ſhowing that it does not ariſe from riches, from the dignity of rank or office, or from the ſplendid actions and abilities which excite admiration, he proceeds to ſhow, that ſimilar remarks may be applied to all the reputation derived from civil accompliſhments; from the refined politics of the ſtateſman; or the literary efforts of genius and erudition: "Theſe beſtow, and, within certain bounds, ought to beſtow, eminence and diſtinction on men. They diſcover talents which in themſelves are ſhining; and which become highly valuable, when employed in advancing the good of mankind. Hence, they frequently give riſe to fame. But a diſtinction is to be made between fame, and true honour. The former is a loud and noiſy applauſe: the latter, a more ſilent and internal homage. Fame floats on the breath of the multitude: honour reſts on the judgment of the thinking. Fame may give praiſe, while it withholds eſteem: true honour implies eſteem mingled with reſpect. The one regards particular diſtinguiſhed talents; the other looks up to the whole character. Hence the ſtateſman, the orator, or the poet, may be famous; while yet the man himſelf is far from being honoured. We envy his abilities; we wiſh to rival them; but we would not chuſe to be claſſed with him who poſſeſſed them. Inſtances of this ſort are too often found in every record of ancient or modern hiſtory.

"From all this it follows, that, in order to diſcern where man's true honour lies, we muſt look, not to any adventitious circumſtance of fortune; not to any ſingle ſparkling quality; but to the whole of what forms a man; what intitles him, as ſuch, to rank high among the claſs of beings to which he belongs; in a word, we muſt look to the mind and the ſoul. A mind ſuperior to fear, to ſelfiſh intereſt and corruption; a mind governed by the principles of uniform rectitude and integrity; the ſame in proſperity and adverſity; which no bribe can ſeduce, nor terror overawe; neither by pleaſure melted into effeminacy, nor by diſtreſs ſunk into dejection; ſuch is the mind which forms the diſtinction and eminence of man. One, who in no ſituation of life is either aſhamed or afraid of diſcharging his duty, and acting his proper part with firmneſs and conſtancy; true to the God whom he worſhips, and true to the faith which he profeſſes to believe; full of affection to his brethren of mankind; faithful to his friends, generous to his enemies, warm with compaſſion to the unfortunate; ſelf-denying to little private intereſts and pleaſures, but zealous for public intereſt and happineſs; magnanimous, without being proud; humble, without being mean; juſt without being harſh; ſimple in his manners, but manly in his feelings; on whoſe word you can entirely rely; whoſe countenance never deceives you; whoſe profeſſions of kindneſs are the effuſions of his heart: one, in fine, whom, independent of any views of advantage, you would chuſe for a ſuperior, could truſt in as a friend, and could love as a brother. This is the man, whom in your heart, above all others, you do, you muſt, honour."

A more noble inſtance of the true honour of a ſoldier, cannot be given, than that which is recorded of Norby, grand admiral of Denmark, when his king and commander, Chriſtian II. ordered him to aſſaſſinate *Chriſtine*, a Swediſh lady of rank, who had fallen into his hands.—"No, (replied Norby,) this employment is not ſuited to me. I am a ſoldier; not an executioner. I have learnt to obey you, but without ſhame, and without crime. Command me, and, if it be neceſſary, I will brave a thouſand deaths;—ſpare neither my property nor my life, for they belong to my king—MY HONOUR ALONE BELONGS TO MYSELF."

*To* HON'OUR, *v. a.* [*honnorer*, Fr. *honoro*, Lat.] To reverence; to regard with veneration.—The poor man is *honoured* for his ſkill, and the rich man is *honoured* for his riches. *Eccleſ.* x. 31.—To dignify; to raiſe to greatneſs:

We nouriſh 'gainſt our ſenate
The cockle of rebellion, inſolence, ſedition,
Which we ourſelves have plough'd for, ſow'd and ſcatter'd,
By mingling them with us, the *honour'd* number. *Shakeſpeare.*

To glorify.—I will harden Pharoah's heart, that he ſhall follow after them, and I will be *honoured* upon Pharoah and upon all his hoſt, that the Egyptians may know that I am the Lord. *Exod.* xiv.

HON'OUR, *ſ.* in the feodal tenures, a ſeigniority, or manerial liberty, on which other inferior manors or lordſhips ſometimes depend. See the article GAME, vol. viii. p. 233, where the *Honours* ſtill recogniſed in England are enumerated.

HON'OUR, (COURT OF,) A court peculiar to the ſeigniority above-mentioned, exactly ſimilar to the Court Baron; for which ſee the article COURTS OF LAW, vol. v. p. 298.—There is alſo a *Court of Honour* of the earl marſhal of England, conſtituted for the purpoſe of deciding all diſputes concerning precedency, and points of honour, and the claims of heralds, and privileges of the Heralds' College. It is a court by preſcription; and had a priſon ſubſervient to it, called *White-lion*, in the borough of Southwark. 2 *Nelſ.* 935. This is alſo called the COURT OF CHIVALRY.

HON'OUR, (FOUNTAIN OF,) An epithet applied to crowned heads, who have the privilege of creating titles of honour and dignity; and of beſtowing them for life, or in hereditary ſucceſſion, as rewards to thoſe who have deſerved well of their king and country.

HON'OUR, (HEREDITARY.) See the article HERALDRY, vol. ix. p. 787–795, and the correſpondent Engravings of Hereditary Deſcent.

HON'OUR, (MAIDS OF,) Ladies in attendance upon the queen: they are ſix in number, and receive ſalaries of 300l. per annum each.

HON'OUR-POINT. See the article HERALDRY, vol. ix. p. 429, and the correſpondent Engraving.

HON'OURABLE, *adj.* [*honorable*, Fr.] Illuſtrious; noble.—Who hath taken this counſel againſt Tyre, the crowning city, whoſe merchants are princes, whoſe traffickers are the *honourable* of the earth? *Iſa.* xxiii. 8.—Great; magnanimous; generous:

Sir, I'll tell you,
Since I am charg'd in honour, and by him
That I think *honourable*. *Shakeſpeare.*

Conferring honour:

Then warlike kings, who for their country fought,
And *honourable* wounds from battle brought. *Dryden.*

Accompanied with tokens of honour:

Sith this wretched woman overcome
Of anguiſh rather than of crime hath been,
Preſerve her cauſe to her eternal doom;
And, in the mean, vouchſafe her *honourable* tomb. *Spenſer.*

Not to be diſgraced.—Here's a Bohemian Tartar tarries the coming down of thy fat woman:—let her deſcend, my chambers are *honourable*. *Shakeſpeare.*—Free from taint; free from reproach.—As he was *honourable* in all his acts, ſo in this, that he took Joppe for an haven. 1 *Mac.* xiv. 5.—Honeſt; without intention of deceit.—The earl ſent to know if they would entertain their pardon, in caſe he ſhould come in perſon, and aſſure it: they anſwered, They did conceive him to be ſo *honourable*, that from himſelf they would moſt thankfully embrace it. *Hayward.*—Equitable.

HON'OURABLENESS, *ſ.* Eminence; magnificence; generoſity.

HON'OURABLY, *adv.* With tokens of honour:

The rev'rend abbot,
With all his convent, *honourably* received him. *Shakeſpeare.*

Magnanimouſly; generouſly.—After ſome ſix weeks, which the king did *honourably* interpoſe, to give ſpace to his brother's interceſſion, he was arraigned of high treaſon, and condemned. *Bacon.*—Reputably; with exemption from reproach:

'Tis juſt, ye gods! and what I well deſerve:
Why did I not more *honourably* ſtarve! *Dryden.*

HON'OURER, *ſ.* One that honours; one that regards with veneration.—I muſt not omit Mr. Gay, whoſe zeal in your concern is worthy a friend and *honourer. Pope.*

HON'OURS, *ſ. plu.* Dignities, offices, privileges; court-cards at whiſt.

HONRU'BIA, a town of Spain, in New Caſtile: ten miles north-weſt of Alarcon.

HONS'BROUCK, a town of the duchy of Limburg: five miles north of Fauquemont.

HON'TAN (La, baron), a native of Gaſcony, who ſerved firſt in Canada, and was afterwards ſent to Newfoundland as the French king's lieutenant. He quarrelled with the governor, and then retired, firſt to Portugal, and afterwards to Denmark. He is known as the author of *Voyages dans l'Amérique Septentrionale,* 2 vols. 12mo. *Amſt.* 1705; in which he gives an account of the different tribes inhabiting North America, their government, laws, cuſtoms, religion, commerce, &c.

HON'THORST (Gerard), an eminent painter, born in 1592 at Utrecht. He received his firſt inſtructions under Bloemart, but finiſhed his ſtudies at Rome, where he remained ſeveral years, and performed various works. He particularly excelled in night-pieces and candle-lights, which were greatly admired by Rubens. On the invitation of Charles I. he came to England, and painted for the king ſeveral pieces, chiefly of the allegorical kind. He alſo made portraits of various perſons about the court. After his return to Holland he was much employed by the prince of Orange, whoſe palaces he decorated with hiſtory-pieces. He died at the Hague in 1660. This painter held a free and forcible pencil, and gave life and expreſſion to his figures, though they were deficient in grace and correctneſs. His beſt night-pieces are at Rome, in the Juſtinian gallery, and in ſome of the churches.

HON'THY, a river of Wales, which runs into the Uſk near Brecknock.

HONTIVE'ROS (Bernard), a learned Spaniſh Benedictine monk. By his learning and merits he raiſed himſelf to the firſt poſts of honour and confidence in his order, and to eminent dignities in the church. He was made profeſſor of theology in the univerſity of Oviedo, and had among other diſciples the celebrated Joſeph d'Aguirre, afterwards cardinal; and was alſo appointed confeſſor to his Catholic majeſty. He died in 1662, celebrated as the author of a work which is held in much eſtimation by the Catholic world, entitled, *Lacrymæ militantis Eccleſiæ,* &c.

HONTO'RIA DE VALDECARA'DOS, a town of Spain, in Old Caſtile: twenty-two miles weſt of Oſma.

HOO-TCHOO', a town of China, in the province of Kyang-ſee, ſeated on the eaſtern bank of the junction of the river Kyang with the lake Po-yang.

HOOD, in compoſition, is derived from the Saxon had, in German *heit,* in Dutch *heid.* It denotes quality; character; condition; as, *knighthood; childhood; fatherhood.* Sometimes it is written after the Dutch, as *maidenhead.* Sometimes it is taken collectively: as, *brotherhood,* a confraternity; *ſiſterhood,* a company of ſiſters.

HOOD, *ſ.* [hod, Sax. probably from heꝼod, head.] The upper covering of a woman's head:

In velvet, white as ſnow, the troop was gown'd;
Their *hoods* and ſleeves the ſame. *Dryden.*

Any thing drawn upon the head, and wrapping round it. He undertook ſo to muffle himſelf up in his *hood,* that none ſhould diſcern him. *Wotton.*—In falconry, a covering put over the hawk's eyes, when he is not to fly. An ornamental fold that hangs down the back of a graduate, to mark his degree.

*To* HOOD, *v. a.* To dreſs in a hood:

The cobler apron'd, and the parſon gown'd,
The friar *hooded,* and the monarch crown'd. *Pope.*

To blind as with a hood:

While grace is ſaying, I'll *hood* mine eyes
Thus with my hat, and ſigh, and ſay Amen. *Shakeſpeare.*

To cover:

An hollow cryſtal pyramid he takes,
In firmamental waters dipt above;
Of it a broad extinguiſher he makes,
And *hoods* the flames that to their quarry ſtrove. *Dryden.*

*To* HOOD'-WINK, *v. a.* To blind with ſomething bound over the eyes.—Prejudice ſo dexterouſly *hood-winks* men's minds as to keep them in the dark, with a belief that they are more in the light. *Locke.*

On high, where no hoarſe winds or clouds reſort,
The *hood-wink'd* goddeſs keeps her partial court. *Garth.*

To cover; to hide:

Be patient; for the prize I'll bring thee to
Shall *hood-wink* this miſchance. *Shakeſpeare.*

To deceive; to impoſe upon.—While *hood-wink'd* with kindneſs, he leaſt of all men knew who ſtruck him. *Sidney.*

HOOD'-WINKING, *ſ.* The act of partially blinding.

HOOD'S ISLAND, an iſland in the South Pacific Ocean, and the moſt northerly of thoſe called *The Marquis of Mendoza's Iſlands,* diſcovered by captain Cook in 1774; about ſixteen leagues in circumference. Lat. 9. 26. S. lon. 138. 52. W. Greenwich.

HOOD'ED MIL'FOIL. See UTRICULARIA.

HOOD'ING, *ſ.* The act of putting on a hood.

HOOF, *ſ.* [hoꝼ, Sax. *hoef,* Dut.] The hard horny ſubſtance, on the feet of graminivorous animals.—With the *hoofs* of his horſes ſhall he tread down all thy ſtreets. *Ezek.* xxvi. 11.

HOOF'-BOUND, *adj.* Having a contracted hoof; a fault very common in horſes; to remedy which, ſee the article FARRIERY, vol. vii. p. 260.

HOOF'ED, *adj.* [from *hoof.*] Furniſhed with hoofs.—Among quadrupeds, the roe-deer is the ſwifteſt; of all the *hoofed,* the horſe is the moſt beautiful; of all the clawed, the lion is the ſtrongeſt. *Grew.*

HOOFT (Peter Cornelius van), an eminent Dutch writer, born at Amſterdam in 1581. He attached himſelf to writing in his native language, and obtained the higheſt reputation both in poetry and hiſtory. His hiſtory of the Low-countries, commencing with the reſignation of Charles V. and going down to 1588, was much valued for the accuracy of its political and military ſtatements. It was firſt printed at Amſterdan in 1642, and has been ſeveral times reprinted. He wrote in Latin the hiſtory of Henry IV. of France, and a relation of the deſtinies of the houſe of Medicis. His epiſtles, comedies, and poems, have been publiſhed in four volumes. Hooft was lord of Muyden, judge of Goyland, and received the order of St. Michael from Louis XIII. He died at the Hague in 1647.

HOO'GE-WALUWE, a town of Holland: five miles weſt of Gertrudenburg.

HOO'GEVEEN (Henry), an able philologiſt, born of parents in humble life at Leyden, in 1712. He was ſent to ſchool at ten years of age; and in his twentieth year he obtained the place of under-maſter of the ſchool of Gorcum. In 1733, he was appointed maſter of the ſchool of Woerden; and he afterwards followed the occupation of a ſchool-maſter at Culemburg, Breda, Dort, and Delft, at which laſt city he died in 1794. His works are, *Vigerus de Idiotiſmis Linguæ Græcæ, Leyd.* 1743, ſeveral times reprinted; his additions and improvements of the original work are highly valuable: ſome poems, orations, and other occaſional pieces: *Doctrina particularum Linguæ Græcæ,* 2

2 vols. 4to. 1769; a work of great erudition, and procured for the author a high reputation throughout Europe. Its prolixity rendered it not ſo uſeful to ſtudents, but a valuable abridgment of it by Schutz, in 1782, has anſwered the purpoſe of learners. A poſthumous work of Hoogeveen, entitled, *Dictionarum Analogicum Græcum*, was printed at the preſs of the univerſity of Cambridge.

HOOG'LY, a city of Hindooſtan, in the country of Bengal, on the weſt ſide of a river of the ſame name. In the time of the Mahometan government, it was the place where the duties and merchandize, brought up the weſtern branch of the Ganges, were collected: twenty miles north of Calcutta, and ſeventy-five ſouth of Moorſhedabad.

HOOG'LY, a river of Hindooſtan, formed by the union of two branches of the Ganges, the Coſſimbuzar and Jellinghy; the only branch of the Ganges uſually navigated by ſhips. It paſſes by Hoogly, Chinſura, Chandernagore, Calcutta, &c. and runs into the Bay of Bengal. Lat. 21. 40. N. lon. 88. E. Greenwich.

HOOG'STRATEN, a town of Brabant, built in 1212 by Henry duke of Brabant: fifteen miles north of Herentals, and twenty-four ſouth-weſt of Bois-le-Duc.

HOOG'STRATEN (David van), a Latin poet, born at Rotterdam in 1658. He ſtudied at Leyden; and reſided ſome time at Dordrecht, till he was invited to be teacher in the Gymnaſium of Amſterdam. In 1724, he unfortunately got his death by falling into one of the canals. His works are: 1. *Poemata Libri XI, & altera Editio Auctior. Rotterd.* 1710, 8vo. *auct. Amſt.* 1729, 8vo. 2. *Phædri Fabulæ, cum Notis, ibid.* 1699, 12mo. and 1706, 12mo. He afterwards publiſhed a ſplendid edition, with learned annotations, for the uſe of the prince of Naſſau, *Amſt.* 1701, large 4to. with engravings. 3. *Cornelius Nepos, cum Notis ſelectis*, 1691 and 1706, 12mo. 4. *Terentii Comœdiæ, cum Locis parallelis, & Indice Formularum uberrimo*, 1718, 12mo. 5. *Nieuw Woordenbock der Nederlandſche en Latynſche Taal*; New Dutch and Latin Dictionary, 1704, 4to. He ſuperintended alſo the publication of *Jani Broukhuſii Poemata, Lib. XVI.* 1711.

HOOK, *ſ.* [hoce, Sax. *hoeck*, Dut.] Any thing bent ſo as to catch hold; as, a ſhepherd's *hook*, and pot-*hooks*.—They aſſayed with great *hooks* and ſtrong ropes to pull it down. *Knolles.*—The curvated wire on which the bait is hung for fiſhes, and with which the fiſh is caught:

Thou divine Plato thus of pleaſures thought,
They us with *hooks* and baits, like fiſhes, caught. *Denham.*

A ſnare; a trap:

A ſhop of all the qualities that man
Loves women for, beſides that *hook* of wiving,
Fairneſs which ſtrikes the eye. *Shakeſpeare.*

An iron to ſeize the meat in the caldron:

About the caldron many cooks accoil'd,
With *hooks* and ladles, as need did require. *Fairy Queen.*

A ſickle to reap corn.—Peaſe are commonly reaped with a *hook* at the end of a long ſtick, called hacking. *Mortimer.*—An inſtrument to cut or lop with:

Not that I'd lop the beauties from his book,
Like ſlaſhing Bentley with his deſperate *hook*. *Pope.*

The part of the hinge fixed to the poſt: whence the proverb, *off the hooks*, for in diſorder:

My doublet looks,
Like him that wears it, quite *off* o' *the hooks*. *Cleaveland.*

**Hook or Crook.** One way or other; by any expedient; by any means direct or oblique. *Ludicrous.*—He would bring him by *hook or crook* into his quarrel. *Dryden.*

Which he by *hook or crook* had gather'd,
And for his own inventions father'd. *Hudibras.*

*To* HOOK, *v. a.* To catch with a hook. To intrap; to inſnare. To draw as with a hook. To faſten as with a hook. To draw by force or artifice.—There are many branches of the natural law no way reducible to the two tables, unleſs *hooked* in by tedious conſequences. *Norris.*

HOOK'A, *ſ.* A convoluted pipe, of a ſingular conſtruction, through which tobacco is ſmoked in moſt parts of Aſia. See the article Hindoostan.

HOOKE (Nathaniel), well known as the author of a Roman Hiſtory. He is ſaid, from the year 1723, to his death in 1764, to have enjoyed the confidence and patronage of perſons diſtinguiſhed as well by their virtue as their rank. He was recommended to Sarah ducheſs of Marlborough, to aſſiſt her in compiling the memoirs of her own life, for which ſervice ſhe preſented him with five thouſand pounds. The book, entitled, An Account of the Conduct of the Ducheſs of Marlborough, from her firſt coming to Court, to the Year 1710, was publiſhed in 1742. Hooke's great work, The Roman Hiſtory, from its earlieſt periods to the ſettlement of the empire under Octavius, is compriſed in 4 vols. 4to. publiſhed in 1733, 1745, 1764, and 1771. It is a performance of great accuracy and preciſion in the detail of facts, and conſiderable critical acumen in the diſcuſſion of contrary evidences and authorities. The ſtyle is clear and perſpicuous, beſides being eſteemed for its impartiality. Another work upon Roman affairs was Obſervations on four Pieces upon the Roman Senate, 1758, 4to. in which he diſcuſſed the opinions of Vertot, Middleton, and Chapman, not without ſome ſeverity with reſpect to the two latter. He alſo attempted to invalidate the hiſtorical authority of Dionyſius of Halicarnaſſus. This work produced a reply from Mr. Spelman, the tranſlator of Dionyſius. He likewiſe publiſhed a tranſlation of Ramſey's Travels of Cyrus.

HOOKE (Robert), an eminent Engliſh mathematician, born at Freſhwater, in the Iſle of Wight, where his father was rector, in 1635. After his father's death, he was ſent to Weſtminſter ſchool, where he was patroniſed by Dr. Buſby. Here he made conſiderable proficiency in Euclid's Elements, as well as in Latin and Greek. In 1653, he was ſent to Chriſtchurch College, Oxford; and in 1655, he was introduced to the Philoſophical Society in that city. He was ſome time afterwards employed to aſſiſt Dr. Willis in his chemical operations; and he was by that gentleman recommended to the honourable Robert Boyle, whom he attended for ſeveral years in the ſame capacity. In 1655, likewiſe, he was inſtructed in aſtronomy by Dr. Seth Ward, Savilian profeſſor of that ſcience; and, applying himſelf to improve the pendulum for aſtronomical obſervations in the two ſubſequent years, he contrived a method of continuing the motion of the pendulum, the invention of which was ſo ſtrongly recommended by Riccioli, in his Almageſt. Having made ſome trials for this purpoſe, which ſucceeded to his wiſh, he endeavoured to improve his diſcovery ſtill further, in order to make uſe of it for finding the longitude; and by applying ſprings to the arbor of the balance of the watch, for regulating its vibrations in any poſture, he invented, in 1658 and the following year, what is now called the pendulum-watch. At leaſt the Engliſh contend that the honour of this diſcovery is due to their countryman, while the French, Dutch, &c. aſcribe it to Huygens. About the ſame time Mr. Hooke invented ſeveral aſtronomical inſtruments, for making obſervations both at ſea and land, and was particularly ſerviceable to Mr. Boyle, in completing the invention of the air-pump.

When the Royal Society was firſt eſtabliſhed by charter in 1663, Mr. Hooke was one of thoſe firſt nominated by the council; and he afterwards became a member of the council himſelf. During the ſame year he was nominated by lord Clarendon, chancellor of the univerſity of Oxford, for the degree of M. A. ſoon after which the repoſitory of the Royal Society was ordered to be committed to his care; and in 1665, the Royal Society choſe him their curator of experiments for life; ſoon after which he was elected profeſſor of geometry at Greſham college. He now publiſhed his *Micographia*, or philoſophical Deſcriptions of ſome minute Bodies made by Magnifying-Glaſſes;

in folio. In 1668, Mr. Hooke was engaged in a warm and long conteſt with Hevelius, concerning the difference in accuracy between obſerving with aſtronomical inſtruments with plain and teleſcopic ſights; which he managed ſo ill as to be univerſally condemned, though it has ſince been agreed that he had the beſt ſide of the queſtion. In 1671, he attacked Newton's Theory of Light and Colours; in which controverſy he is ſaid to have come off with a better reputation than in that with the Dantzic philoſopher. In 1674, he publiſhed An Attempt to prove the Motion of the Earth from Obſervations, 4to. His deſign in this work was left imperfect; but the foundation which he laid encouraged Mr. Samuel Molyneux and Mr. Bradley afterwards to build upon it, and to determine the point by purſuing Mr. Hooke's plan, which was preferred as the beſt for that purpoſe. In the ſame year, he publiſhed his Animadverſions on the firſt part of the *Machina Cœleſtis* of Hevelius, which conſtituted a part of the controverſy already noticed. In 1675, he publiſhed, A Deſcription of Helioſcopes, and ſome other Inſtruments, made by R. H. with a Poſtſcript, complaining of ſome injuſtice done him by Mr. Oldenburg, the publiſher of the Philoſophical Tranſactions, with reſpect to his claim to the invention of pendulum-watches. This charge involved him in a diſpute with that gentleman, which was terminated by a declaration of the Royal Society in their ſecretary's favour. During this diſpute he publiſhed, in 1667, his *Lampas*, or mechanical Improvements of Lamps and Water-poiſes, 4to. Upon the death of Oldenburg, Mr. Hooke was appointed to ſupply his place in the office of ſecretary to the Royal Society; but this appointment appears to have been only temporary, ſince Dr. Nehemiah Grew was choſen ſecretary in the following month, and was entruſted with the care of publiſhing the Tranſactions. In 1678, Mr. Hooke publiſhed his *Lectures de Potentia Reſtitutiva*; or of Springs, explaining the Powers of ſpringing Bodies, to which are added ſome Collections, 4to. And alſo his Lectures and Collections, entitled, *Cometa & Microſcopium*, 4to. In 1681, he read his lectures on Light and Luminous Bodies, which are printed in his Poſthumous Works; and he likewiſe publiſhed his Philoſophical Collections, 4to. From this time he became more reſerved; and though he read his Cutlerian lectures, and often diſcloſed a variety of new inventions to the Royal Society, yet he ſeldom left any account of them to be entered in their regiſters.

Upon the publication of Newton's Principia, in 1686, Mr. Hooke laid claim to that great man's diſcovery concerning the force and action of gravity; which was warmly reſented by that philoſopher; who, in letters that paſſed between him and Dr. Halley, refuted theſe pretenſions in the moſt ſatiſfactory manner. In 1691, he was employed in the great and benevolent buſineſs of forming a plan for the hoſpital near Hoxton, which was founded by alderman Aſke, who appointed archbiſhop Tillotſon one of his executors; and in the ſame year Mr. Hooke was created M. D. by a warrant from that prelate. In 1696, his health began viſibly to decline, and contiued ſo to do in ſpite of every medical aid; inſomuch that he was obliged to deſiſt from lecturing in the ſummer of 1698, and was under the neceſſity of reſigning to Dr. Halley the taſk of drawing up an account of the laſt of his inventions, that of the marine barometer; which was read before the Royal Society in February 1700. At length, quite emaciated, he died at his apartments in Greſham college, in 1702, in the ſixty-eighth year of his age.

Dr. Hooke, in his perſon, was of a mean appearance, being ſhort of ſtature, very crooked, pale, lean, and of a meagre aſpect, with lank brown hair, which he wore hanging over his face till within three years of his death; but he was indefatigable in the purſuit of his various ſtudies, and always contented himſelf with little ſleep, and that taken very irregularly. He was well acquainted with the ancient languages, and all branches of the mathematics; but his mechanical genius, and great ſagacity in penetrating into the ſecrets of nature, were his diſtinguiſhing talents. His works, beſides the articles already enumerated, conſiſt of, 1. *Lectiones Cutlerianæ*, or the Cutlerian Lectures. 2. A folio volume of Poſthumous pieces, publiſhed by Richard Waller, eſq. in 1705. 3. Philoſophical Experiments and Obſervations, &c. printed by Dr. Derham, in a miſcellaneous collection, 1726, 8vo. and a vaſt number of papers inſerted in the Philoſophical Tranſactions.

HOOK'ED, *adj.* [from *hook.*] Bent; curvated.—*Gryps* ſignifies eagle or vulture; from whence the epithet *grypus*, for a *hooked* or aquiline noſe. *Brown.*

Now thou threaten'ſt, with unjuſt decree,
To ſeize the prize which I ſo dearly bought:
Mean match to thine; for ſtill above the reſt,
Thy *hook'd* rapacious hands uſurp the beſt. *Dryden.*

HOOK'EDNESS, *ſ.* [from *hooked.*] State of being bent like a hook.

HOOK'ER (Richard), a learned divine of the church of England, born at Heavy-Tree, near Exeter, in 1553, of parents in humble life. Having the good fortune to be introduced while a youth to the notice of Dr. Jewel, biſhop of Saliſbury, that good prelate ſent him to the univerſity of Oxford. In this ſeminary he applied to his ſtudies with the greateſt ardour and diligence, and diſtinguiſhed himſelf by his proficiency in learning, as well as by his prudence, humility, and piety. When he had been at the univerſity about four years, he received the melancholy tidings of the death of his worthy patron. Providence, however, raiſed him up two other patrons, in Dr. Cole, then preſident of his college, and Dr. Edwin Sandys, biſhop of London, and afterwards archbiſhop of York; by whoſe intereſt he was elected ſcholar of his college in 1573. In 1577 he was admitted to the degree of M. A. and in the ſame year was elected fellow of his college. In 1579, on account of his ſkill in the oriental languages, he was appointed deputy-profeſſor of the Hebrew tongue in the univerſity; and in 1581, he entered into holy orders, and ſoon afterwards was appointed to preach at St. Paul's-croſs, in London. During his accommodation at a public houſe, he was induced to marry the landlord's daughter; by which he loſt his fellowſhip, and was obliged to quit the univerſity, before he had obtained any preferment. He continued without a benefice till the winter of 1584, when he was preſented to the rectory of Drayton-Beauchamp, in Buckinghamſhire. Not long after he was ſettled in this ſituation, his patron biſhop Sandys procured for him the appointment of maſter of the Temple. But, though this was a valuable preferment, it was not accepted by Mr. Hooker without much reluctance. A rural retirement was better ſuited to his natural diſpoſition, in which, as he himſelf expreſſed it, he might "ſee God's bleſſings ſpring out of the earth, and be free from noiſe, and eat that bread which he might more properly call his own, in privacy and quietneſs." However, the biſhop's arguments prevailed, and, in 1585, he entered on the duties of his office. After ſome years, Mr. Hooker was deſirous of exchanging his preferment for a more retired and tranquil ſcene; and more particularly ſo, as he had begun his famous work Of the Laws of Eccleſiaſtical Polity, which he found himſelf incapable of proceeding with to his ſatiſfaction at the Temple. Upon making known his wiſhes to archbiſhop Whitgift, and appriſing him of the undertaking on which he was employed, Mr. Hooker was preſented, in 1591, to the rectory of Boſcomb, in Wiltſhire; and in the ſame year he was appointed a prebend, and ſubdean, in the cathedral church of Saliſbury. At Boſcomb he finiſhed four books of his celebrated work, which were publiſhed in 1594. In 1595 he quitted Boſcomb, and was preſented by queen Elizabeth to the rectory of Biſhop's-Bourne, in Kent, where he reſided during the remainder of his life, diſcharging the duties of his function in the moſt exemplary manner. In this place he compoſed the fifth book of his work, which was publiſhed by itſelf in

1597; and he alſo finiſhed there the ſixth, ſeventh, and eighth, books, which he did not live to publiſh. In the year 1600, Mr. Hooker, in conſequence of a violent cold, was affected by a long ſevere illneſs, which in the end proved fatal to him. He died in November 1600, when only in the forty-ſeventh year of his age. His treatiſe on Eccleſiaſtical Polity, procured him a very great and extenſive reputation, both at home and abroad.

HOOK'ING, *ſ.* The act of catching with a hook.

HOOK'LAND, *ſ.* Land ploughed and ſown every year. *Scott.*

HOOK'NOSED, *adj.* Having the aquiline noſe riſing in the middle.—I may juſtly ſay, with the *hooknoſed* fellow of Rome there, Cæſar, I came, ſaw, and overcame. *Shakeſpeare.*

HOOK'SET FALLS, ſtupendous falls on Merrimack river, in North America, juſt below the mouth of Suncook, ſeven miles above Amuſkeag Falls, and eight miles below Concord, in New Hampſhire.

HOOKS'TOWN, a town of the American States, on the weſt ſide of Cheſapeak Bay, in Maryland, in Baltimore county, ſix miles north-weſt of the town of Baltimore.

HOOKS'TOWN, a town of the American States, on the eaſt ſide of Cheſapeak Bay, in Talbot county, Maryland, lies north of Eaſton, and ſouth-weſt of Williamſburg, nearly three miles from each.

HOO'LA, a town of Norway, in the dioceſe of Aggerhuus: thirty-two miles north-weſt of Chriſtiania.

HOOLAI'VA, one of the Friendly Iſlands, among thoſe called the iſlands of Hapaee: thirty miles north-eaſt from Annamooka.

HOOLEADROO'G, or OLIADUR'GAM, a fortreſs of Hindooſtan, in the Myſore country, taken by the Britiſh troops on the 23d of June, 1791: twenty-four miles weſt-ſouth-weſt of Bangalore, and twenty-two north-north-eaſt of Seringapatam.

HOO'LY ONO'RE, a town of Hindooſtan, in the Myſore country, ſituated at the conflux of the Tum and the Budra, where their united ſtreams form the Tumbudra. On the 19th of December, 1791, this town was taken by the Britiſh troops: twenty-ſix miles weſt of Periapatam, and fifty-ſix north-weſt of Seringapatam.

HOON'GA-HAPAEE', a ſmall iſland among the Friendly Iſlands, in the South Pacific Ocean: ten leagues north of Tongataboo.

HOON'GA-TON'GA, one of the ſmaller Friendly Iſlands: nine leagues north of Tongataboo.

HOOP, *ſ.* [*hoep*, Dut.] Any thing circular by which ſomething elſe is bound, particularly caſks or barrels:

Thou ſhalt prove a ſhelter to thy friends,
A *hoop* of gold to bind thy brothers in,
That the united veſſel of their blood
Shall never leak. *Shakeſpeare.*

The whalebone with which women extend their petticoats; a farthingale.—All that *hoops* are good for is to clean dirty ſhoes, and to keep fellows at a diſtance. *Clariſſa.*

At coming in you ſaw her ſtoop;
The entry bruſh'd againſt her *hoop.* *Swift.*

Any thing circular.—I have ſeen at Rome an antique ſtatue of Time, with a wheel or *hoop* of marble in his hand. *Addiſon.*

*To* HOOP, *v. a.* To bind or encloſe with hoops.—The three-*hoop'd* pot ſhall have ten *hoops*, and I will make it felony to drink ſmall beer. *Shakeſpeare.*—To encircle; to claſp; to ſurround:

I *hoop* the firmament, and make
This my embrace the zodiac. *Cleaveland.*

*To* HOOP, *v. n.* [from *wopgan*, or *wopyan*, Gothic; or *houpper*, French, derived from the Gothic. This word is generally written *whoop*, which is proper if we deduce it from the Gothic; and *hoop*, if we derive it from the French.] To ſhout; to make an outcry by way of call or purſuit.

*To* HOOP, *v. a.* To drive with a ſhout:

Daſtard nobles
Suffer'd me, by the voice of ſlaves, to be
*Hoop'd* out of Rome. *Shakeſpeare.*

To call by a ſhout.

HOOP, a town of Norway, in the government of Wardhuys: ſeventy-ſix miles weſt of Wardhuys.

HOOP'ER, *ſ.* [from *hoop*, to incloſe with hoops.] A cooper; one that hoops tubs.

HOO'PER (George), a learned Engliſh prelate, born at Grimley, in Worceſterſhire, in 1640. He was educated in claſſical learning at Weſtminſter ſchool, whence he was elected a ſtudent of Chriſtchurch college, Oxford, in 1656. He diſtinguiſhed himſelf at college by his proficiency in philoſophy, the mathematics, Greek and Roman antiquities, and the Oriental languages; particularly the Arabic, of which he made conſiderable uſe in explaining ſeveral obſcure paſſages of the Old Teſtament. In 1672, he was appointed chaplain to Dr. Morley, biſhop of Wincheſter, who ſoon afterwards preſented him to the rectory of Havant, which he exchanged for that of Woodhay, in Hampſhire. In the following year he took the degree of B. D. He had now acquired ſo reſpectable a character for learning, prudence, and engaging manners, that archbiſhop Sheldon prevailed upon Dr. Morley to permit him to remove to Lambeth, to become chaplain to that prelate, who in 1675 collated him to the rectory of that place, and not long afterwards to the precentorſhip of Exeter. In 1677 he proceeded D. D. and in the ſame year was ſent into Holland, to attend the princeſs of Orange as her almoner. After his return, he was appointed chaplain to king Charles II. In 1691, during the abſence of William III. in Holland, his conſort queen Mary, without any application on his part, promoted Dr. Hooper to the deanery of Canterbury, and at the ſame time gave him permiſſion to hold both the livings which he poſſeſſed. On this occaſion, however, he thought it his duty to reſign his rectory of Woodhay. In 1701, he was choſen prolocutor to the lower houſe of convocation; and was alſo offered the primacy of Ireland, by the earl of Rocheſter, then lord-lieutenant.

In 1702, by the queen's expreſs command, Dr. Hooper was made biſhop of St. Aſaph; in which ſee he continued about half a year, and generouſly refuſed the uſual mortuaries paid by the Welſh clergy to their new biſhops, ſaying, that they ſhould never pay ſo dear for the ſight of him. During the following year, he was tranſlated to the ſee of Bath and Wells. By his humane, wiſe, and courteous, conduct, in his new ſituation, he gained the entire affections of the gentry and clergy of his dioceſe; and, in return, no offers could induce him to think of a tranſlation from them. For he could not be perſuaded to accept of the biſhopric of London, on the death of biſhop Compton; nor of the archbiſhopric of York, on the death of archbiſhop Sharp. After preſiding over his ſee twenty-four years and ſix months, biſhop Hooper died at Berkley, in Somerſetſhire, in 1727, at the advanced age of eighty-ſeven. He was the author of a learned and laborious Diſcourſe concerning Lent, in two Parts; the firſt an hiſtorical Account of its Obſervation; the ſecond, an Eſſay concerning its Original, 1694, intended to ſhow that moſt of our Chriſtian ordinances, and the obſervance of Lent, are derived from the Jews. 2. A Calculation of the Credibility of human Teſtimony, publiſhed in the Philoſophical Tranſactions for October 1799. 3. *De Valentiniarum Hæreſi Conjecturæ, quibus illius Origo ex Ægyptiacâ Theologiâ deducitur*, 1711, 4to. 4. An Enquiry into the State of ancient Meaſures, the Attic, the Roman, and eſpecially the Jewiſh; with an Appendix concerning our old Engliſh Money, and Meaſures of Content, 1721, 8vo. 5. *De Patriarchæ Jacobi Benedictione, Gen. XLIX. Conjecturæ*, publiſhed by the reverend Mr. Hunt, of Harthall, Oxford, with a preface a preface and notes collected out of the Arabic manuſcripts in the Bodleian library; and numerous controverſial tracts, Sermons, &c. The above were collected together, and printed at Oxford in 1757, in one folio volume.

HOO'PER (John), a pious Engliſh prelate, born in Somerſetſhire, about the year 1495. He received his academical education at the univerſity of Oxford, and took his degree of B. A. in 1518. Upon the acceſſion of Edward VI. Mr. Hooper was appointed to preach the Lent ſermons. He was alſo ſent to preach throughout the counties of Kent and Eſſex, in order to forward the doctrine of the Reformation. When in 1549 meaſures were purſued for depriving Bonner of his biſhopric, Hooper was one of his principal accuſers before the commiſſioners; which conduct was cruelly revenged by that prelate in the reign of queen Mary. In 1550, he was appointed biſhop of Glouceſter. After his confecration he was appointed to preach before the king; and then haſtened to his dioceſe. Here his conduct was truly praiſe-worthy, and acquired him univerſal reſpect and affection. For his hoſpitality, generoſity, and liberality to the poor, he was eminently conſpicuous. In 1552, upon the deprivation of Heath biſhop of Worceſter, he was preſented to that ſee, with liberty to keep it *in commendam* with Glouceſter. This new dioceſe, while it enlarged his ſphere of action, alſo greatly increaſed his means of uſefulneſs; and they were improved and exerciſed by him with the utmoſt diligence and fidelity. But ſcarcely was queen Mary ſeated on the throne, in 1553, when a ſtate meſſenger was ſent to bring up biſhop Hooper to London, to anſwer complaints, exhibited againſt him by Heath, the deprived biſhop of Worceſter, and Bonner, who pretended that he had falſely accuſed him in the late reign. Upon his arrival in London he was carried before the council, by whoſe order he was committed to the Fleet; and repeatedly carried for examination before the queen's council, who accuſed him of hereſy, and ordered him to be delivered up to the ſecular power. He was now removed to Newgate; and from thence ſent under the guard of a troop of horſe to the city of Glouceſter, where it was determined that he ſhould be burnt in the midſt of his affectionate and ſorrowful flock. On the 9th of February, 1555, he was led to the ſtake, not being ſuffered to ſpeak to the weeping multitude; and was there uſed in a barbarous manner, as the fire was made of green wood, in conſequence of which his lower limbs were ſlowly conſumed, while his vitals were unaffected; and he underwent the moſt dreadful torments for above three quarters of an hour. He bore them, however, with true Chriſtian patience and fortitude; and the laſt words which he was able to utter were, "Lord Jeſus, receive my ſpirit." At the time of his martyrdom, he was about ſixty years of age. He was the author of numerous controverſial treatiſes, Sermons, Homilies, Expoſitions, Lectures, Confeſſions, intereſting Letters, &c.

HOO'PER (George), a learned writer, biſhop of Bath and Wells. He was eminent in mathematics, and well ſkilled in the eaſtern learning and languages. He ſat in thoſe dioceſes above twenty-four years; often refuſed a ſeat in the privy council, and could not be prevailed upon to accept of the biſhopric of London on the death of biſhop Compton. He wrote, 1. The Church of England free from the Imputation of Popery. 2. A Diſcourſe concerning Lent. 3. New Danger of Preſbytery. 4. An Inquiry into the State of the Ancient Meaſures. 5. *De Valentinianorum hæreſi conjecturæ.* 6. Several excellent Sermons; and other works.

HOO'PER's ISLAND and STRAITS, in the American States, lie on the eaſt ſide of Cheſapeak Bay, and on the ſouth-weſt coaſt of Dorcheſter county, Maryland. The iſland is ſeven miles long, and two and a half broad.

HOO'PING, *ſ.* The act of putting on hoops; the act of coughing, or whooping.

HOO'PING-COUGH, *ſ.* [or *whooping-cough*, from *hoop*, to ſhout.] A convulſive cough, ſo called from its noiſe; the chin-cough.

HOO'POE. See UPUPA.

HOO'REN. See HORN.

HOORINGOT'TA, a river of Hindooſtan, one of the mouths of the Ganges, which runs into the Bay of Bengal. Lat. 21. 50. N. lon. 95. E. Greenwich.

HOORN, a ſeaport town of Holland, ſituated on the Zuyder Sea. Before the year 1390 it was only a hamlet; in 1426 it was ſurrounded with walls; in 1508 it was conſiderably enlarged, and the harbour, which is one of the beſt in the Zuyder See, was made in 1577. It now holds the ſecond rank among the cities of North Holland after Alcmaer. In 1557, a ſtorm broke down the dams, and filled the town with water, ſo as to threaten its total deſtruction; however, on the ceaſing of the ſtorm, the waters retreated, and they have ſince made the dams ſufficient to reſiſt ſo dangerous an enemy. The town is fortified, has five gates, and ſome handſome buildings, churches, and hoſpitals. The land about is exceedingly rich, and produces great quantities of cheeſe and butter, beſides fattening great quantities of cattle, which are brought lean from the more northern parts of Europe: eleven miles eaſt of Alcmaer. Lat. 52. 39. N. lon. 22. 26. E. Ferro.

HOORN, or HORN, a town of Germany, in Weſtphalia, which gives name to a ſmall county, in the biſhopric of Liege. The male line of the counts became extinct in 1568: one league weſt of Ruremond, and four ſouth of Venlo.

HOO'RNBEECK (John), a Dutch proteſtant divine, born at Haerlem in 1617. At fifteen years of age he was ſent to the univerſity of Leyden, where he made a conſiderable progreſs in literature. He was admitted to the miniſtry in 1639, and went to Cologne to exerciſe the duties of his function. In 1643 he returned to Holland, and was admitted to the degree of doctor of divinity. He had now acquired ſuch a reputation for learning and talents, that, in 1644, he was called to the theological chair at Utrecht. In 1645 he was alſo choſen miniſter in ordinary of the church of that city. In 1654 he accepted of an invitation to remove to Leyden, where he filled ſimilar poſts with thoſe which he had occupied at Utrecht, and continued a ſhining ornament of that celebrated univerſity, until his death, in 1666, when about forty-nine years of age. His application was intenſe; and he underſtood many languages, both ancient and modern; as the Latin, Greek, Hebrew, Rabbinical, Chaldee, Syriac, Dutch, German, Engliſh, French, Italian, Arabic, and Spaniſh. He was the author of, 1. *Inſtitutiones Theologicæ.* 2. *Irenicum de Studio Pacis & Concordiæ*, 4to. 3. *De Conſociatione Evangelica inter Reformatos & Evangelicos*, 4to. 4. *Socinianiſmi Confutati, Tomi tres*, 4to. 5. *Pro Convincendis & Convertendis Judæis Lib. VIII.* 4to. 6. *De Converſione Gentilium Lib. II.* 4to. 7. *Examen Bullæ Urbani VIII. de Jeſuitiſſis, Imaginibus, & Feſtis*, 4to. 8. *Examen Bullæ Innocentii X. de Pace Germaniæ*, 4to. 9. *Epiſtola ad Duræum de Independentiſmo*, 8vo. 10. *Commentarius de Paradoxis Weigelianis*, 12mo. 11. *Apologia pro Eccleſia Chriſtiana Hodierna, contra Libellum, ad Legem & Teſtimonium*, 8vo. 12. *De Obſervanda a Chriſtianis Præcepto Decalogi Quarto*, 12mo. 13. *De Epiſcopatu*, 8vo. 14. *Theologiæ Practicæ, Tomi duo*, 4to. 15. *Summa Controverſarum, &c.* 8vo. 16. *Miſcella Vetera & Nova*; various Orations on public occaſions; and ſeveral treatiſes, written in the Dutch language.

HOO'SACK, a river of the American States, in the ſtate New York, which falls into the Hudſon from the eaſt, about eight miles above the city of Lanſinburgh. It riſes in Berkſhire county, Maſſachuſetts, runs north-weſterly through Pownal in Vermont, thence into New York State. Its length is about forty miles.

HOOZUA'NA INDIANS, a wandering tribe of ſavages, inhabiting the ſouth-weſt of Africa, and much dreaded by the neighbouring Hottentots. Vaillant, in his Second Journey in Africa, deſcribes them as follows: "The *Hoozuana* is of ſmall ſtature, and he is a tall man among them who reaches five feet; but theſe ſmall bodies, perfectly proportioned, unite with wonderful ſtrength and agility a certain air of aſſurance, boldneſs, and pride, which awes the ſpectator, and pleaſed me infinitely. Of all the tribes of ſavages which I have known, none has appeared to me endowed with ſo active a ſoul, and ſo indefatigable a conſtitution. Their head, though it has the principal characters of that of the Hottentot, is yet more rounded at the chin. They are alſo much leſs black, and have that leaden hue of the Malays, which, at the Cape, is diſtinguiſhed by the name of *booguined*. Their hair, more frizzled, is ſo ſhort, that at firſt I thought them ſhaved. Their noſe is ſtill flatter than that of the Hottentot; or rather, they have no noſe, and the organ in them conſiſts of two flattened noſtrils, projecting, at moſt, five or ſix lines. From this nullity of noſe it reſults that the Hoozauana, viewed in profile, is ugly, and very like a monkey. Viewed in front there appears at the firſt glance ſomething very extraordinary, the forehead ſeeming to occupy more than half of the face. Yet he has ſo much expreſſion, and ſuch large and lively eyes, that, notwithſtanding this ſingular appearance, he is agreeable enough to the view.

"The heat of the climate freeing him from all neceſſity of clothing, he is quite naked during the whole year, except a very ſmall jackal-ſkin tied over his loins by two ſtraps, the ends of which fall on his hams. Hardened by this conſtant habit of nudity, he becomes ſo inſenſible to the variations of the atmoſphere, that, when he tranſports himſelf from the burning ſands of the plain to the ſnows and froſts of the mountains, he ſeems not to feel the cold. His hut does not reſemble that of the Hottentot. It is cut vertically in the middle, ſo that one of the Hottentot huts would make two of theſe. In their emigrations, they ſuffer the kraal (or encampment) to remain; in order that, if any other horde of their nation ſhould paſs that way, they might make uſe of it. On the march, they have no other ſhelter for repoſe than a mat ſuſpended and inclined on two ſticks; and they frequently ſleep on the bare ground, when the projection of a rock ſerves them for ſhelter. If, however, they ſtop any where to ſojourn for ſome time, and find materials for the conſtruction of their huts, they then build a kraal; but, at their departure, they leave it like all the reſt. This cuſtom of working for their comrades announces a ſociable character, and benevolent diſpoſitions. In fact, they are not only good huſbands and fathers, but excellent aſſociates. In the ſame kraal, no one appropriates any thing to himſelf, but all belongs to all. When they meet with other bands of the ſame nation, they give them a kind reception and protection; in ſhort, they treat them as brothers, though perhaps they have never before ſeen them.

"The Hoozuana has no other arms than a bow and arrow; the latter are very ſhort, and are carried on the ſhoulder in a quiver about eighteen inches long and four in diameter, made of the bark of aloe-wood, and covered with the ſkin of a great lizard found in all the rivers. Obliged to maintain a numerous company, and deſirous of making the horde partake of my plenty of game, I went daily to hunt, and was always attended by a large number of Hoozuanas. If I hunted in the mountains, I climbed the rocks with them; in the plain, I uſed one of my horſes; but, whether it was their office to follow me, or to drive towards me the zebras and gazelles, they were always indefatigable; and at whatever pace I put my horſe, I ſaw them ſtill at my ſide. During all the long journey which they performed with me, never did they belie their character. In many reſpects they ſeemed to reſemble the Arabs, who, equally wanderers, equally brave and predatory, are unchangeably faithful in their engagements, and would defend to the laſt drop of blood the traveller who purchaſes their ſervices, and puts himſelf under their protection. Were my project of croſſing Africa entirely from north to ſouth practicable, it could only be with theſe Hoozuanas. I am convinced that fifty men of this ſober, brave, and indefatigable, nation, would have ſufficed me to effectuate it; and I ſhall ever regret having known them too late, and under circumſtances in which innumerable misfortunes had compelled me to renounce my deſign, at leaſt for the preſent."

*To* HOOT, *v. n.* [*hwt*, Welſh; *huer*, Fr.] To ſhout in contempt.—Matrons and girls ſhall *hoot* at thee no more. *Dryden.*—To cry as an owl.—The clamorous owl, that nightly *hoots*. *Shakeſpeare.*

*To* HOOT, *v. a.* To drive with noiſe and ſhouts.—Partridge and his clan may *hoot* me for a cheat and impoſtor, if I fail in any particular of moment. *Swift.*

HOOT, *ſ.* [*huée*, Fr.] Clamour; ſhout; noiſe.—Its aſſertion would be entertained with the *hoot* of the rabble. *Glanville.*

HOOT'ING, *ſ.* The act of making the noiſe of the owl, the cry of the owl.

*To* HOP, *v. n.* [hoppan, Sax. *happen*, Dut.] To jump; to ſkip lightly:

I would have thee gone,
And yet no further than a wanton's bird,
That lets it *hop* a little upon her hand,
And with a ſilk thread plucks it back again. *Shakeſpeare.*

To leap on one leg.—Men with heads like dogs, and others with one huge foot alone, whereupon they did *hop* from place to place. *Abbot.*—To walk lamely, or with one leg leſs nimble or ſtrong than the other; to limp; to halt:

The limping ſmith obſerv'd the ſadden'd feaſt,
And, *hopping* here and there, himſelf a jeſt. *Dryden.*

To move; to play:

Softly feel
Her feeble pulſe, to prove if any drop
Of living blood yet in her veins did *hop*. *Fairy Queen.*

HOP, *ſ.* A jump; a light leap. A jump on one leg.—When my wings are on, I can go above a hundred yards at a *hop*, ſtep, and jump. *Addiſon.*—A place where meaner people dance. *Ainſworth.*

HOP, *ſ.* in botany. See the generic name HUMULUS, in this volume.

*To* HOP, *v. a.* [from *hops*.] To impregnate with hops.—To increaſe the milk, diminiſhed by fleſh-meat, take malt-drink not much *hopped*. *Arbuthnot.*

HOP-BIND, *ſ.* The plant on which hop grows.—It is made felony without benefit of clergy, maliciouſly to cut any *hop-binds* growing in a plantation of hops. *Blackſtone.*

HOP-GARDEN, *ſ.* A garden in which hops are cultivated.

HOP-GROUND, *ſ.* Ground appropriated to the culture of hops.

HOP-HILL, *ſ.* The hillock raiſed round earth-plant in a hop-yard. *Mortimer.*

HOP-HORN'BEAN, *ſ.* in botany. See CARPINUS.

HOP'-POLE, *ſ.* A tall thin ſtick to ſupport hops as they grow.

HOPE, *ſ.* [hopa, Sax. *hope*, Dut.] Expectation of ſome good; an expectation indulged with pleaſure.—Faith is oppoſed to infidelity, and *hope* to deſpair. *Taylor.*

Sweet *hope!* kind cheat! fair fallacy! by thee
We are not where or what we be,
But what and where we would be: thus art thou
Our abſent preſence, and our future now. *Crawſhaw.*

Confidence in a future event, or in the future conduct of any perſon.—It is good, being put to death by men, to look for *hope* from God, to be raiſed up again by him. 2 *Mac.* vii. 14.—Bleſſed is he who is not fallen from his *hope* in the Lord. *Eccleſ.* xiv. 2.—That which gives hope; that on which the hopes are fixed, as an agent by which ſomething deſired may be effected.—I might ſee from far ſome forty truncheoneers draw to her ſuccour, which were the *hope* of the Strand where ſhe was quarter'd. *Shakeſpeare.*—The object of hope:

She was his care, his *hope*, and his delight,
Moſt in his thought, and ever in his ſight. *Dryden.*

HOPE, *ſ.* Any ſloping plain between the ridges of mountains. *Ainſworth.*

*To* HOPE, *v. n.* To live in expectation.—*Hope* for good ſucceſs, according to the efficacy of the cauſes and the inſtrument; and let the huſbandman *hope* for a good harveſt. *Taylor.*

Who knows what adverſe fortune may befall!
Arm well your mind; *hope* little, and fear all. *Dryden.*

To place confidence in another.—He ſhall ſtrengthen your heart, all ye that *hope* in the Lord. *Pſal.* xxxi. 24.

*To* HOPE, *v. a.* To expect with deſire:

The ſun ſhines hot; and, if we uſe delay,
Cold biting winter mars our *hop'd*-for hay. *Shakeſpeare.*

So ſtands the Thracian herdſman with his ſpear
Full in the gap, and *hopes* the hunted bear. *Dryden.*

HOPE, a river of the iſland of Jamaica, which runs into the ſea five miles ſouth of Kingſton.

HOPE, a town of the American States, in Suſſex county, New Jerſey, on the poſt-road from Newtown to Eaſton in Penſylvania, ſixteen miles ſouth-weſt of the former, and twenty north-eaſt of the latter. It is principally inhabited by the Moravian United Brethren.

HOPE, a bay on the north-weſt coaſt of North America, ſo named by captain Cook. The entrance of Nootka, or St. George's Sound, is ſituated in the eaſt corner of Hope Bay, in lat. 49. 33. N. lon. 233. 12. E.

HOPE, a Moravian ſettlement in Wachovia, in north Carolina, in Surrey county, where is a meeting-houſe of the United Brethren.

HOPE, a ſmall iſland of the American States, in Narraganſet Bay, Rhode Iſland.

HOPE BAY, a bay in the Engliſh Channel, on the coaſt of Kent, between Sandwich and Ramſgate.

HOPE ISLANDS, two ſmall iſlands on the north-eaſt coaſt of New Holland. Lat. 15. 41. S.

HOPE'A, *ſ.* [ſo named by Dr. Garden in honour of *Dr. Hope*, profeſſor of botany at Edinburgh.] In botany, a genus of the claſs polyadelphia, order polyandria, (monadelphia, *L'Herit*,) and in the natural order of guaiacanæ, *Juſſ.* The generic characters are—Calyx: perianthium one-leafed, bell-ſhaped, five-cleſt; clefts ovate, blunt, permanent. Corolla: petals five, oblong, concave, connected at the baſe by the intervention of the bunches of the ſtamens. Stamina: filaments very many, briſtle-ſhaped, longer than the corolla, connected at the baſe in five bodies; antheræ quadrangular. Piſtillum: germ inferior roundiſh; ſtyle gradually thickening, the length of the corolla, permanent; ſtigma thickiſh, obliquely depreſſed. Pericarpium: drupe dry, oval-cylindric, gibbous, crowned with the calyx. Seed: nut ſmooth, three-celled, protracted by a blunt tip.—*Eſſential Character.* Calyx five-cleft, ſuperior; corolla five-petalled; ſtamina many, connected in five bodies; ſtyle one; drupe with a three-celled nut.

Hopea tinctoria: a ſingle ſpecies. It is a tree, with alternate, petioled, ſimple, oblong, lanceolate-ovate, ſubſerrate ſhining, nerveleſs, ſweet leaves. The peduncles burſt forth from buds upon the topmoſt branchlets, eight or ten together, before the leaves, and are diſpoſed in a very ſhort ſpike, on very ſhort one-flowered pedicels, clothed with ſmall concave villoſe leaflets. The flowers are ſucceeded by ſubſeſſile fruits, below the leaves, in a very ſhort ſpike. It flowers early in the ſpring, and is then extremely ſweet. The juice or a decoction of the leaves will dye linen and ſilk of a bright yellow colour. Native of Carolina.

HO'PEFUL, *adj.* Full of qualities which produce hope; promiſing: likely to obtain ſucceſs; likely to come to maturity; likely to gratify deſire, or anſwer expectation:

What to the old can greater pleaſure be,
Than *hopeful* and ingenious youth to ſee? *Denham.*

Full of hope; full of expectation of ſucceſs.—I was *hopeful* the ſucceſs of your firſt attempts would encourage you to make trial alſo of more nice and difficult experiments. *Boyle.*

Whatever ills the friendleſs orphan bears,
Bereav'd of parents in his infant years,
Still muſt the wrong'd Telemachus ſuſtain,
If, *hopeful* of your aid, he hopes in vain. *Pope.*

HO'PEFULLY, *adv.* [from *hopeful.*] In ſuch manner as to raiſe hope; in a promiſing way.—He left all his female kindred either matched with peers of the realm actually, or *hopefully* with earls' ſons and heirs. *Wotton.*—With hope; without deſpair.—From your promiſing and generous endeavours we may *hopefully* expect a conſiderable enlargement of the hiſtory of nature. *Glanville.*

HO'PEFULNESS, *ſ.* [from *hopeful.*] Promiſe of good; likelihood to ſucceed.—Set down beforehand certain ſignatures of *hopefulneſs*, or characters whereby may be timely deſcribed what the child will prove in probability. *Wotton.*

HO'PELESS, *adj.* [from *hope.*] Without hope; without pleaſing expectation; deſpairing.—Alas! I am a woman, friendleſs, *hopeleſs! Shakeſpeare.*

*Hopeleſs* of ranſom, and condemn'd to lie
In durance, doom'd a ling'ring death to die. *Dryden.*

Giving no hope; promiſing nothing pleaſing:

The *hopeleſs* word of Never to return,
Breathe I againſt thee upon pain of life. *Shakeſpeare.*

HO'PELESSLY, *adv.* [from *hopeleſs.*] Without hope. Is your laſt hope paſt to mollify Morecraft's heart about your mortgage? *Hopeleſsly* paſt. *Beaumont and Fletcher.*

HO'PER, *ſ.* [from *hope.*] One that has pleaſing expectations.—I except all *hopers*, who turn the ſcale, becauſe the ſtronger expectation of a good certain ſalary will outweigh the loſs by bad rents. *Swift.*

HO'PEWELL, a townſhip of the American States, in Cumberland county, in the province of New Brunſwick, ſituated on Chepodie river, which runs eaſterly into a northern arm of the Bay of Fundy, and is navigable five miles.

HO'PEWELL, a townſhip of the American States, in Huntingdon county, New Jerſey, ſituated on Delaware river, fourteen miles weſt of Prince-town, eleven above Trenton, and thirty ſouth-weſterly of New Brunſwick. Another townſhip of this name lies in Cumberland county, New Jerſey.

HO'PEWELL, the name of three townſhips of the American States, in Pennſylvania, viz. in York, Huntingdon, and Waſhington, counties.

HO'PEWELL HEAD, a cape in Hudſon's Bay. Lat. 58. 10. N. lon. 78. W. Greenwich.

HOP'FENBACH, a town of Germany, in the duchy of Carniola: five miles north of Rudolfswerth.

HOPF'GARTEN, a town of Germany, in Bavaria, and archbiſhopric of Saltzburg: thirty-eight miles ſouth-weſt of Saltzburg, and ſix north-eaſt of Rathburg.

HOPH'NI, *ſ.* [Heb. one that covereth.] A man's name.

HO-PING', a town of China, of the third rank, in the province of Quang-tong: thirty-ſeven miles eaſt-north-eaſt of Lien-ping.

HO'PINGLY, *adv.* [from *hoping.*] With hope; with expectation of good.

HOPITAL' (L'), a town of France, in the department of the Rhône and Loire, ſeventeen miles ſouth of Roanne.

HOP'KINS (Ezekiel), an Engliſh prelate of the church of Ireland, born at Sandford, in Devonſhire, in 1633. In 1649, he was ſent to Magdalen college, in the univerſity of Oxford; and after he had taken his degree of B. A. in 1653, was appointed uſher of the adjoining ſchool. He was admitted to the degree of M. A. in 1656; ſoon after which he was appointed chaplain of his college. On the paſſing of the act of uniformity, he went to Exeter, and became miniſter of St. Mary's church in that city. Here he acquired the countenance and eſteem of Dr. Seth Ward, biſhop of the dioceſe; and was highly eſteemed as an elegant and impreſſive preacher. Having by accident among his hearers, John lord Roberts, afterwards earl of Truro, that nobleman was ſo well pleaſed with his preaching, that, upon his going lord lieutenant to Ireland in 1669, he took Mr. Hopkins with him as his chaplain; gave him his daughter Araminta in marriage; and promoted him to the deanery of Raphoe. Upon his return to England, lord Roberts recommended his chaplain ſo powerfully to his ſucceſſor, lord Berkeley, that in 1671 he was conſecrated biſhop of Raphoe. In 1681 he was tranſlated to the ſee of Londonderry, where he continued till the war commenced in Ireland between the ſupporters of the revolution under king William, and the partiſans of king James headed by the earl of Tyrconnel, when he retired to England. In 1689 the pariſhioners of St. Mary Aldermanbury, in London, ſelected him their miniſter; but he died in the following year, at the age of fifty-ſeven. He ſent nothing to the preſs excepting ſome ſingle Sermons, which were reprinted in an octavo volume in 1685. After his death were publiſhed from the manuſcripts which he left behind him, An Expoſition on the Ten Commandments, 1691, 4to. An Expoſition of the Lord's Prayer, 1692, 4to; to which were afterwards added ſome Sermons on Providence, and the excellent advantages of reading and ſtudying the holy Scriptures; and a ſecond volume of Sermons, 1693, 8vo. Theſe works have been held in much eſteem, and were printed in a collective form in 1710, folio.

HOP'KINS (William), a learned divine of the church of England, born at Monmouth in 1706. He received his education in grammar-learning at the free-ſchool of his native town; whence he was ſent to All-Souls college, Oxford, in 1724. He took his degree of B. A. in 1728; and in the ſame year was admitted into deacon's orders. In 1729, he undertook the curacy of Waldron, in Suſſex; and while he retained this ſituation was ordained prieſt, in 1730. In 1731, he was appointed curate to the rector of Buxted, with the chapel of Cuckfield, in Suſſex, and alſo aſſiſtant to the maſter of the ſchool at Cuckfield; ſoon after which he was preſented to the vicarage of Bolney, in the ſame neighbourhood. In 1758, he was elected maſter of the grammar-ſchool of Cuckfield; and in 1763, he reviſed and publiſhed The Liturgy of the Church of England, in its ordinary Service, reduced nearer to the Standard of Scripture. When the propoſal was made to preſent a petition to parliament, for relief in the matter of ſubſcription to the liturgy and thirty-nine articles of the church of England, Mr. Hopkins moſt heartily concurred in that meaſure; and he attended the firſt meeting of the partizans of that petition, which was held in London in 1771; and though his houſe at Cuckfield was forty miles diſtant from the metropolis, and he was then upwards of ſixty years of age, he performed his journey on foot. In the following year Mr. Hopkins publiſhed two able treatiſes in defence of the cauſe in which he had embarked; entitled, Queries recommended to the Conſideration of the Public, with Regard to the thirty-nine Articles; and A Letter to the Rev. Dr. Joſiah Tucker, Dean of Glouceſter, occaſioned by his Apology for the preſent Church of England, &c. wherein every material Article is examined, by a petitioning Clergyman. The laſt work which he ſent to the preſs was, Exodus, a corrected Tranſlation; with Notes Critical and Explanatory, 1784, 4to. In the execution of this work, he has derived great advantages from Dr. Kennicott's Collation, and the Samaritan Pentateuch; and the notes, which are very judicious, ſerve to make an uſeful addition to the ſtock of ſcriptural criticiſm. He died in 1786, in the eightieth year of his age.

HOP'KINS, or HOPKINSVILLE, a townſhip of the American States, in Caledonia county, Vermont; ſo called, becauſe the diſtrict was granted to Dr. Hopkins: eleven miles north-weſt of the upper bar of the Fifteen Mile Falls in Connecticut river.

HOP'KINTON, a townſhip of the American States, in Hillſborough county, New Hampſhire, on Contoocook river, nine miles ſouth-weſt from its confluence with the Merrimack, and divided from Concord on the eaſt by the Rockingham county line. It was firſt granted by Maſſachuſetts, and incorporated in 1765: forty-two miles eaſt-by-ſouth of Charleſtown on Connecticut river, and ſixty-four weſt-by-north of Portſmouth.

HOP'KINTON, a townſhip of the American States, in Middleſex county, Maſſachuſetts, incorporated in 1715. The rivers Concord, Providence, and Charles, receive each of them a branch from this town. Theſe ſtreams feed eight griſt-mills, a number of ſaw-mills, iron-works, &c.

HOP'KINTON, a townſhip of the American States, in Waſhington county, Rhode-Iſland, ſituated on the weſt line of the State, on ſeveral branches of Pawcatuck river. It contains by the cenſus 2462 inhabitants.

HOP'LITES, or HOPLITÆ, in Grecian antiquity, were ſuch of the candidates at the olympic games as ran races in armour. One of the fineſt pieces of the famous Parrhaſius, was a painting which repreſented two hoplitæ; the one running, and ſeeming to ſweat large drops; the other laying his arms down, as quite ſpent and exhauſted.

HOPLITODRO'MOS, *ſ.* [from οπλον, Gr. armour, and δρεμω, I run.] In the ancient gymnaſtic ſports, a term applied to ſuch perſons as went through thoſe robuſt exerciſes in complete armour, by which the exerciſe became much more violent, and the wearing of armour in the time of battle much more eaſy.

HOPLOCRIS'MA, *ſ.* [from οπλον, Gr. a weapon, and χρισμα, a ſalve.] A ſalve which was ſaid to cure wounds by ſympathy; that is, by anointing the inſtrument, though at ever ſo great a diſtance, with which the wound was made. It was vulgarly called *the ſympathetic medicine.*

HOPLOM'ACHI, *ſ.* [οπλον, Gr. armour, and μαχομαι, to fight.] A ſpecies of gladiators who fought in armour; either completely armed from head to foot, or only with a caſk and cuiraſs.

HOPLOS'MIA, one of the names of Juno.

HOP'PER, *ſ.* [from *hop.*] He who hops or jumps on one leg. *Ainſworth.*

HOP'PER, *ſ.* [ſo called becauſe it is always *hopping*, or in agitation. It is called in French, for the ſame reaſon, *tremie*, or *tremue.*] The box or open frame of wood into which the corn is put to be ground.—Granivorous birds have the mechaniſm of a mill; their maw is the *hopper* which holds and ſoftens the grain, letting it drop by degrees into the ſtomach. *Arbuthnot.*—A baſket for carrying ſeed. *Ainſworth.*

HOP'PING, *ſ.* The act of leaping on one leg, or of impregnating with hops.

HOP'TON HEATH, a place of England, in the county of Stafford, where the royaliſts were defeated by the troops of the parliament, on the 19th of March, 1642, near Stafford.

HOR, a mountainous tract of Arabia Petræa, ſituated in that circuit which the Iſraelites took to the ſouth and ſouth-eaſt of Edom in their way to the borders of Moab: on this mountain Aaron died. The inhabitants were called *Horites.* This tract was alſo called *Seir*, either from a native Horite, or from Eſau, by way of anticipation from his hairy habit of body; whoſe poſterity drove out the Horites. It was the thirty-third encampment of the Iſraelites in their journey from Egypt to Canaan. *Numb.* xx. 22, &c. xxxiii. 37.

HOR-HAGID'GAD. See GUDGODAH.

HO'RA, a goddeſs at Rome, ſuppoſed to be Herſilia, who married Romulus. She was ſaid to preſide over beauty. *Ovid.*

HO'RA AURO'RÆ, *ſ.* [Latin.] The morning-bell, or what we now call the *four-o'clock bell*, was anciently called *Hora Auroræ*; as our *eight-o'clock bell*, or the bell in the evening, was called *ignitegium*, or *coverfeu*. See the article Curfew-Bell, vol. v. p. 482.

HO'RADNIC, a town of Poland, in the palatinate of Red Ruſſia: ſixty miles north-weſt of Zytomiers.

HO'RÆ, in mythology, three ſiſters, daughters of Jupiter and Themis, according to Heſiod, called Eunomia, Dice, and Irene. They were the ſame as the ſeaſons who preſided over the ſpring, ſummer, and winter, and were repreſented by the poets as opening the gates of heaven and of Olympus. *Homer.*

HORAI'DAN, a town of Perſia, in the province of Farſiſtan: twenty-eight leagues north-weſt of Schiras.

HO'RAL, *adj.* [from *hora*, Lat.] Relating to the hour:

Howe'er reduc'd and plain,
The watch would ſtill a watch remain;
But, if the *horal* orbit ceaſes,
The whole ſtands ſtill, or breaks to pieces. *Prior.*

HO'RAM, a man's name.

HORAPOL'LO, or Horus Apollo, author of a work on hieroglyphics, which has come down to our times. He is ſuppoſed to have been a grammarian of Panoplus in Egypt, mentioned by Suidas, who firſt taught at Alexandria, and afterwards at Conſtantinople, in the reign of Theodoſius. Aldus Manutius firſt publiſhed, in Greek, the Hieroglyphics of Horapollo, two books, 1505, folio. They were afterwards tranſlated into Latin, and ſeveral times reprinted. The beſt edition is that of Cornelius de Pauw, Greek and Latin, with notes, Utrecht, 1727, 4to.

HO'RARY, *adj.* [*horaire*, Fr. *horarius*, Lat.] Relating to an hour:

I'll draw a figure that ſhall tell you
What you perhaps forgot befell you,
By way of *horary* inſpection,
Which ſome account our worſt erection. *Hudibras.*

Continuing for an hour.—When, from a baſket of ſummer-fruit, God by Amos foretold the deſtruction of his people, thereby was declared the propinquity of their deſolation, and that their tranquillity was of no longer duration than thoſe *horary* or ſoon-decaying fruits of ſummer. *Brown.*

HORA'TII, three Roman brothers, who, under the reign of Tullus Hoſtilius, fought againſt the three Curiatii, who belonged to the Albanian army. Two of the Horatii were firſt killed; but the third, by his addreſs, ſucceſſively ſlew the three Curiatii, and by this victory rendered the city of Alba ſubject to the Romans. See the article Rome.

HORA'TIUS, ſurnamed Cocles from loſing an eye in combat. He was nephew to the conſul Horatius Pulvillus, and deſcended from one of the three brothers who fought againſt the Curiatii. Porſenna, laying ſiege to Rome, drove the Romans from Janiculum, and purſued them to the wooden bridge over the Tiber, which joined the city to Janiculum. Largius, Herminius, and Horatius Cocles, ſuſtained the ſhock of the enemy on the bridge, and prevented their entering the city with the Romans; but, Largius and Herminius having paſſed the bridge, Horatius Cocles was left alone, and repulſed the enemy till the bridge was broken under him: he then threw himſelf armed into the Tiber, ſwam acroſs the river, and entered Rome amidſt the acclammations of his fellow-citizens.

HORA'TIUS (Quintus Flaccus), one of the moſt elegant of the Roman poets, born at Venuſium, in the confines of Apulia and Lucania, in the year before Chriſt 65. His father was the ſon of a freedman, and followed the employment of a tax-gatherer; but, notwithſtanding the meanneſs of his origin, his ſentiments were liberal and elevated. Reſolving to give his ſon every advantage of education within his reach, he took him early to Rome, and cauſed him to be inſtructed in all the branches of knowledge which at that time were taught to youth of condition. At the age of eighteen he was ſent to Athens, to ſtudy philoſophy and Greek literature, which was become faſhionable among the Romans. When M. Brutus paſſed through that city in his way to Macedonia, he took with him ſeveral of the Roman ſtudents, and Horace among the reſt. What qualities Brutus diſcovered in the poet, which induced him to entruſt a legion to his care, as military tribune, we are not informed; but the poet freely acknowledges his want of martial ſpirit, which may lead us to ſuſpect that he had ingratiated himſelf by his wit and talents. The battle of Philippi, from which he eſcaped by a ſwift flight, unincumbered with his ſhield, put a period to his progreſs in the army; and, though his life was ſaved, he incurred the forfeiture of his property. He was now therefore to depend upon his literary talents as a reſource againſt indigence. He wrote ſome verſes, which recommended him ſo much to Virgil and Varius, that they generouſly ſpoke in his favour to Mecænas. He proved ſo agreeable to this patron of letters, that he made him his familiar companion; in which capacity he accompanied him to Brunduſium, in that journey which he has ſo agreeably deſcribed in verſe. Mecænas procured from Auguſtus Cæſar the reſtitution of Horace's eſtate, and made him perſonally known to that emperor, who afterwards became greatly attached to him. It is true, Horace purchaſed theſe favours by poetic adulation; but his deſires were very moderate, ſince he declined the official appointments offered him by Auguſtus. No man, indeed, ever lived among the great with a more independent ſpirit; and, though Horace kept the higheſt company, yet he loved a middle ſtation beſt, and knew its value. This ſeems to have been one of the moſt amiable features in his character. By the joint favour of the prince and miniſter, he doubtleſs might have accumulated a much larger fortune, and riſen to ſome very conſiderable office in public life; but he viewed things with too piercing an eye:

*Cur valle per mutum Sabinâ*
*Divitias operoſiores?*

It is not eaſy to infuſe the full meaning of Horace into a ſhort Engliſh ſentence: but let the reader take the general ſenſe as follows: "Why ſhould I exchange my Sabine farm for riches, which would be attended with ſo much greater cares and labours, anxieties and vexations?" His Athenian education unqueſtionably gave him a reliſh for the ſcholaſtic philoſophy of the times; but he has himſelf declared, that he enliſted under the banners of no maſter. In his graver pieces he moraliſes on the lofty maxims of the ſtoical ſchool, but his lighter ones are in the epicurean ſtrain; and all of them ſo uniformly pleaſant, and ſo univerſally inſtructive, that we may ſay of Horace what he ſays of Homer:

*Qui, quid ſit pulchrum, quid turpe, quid utile, quid non,*
*Planiùs ac meliùs Chryſippo et Crantore dicit.*

It is not too much to ſay that Horace, as a poet, was the delight of his own age; and, ſince the revival of letters, he has been the delight and the conſtant companion of every polite ſcholar. Even the rigid fathers of the church have borne teſtimony to his great merit, in ſpite of his high-ſeaſoned gallantry. The ſevere biſhop of Hippo recommends his works to be read, as containing an excellent ſyſtem of juſtice, patience, and frugality; while they expoſe almoſt every ſort of vice to ridicule and contempt. Yet all this is done with ſo much temper and good nature, that the vicious man himſelf can ſcarcely be offended:

*Omne vafer vitium ridenti Flaccus amico*
*Tangit; et admiſſus circùm præcordia ludit,*
*Callidus excuſſo populum ſuſpendere naſo.* Pers.

The dreſs in which he clothes his moral precepts, alſo, is ſo ſimple, yet ſo elegant, that nothing has equalled it: hence *Horatii curioſa felicitas*, is become proverbial. Auguſtus had ſo great a regard for him, that in his moments of relaxation he could never diſpenſe with his abſence, but conſtantly called for "*the amiable debauché.*" Complaining one day to the poet that his odes were too ſhort, "Take care," ſaid he to the emperor, "that your children do not appear greater than yourſelf."

Horace was the firſt Roman who rivalled the Greeks in lyric poetry through all its varieties. In ſatire he ſurpaſſed Lucilius, and divides the palm with Juvenal; and in the familiar epiſtolary ſtyle he has no competitor. If he attempted not the high epic, it was not becauſe he wanted powers, but becauſe he poſſeſſed not that patient perſeverance which an epic poem requires. Horace loved his caſe, and wrote only by ſtarts. He indeed called his compoſitions *operoſa carmina*; and they are evidently highly-finiſhed pieces: but ſtill they ſeem originally to have been the fruit of ſome immediate impulſe of no long duration, and to have been afterwards touched and retouched into their preſent perfection. His *Epiſtola ad Piſones*, commonly called his Art of Poetry, is the moſt admirable compoſition of the kind in any language. The fineſt taſte, the moſt delicate expreſſion, and the moſt exquiſite judgment, are diſcoverable in every line. If ſome moderns have been more methodical and comprehenſive on the ſame ſubject, how far are they not behind in every other reſpect! In ſhort, we venture to aſſert, that in no language is there ſuch purity of ſtyle, ſuch a fund of good ſenſe, and ſuch happineſs of expreſſion, as in the works of Horace.

The editions of this poet have been ſo numerous as almoſt to defy enumeration. A library has been formed of them alone, with the tranſlations into various languages. The fulleſt catalogue of both theſe is to be found in the Bipontine Horace, 1783. This admirable poet died in the year before Chriſt 8, in his fifty-ninth year, and was interred near the tomb of his patron Mecænas, whoſe death a ſhort time preceded his own.

HORAZDIOWIZ', a town of Bohemia, ſituated on the river Ottawa: eighteen miles eaſt of Piſek, and twenty-two north-weſt of Prachatiz.

HORB, a town of Germany, in Swabia, ſituated on the Neckar, with a conſiderable trade in woollen goods: ten miles ſouth-weſt of Rotenburg, and twenty-eight ſouth-weſt of Stuttgart.

HOR'BURG, a town of France, in the department of the Upper Rhine, and chief place of a canton, in the diſtrict of Colmar: half a league north-eaſt of Colmar, and two north-weſt of New Briſach.

HOR'BY, a town of Sweden, in the province of Skone: twenty-four miles ſouth-weſt of Chriſtianſtadt.

HORCAJA'DA, a town of Spain, in the province of Leon: forty miles eaſt of Civdad Rodrigo.

HORCA'JO, a town of Spain, in New Caſtile: twenty-ſeven miles ſouth-ſouth-weſt of Hueta.

HOR'CHEIM, a town of Germany, on the Upper Rhine, and biſhopric of Worms: two miles ſouth of Worms.

HOR'CISBERG, a town of Germany, in Upper Saxony: one mile north-eaſt of Saltzwedel.

HOR'DA, *ſ.* In old records, a cow in calf. *Phillips.*

HORDA'CEOUS, *adj.* [*hordeum*, Lat. barley.] Made of barley. *Scott.*

HORDE, *ſ.* A clan; a migratory race of people:

Of loſt mankind, in poliſh'd ſlavery ſunk,
Drove martial *horde* on *horde* with dreadful ſweep,
And gave the vanquiſh'd world another form. *Thomſon.*

HORDE'OLUM, *ſ.* [from *hordeum*, Lat. barley.] A tubercle on the eyelid reſembling a barley-corn.

HORDE'RIUM, *ſ.* In old records, a hoard; a treaſure; a ſtore.

HOR'DEUM, *ſ.* [either *horridum*, Lat. from *horreo*, on account of its long awns or beards; or, ſince it was anciently written *fordeum*, rather from φερϐω, Gr. to feed or nouriſh, whence φορϐη and *forbea*, and, changing the *b* into *d*, *fordeum*. *Voſſius.*] BARLEY, and BARLEY GRASS; in botany, a genus of the claſs triandria, order digynia, natural order of graſſes. The generic characters are—Calyx: common receptacle lengthened into a ſpike; glume ſix-leaved, three-flowered; flowers ſeſſile; leaflets diſtant, in pairs, linear, acuminate. Corolla: two-valved; lower valve bellying, angular, ovate-acuminate, longer than the calyx, ending in a long awn; inner valve lanceolate, flat, ſmaller; nectary-two-leaved; leaflets ovate, ſharp, ciliate. Stamina: filaments three, capillary, ſhorter than the corolla; antheræ oblong. Piſtillum: germ ovate-turbinate; ſtyles two, villoſe, reflex; ſtigmas ſimilar. Pericarpium: none; the corolla grows round the ſeed, without opening. Seed: oblong, bellying, angular, acuminate to both ends, marked with a groove on one ſide, (covered with the permanent corolla; radicles of the embryo ſix, *G.*)—*Eſſential Character.* Calyx lateral, two-valved, (valves narrow, acuminate, diſtant, all together forming a ſix-leaved involucre,) one-flowered, by threes, at each toothlet of the rachis.

*Species.* I. *Barleys.* 1. Hordeum vulgare, or ſpring barley: all the florets hermaphrodite, and awned in two very upright rows. Of the ſpring barley, which is principally cultivated in England, the farmers make two ſorts, viz. the common, and the rath-ripe, barley; but they are in fact the ſame: for the rath-ripe has only been an alteration, occaſioned by being long cultivated upon warm gravelly lands. The ſeeds of this, when ſown in cold or ſtrong land, will the firſt year ripen near a fortnight earlier than the ſeeds taken from ſtrong land; therefore the farmers in the vales generally purchaſe their ſeed-barley from the warm land; for, if ſaved in the vales two or three years, it will become full as late in ripening as the common barley of their own product; and the farmers on the warm land are alſo obliged to procure their ſeed-barley from the ſtrong land, otherwiſe their grain would degenerate in bulk and fulneſs, which by thus changing is prevented. This ſort of barley is eaſily diſtinguiſhed by the two orders of beards, or awns, which ſtand erect; the chaff being alſo thinner than that of the ſecond and fourth ſorts, is eſteemed better for malting. It is not known where this or any other ſort of grain grows wild. Cardan pretended that barley was a native of Athol in Scotland; Reideſel ſays the ſame of Sicily; and it has lately been affirmed to be found on the banks of Samara, a river of Tartary. Diodorus Siculus aſcribes the firſt culture of barley to Oſiris, who diſcovered it in a wild ſtate. The ancients fed their horſes with barley, as we do with oats. It was eaten alſo in bread by the lower ſort of people; and the gladiators were called *hordearii*, from their feeding on this grain. In ſome of the ſouthern parts of Europe they have two crops of barley; one ſown in autumn and cut in May, and another ſown in ſpring and cut in autumn. In ſome of the northern parts of Europe it is called *korn* excluſively; and it is much cultivated there on account of its taking a leſs time to ripen than other ſorts of grain. In Lapland, fifty-eight days only, or about two months, elapſe between the ſowing and the cutting it. But it is the ſecond ſort which is uſually ſown in northern climates. Rath-ripe or Patney barley is ſaid to have been returned to the barn in England in two months.

β. H. cœleſte, or Siberian barley, called in German *himmelſgerſte*, or *himmelſkorn*; in Swediſh, *himmelſkorn*; in French, *orge celeſte*; was introduced in 1768 by Mr. Haliday, who received a wine-glaſs full of this grain, on the the 25th of May, 1767, from a member of the Society of Arts, &c. at London, with this information, that a foreign nobleman had preſented that ſociety with about a pint of it, and that it came from Siberia. In 1768, Mr. Haliday, having near a quart of the ſeed, ſowed the whole in drills, the firſt week in May. The produce was hung up in ſacks in the ear, and in the beginning of April, 1769, was threſhed out, and produced near a buſhel. On the 19th and 20th of that month it was ſown in drills, and was reaped on the 14th and 15th of Auguſt. The produce was about thirty-ſix buſhels of clean corn. Two buſhels weighing 132 pounds, being ſent to the mill, yielded eighty pounds of fine flour, equal to London ſeconds, forty pounds of a coarſer ſort, and twelve pounds of bran, ſuperior to wheat bran. The beſt flour made excellent bread, ſufficiently light, and ſo retentive of moiſture, as to be as good, twelve or fourteen days after baking, as wheaten bread on the fourth day. And twelve pounds of barley and the ſame quantity of wheat flour, equally fine, being made into bread, and baked in the ſame oven, the wheaten loaf weighed fifteen, and the barley eighteen, pounds. Two buſhels of it, being malted, were brewed into a half-barrel of ale, and another of ſmall beer, both of which proved very good. Siberian barley has a broader blade, of a much deeper green, than common barley, at firſt coming up; the ears are ſhorter, having only from five to nine grains in length, whereas thoſe of the common ſort have from nine to thirteen; and in all ſtages it is a fortnight forwarder than common barley. The two ſorts being ſown in the ſame field on the 28th of April, 1774, three buſhels of each, the common barley produced thirty-ſix buſhels and a half, weighing fifty-two pounds each; and the Siberian produced thirty-two buſhels, weighing fifty-eight pounds each: but the ſoil was very dry, and much inclined to a gravel, which was to the diſadvantage of the latter, for it requires a richer land.

2. Hordeum hexaſtichon, winter or ſquare barley, bear, or big: all the florets hermaphrodite and awned, the grains placed regularly in ſix rows. Rarely cultivated in the ſouthern parts of England; but in the northern counties, and in Scotland, it is generally ſown, being much hardier than the other ſpecies, ſo will bear the cold; this has its grains diſpoſed in ſix rows. The grain is large and plump, but it is not ſo good for malting, which is the reaſon for its not being cultivated in the ſouthern parts of England, where the other ſorts, which are much better for that purpoſe, thrive well.

3. Hordeum diſtichon, or common barley: lateral florets male and awnleſs; grains angular, imbricated. The third ſort is the long-eared barley, which is cultivated in many parts of England, and is an exceeding good ſort; but ſome farmers object to it, becauſe they ſay, the ears being long and heavy, it is more apt to lodge. This has the grains regularly ranged in a double row, lying over each other like tiles on a houſe, or the ſcales of fiſhes. The huſk or chaff of this barley is alſo very thin, and is much eſteemed for malting.

β. H. nudum. Mortimer ſays, that they cultivated in Staffordſhire a ſort of *naked barley*, or *wheat-barley*, the ear ſhaped like barley, but the grain like wheat; that it is much ſown at Rowley, Hamſtal, and Redmore, where they call it *French barley*; that it makes good bread, and good malt, and yields a good increaſe. No mention being made of this grain in Mr. Pitt's View of the Agriculture of this County, drawn up for the conſideration of the Board of Agriculture, and printed in 1796; we may conclude that it is no longer cultivated there. Villars deſcribes it as having a larger finer grain, the weight and ſize of wheat, and ſeparating from the huſk, whence its name; he adds, that it is nicer reſpecting ſoil, and more difficult to cultivate, but yields a larger produce, and is of a better quality, than common barley.

4. Hordeum zeocriton, ſprat or battledore barley: lateral florets male and awnleſs; grains angular, ſpreading, corticated. This has ſhorter and broader ears than either of the other ſorts; the awns, or beards, are longer, and the grains are placed cloſer together; and, the awns being long, the birds cannot ſo eaſily get out the grains. It ſeldom grows ſo tall as the other ſpecies; and the ſtraw, being ſhorter and coarſer, is not very good fodder for cattle.

II. *Graſſes.* 5. Hordeum bulboſum, or bulbous barley-graſs: florets in threes, fertile, awned; involucres briſtle-ſhaped, ciliate. So named from its bulbous roots, wrapped up in whitiſh or browniſh broad membranaceous fibrous coats, and having ſtrong fibres hanging from them. Culms two or three, from a foot or eighteen inches to three and even four feet high in different ſituations, with four or five joints; the ſheaths of the lower leaves hirſute with ſhort cloſe hairs; of the upper ſmooth and ſtriated, ending in a thin, white, ſubdiaphanous, membrane (or ligule), about half a line in length. Leaves a ſpan or a foot, ſometimes only a hand, long, a line and a half or two lines wide, rough, and finely toothletted at the edge, having very ſhort hairs on both ſurfaces, but not ſo many on the lower. Spike narrow, three or four, ſometimes near ſix, inches long, and three or four lines broad. The two lateral florets in each ſet are on a pedicel half a line in length, and are themſelves near half an inch long, with awns near an inch in length, flatted at the bottom; the middle floret is ſeſſile, about five lines in length, with the outer glume ending in an awn uſually more than an inch long, and at the baſe two other awns eight or ten lines long. Native of Italy and the Levant. Scheuchzer found it about Rome, in May.

6. Hordeum murinum, or wall barley-graſs: lateral florets male awned, middle involucres ciliate. Common wall barley-graſs, way-barley, way-bennet, or rather way-bent, called alſo wild rye or rye-graſs, has an annual root; numerous ſtems a foot or eighteen inches in height, round, ſmooth, frequently branching at the bottom, where they are procumbent, and bend at the joints; theſe are about five in number, ſwell out, and are either paler than the reſt of the culm, or tinged with purple; the upper part of them is erect. Leaves from three or four to ſix inches in length, and a quarter of an inch in breadth, covered with a ſoft down on both ſides. Spikes from two to three inches long, pale green; the middle floret of each ſet is fertile and ſeſſile; the lateral ones are male, and on very ſhort pedicels; all three are alike in ſize and ſhape, or ſometimes the latter are a little ſmaller. The outer valve of the corolla ends in an awn an inch or an inch and a half in length, and rough when handled from the point downwards; the inner valve is truncate at the end, and ſlightly emarginate; from the baſe ſprings a ſtraight awn, the length of the filaments. This is a very common graſs by the ſide of paths and under walls, whence its trivial names both in Latin and Engliſh. It flowers during the greater part of the ſummer. In the iſle of Thanet it is ſaid to be well known to the innkeepers by the name of *ſquirrel-tail graſs*. They find that, if horſes feed on it ſome time, the beards ſtick into their gums, and make them ſo ſore, that they are in danger of being ſtarved. The gentleman who related this fact, added, that on the road he had a bill put into his hand, ſignifying, that at ſuch an inn travellers might depend on having hay without any mixture of ſquirrel-tail graſs. Wall barley-graſs never being found in the body of a meadow, it may be doubted whether it is not rather the next ſpecies which produced this bad effect; and, if ſo, that muſt not be recommended for culture. It is an old notion that this graſs is barley degenerated, though it bears more reſemblance to rye. Haller ſeriouſly combats this error, but it is ſurely now too vulgar an one to be neceſſary to contradict it.

7. Hordeum pratenſe, or meadow barley-graſs: all the florets awned, the lateral ones male, all the involucels rugged. Meadow barley-graſs, from its reſemblance to rye named by Johnſon *rye-graſs*, was ſuppoſed by Linnæus to be nothing more than a variety of the preceding. Ray obſerved long ſince, that it differs in being much taller, and having ſhorter ſpikes and awns. Its height is almoſt double that of the other. The ſpike is more green, only half the length of that, ſquare, with the awns of the calyx as long as thoſe of the corolla. The anthers alſo are three times as long as in H. murinum, and yellow, whereas in that they are bluiſh, and almoſt ſquare. Our Engliſh authors mark it as perennial; but Villars takes it to be annual. Native of Sweden, Denmark, France, Swiſſerland, England, and probably moſt parts of Europe, in good meadows, of which it ſometimes forms a conſiderable portion. Miller affirms that this is a very good graſs for paſtures, and has perennial roots, with leafy ſtalks that do not become ſtiff and harſh; and that, if duly rolled,

the roots will mat and form a very cloſe ſward. It is however a late graſs, and is thought not to be ſo productive as ſome others. For *ray-graſs*, which is ſometimes, but erroneouſly, called *rye-graſs*, and is very different from this, ſee Lolium *perenne*.

8. Hordeum maritimum, or marſh barley-graſs: flowers awned, the lateral ones male; involucels rugged, the interior ones of the males ſemi-lanceolate. At firſt ſight this reſembles the common wall barley-graſs, inſomuch that it might be doubted, until experiments are made by culture, whether it be a diſtinct ſpecies; becauſe ſalt-water and ſea-air make graſſes put on a different appearance. It differs, however, in having ſhorter pyramidal ſpikes, made up of a greater number of florets, more crowded together, with the awns more ſtanding out, thoſe at the bottom longeſt, and becoming gradually ſhorter towards the top of the ſpike. The involucres are roughiſh, neither ciliate nor ſcored. Florets ſmooth, the middle one in each ſet ſeſſile, the lateral ones on very ſhort pedicels at the baſe of their involucre, and their awns ſomewhat longer than the floret. Native of Barbary, and the ſouthern parts of Europe; and of England, in ſalt marſhes near the ſea; flowering in June and July. Annual.

9. Hordeum jubatum, or long-bearded barley-graſs: awns and involucres briſtle-ſhaped, and very long. This has the habit of H. murinum, but the involucres and briſtle-ſhaped awns are four times the length of the whole ſpike, which gives this graſs a ſingular appearance. Linnæus, in the Species Plantarum, aſſigns Canada for the native place of this graſs, and Kalm for the diſcoverer. In the thirteenth and fourteenth editions of the Syſtema Vegetabilium, it is ſaid to be a native of Smyrna; and Scheuchzer ſays, that it was ſent from Smyrna by Sherard. In the Catalogue of the Royal Garden at Kew, it is aſſigned to Canada and Hudſon's Bay; and is ſaid to have been introduced, in 1782, by the Hudſon's Bay company. In the latter work it is marked as biennial. It is ſurely improbable that of graſſes ſo nearly allied as theſe, ſome ſhould be annual, others biennial, others perennial.

*Propagation and Culture.* All the ſorts of barley are ſown in the ſpring of the year, in a dry time; in ſome very dry light land, barley is ſown early in March; but, in ſtrong clayey ſoils, it is not ſown till April, and ſometimes not until the beginning of May; but, when it is ſown late, if the ſeaſon does not prove very favourable, it is late in autumn before it is fit to mow, unleſs it be the rath-ripe ſort, which is often ripe in nine weeks from the time of ſowing. Some ſow barley upon land where wheat grew the former year; but, when this is practiſed, the ground ſhould be ploughed the beginning of October, in a dry time, laying it in ſmall ridges, that the froſt may mellow it the better, and this will improve the land greatly; and, if this can be ploughed again in January, or the beginning of February, it will break and prepare the ground better; then in March the ground is ploughed again, and laid even where it is not very wet; but, in ſtrong wet lands, the ground ſhould be laid round, and the furrows made deep to receive the wet. When this is finiſhed, the common method is to ſow the barley-ſeed with a broad-caſt at two ſowings; the firſt being harrowed in once, the ſecond is harrowed until the ſeed is buried; the common allowance of ſeed is four buſhels to an acre. This is the quantity of grain uſually ſown by the farmers; but, Mr. Philip Miller obſerves, "If they could be prevailed on to alter this practice, they would ſoon find their account in it; for, if leſs than half that quantity were ſown, there would be a much greater produce, and the corn be leſs liable to lodge, as I have many years experienced; for, when corn or any other vegetable ſtands very cloſe, the ſtalks, being drawn up weak, are incapable to reſiſt the force of winds, or bear up under heavy rains; but, when they are at a proper diſtance, their ſtalks will be more than twice the ſize of the other, and are ſeldom laid. It has been frequently obſerved in fields where there has been a foot-path through the middle, that the corn which has ſtood thin on each ſide the path has ſtood upright, when all the reſt on both ſides has been laid flat on the ground; and whoever will obſerve theſe roots of corn near the paths, will find them tiller out (i. e. have a greater number of ſtalks) to more than four times the quantity of the other parts of the field. Experiments have been made by ſowing barley in rows acroſs divers parts of the ſame field, and the grains ſowed thin in the rows, ſo that the roots were three or four inches aſunder in the rows, and the rows at a foot diſtance; the intermediate ſpaces of the ſame field were at the ſame time ſown broad-caſt in the uſual way. The ſucceſs was this: the roots which ſtood thin in the rows tillered out from ten or twelve to upward of thirty ſtalks on each root, the ſtalks were ſtronger, the ears longer, and the grains larger than any of thoſe ſown in the common way; and, when thoſe parts of the field where the corn was ſown in the uſual way have been lodged, theſe parts ſown thin have ſupported their upright poſition againſt wind and rain, though the rows have been made not only lengthways, but acroſs the lands, in ſeveral poſitions, ſo that there could be no alteration in regard to the goodneſs of the land, or the ſituation of the corn. Therefore, where ſuch experiments have been frequently made, and always attended with equal ſucceſs, there can be no room to doubt which of the two methods is more eligible; ſince, if the crops were only ſuppoſed to be equal in both, the ſaving more than half the corn ſown is a very great advantage, and deſerves a national conſideration, as ſuch a ſaving, in ſcarce times, might be a very great benefit to the public.

"Farmers in general are very apt to complain if their corn does not come up ſo thick as to cover their ground green in a ſhort time, like graſs-fields: but, when from the badneſs of the ſeaſon it has come up thin, or by accident has been in part killed, their corn has been ſtronger, the ears longer, and the grain plumper, ſo that the produce has been much greater than in thoſe years when it has come up thick; for the natural growth of corn is to ſend out many ſtalks from a root, and not riſe ſo much in height; therefore it is entirely owing to the roots ſtanding too near each other, when the ſtalks are drawn up tall and weak. I have had eighty-ſix ſtalks upon one root of barley, which were ſtrong, produced longer ears, and the grain was better filled, than any which I ever ſaw grow in the common method of huſbandry, and the land upon which this grew was not very rich; but I have frequently obſerved on the ſides of hot-beds in the kitchen-gardens, where barley-ſtraw has been uſed for covering the beds, that ſome of the grains left in the ears having dropped out and grown, the roots have produced from thirty to ſixty ſtalks each, and thoſe three or four times larger than the ſtalks ever arrive at in the common way: but to this I know it will be objected, that although upon rich land in a garden, theſe roots of corn may probably have ſo many ſtalks, yet in poor land they will not have ſuch produce; therefore, unleſs there is a greater quantity of ſeed ſown, their crop will not be worth ſtanding; which is one of the greateſt fallacies that can be imagined; for to ſuppoſe that poor land can nouriſh more than twice the number of roots in the ſame ſpace as rich land, is ſuch an abſurdity, as one could hardly ſuppoſe any perſon of common underſtanding guilty of; and yet ſo it is, for the general practice is to allow a greater quantity of ſeed to poor land than for richer ground; not conſidering that, where the roots ſtand ſo cloſe, they will deprive each other of the nouriſhment, and ſtarve themſelves, which is always the caſe where the roots ſtand cloſe; and this a perſon may at firſt ſight obſerve, in any part of the fields where the corn happens to ſcatter when they are ſowing it; or in places where, by harrowing, the ſeed is drawn in heaps, thoſe patches will ſtarve, and never grow to a third part of the ſize as the other parts of the ſame field; and yet, common as this is, it is little noticed by farmers; otherwiſe they ſurely would not continue their old cuſtom of ſowing. I have made many experiments for ſeveral years in the pooreſt land, and have always found that all crops which are ſown or planted at a greater diſtance than uſual, have ſucceeded beſt; and I am convinced, if the farmers could be prevailed on to quit their prejudices, and make trial of this method of ſowing their corn thin, they would ſoon ſee the advantage of this huſbandry."

When the barley is ſown, the ground ſhould be rolled after the firſt ſhower of rain, to break the clods and lay the earth ſmooth, which will render it better to mow, and alſo cauſe the earth to lie cloſer to the roots of the corn, which will be of great ſervice to it in dry weather. Where barley is ſown upon newly broken-up land, the uſual method is, to plough up the land in March, and let it lie fallow until June, at which time it is ploughed again, and ſown with turnips, which are eaten by ſheep in winter, by whoſe dung the land is greatly improved; and then in March following the ground is ploughed up again, and ſown with barley as before. When the barley has been up three weeks or a month, it will be a very good method to roll it over with a weighty roller, which will preſs the earth cloſe to the roots of the corn, and thereby prevent the ſun and air from penetrating the ground, which will be of ſingular ſervice in dry ſeaſons; and this rolling of it before it ſtalks, will cauſe it to till out into a greater number of ſtalks; ſo that, if the plants ſhould be thin, this will cauſe them to ſpread ſo as to fill the ground, and likewiſe ſtrengthen the ſtalks.

The time for cutting barley is, when the red colour of the ears is off, and the ſtraw turns yellow, and the ears begin to hang down; in the north of England they always reap their barley, and make it up in ſheaves, as practiſed here for wheat, by which method they do not loſe near ſo much corn, and it is alſo more handy to ſtack; but this method cannot ſo well be practiſed where there are many weeds amongſt the corn, which is too frequently the caſe in the rich lands near London, eſpecially in moiſt ſeaſons; therefore, when this is the caſe, the barley muſt lie on the ſwarth till all the weeds are dead; but, as it is apt to ſprout in wet weather, it muſt be ſhaken up, and turned every fair day after rain to prevent it. When it is carried in, it ſhould be thoroughly dry, otherwiſe, if it be ſtacked wet, it will turn muſty; or if too green, it is ſubject to burn in the mow. The common produce of barley, is two and a half or three quarters on an acre; but we have ſometimes known ſix or ſeven quarters on an acre.

The farmer is governed by ſeaſons, and by other neceſſary work which he may have to perform; but, when he can, to ſow early is one of the moſt important articles in the culture of barley. If three ploughings can be given in time, it is beſt to get the ſeed in ſome time in March at fartheſt; and ſome farmers, rather than defer the ſowing, will throw in the crop on one earth. In Norfolk, they commonly ſow on their light lands in April, and on the moiſt lands in May; and they think that, where they are much ſubject to weeds, they have the beſt crops when they ſow late. Early ſowing, however, has been gaining ground for ſome years paſt. And it appears from an experiment accurately made by a very intelligent cultivator, that more grain was produced from ſowing in January than at any other time.

The following experiments were tried by the late earl of Orford, to aſcertain the effect of early ſowing:—The common management of the turnip huſbandry in Norfolk, has this evil in it; that the crop is kept for feeding ſo late in the ſpring, that the ſucceeding barley often ſuffers conſiderably, ſometimes to the amount of the value of the turnips. In 1785, twenty-three acres of turnips being fed off, barley was ſown, three buſhels and a half to the acre, on the 7th of February, in the manner of wheat on the ridge; the land having been half-ploughed, on to four-furrow ridges. Sharp froſts followed the ſowing, and the ſeed lay five weeks before it appeared; but the crop received no injury. It was reaped. The produce was five quarters, one buſhel, and one peck, on an acre; a very good and ſhort ſample. In 1787, thirty acres were ſown as before, on turnip-land, and on ridge and furrow; beginning on the 6th of February. The produce five quarters one peck on an acre; the ſample ſhort and good, weighing fourteen ſtone ſeven pounds the ſack.

In that part of Eſſex where they underſtand the barley-culture well, they deſpair of a great crop, if the ſeed is not in the ground in March; but they ſow as ſoon as their lands are dry enough, from the laſt week in February to the middle of April. Mr. Young obſerves on this practice, that early ſowing is a point almoſt ſufficient to turn the ſcale in favour of bad land, in compariſon with good ill-managed. In Suffolk they generally give three ſpring-ſtirrings, by which means it is common to ſee them ſowing barley in May; but no great or good crops can be gained ſo. When barley is to follow turnips, the beſt farmers in many ſeaſons watch the lucky moment of ploughing their turnip-lands, when they will break up into fine mould; one earth will then bring them into crumbling order, and the harrows make them as fine as a garden: in ſuch a caſe the ſeed is got in early, and the land at the ſame time is in good tillage. After all, the ripening of the crop will depend upon the time, not of the ſeeds being ſown, but of their vegetating; and therefore unleſs the ſeaſon be propitious, and the land in proper order, early ſowing of itſelf will avail little.

The beſt ſoil for barley is that which is dry and healthy, rather light than ſtiff, but yet of ſufficient tenacity and ſtrength to retain the moiſture. If the land be poor, it ſhould be dry and warm, and when ſo, will often bear better corn than richer land in a cold and wet ſituation. Much barley, however, is grown on heavy lands, both after wheat and on a fallow.

Barley uſually ſucceeds wheat or turnips, ſometimes vetches and other crops, or is put in on a fallow, or on turf. After wheat, the ſoil is winter-fallowed by three ploughings: the firſt lengthways in November; the ſecond acroſs in March; the laſt or ſeed-ploughing lengthways. Between the two laſt ploughings the ſoil is harrowed, and the quich, if any, deſtroyed.

In Norfolk, when wheat-ſowing is finiſhed, the farmer begins to *ſcale* in his wheat-ſtubbles for a winter fallow. If the land lie in narrow work, the ridgelets are ſplit; if in warps, the ground is likewiſe ploughed clean, but very fleet. The beginning of March the land is harrowed, and preſently after the wheat-ſtubbles are taken up by a full-pitch croſs-ploughing; or, if the ſeaſon be wet, and the ſoil heavy, he reverſes the ridges. In April he harrows, and begins ſtirring for barley, with another full-pitch ploughing, lengthways; generally gathering the ſoil either into five-pace or ten-pace warps, in which it lies until ſeed-time; when it is harrowed, rolled, ſown; ploughed fleet, reverſing the warps, and *ſlading* down the furrows; ſo as to render the entire ſurface as even and level as may be. After turnips, the ſoil is generally broken up as faſt as the turnips are got off; if early in winter, by rice-balking; if late, by a plain ploughing. The general practice, if time will permit, is to plough three times; the firſt fleet or ſhallow, the ſecond full-pitch, the laſt a mean depth, with which the ſeed is ploughed in. But when it is late before the turnips are got off, ſometimes the ground is only ploughed once, and the ſeed ſown above; but more frequently it is broken by three ploughings, as above, though perhaps there is not more than a week to perform them in. Such is the practice in Norfolk, where farmers in general are maſters in the art of cultivating barley.

In Eſſex they plough five times, four in the fallow-year, throwing the land on to ridge for winter by the fourth; then they take the firſt opportunity of hard froſts to carry on their compoſts at the rate of twenty or thirty loads to the acre; theſe are farm-yard dung mixed up with turf; after this, they take the firſt opportunity of the lands being dry enough to plough and ſow the barley, from the laſt week in February, to the middle of April; but, if the ſeed is not in the ground in March, they deſpair of a great crop. This barley-culture is very good; it is an excellent practice to plough and ſow in the ſpring, inſtead of giving preparatory ploughings when the ſeed ſhould be in the earth.

Many farmers ſow four buſhels of ſeed on an acre, which is too much; and ſome few ſow no more than two buſhels, which is generally allowed to be too little, after all that Mr. Miller has ſaid in favour of thin ſowing. Four buſhels is very general; but in ſome places three buſhels and a half, and in others three buſhels, is the average or medium quantity of barley ſown.

Brining and liming ſeed-barley previous to ſowing it is a common practice; it is, however, reprobated by ſome, and liming is even thought to be prejudicial. Such as are of the latter opinion, recommend the ſprinkling a little ſoot with the water, to ſecure the ſeed from inſects. It is certain that barley, which has been wetted for malting, and begins to ſprout, will come up ſooner in a dry ſeed-time; and in ſuch a ſeaſon this grain will not only lie long in the ground, but come up and ripen very unequally. To avoid theſe evils, to give the infant barley an advantage over ſeed-weeds, and a chance of coming to market ſooner, it ſeems a good method to ſteep the ſeed intended for ſowing. This may be either in clean water or the drainings of the dung-heap, in which it may lie covered for twenty-four hours, or even longer, if the land be very dry, and there be no likelihood of rain for ten days. Sow the grain wet from ſteeping, without any thing, or with ſifted wood-aſhes. The ſower muſt put in a fourth or a third more ſeed in bulk than he would of dry grain, the ſeed being ſwelled in that proportion; and he may expect it up in a fortnight at fartheſt.

The common method of ſowing barley is *broadcaſt* at two ſowings; the firſt harrowed in once, the ſecond twice. In Norfolk, almoſt all the barley is ſown under-furrow; that is, the ſurface having been ſmoothed by the harrow and roller, the ſeed is ſown and ploughed under with a ſhallow furrow: a method admirably adapted to a light dry ſoil; and indeed to any ſoil which is light enough to produce good barley, provided it be rendered ſufficiently fine, and the ſeed be not buried too deep. However, if the ſeaſon be wet, and the ſoil cold and heavy, good farmers not unfrequently ſow barley above, as is the general cuſtom in other counties. And this ſeems to be a reaſonable practice; for in a dry ſpring and light land, ſowing under ſeems moſt eligible; and in a cold ſpring, or when the ſoil is rough with clods, ſowing above appears to be equally good management.

Whether graſs-ſeeds are ſown over the barley or not, the ſurface is harrowed preſently after the laſt ploughing; and, when the barley is up, it is run over with a light roller, to break the clods, and cloſe the earth about the roots, which is a great advantage to it in dry weather. In heavy lands, if the harrow leaves any clods, they are broken with the clotting-beetle, and, if any quich is pulled up, it is deſtroyed. When the barley has been up three weeks or a month, it is a good way to roll it again with a heavy roller, which will prevent the ſun and air from penetrating the ground to the injury of the roots. It will alſo cauſe the barley to tiller out, ſo that, if the plants be thin, the ground will be filled, and the ſtalks ſtrengthened. If the blade ſhould grow too rank, mowing is a much better method than feeding it down with ſheep; becauſe the ſcythe takes off only the rank tops, but the ſheep, being fond of the ſweet end of the ſtalk next the root, will often bite ſo cloſe as to injure its future growth.

*Of Drill-ſowing.*—Grain ſown by hand *broadcaſt* muſt fall at unequal depths; the ſeeds conſequently ſprout at different times: that which is buried where the earth is moiſt ſoon appears, whilſt ſuch as is near the ſurface lies baking in the heat of the ſun, and does not vegetate till plentiful rains have moiſtened the ſoil: hence an inequality of crop, an accident to which barley is particularly liable. Of the two common methods of ſowing barley, ploughing in buries too deep, and that ſown under the harrow is too much expoſed to birds; whereas by the *drill* the ſeed is all depoſited regularly at the proper depth. To this advantage peculiar to drilling we may add, the ſaving which is made in the ſeed, and the opportunity which is given by this practice to keep the crop perfectly clean by hoeing. The quantity of ſeed uſed in drilling by different perſons is from ſix pecks to three buſhels; but it is bad economy in general to be too ſparing of ſeed, and it is hardly adviſeable to ſow leſs than two buſhels on an acre. If, however, it ſhould be thought proper to uſe even three buſhels, it will ſtill be a conſiderable ſaving. Drilling indeed cannot ſo well be practiſed on heavy ſoils; but it may have place on thoſe which are light and friable, and therefore peculiarly adapted to barley. Such ſoils are not injured by horſes going repeatedly upon them; and, being almoſt always under command, the horſe-hoe may go over them whenever the farmer is moſt at leiſure.

Dr. Hunter, in his Georgical Eſſays, gives us the following account of an experiment on this ſubject: "In the ſpring of the year 1769, I ſowed an acre of barley, in equidiſtant rows, with the drill-plough, in a field which was ſown with the ſame grain, and, upon the ſame day, broadcaſt. The broadcaſt took three buſhels per acre; the drill required only ſix pecks. The drills were eight inches aſunder, and the ſeed was lodged about two inches within the ſoil. The drill acre was finiſhed within the hour. In the courſe of growing, the drilled barley ſeemed greener, and bore a broader leaf, than the broadcaſt. When the ears were formed throughout the field, the ear of the drilled barley was plainly diſtinguiſhed to be near half an inch longer than the broadcaſt, and the grains ſeemed fuller and better fed. Being at a loſs to account for this, I dug up ſome roots of both, and found that the pipe of communication between the ſeminal and coronal roots of the drilled barley was conſiderably longer than in the broadcaſt. The produce of two hundred ſquare yards of the broadcaſt and drilled barley was carefully houſed, and afterwards threſhed out. The drilled exceeded the other nearly one-fifth in meaſure, and weighed heavier at the rate of two pounds in the buſhel." See more on this ſubject under *Wheat*, in the article TRITICUM. For the culture of the ſpecies 5–9, ſee GRASS. See alſo ELYMUS and TRITICUM.

HORDICA'LIA, *ſ.* in Roman antiquity, a feſtival in which cattle were ſacrificed big with young.

HORDICID'IA, *ſ.* The hordicalia. *Scott.*

HO'REB, a mountain of Arabia Petræa, and very near or quite contiguous to Mount Sinai. Though many authors confound them, yet it does not clearly appear from the writings of Moſes, that they were one and the ſame. Here Moſes ſaw the viſion of the burning buſh; from which circumſtance it ſeems to have gained the name of the "Mount of God." It was the eleventh place of encampment of the Iſraelites during their journey from Egypt to Canaan. Here they were at the giving of the law; and, during the abſence of Moſes in the mount, they prevailed with Aaron to make the golden calf. Here Moſes ſmote the rock at the divine command, in order to produce water for the congregation; thus it gained the names of Maſſah and Meribah: and it was here the prophet Elijah fled from the fury of Jezebel. It was eleven days journey from Kadeſh-barnea, by way of Mount Seir. *Exod.* iii. 1. xvii. 6, 7. *Deut.* i. 2.

HO'REHOUND (White), ſee MARRUBIUM. Baſe, ſee STACHYS. Black or Stinking, ſee BALLOTA. Water, ſee LYCOPUS.

HO'REM, a city of Paleſtine, belonging to the tribe of Naphtali. *Joſh.* xix. 38.

HORES'TI, anciently a people of North Britain, beyond Solway Frith. Now Eſkdale. *Camden.*

HO'RI, a man's name.

HO'RIA, *ſ.* in entomology, a genus of inſects belonging to the order of coleoptera; the characters of which are: antennæ moniliform; feelers four, thicker towards the tip; lip linear, rounded at the end. Only two ſpecies of this genus are known, viz.

1. Horia dermeſtoides: body teſtaceous; eyes, wings, and breaſt, black. On the elytra are four raiſed ſtripes, the two firſt of which run into one a little beyond the middle: on the whole they reſemble thoſe of the Necydales. The antennæ conſiſt of ſhort joints, heart-ſhaped, flat, and ſemi-pectinated: the broadeſt are in the middle, the laſt end in a point. It is the Lymexylon dermeſtoides of Fabricius; inhabits England, and indeed every part of Europe; and is correctly delineated on the Plate Hirundo, fig. 9.

2. Horia teſtacea: rufous; antennæ and legs black; body cylindrical; hind-thighs thick, and toothed. Inhabits Tranquebar.

HOR'JA, a town of Sweden, in the province of Weſt Gothland: twenty miles north-north-weſt of Johnkioping.

HO'RIMS. See Horites.

HORIN'GEN, a town of Germany, on the Upper Rhine, and principality of Heſſe Caſſel: ſix miles eaſt of Fridewald, and thirty-eight ſouth-eaſt of Caſſel.

HORIS'MUS, *ſ.* [Greek.] A deſcription; a rhetorical figure in which any thing is deſcribed, or ſet off to the beſt advantage. *Phillips.*

HO'RITES, an ancient people, who at the beginning dwelt in the mountains of Seir beyond Jordan. *Gen.* xiv. 6. They had princes, and were powerful, even before Eſau made a conqueſt of their country. The Horites, the deſcendants of Seir, and the Edomites, ſeem afterwards to have been confounded, and to have compoſed but one people. *Deut.* ii. 2. xxxiii. 2. and *Judg.* v. 4. They dwelt in Arabia Petræa, and Arabia Deſerta, to the ſouth-eaſt of Canaan. We find the Hebrew word חורים *Chorim*, which in the book of Geneſis is tranſlated *Horites*, to be uſed in an appellative ſenſe in ſeveral other paſſages of ſcripture, and to ſignify nobles, or great and powerful men. 1 *Kings* xxi. 8, 11. *Neh.* ii. 16. iv 14. v. 7. vi. 17. vii. 5. xii. 17. *Eccl.* x. 17. *Iſa.* xxxiv. 12. *Jer.* xxvii. 20. xxxix. 6. And it is very probable that the Greeks derived from hence their *heroes*, in like manner as they derived *Anax*, "a king," from the ſons of Anak, the famous giant in Paleſtine.

HORI'ZON, *ſ.* [οριζω, Gr. to limit, or bound.] The line that terminates the view. The *horizon* is diſtinguiſhed into ſenſible and real: the ſenſible horizon is the circular line which limits the view; the real is that which would bound it, if it could take in the hemiſphere. See the article Astronomy, vol. ii. p. 325. and Geography, vol. viii. p. 348–355.—When the ſea is worked up in a tempeſt, ſo that the *horizon* on every ſide is nothing but foaming billows and floating mountains, it is impoſſible to deſcribe the agreeable horror that riſes from ſuch a proſpect. *Addiſon.*

The morning lark, the meſſenger of the day,
Saluted in her ſong the morning gray:
And ſoon the ſun aroſe with beams ſo bright,
That all th' *horizon* laugh'd to ſee the joyous ſight. *Dryd.*

HORIZON'TAL, *adj* [*horizontal*, Fr. from *horizon.*] Near the horizon:

As when the ſun, new riſen,
Looks through the *horizontal* miſty air,
Shorn of his beams. *Milton.*

Parallel to the horizon; on a level.—The problem is reduced to this; what perpendicular height is neceſſary to place ſeveral ranks of rowers in a plane inclined to a *horizontal* line in a given angle? *Arbuthnot.*

Horizontal Moon. See the article Astronomy, vol. ii. p. 383.

HORIZON'TALLY, *adv.* [from *horizontal.*] In a direction parallel to the horizon.—As it will not ſink into the bottom, ſo will it neither float above, like lighter bodies; but, being near in weight, lie ſuperficially, or almoſt *horizontally* unto it. *Brown.*

HOR'LA, a river of Poland, which runs into the Oder, eight miles eaſt-north-eaſt of Glogaw.

HOR'LA, a river of Sileſia, which riſes in the north part of the principality of Oels, and runs into the Barſch near Hernſtadt.

HOR'LA, a town of Germany, in Upper Saxony, and county of Mansfeld: four miles ſouth-weſt of Wippra.

HOR'LE, a town of Norway, in the dioceſe of Drontheim: forty-eight miles weſt-ſouth-weſt of Romſdal.

HORLO'FA, a town of Sweden, in the province of Skone: eleven miles eaſt of Lund.

HOR'MAH, or Ze'phath, a city of Paleſtine, belonging to the tribe of Judah, ſituated in the ſouthern part of that province near the borders of Edom. It was afterwards aſſigned to the tribe of Simeon, as their inheritance was included within that of Judah, and previous to its conqueſt was the ſeat of one of the Canaanitiſh kings. *Joſh.* xii. 14. xv. 30. xix. 4. *Judges*, i. 17.

HOR'MANS, a town of Germany, in Auſtria: ſix miles north-north-eaſt of Weitra.

HOR'MANSTORFF, a town of Germany, in Auſtria: four miles north of Korn Neuburg.

HOR'MINUM, *ſ.* in botany. See Bartsia, Betonica, Melissa, Nepeta, and Salvia.

HORMIS'DAS, a name which ſome of the Perſian kings bore in the reign of the Roman emperors. See the article Persia.

HOR'MONT, a town of Perſia, in the province of Lariſtan: eleven leagues eaſt-north-eaſt of Lar.

HOR'MUS, *ſ.* With the ancients, a kind of dance. *Phillips.*

HORN, *ſ.* [*haurn*, Gothic; hoꞃn, Sax. *horn*, Dutch.] The hard bodies which grow on the heads of ſome graminivorous quadrupeds, and ſerve them for weapons.—No beaſt that hath *horns* hath upper teeth *Bacon*

Zetus riſes through the ground,
Bending the bull's tough neck with pain,
That toſſes back his *horns* in vain. *Addiſon.*

An inſtrument of wind-muſic.—There's a poſt come with his *horn* full of good news. *Shakeſpeare.*

Fair Aſcanius, and his youthful train,
With *horns* and hounds a hunting-match ordain. *Dryden.*

The extremity of the waxing or waining moon, as mentioned by poets:

She bleſs'd the bed, ſuch fruitfulneſs convey'd,
That ere ten moons had ſharpen'd either *horn*,
To crown their bliſs, a lovely boy was born. *Dryden.*

The feelers of a ſnail. Whence the proverb, *To draw in the horns*, to repreſs one's ardour:

Love's feeling is more ſoft and ſenſible,
Than are the tender *horns* of cockled ſnails. *Shakeſpeare.*

A drinking-cup made of horn. Antler of a cuckold:

Merchants vent'ring through the main,
Slight pirates, rocks, and *horns*, for gain. *Hudibras.*

There is no term, which occurs ſo often figuratively in the ſacred writers, as that of a *horn*. By this they denoted any thing ſuper-eminent and powerful. The Iſraelites were forbidden to make any repreſentation in ſtone or metal; ſo that we have no inſtance from them of its being ever repreſented to the eye. The ſame was a ſymbol among the Egyptians; they copied it in ſtone and braſs; and affixed the repreſentation of a horn to the ſtatues of their kings and deities. But though this was a common emblem in theſe two nations, it does not follow that one borrowed it from the other. It was a general type of early date, and in almoſt univerſal acceptation in every nation of old, to whoſe hiſtory we can gain acceſs; it was an emblem of affluence and power; whence *cornucopia*, the horn of plenty.

*Horn* is an article of conſiderable utility in the arts and manufactures. Bullocks horns, ſoftened by the fire, ſerve to make lanthorns, combs, knives, ink-horns, tobacco-boxes, &c. and the horn being dyed or ſtained of various colours, produces the greater variety. Horn is alſo made to imitate tortoiſe-ſhell. For this purpoſe take of quick-lime two parts, and of litharge one part; temper them together to the conſiſtence of a ſoft paſte with ſoap-ley. Put this paſte over all the parts of the horn, except ſuch as are intended to be left tranſparent, in order to give it a nearer reſemblance of the tortoiſe-ſhell. The horn muſt remain in this manner covered with the paſte till it be thoroughly dry; when, the paſte being bruſhed off, the horn will be found partly opaque, and partly tranſparent, in the manner of tortoiſe-ſhell; and, if judiciouſly performed, will be ſcarcely diſtinguiſhable from it.

*Human Horns.* In Dr. Leigh's Natural Hiſtory of Lancaſhire, is the figure of a woman with two horns. When ſhe was twenty-eight years of age, an excreſcence grew upon her head like a wen, which continued thirty years, and then grew into two horns. After four years ſhe caſt them, and in their place grew two others. After four years ſhe caſt theſe alſo; and the horns which were on her head in 1668 (the time when the account was written) were then looſe. Her picture and one of her horns were preſerved in Aſhmole's muſeum. In the univerſity library at Edinburgh, is alſo preſerved a horn which was cut from the head of Elizabeth Love, in the 50th year of her age. It grew three inches above the ear, and was growing ſeven years.

HORN, a town of Sweden, in the province of Eaſt Gothland: thirty-two miles ſouth of Linkioping.

HORN, or Hoo'ren, a town of Germany, in Auſtria, celebrated for its beer, made of oats, ſent by water to all the principal towns of Auſtria: forty miles north-weſt of Vienna. Lat. 48. 35. N. lon. 33. 21. E. Ferro.

HORN, a town of Germany, in Weſtphalia, and county of Lippe, near which is a plain, called *Vinfeld*, or *the Field of Victory*, ſuppoſed to be the place where Varus periſhed: ſix miles ſouth-ſouth-eaſt of Detmould. Lat. 51. 54. N. lon. 26. 1. E. Ferro.

HORN. See Hoorn.

HORN. See Cape Horn.

HORN, an iſland on the coaſt of Weſt Florida, in the American States, between Ship and Maſſacre iſlands: ſeventeen miles long, and about a mile wide.

HORN under HORN. The promiſcuous feeding of bulls and cows in ſucceſſion, that are allowed to run together upon the ſame common. *Spelman.* To which may be added, that the commoning of cattle *horn with horn*, was properly when the inhabitants of different diſtricts let their common herds run upon the ſame open common, that lay within the bounds of ſeveral pariſhes, and therefore, that there might be no diſpute upon the right of tithes, the biſhop ordains, that the cows ſhould pay all profit to the miniſter of the pariſh where the owner of them lived. *Cowell.*

HORN-MUSIC. This muſic, or rather inſtrument, peculiar to Ruſſia, was invented about fifty years ago in the reign of the empreſs Elizabeth, by a Mr. Mareſch, a native of Bohemia, and one of the muſicians of her court. It is a perfect living organ, where every pipe or tone is founded by one man, who cannot produce any other but that one individual tone on his horn. A complete band of horn muſicians conſiſts of near forty performers, (never leſs than twenty-five,) who ſound the completeſt ſymphonies of every kind, from the ſloweſt *largo* to the quickeſt *preſtiſſimo*, with admirable ſkill and accuracy. Each performer blows into a ſtraight hollow cone, which reſts on a frame, and which merely ſupplies the place of the pipe of an organ.

HORN'-TOWN, a town of the American States, in Maryland: thirty-one miles from Snowhill, twenty-ſix from Drummond, or Accomack court-houſe, in Virginia, and 168 from Philadelphia.

HORNA'CHES, a town of Spain, in the province of Eſtremadura: twenty miles north of Llerena.

HORN'BACH, a town of Germany, on the Upper Rhine, and duchy of Deux Ponts: five miles ſouth of Deux Ponts, and thirty-five weſt of Landau. Lat. 49. 11. N. lon. 25. 1. E. Ferro.

HORN'BEAM, or Horn-beech Tree. See Carpinus.

HORN'BERG, a town of Germany, on the Lower Rhine, and county of Recklinghauſen: two miles eaſt of Recklinghauſen, and forty-three north of Cologne.

HORN'BERG, a town of Germany, in Swabia, and duchy of Wurtemberg, in the Schwartzwalde: ſeventeen miles north-eaſt of Friberg, and thirty-eight ſouth weſt of Stuttgard.

HORN'BOOK, ſ. The firſt book of children, covered with horn to keep it unſoiled:

To maſter John the Engliſh maid
A *hornbook* gives of ginger-bread;
And, that the child might learn the better,
As he can name, he eats the letter. *Prior.*

HORN'BURG, a town of Germany, in Lower Saxony, and principality of Halberſtadt, on the Ilſe: eighteen miles weſt-north-weſt of Halberſtadt, and ten north-eaſt of Goſlar.

HORN'BY, a ſmall town in Lancaſhire, ſituated on the river Lun or Lune, almoſt at the extremity of the county, adjoining to Weſtmorcland; it is 244 miles from London, nine from Lancaſter, and nineteen from Kendal. Here is a fair every Tueſday fortnight for cattle; alſo one annual fair on the 30th and 31ſt of July. The market uſed to be on Friday; but, on account of the fortnightly fair, it is diſcontinued. Here is a handſome ſtone bridge, with three arches, acroſs the Lun; alſo a noble caſtle ſtands on a hill, which commands a delightful proſpect; it has a large ſquare tower, and a lofty round one. The church, which is a handſome Gothic ſtructure, has an octagon tower. Here is a large manufactory for cotton.

HORN'CASTLE, a large well-built town in Lincolnſhire, ſeated on the banks of the river Bane, and from thence called by the Romans *Banovallum*; the wall which ſurrounded it is viſible in many places; the Roman ſtation or camp here was a perfect parallelogram, compoſed of two ſquares. It is a ſeigniory or ſoke of thirteen lordſhips, and was given by Richard II. to the biſhop of Carliſle and his ſucceſſors. In theſe lordſhips there are ſeveral chapels for the convenience of the inhabitants who are at too great a diſtance from the mother-church, and are pretty numerous. The town is almoſt ſurrounded with water; and is ſuppoſed to have been the *caſtra hyberna* of the Romans during their continuance in the iſland; as Tatterſhall, a ſmall market-town bordering on the fens, furniſhed them with the *æſtiva*, or ſummer-reſidence, of the army ſtationed in thoſe parts. Horncaſtle is ſituated in a beautiful vale, twenty-two miles weſt from the ſea, and twenty-one eaſt of Lincoln. Its trade has been conſiderably increaſed by a navigable canal, ſet on foot in conſequence of an act of parliament paſſed for that purpoſe in 1792. Here is a capital grammar-ſchool, endowed by lord Clinton and Saye, and chartered by queen Elizabeth, 1571, in the thirteenth year of her reign. Alſo a charity-ſchool for poor children, the donation of Richard Watſon, gent. A public diſpenſary was founded here by ſubſcription in 1789 for the benefit of the poor, and which conſiſts of a preſident, vice-preſidents, a treaſurer, governors, and a ſecretary; together with medical and chirurgical aſſiſtance of the firſt character. The market is held on Saturdays, and is not inferior to any in England for plenty of proviſions. Here are three very capital fairs, June 22, Auguſt 21, and October 19, chiefly for horſes, but not to the excluſion of ſheep and horned cattle. The October fair has a good ſhow of horned cattle and ſheep, eſpecially rams. Theſe fairs are well known all over England, they being ſo famous for horſes. That in Auguſt begins nearly three weeks before the day on which the fair is ſtated to commence. The others are not ſo conſiderable.

HORN'DON, called alſo, from its ſituation, *Horndon on the*

*the Hill*, is a pleaſant village in Eſſex, but had formerly a market on Saturday, and a fair on the 29th of June. It lies in the direct road from Chelmsford through Billericay to Tilbury-fort, and the other road from London to South End: twenty-ſix miles from London, and two miles from thoſe hills, ſo much noted for the fine proſpects both by ſea and land, called *Laindon-hills*.

HORNE, (George), a learned prelate of the church of England, born at Otham, in Kent, in 1730. His father, who was rector of Otham, ſent him early to Maidſtone ſchool, where he ſucceeded in obtaining a Maidſtone ſcholarſhip in Univerſity-college, Oxford, to which ſeminary he removed at only fifteen years of age. In 1749, he was admitted to the degree of B. A. and in the following year, upon a vacancy taking place in a Kentiſh fellowſhip at Magdalen college, he was elected to fill it. At an early period of life, it is remarkable that this young ſtudent became deeply tinctured with the Hutchinſonian philoſophy; for particulars of which ſee the article HUTCHINSON, in this volume. After having been drawn into a long and injudicious controverſy in ſupport of this unſtable philoſophy, Mr. Horne ſaw his error, and turned from it. In 1752, he was admitted to the degree of M. A. and in 1753, he took orders, and ſoon obtained high reputation as a preacher, on account of the excellence of his compoſitions, and the gracefulneſs of his elocution. In 1751, he was choſen junior proctor of the univerſity: an office which he adorned by attempering mildneſs with authority. At the expiration of his proctorſhip, he was admitted to the degree of bachelor of divinity, and, in 1764, to that of doctor of divinity. On the death of Dr. Jenner, preſident of Magdalen college, he was elected to ſucceed him, in January 1768. Soon after Dr. Horne had obtained this preferment, he entered into the marriage ſtate. In 1769, he publiſhed, for the improvement of the younger members of his college, Conſiderations on the Life and Death of St. John the Baptiſt, 8vo. which were the ſubſtance of ſeveral ſermons preached by him before the univerſity, in Magdalen chapel, on St. John Baptiſt's day. In 1771, he was appointed chaplain in ordinary to his majeſty, and officiated in that capacity for ten years.

In 1772, when a number of the clergy were about to apply to parliament for relief in the matter of ſubſcription to the liturgy and the thirty-nine articles of the church of England, Dr. Horne exerted his abilities to defeat their object, by publiſhing Conſiderations on the projected Reformation of the Church of England; in a Letter to Lord North. From this time, his attention appears to have been chiefly employed in finiſhing his greateſt work, which had been in hand nearly twenty years; this was his Commentary on the Book of Pſalms: which made its appearance in 1776, 2 vols. 4to. This is certainly a work which diſplays great learning, and much fervent piety; and will ever be peruſed, by devout Chriſtians, with advantage and ſatisfaction. In the ſame year Dr. Horne was appointed vice-chancellor of the univerſity of Oxford, in which ſtation he continued till October 1780. In 1779, he publiſhed Diſcourſes on ſeveral Subjects and Occaſions, in 2 vols. 8vo. which have been highly approved. Dr. Horne's vice-chancellorſhip introduced him to the acquaintance of lord North, then chancellor of the univerſity; and, owing to his recommendation, he was promoted to the deanery of Canterbury in 1781. He now divided his time between Oxford and Canterbury; and in the latter ſituation was highly venerated by the chapter, and held in the greateſt reſpect by the citizens, whom he frequently gratified by preaching in the cathedral and metropolitical church. In 1784, he publiſhed Letters on Infidelity, 12mo. The books againſt which theſe were levelled are, An Apology for the Life and Writings of David Hume, eſq. by Adam Smith, LL.D. Hume's Dialogues on Natural Religion; An Eſſay on Suicide, by the ſame writer; and a treatiſe entitled Doubts of the Infidels, or, Queries relative to ſcriptural Inconſiſtences, &c.

In May 1790, upon the tranſlation of Dr. Bagot to the ſee of St. Aſaph, Dr. Horne was advanced to the epiſcopal dignity, by being nominated ſucceſſor to that prelate at Norwich; ſoon after which he reſigned his preſidentſhip of Magdalen college. His laſt literary performances were, Obſervations on the Caſe of the Proteſtant Diſſenters, with Reference to the Corporation and Teſt Acts, 1790, 8vo. and A Charge intended to have been delivered to the Clergy of the Dioceſe of Norwich, at his firſt viſitation, 1791, 4to. At the time of Dr. Horne's advancement to the ſee of Norwich, his health, naturally delicate, was but in a very precarious ſtate; and after he had taken poſſeſſion of the biſhopric, his friends ſaw with ſorrow that he declined very rapidly. He made three viſits to Bath, where he died on the 17th of January 1792, in the ſixty-ſecond year of his age. Biſhop Horne was diſtinguiſhed by a conſiderable ſhare of various learning, which he conſecrated to the cauſe of truth, and the beſt intereſts of mankind. His piety was ſincere and ardent, and his life exemplarily virtuous. The goodneſs and ſimplicity of his heart were unaffected; and he was a moſt agreeable, as well as inſtructive, companion. In his intercourſe with his own family, while the treaſures of his mind afforded them ſome daily opportunities of improvement, the ſweetneſs of his temper, and his great good humour, became a perennial fountain of entertainment to them. He had the rare and happy talent of diſarming all the little vexatious incidents of life of their power to moleſt, by giving ſome unexpected turn to them. And occurrences of a more ſerious nature, even ſome of a frightful aſpect, were treated by him with the like eaſe and pleaſantry; thus removing every anxiety, and every cauſe of alarm, from thoſe about him. To moſt of the public charities which immortalize the generoſity of this nation, he was a liberal ſubſcriber; and his private charities alſo were large and extenſive. He laid up nothing from his preferments in the church; and, if he was no loſer at the end of the year, he was perfectly ſatisfied. Beſides the articles already enumerated, he was the author of Diſcourſes on ſeveral Subjects and Occaſions, Vols. III. and IV. publiſhed after his death in 1794, 8vo. and ſeveral ſingle Sermons, which were collected into 1 vol. 8vo. in 1795.

Dr. Horne was one of thoſe divines who received with alarm Dr. Kennicott's propoſals for collating the text of the Hebrew Bible with ſuch manuſcripts as could be found, for the purpoſe of correcting the text, and preparing it for a new tranſlation into the Engliſh language. He entertained the groundleſs apprehenſion, that ſuch a meaſure would prove the means of letting in an inundation of licentious criticiſm upon the ſacred text. Under the influence of this alarm, which experience has ſhown to have been without foundation, in the year 1760, he publiſhed A View of Mr. Kennicott's Method of correcting the Hebrew Text, with three Queries formed thereon, and humbly ſubmitted to the Conſideration of the learned and Chriſtian World, 8vo. But, though the acquaintance between theſe two controverſialiſts commenced in hoſtility, it deſerves to be recorded, to the honour of both thoſe gentlemen, that they afterwards contracted for each other an intimate friendſhip, which laſted to the end of their lives.

HORNE (John Van), a very able Dutch anatomiſt, native of Amſterdam. He was a diſciple of Henry Regius, profeſſor at Utrecht; and he alſo ſtudied at Leyden, and in Italy. He became profeſſor of anatomy and ſurgery in the univerſity of Leyden, where he died about the year 1668. He was a man of great ſkill in anatomy, in which ſcience he wrote the following works: 1. *Epiſtola de Aneuryſmate*, printed with T. Bartholine's *Hiſtoria Anatom. Diſſecti Aneuryſmatis, Panorm.* 1644. 2. *Exercitatio Anatomica, I. & II.* 1649. 3. *Novus Ductus Chyliferus, nunc primum delineatus*, 1652; though Pecquet is conſidered as the diſcoverer of the thoracic duct, yet Van Horne made great additions to the knowledge of the courſe of the chyle, and the ſtructure of the lacteal veſſels. 4. *De Ductibus Salivalibus, Diſp. III.* 1656–57. 5. *Microcoſmus, ſeu Manuductio ad Hiſtoriam Corpor. Humani*, 1660. 6. *Microtechna, ſ. Methodica* *ad Chirurgiam Introductio*, 1663; this has often been reprinted, and tranſlated into other languages. 7. *Prodromus Obſervationum circa Partes Genitales in utroque Sexu*, 1668. 8. *Obſervationes Anatomico-medicæ aliquot*, 1676; publiſhed after his death by Juſtus Schraderus. Van Horne alſo gave editions of the works of Botallus, and of Galen de Oſſibus.

HOR'NECK (Anthony), a learned divine of the church of England, born at Baccharah, in the Lower Palatinate, in 1641. His father was recorder of that place; and, deſigning his ſon for the miniſtry, ſent him to the univerſity of Heidelberg; where he applied himſelf to the ſtudy of divinity under the celebrated Dr. Spanheim, afterwards profeſſor at Leyden. At nineteen years of age he came to England; and in 1663 was entered of Queen's college, in the univerſity of Oxford. At this time he had taken orders; for ſoon after his entrance, by the favour of Dr. Barlow, he was made chaplain of his college; and not long afterwards obtained the vicarage of Allhallows, in Oxford. In 1665, he removed into the family of the duke of Albemarle, in the capacity of tutor to his ſon lord Torrington. By his grace he was preſented to the rectory of Doulton, in Devonſhire; and through his intereſt he alſo obtained a prebend in the cathedral church of Exeter. In 1669 he paid a viſit to his native country, where he was much admired as a preacher, and entertained with great reſpect at the court of the elector palatine. Upon his return to England in 1671, he was choſen preacher at the Savoy; and in 1681, he commenced doctor of divinity at Cambridge. After the revolution, upon the recommendation of the lord-admiral Ruſſel, queen Mary gave him the promiſe of the next prebend of Weſtminſter that ſhould become vacant; and to this dignity he ſucceeded in 1693. Owing to his great diſtance from his prebend of Exeter, he reſigned it in 1694; and in the ſame year was admitted to a prebend in the cathedral of Wells. He was alſo honoured with the appointment of chaplain to king William and queen Mary. He died in 1696, in the fifty-ſixth year of his age. His character as a man, and a Chriſtian, was truly exemplary; and in his paſtoral relations, his conduct is ſpoken of as exhibiting an admirable model for clerical imitation. He was the author of, 1. The Great Law of Conſideration, &c. 1676, 8vo. 2. The Happy Aſcetic, 1681, 8vo. 3. The Delight and Judgment, &c. 1683, 12mo. 4. The Fire of the Altar, or, Directions how to raiſe the Soul into holy Flames, 1683, 12mo. 5. The Exerciſe of Prayer, or, a Help to Devotion, 1685, 8vo. 6. The Firſt Fruits of Reaſon, 1685, 8vo. 7. The Crucified Jeſus, or, a full Account of the Nature, End, Deſign, Benefit, of the Sacrament of the Lord's Supper, &c. 1686, 8vo. 8. Fifteen Sermons on the fifth Chapter of St. Matthew, 1698, 8vo.

HORN'ED, *adj.* Furniſhed with horns:

Thither all the *horned* hoſt reſorts,
To graze the ranker mead. *Denham.*

HORN'ED POP'PY, *ſ.* in botany. See CHELIDONIUM.

HORN'ED RAM'PION, *ſ.* in botany. See PHYTEUMA.

HORNE'IUS (Conrad), a German Lutheran divine, and voluminous writer, born at Brunſwick in 1590. After being initiated in the elements of learning by his father, he was ſent to the ſchool of St. Catharine, in his native city, where, at the age of ſeventeen, he was diſtinguiſhed by the extraordinary proficiency which he had made in the Latin and Greek languages. In 1612, he was admitted to the degree of maſter of arts in the univerſity of Helmſtadt; and in 1619, he was appointed profeſſor of moral philoſophy; and three years afterwards profeſſor of logic. In 1628, he was choſen to fill the theological chair, the duties of which he diſcharged for more than twenty years with great reputation. He was created doctor of divinity in 1636; and died in 1649, in his fifty-ninth year. The moſt valuable of his numerous productions are, 1. *Commentarius in Epiſt. ad Hebræos.* 2. *Com. in VII Epiſt. Catholicas.* 3. *Tract. de Sacris & Divinis Scripturis.* 4. *Compendium Theologiæ, Lib. III.* 5. *Comp. Hiſt. Eccleſiaſticæ.* 6. *Comp. Dialecticæ.* 7. *Ethicæ, ſeu Civilis Doctrinæ de Moribus, Lib. IV.* 8. *Comp. Metaphyſicæ.* 9. *Comp. Nat. Philoſophiæ.* 10. *Diſquiſ. Metaphyſicarum, ſeu de Prima Phil. Lib. IV.* 11. *Scholia in Homerum*; theological, ethical, and metaphyſical, diſputations, &c.

HORN'ER, *ſ.* One that works in horn, and ſells horns. —The ſkin of a bull's forehead is the part of the hide made uſe of by *horners*, whereupon they ſhave their horns. *Grew.*

The *horners* were a very ancient and conſiderable fraternity in the city of London ſome hundred years ago. In the reign of Edward II. they complained to parliament, that by foreigners buying up the horns in England, they were in danger of being ruined, and their buſineſs loſt to the nation. For this reaſon was made the ſtat. 6 Edw. IV. by which the ſale of horns to foreigners, except ſuch as the ſaid horners refuſed, was prohibited; and the wardens had power granted them to ſearch all the markets in London, and twenty-four miles round, and alſo to inſpect Stourbridge and Ely fairs, to prevent ſuch practices, and to purchaſe horns at ſtated prices. The importation of unwrought horns into this country is alſo prohibited. In 1750, there were exported to Holland 514,500 lantern-leaves, beſides powder-flaſks. There was formerly a duty of twenty ſhillings a thouſand, under which in 1682 were exported 76,650; but in the reign of George I. this duty was taken off, and theſe and all other manufactures made of horn may be exported free. The preſent company of horners were incorporated January 12, 1638; and conſiſt of a maſter, two wardens, and nine aſſiſtants.

HOR'NET, *ſ.* [hẏꞃneꞇꞇe, Sax. from its horns.] A ſpecies of waſp, which makes its neſt in hollow trees.—See the article VESPA.

Silence, in times of ſuff'ring is the beſt:
'Tis dangerous to diſturb a *hornet*'s neſt. *Dryden.*

HOR'NET-FLY, *ſ.* A large fly ſo called from its reſemblance to the hornet.

HORN'FOOT, *adj.* Hoofed:

Mad frantic men, that did not inly quake!
With *hornfoot* horſes, and braſs wheels, Jove's ſtorms to
emulate. *Hakewill on Providence.*

HORN'GELD, *ſ.* The tax paid for feeding horned cattle in the king's foreſt.

HORN'HEAD, a cape of the north coaſt of Ireland, in the county of Donegal. Lat. 55. 13. N. lon. 7. 51. W. Greenwich.

HOR'NIUS (George), an eminent German hiſtorian, born in the Palatinate about the commencement of the ſeventeenth century. He paſſed his youth in Brandenburg, and ſtudied in the college of Kreuſen; after which he occupied the chair of hiſtory at Leyden; where he died in 1650. His principal works are, 1. A Commentary on the preſent State of the Churches in England, under the name of Honorius Reggius, 1647. 2. A Hiſtory of the Tranſactions in England, Scotland, and Ireland, in 1645–46, 1648. 3. *De Originibus Americanis*, 1652. 4. *Hiſtoria Philoſophiæ*, 4to. 1655. 5. *Hiſtoria Eccleſiaſtica ad Ann.* 1666. 6. *Orbis Politicus.* 7. *Orbis Imperans.* 8. *Geographia Vetus & Nova.* 9. *Arca Noe*, a hiſtory of Monarchies; and an edition of Sulpicius Severus.

HORNOY', a town of France, in the department of the Somme, and chief place of a canton, in the diſtrict of Amiens: five leagues weſt-ſouth-weſt of Amiens, and five and a half ſouth of Abbeville.

HORN'PIPE, *ſ.* A ſprightly dance.—Florinda danced the Derbyſhire *hornpipe* in the preſence of ſeveral friends. *Tatler.*

HORNS'BACH, a river of Germany, in Upper Saxony, which runs into the Elbe, near Schandau, in the margraviate of Meiſſen.

HORNS'DORP, a town of Germany, in the duchy of Holſtein: ſeven miles north-north-eaſt of Segeberg.

HORN'SEY, a village in Middleſex, not far from Highgate. In the footway from this village to a place called

Highbury, is a coppice of young trees called *Hornſey-wood*, at the entrance of which is a public-houſe of great reſort in the ſummer-time; for, ſtanding on an eminence, it affords a delightful proſpect of the neighbouring country. The New River winds beautifully through Hornſey.

HORNSTED'IA, *ſ.* in botany, a genus of the claſs monandria, order monogynia. The general eſſential characters are—Calyx bifid; corolla with a long filiform tube and double border, the exterior three-parted; nectary tubular; capſule three-celled, oblong.

*Species.* 1. Hornſtedia ſcyphus: leaves downy underneath. Native of Malacca.

2. Hornſtedia leonurus: leaves glabrous, ciliate. Found in the woods of Malacca.

HORN'WORK, *ſ.* A kind of angular fortification. See the article FORTIFICATION, vol. vii. p. 605.—View with care the real fortifications of ſome ſtrong place, and you will get a clearer idea of baſtions, half-moons, *hornworks*, &c. than all the maſters in the world could give you upon paper. *Cheſterfield.*

HORN'WORT, *ſ.* in botany. See CERATOPHYLLUM.

HORN'Y, *adj.* Made of horn. Reſembling horn.—As the ſerum of the blood is reſolvable by a ſmall heat, a greater heat coagulates ſo as to turn it *horny*, like parchment; but when it is thoroughly putrified, it will no longer concrete. *Arbuthnot.*—Hard as horn; callous:

Tyrrheus, the foſter-father of the beaſt,
Then clench'd a hatchet in his *horny* fiſt. *Dryden.*

HOROCHAW', a town of Poland, in the palatinate of Volhynia: thirty-two miles ſouth-weſt of Lucko.

HORODEK', a town of Lithuania, in the palatinate of Wilna: ſixty-eight miles ſouth-eaſt of Wilna.

HORODEK', a town of Lithuania, in the palatinate of Brzeſc: thirty-eight miles eaſt of Brzeſc.

HORODISC'ZE, a town of Poland, in the palatinate of Lemberg: ſixty miles eaſt of Lemberg.

HOROD'LA, a town of Poland, in the palatinate of Belcz, on the Bug: thirty-two miles north of Belcz.

HORODYSC'ZE, a town of Lithuania, in the palatinate of Minſk: eight miles ſouth-eaſt of Minſk.

HOROG'RAPHY, *ſ.* [*horographie*, Fr. ωϱα and γϱαφω, Gr. to write.] An account of the hours.

HOR'OLOGE, *ſ.* [Gr. from ωϱα, an hour, and λογος, a deſcription.] An inſtrument that ſhows the hour of the day.

HOROLOG'ICAL, *adj.* Belonging to any contrivance or inſtrument for ſhowing the hour.

HOROLOGIOG'RAPHER, *ſ.* [Gr. from ωϱα, an hour, λογος, a word, and γϱαφω, to write.] One who conſtructs inſtruments for ſhowing the hour.

HOROLOGIOG'RAPHY, *ſ.* The act of conſtructing inſtruments to ſhow the hour.

HOROLO'GIUM, *ſ.* [Latin.] A common name among ancient writers for any inſtrument or machine for meaſuring the hours, as clocks, watches, ſun-dials, &c. Modern inventions, and gradual improvements, give birth to new terms, and annex meanings to others, totally different from what they had originally. All time-meaſurers that announced the hour by ſtriking on a bell, were called *clocks*; thus, we read of pocket-clocks, though nothing could ſeem more abſurd than to ſuppoſe that a clock, according to the modern idea, ſhould be carried in the pocket. In like manner, all clocks that did not ſtrike the hour, were called *watches*, or time-pieces; and the different parts of a ſtriking-clock were diſtinguiſhed by "the watch part," and "the clock part;" the former meaning that part which meaſures the time, and the latter the part which proclaims the hours. In the report of ſir Iſaac Newton to the houſe of commons, anno 1713, relative to the longitude-act, he ſtates the difficulties of aſcertaining the longitude by means of a *watch*; yet it is obvious, from ſeveral circumſtances, that his remarks were directly to be underſtood of a time-piece regulated by a pendulum; for his objections are founded on the known properties of the pendulum, ſome of which differ eſſentially from the properties of the balance and ſpring. It is alſo to be remembered, that all the attempts of Huygens for finding the longitude were by means of pendulum-clocks that did not ſtrike the hour; and conſequently, according to the language of the times, were called *watches*. At preſent ſuch machines for meaſuring time as are fixed in their place are called *clocks*, if they ſtrike the hour; if they do not ſtrike the hour, they are called *time-pieces*; and when conſtructed with more care, for a more accurate meaſure of time, they are called *regulators*. Artiſts of late have affected to call ſuch watches as were conſtructed for aſtronomical and nautical obſervations, by the name of *time-pieces*; probably to intimate that they poſſeſs the advantages of thoſe conſtructed with a pendulum. Mr. John Harriſon firſt gave the name of *time-keeper* to his watch, for the performance of which he received from parliament the ſum of 20,000l. For the principles of all ſuch machines, ſee the following article HOROLOGY.

HOROL'OGY, *ſ.* [from the Greek ὡϱα, time or hour, and λογος, a diſcourſe.] An explanation of the doctrine and principles of the meaſurement of time; but, chiefly, of the action of the various machines uſed for that purpoſe.

The heavenly bodies naturally became the original meaſurers of time, and their motions gave riſe to the preſent diviſions of it. The ſpace which elapſed between the riſing of the ſun and its ſetting, was called a *day*, and that between its ſetting and riſing a *night*. Afterwards the day and night were divided into twenty-four equal parts called *hours*, the hours into ſixty equal parts called *minutes*, the minutes into ſixty *ſeconds*, &c. The moment when the ſun is at the greateſt height above the horizon is called *noon*, and the time from one noon to another a *ſolar day*. The inequality of the ſolar days, and of the hours, occaſioned another diviſion of time, by which the year was ſuppoſed to be diſtributed into 365 *equal* parts, or days of 24 equal hours. The time thus divided was called *mean time*; and that which was naturally divided by the apparent courſe of the ſun was called *true* or *apparent time*.

The *ſun-dials* which were then in uſe indicated true time. But, as they could be of no ſervice except in the day, and when the ſun ſhone, *clepſydræ* next came very generally into uſe, and ſo continued till about the tenth century; at which time it appears that Archimedes's very ancient diſcovery of toothed wheels began to be applied to the mechanical meaſuring of time. But neither the ſlow progreſs which the ancients made in the art of meaſuring time, nor the rapid progreſs of the moderns, need excite our wonder. The lapſe of time could be meaſured but comparatively, and could ſtrike the ſenſes only by the revolutions of the heavenly bodies. Aſtronomy was then but imperfectly known; inſtruments for the required obſervations were not invented, and much preliminary knowledge was wanting. In theſe latter ages, therefore, when men of genius, embued with a proper fund of mathematical and philoſophical knowledge, applied themſelves to extend the limits of the art of horology, the improvements have in courſe been very numerous. It was not, however, till the ſeventeenth century, that two perſons to whom this art is ſo much indebted, flouriſhed: we allude to Huygens and Hooke, of whoſe inventions we ſhall ſoon have occaſion to ſpeak.

As aſtronomy gave riſe to the art of horology, that art has well repaid its parent by conducing greatly to the perfecting of aſtronomy and navigation; for it is well known of what importance a good time-piece is to the obtaining of correct reſults in celeſtial obſervations, not to mention the rectification of the longitude, which it is ſtill hoped may be obtained by the ſame means. The nicety of theſe machines depends chiefly upon the application of rules derived from experimental philoſophy and the mathematics. The nice hand of the workman will be employed in vain, unleſs directed by juſt and ſcientific rules. The man who is unacquainted with the different degrees of the condenſation and dilatation of metals, their greater or leſs tenacity and hardneſs, and hence the means of juſt compenſation, of reducing and equaliſing friction, &c. will never produce good machines for meaſuring time; and, even ſhould he copy the beſt machines made by others, he will never ſucceed. Our intention is therefore to deſcribe briefly the general principles of common clocks and watches, and afterwards to detail more at large the lateſt improvements.—We muſt however firſt ſpeak of the origin and progreſs of this curious and uſeful art.

### *GENERAL HISTORY OF HOROLOGY.*

The term *horologium* occurs very early in different parts of Europe; but as this word, in old times, ſignified a dial as well as a clock, nothing deciſive can be inferred from it, unleſs it can be ſhown, by concomitant circumſtances or expreſſions, that it relates to a clock rather than to a dial. Dante ſeems to have been the firſt author who has introduced the mention of an *orologio* that ſtruck the hour, and which conſequently cannot be a dial, in the following lines:

Indi come horologio che *ne chiami*,
Nel hora che la ſpoſa d'Idio ſurge,
Amattinar lo ſpoſo, perche l'ami. *Paradiſo*, x. 30.

——Like ſolemn *chimes* at noon of night,
That call the ſpouſe of God her faith to plight,
And love for love with fervent heart return;
*When ſound to ſound reſponſive vibrates clear*; &c.

Dante was born in 1265, and died in 1321, aged fifty-ſeven; ſtriking-clocks therefore could not have been very uncommon in Italy at the latter end of the thirteenth century or the beginning of the fourteenth. But the uſe of clocks was not confined to Italy at this period; for we had an artiſt in England about the ſame time, who furniſhed the famous clock-houſe near Weſtminſter-hall, with a clock to be heard by the courts of law, out of a fine impoſed on the chief juſtice of the King's Bench, in the ſixteenth year of Edward I. or in 1288. We find that this clock was conſidered, during the reign of Henry VI. to be of ſuch conſequence, that the king gave the keeping of it, with the appurtenances, to William Warby, dean of St. Stephen's, together with the pay of ſixpence per diem, to be received at the Exchequer. See Stowe's Weſtminſter, ii. 55. The clock at St. Mary's, Oxford, was alſo furniſhed in 1523, out of fines impoſed on the ſtudents of the univerſity.

Weidler and Chambers are doubtleſs in a miſtake when they place the invention of automatous clocks about the end of the fifteenth or beginning of the ſixteenth century. The latter ſays, "It is certain that the art of conſtructing clocks, ſuch as thoſe now in uſe, was firſt invented or at leaſt revived in Germany about two hundred years ago." The ſame account is given by Weidler, whom Chambers perhaps copied. But this opinion is ſo apparently falſe in regard to the time, that one cannot aſſent to it; nor is it even probable in regard to the country, though it muſt be allowed that the art of clock-making flouriſhed very much in Germany, particularly at Nuremberg, about the beginning of the ſixteenth century. Beckman's Hiſt. of Inventions, vol. i.

As theſe two authors make the invention of clocks too modern, others, on the contrary, carry it back to a period too early. A certain writer pretends to have found mention made of a clock in the third century. In ſupport of this aſſertion he refers to the Acts of St. Sebaſtian the Martyr; but, whatever this machine might have been, it was of no uſe to others, or to poſterity; it was devoutly broken to pieces by St. Stephen and St. Polycarp, becauſe it exhibited the motions of the planets, which were called by heathen names; ſo that, even allowing it to have been a clock, the knowledge of it muſt have been loſt. We find, alſo, that Bernardus Saccus aſcribes the invention of clocks to Boethius, in the fifth century; but Bernardus ſeems to have forgotten what he quoted a little before from Caſſiodorus, reſpecting the clock of Boethius, that it determined the hours *guttis aquarum*, "by drops of water." It muſt, therefore, have been a water-clock, and not a clock moved by wheels and weights. The ſame Caſſiodorus had provided his monks at the monaſtery of St. Andiol, in Languedoc, with machines of the like kind.

We come now to the ſeventh century. In Du Freſne's Lexicon we find the word *Index*, which is explained to be the index or hand of a clock, or the ſmall bell which announces the hours by its ſound; and this opinion is adopted by Muratori. Du Freſne quotes in ſupport of his aſſertion a monkiſh work called Regula Magiſtri, the author of which is not certainly known, but which Mabillon aſſerts to have been written before the year 700. But Du Freſne might have perceived that a clock is not here alluded to, had he quoted the whole paſſage from the fifty-fifth chapter. That machine which was ſent as a preſent to Charlemagne by the king of Perſia, in the year 807, is ſuppoſed alſo to have been a clock like thoſe uſed at preſent; and, if we follow the Chronicon Turonenſe, we may eaſily fall into the ſame opinion. The deſcription of it however to be found in Annales Francorum, aſcribed to Eginhard, ſhows clearly that it was far different from our clocks: it was evidently a water-clock, furniſhed with ſome ingenious mechaniſm, but having nothing in common with the wheel-work of clocks.

That even theſe water-clocks, however, were then ſcarce, as well as in the following centuries, we have reaſon to conclude from their being ſo little ſpoken of in the writings of thoſe periods. In the ancient cuſtoms of the monaſtery of St. Viton, at Werden, written as is ſaid in the tenth century, no mention of them occurs; and the monks regulated their prayers by the crowing of the cock; for it is ſaid: *Cum lucem ales nunciaverit, dabuntur omnia ſigna in reſurrectione Domini noſtri, &c.* We find as little mention of them in the eleventh century, even in paſſages where they could not have been omitted had they been known.

Some aſcribe the invention of our modern clocks to Gerbert, who, in the tenth century, was raiſed to the pontifical chair at Rome, under the name of Sylveſter II. and who was reckoned to be the firſt mathematician and aſtronomer of his time. This opinion, however, is ſupported only by mere conjecture, and appears to be falſe from the account of Dithmar, in which no mention is made of wheels or weights; ſo that this ſeems to have been a ſun-dial, which Gerbert fixed up by obſerving the pole-ſtar. It appears, indeed, that Gerbert was acquainted with no other kind of clock; for thoſe who ſpeak of his book in which he explains the method of conſtructing dials for various latitudes, produce no farther proofs. Some, according to the teſtimony of Kircher, conſider it to have been a portable dial, which ſhowed the hour when properly ſet by the help of a needle touched by a magnet; but even this opinion is not warranted by the words of Dithmar.

The anonymous author of the Life of William abbot of Hirſhau, who lived in the eleventh century, and who was a very learned man for his time, ſays, *Naturale horologium ad exemplum cæleſtis hæmiſpherii excogitaſſe.* Though this paſſage is ſo ſhort, that no idea can be formed from it of the conſtruction of the machine, it is evident that it alludes neither to a ſun-dial nor to a water-clock, but to ſome piece of mechaniſm which pointed out the hours, and exhibited the motion of the earth and other planets. As more frequent mention of *horologia* occurs afterwards, and as, in ſpeaking of them, expreſſions are uſed which cannot be applied to ſun-dials or water-clocks, we are induced to think that the invention of our clocks belongs to this period. In the Conſtitutiones Hirſaugienſes, or Gengebacenſes, of the ſame William, it is ſaid of the ſacriſtan, *eum horologium dirigere et ordinare.* In the like manner Bernardus Monachus, a writer of the ſame century, in the Ancient Cuſtoms of the Monaſtery of St Victor, at Paris, ſays, that the regiſter, the ſacriſt's companion, ought "horas canonicas nocte et die ad divinum celebrandum cuſtodire, ſigna pulſare, *horologium temperare.*" The unequal hours then in uſe rendered this regulating of the *horologia* neceſſary. The days and the nights conſiſted of twelve hours each; but ſometimes ſhorter and ſometimes longer. The reaſon of this is explained in the ſixty-fourth chapter of the before-mentioned Cuſtoms. Theſe *horologia* not only pointed out the hours by an index, but emitted alſo a ſound. This we learn from Primaria Inſtituta Canonicorum Præmonſtratenſium, where it is ordered that the ſacriſtan ſhould regulate the *horologium*, and make it ſound before matins to awaken him. We dare not however venture thence to infer, that theſe machines announced the number of the hour by their ſound, as they ſeem only to have given an alarm at the time of getting up from bed. We have indeed never yet found a paſſage where it is mentioned that the *number* of the hour was expreſſed by them; and when we read of their emitting a ſound, we are to underſtand that it was for the purpoſe of wakening the ſacriſtan to morning-prayers.

From what has been ſaid it is ſufficiently apparent that clocks moved by wheels and weights began to be uſed in the monaſteries in Europe about the eleventh century. Yet we do not think that Europe is entitled to the honour of this invention; but that it is rather to be aſcribed to the Saracens, to whom we are indebted for moſt of the mathematical ſciences. This conjecture is ſupported by the *horologium* which, as Trithemius tells us, was ſent by ſultan Saladin of Egypt, in the year 1232, to the emperor Frederic II. In the fourteenth century mention is made of the machine of our countryman Richard of Wallingford, which has been hitherto conſidered as the oldeſt clock known. Richard of Wallingford was ſon of a ſmith, who lived at that town, and who, from his learning and ingenuity, became abbot of St. Alban's. He wrote alſo a treatiſe on this clock; and it appears that it continued to go in Leland's time, who was born at the latter end of Henry VII.'s reign, and who ſpeaks of a tradition, that this famous piece of mechaniſm was called *Albion* (*all by one*) by the inventor.

Clocks hitherto had been, as it were, ſhut up in monaſteries; but they now began to be employed for the common uſe and convenience of cities, though no inſtance of this is to be found before the above period. Hubert prince of Carrara cauſed the firſt clock ever publicly erected, to be put up at Padua, as we are told by Petrus Paulus Vergerius. It is ſaid to have been made by James Dondi, whoſe family afterwards got the name of *Horologio*. We are informed by the Chronica miſcella Bononienſis, that the firſt clock at Bologna was fixed up in the year 1356. Some time after the year 1364, Charles V. ſurnamed the Wiſe, king of France, cauſed a large clock to be placed in the tower of his palace, by Henry de Wyck, whom he invited from Germany, becauſe there was then at Paris no artiſt of that kind, and to whom he allowed a ſalary of ſix ſols per day, with free lodgings in the tower. Towards the end of the century, about the year 1370, Straſburgh alſo had a clock, a deſcription of which is given by Conradus Daſypodius. Courtray, about the ſame period, was celebrated for its clock, which was carried away by the duke of Burgundy in the year 1382. We are told by Lehmann, that a public clock was put up at Spire in 1395. "That year," ſays he, "the clock was erected on the Altburg gate. The bell for calling the people together to divine worſhip was caſt by a bell-founder from Straſburgh. The works of the clock coſt fifty-one florins." The greater part, however, of the principal cities of Europe were at this period without ſtriking-clocks, which could not be procured but at a great expence. Of this we have an inſtance in the city of Auxerre. In 1483, the magiſtrates reſolved to cauſe a clock to be conſtructed; but, as it would coſt a larger ſum of money than they thought they had a right to diſpoſe of by their own authority, they applied to Charles VIII. to requeſt leave to employ a certain part of the public funds for that purpoſe. The great clock in the church of the Virgin Mary at Nuremberg was erected, as we read, in the year 1462. A public clock was put up at Venice in 1497. In the ſame century an excellent clock, which is deſcribed in a letter of Politian to Francis Caſa, in 1484, was conſtructed by one Lorenzo, a Florentine, for Coſmo I. of Medicis.

Towards the end of this century, clocks began to be in uſe among private perſons. This appears from a letter of Ambroſius Camaldulenſis to Nicolaus, a learned man of Florence. About this period alſo, mention is made of watches; ſo that Doppelmayer is deceived when he ſays that watches were invented by Peter Hele, at Nuremberg, in the ſixteenth century; and that, becauſe they were ſhaped like an egg, they were called *Nuremberg animated eggs.*

Having produced inſtances of ſeveral clocks made in different parts of the fourteenth century, as alſo having endeavoured to prove that they were not very uncommon even in the thirteenth, it may be thought neceſſary that we ſhould account for their not being more generally uſed during thoſe periods, as, in their preſent ſtate at leaſt, they are ſo very convenient. For this it ſhould ſeem that many reaſons ſhould be aſſigned. In the infancy of this new piece of mechaniſm, they were probably of a very imperfect conſtruction, perhaps never went tolerably, and were ſoon deranged, whilſt there was no one within a reaſonable diſtance to put them in order. We find, therefore, that Henry VI. of England, and Charles V. of France, appointed clock-makers, with a ſtipend, to keep the Weſtminſter and Paris clocks in order. It need ſcarcely be obſerved alſo, that, as the artiſts were ſo few, their work muſt have been charged accordingly, and that kings only could be the purchaſers of what was rather an expenſive toy, than of any conſiderable uſe. And it may perhaps be ſaid, that they continued in a great meaſure to be no better than toys, till the middle of the ſeventeenth century. Add to this, that in the thirteenth and fourteenth centuries, there was ſo little commerce, intercourſe, or ſociety, that an hour-glaſs, or the ſun, was very ſufficient for the common purpoſes, which are now more accurately ſettled by clocks of modern conſtruction. Dials likewiſe wanted no mending.

The oldeſt clock which we have in England, that is ſuppoſed to go tolerably, is of the year 1540, in the reign of Henry VIII. But the name of the artiſt is not known, only the initial letters N. O. appear. This clock is ſtill kept going at Hampton-court palace. Beſides ſhowing the time of the day, it exhibits the motion of the ſun and moon, together with the matters depending thereon, as the day of the month, ſun and moon's place in the zodiac, moon's ſouthing, &c.

Thus much with regard to the firſt introduction of *clocks*. We ſhall now bring forward a few particulars in relation to thoſe more portable meaſurers of time, called *watches*, the earlieſt of which ſeems to be one that was in ſir Aſhton Lever's moſt valuable muſeum, the date upon which is 1541. Derham, in his Artificial Clock-maker, publiſhed in 1714, mentions a watch of Henry VIII. which was ſtill in order; and Dr. Demainbray had heard both ſir Iſaac Newton and Demoivre ſpeak of this watch. The emperor Charles V. Henry's cotemporary, was ſo much pleaſed with theſe time-meaſurers, that he uſed to ſit after his dinner with ſeveral of them on the table, his bottle being in the centre; and when he retired to the monaſtery of St. Juſt, he continued ſtill to amuſe himſelf with keeping them in order, which is ſaid to have produced a reflection from him on the abſurdity of his attempt to regulate the motions of the different powers of Europe.

Some of the watches uſed at this time, ſeem to have been ſtrikers; at leaſt we find in the Memoirs of Literature, that ſuch watches having been ſtolen both from Charles V. and Louis XI. whilſt they were in a crowd, the thief was detected by their ſtriking the hour. In moſt of the more ancient watches, catgut ſupplies the place of a chain; they are commonly of a ſmaller ſize than we uſe at preſent, and often of an oval form. The proprietor of this work was lately in poſſeſſion of a watch that was dug up a few years ago near the ſcite of the ancient caſtle at Wincheſter, where it had lain probably ſince the time of

Cromwell, who it is well known battered down that edifice. This watch is of an octagon form; has no minute-hand; a catgut chain; and requires winding up every twelve hours. It has no balance-ſpring, and ſeems never to have had one. It ſhuts like a hunting-watch, without any glaſs; the lid and bottom of the caſe, as well as the dial-plate, are of ſilver, and very neatly engraved with pieces of ſcripture-hiſtory in the centre, and, in the compartments, the four evangeliſts, and St. Peter, St. Paul, St. James, and St. Jude. It has no date.

From various imperfections in the workmanſhip, watches did not come into any degree of general requeſt, till the latter end of queen Elizabeth's reign. Accordingly, in Shakeſpeare's Twelfth Night, Malvolio ſays, "I frown the while, and perchance *wind up my watch*, or play with ſome rich jewel." Again, in the firſt edition of Harrington's Orlando Furioſo, printed in 1591, the author is repreſented with what ſeems to be a watch, though the engraving is by no means diſtinct, on which is written *Il tempo paſſa*, or "Time flies" In the third year of James I. a watch was found upon Guy Fawkes, which he and Percy had bought the day before, "to try concluſions (ſays Stowe) for the long and ſhort burning of the touchwood, with which he had prepared to give fire to the train of powder." This ſhows they were not common, or the circumſtance would not have been mentioned. But in 1631 Charles I. incorporated the clock-makers; and the charter prohibits *clocks*, *watches*, and *alarms*, from being imported: which ſufficiently proves that they were now more commonly uſed, as well as that we had artiſts of our own who were expert in this branch of buſineſs. About the middle of the ſeventeenth century, Huygens made his great improvement in clock-work, which produced many others from our own countrymen, Hooke, Tompion, &c. the lateſt of which was the introduction of repeating-watches, in the time of Charles II. who ſent one of the firſt of theſe new inventions to Louis XIV. The former of theſe kings was very curious with regard to theſe time-meaſurers; watchmakers, particularly Eaſt, uſed to attend whilſt he was playing at the mall; a watch being often the ſtake.

As it was in England that watches had their firſt riſe, ſo it is here too they have arrived at their greateſt perfection: witneſs the value put on an Engliſh watch in all foreign countries, and the vaſt demand for them. M. Savary, in his Diction. de Commerce, pretends to match the French watch-makers againſt the Engliſh. He aſſerts, "that, if the Engliſh be in any condition to diſpute it with them, they owe it entirely to the great number of French workmen who took ſhelter here upon the revocation of the edict of Nantes." He adds, "that three-fourths of the watches made in England, are the work of Frenchmen." From what authority he ſays this, at the time when he wrote, we know not. It is certain the French have generally preferred our watches to their own; inſomuch that, to have them with the more eaſe, a number of Engliſh workmen were invited over in 1719, and eſtabliſhed with great countenance at Verſailles, under the direction of the famous Mr. Law. But the eſtabliſhment, though every thing promiſed well for it, and the French watch and clock-makers ſeemed undone by it, fell to the ground in leſs than a year's time. M. Savary imputes its fall entirely to the ſtrong prejudice of the French people in behalf of the Engliſh workmen, and to their knowing that the watches did not come from England. But the truth is, the workmen ſent over, being moſt of them men of looſe characters, quarrelled with the prieſts, inſulted the magiſtrates, and were diſmiſſed of neceſſity. One of the Engliſh artiſts, who eſtabliſhed a manufactory at Verſailles, was Mr. Henry Sully; and, though he returned to England within two years after his firſt ſettlement, he ſoon after went back and eſtabliſhed another manufactory at St. Germain's. He publiſhed an account of a longitude-clock he had invented, in 1726; from which, however, his expectations were diſappointed; and died in 1728.

In the year 1698, an act paſſed the parliament of England, obliging the makers to put their names on watches, leſt diſcreditable ones might be ſold abroad for Engliſh. Other acts of parliament relating to clocks and watches are noticed under Clock, vol. iv. p. 676.

The invention of pendulum-clocks is diſputed by Huygens and Galileo: the former, who has written a volume on the ſubject, declares it was firſt put in practice in the year 1657, and the deſcription thereof printed in 1658. Becher contends for Galileo; and relates, though at ſecond-hand, the whole hiſtory of the invention; adding, that one Treſler, clock-maker to the then father of the grand duke of Tuſcany, made the firſt pendulum-clock at Florence, by direction of Galileo Galilei; a pattern of which was brought into Holland. The Academy del Cimento ſay expreſsly, that the application of the pendulum to the movement of a clock was firſt propoſed by Galileo, and firſt put in practice by his ſon Vincenzo Galilei, in 1649. Be the inventor who he will, it is certain the invention never flouriſhed till it came into Huygens's hands, who inſiſts on it, that if ever Galileo thought of ſuch a thing, he never brought it to any degree of perfection. The firſt pendulum-clock made in England was in the year 1662, by Mr. Fromantil, a Dutchman.

Amongſt the modern clocks, thoſe of Straſburg and Lyons are very eminent for the richneſs of their furniture, and the variety of their motions and figures. That of Straſburg was the work of Conrad Daſypodius, a mathematician of that city, who lived towards the end of the ſixteenth century, and who finiſhed it about the year 1573. It is conſidered as the firſt in Europe. At any rate there is none but that of Lyons which can diſpute pre-eminence with it, or be compared to it in regard to the variety of its effects. The face of the baſement of the clock of Straſburg exhibits three dial-plates; one of which is round, and conſiſts of ſeveral concentric circles; the two interior ones of which perform their revolutions in a year, and ſerve to mark the days of the year, the feſtivals, and other circumſtances of the calendar. The two lateral dial-plates are ſquare, and ſerve to indicate the eclipſes, both of the ſun and moon. Above the middle dial-plate, and in the attic ſpace of the baſement, the days of the week are repreſented by different divinities, ſuppoſed to preſide over the planets from which their common appellations are derived. The divinity of the current day appears in a car rolling over the clouds, and at midnight retires to give place to the ſucceeding one. Before the baſement is ſeen a globe, borne on the wings of a pelican, around which the ſun and moon revolved; and which in that manner repreſented the motion of theſe planets; but this part of the machine, as well as ſeveral others, has been deranged for a long time. The ornamented turret, above this baſement, exhibits chiefly a large dial, in the form of an aſtrolabe; which ſhows the annual motion of the ſun and moon through the ecliptic, the hours of the day, &c. The phaſes of the moon are ſeen alſo marked out on a particular dial-plate above. This clock is remarkable alſo for a conſiderable aſſemblage of bells, and figures which perform different motions. Above the dial-plate laſt mentioned, for example, the four ages of man are repreſented by ſymbolical figures: one paſſes every quarter of an hour, and marks the quarter by ſtriking on ſmall bells; theſe figures are followed by Death, who is expelled by Jeſus Chriſt riſen from the grave; who however permits it to ſound the hour, in order to warn man that time is on the wing. Two ſmall angels perform movements alſo; one ſtriking a bell with a ſceptre, while the other turns an hour-glaſs, at the expiration of an hour. In the laſt place, this work was decorated with various animals, which emitted ſounds, ſimilar to their natural voices; but none of them now remain except the cock, which crows immediately before the hour ſtrikes, firſt ſtretching out its neck and clapping its wings. The voice of this figure however is become ſo hoarſe as to be much leſs harmonious than the voice of that at Lyons, though the latter is attended, in a conſiderable degree, with the ſame defect. It is to be regretted that a great part of this machine is entirely deranged. It would be worthy of the illuſtrious metropolitan chapter of Straſburg to cauſe it to be repaired: we have heard indeed that it has been attempted; but that no artiſt could be found capable of performing it.

The clock of the cathedral of Lyons is of leſs ſize than that of Straſburg; but is not inferior to it in the variety of its movements; and it has the advantage alſo of being in better condition. It is the work of Lippius de Baſle, and was exceedingly well repaired in the ſeventeenth century by an ingenious clock-maker of Lyons, named Nouriſſon. Like that of Straſburg, it exhibits, on different dial-plates, the annual and diurnal progreſs of the ſun and moon, the days of the year, their length, and the whole calendar, civil as well as eccleſiaſtical. The days of the week are indicated by ſymbols more analogous to the place where the clock is erected; the hours are announced by the crowing of the cock, three times repeated, after it has clapped its wings, and made various other movements. When the cock has done crowing, angels appear, who, by ſtriking ſeveral bells, perform the air of a hymn; the annunciation of the Virgin is repreſented alſo by moving figures, and by the deſcent of a dove from the clouds; and after this mechanical exhibition, the hour ſtrikes. On one of the ſides of the clock is ſeen an oval dial-plate, where the hours and minutes are indicated by means of an index, which lengthens or contracts itſelf, according to the length of the ſemi-diameter of the ellipſis over which it moves.

A very curious clock, the work of Martinot, a celebrated clock-maker of the ſeventeenth century, was to be ſeen in the royal apartments at Verſailles. Before it ſtruck the hour, two cocks on the corners of a ſmall edifice crowed alternately, clapping their wings; ſoon after two lateral doors of the edifice opened, at which appeared two figures bearing cymbals, beat upon by a kind of guards with clubs. When theſe figures had retired, the centre door was thrown open, and a pedeſtal, ſupporting an equeſtrian ſtatue of Louis XIV. iſſued from it, while a group of clouds ſeparating gave a paſſage to a figure of Fame, which came and hovered over the ſtatue. An air was then performed by bells; after which the two figures re-entered; the two guards raiſed up their clubs, which they had lowered as if out of reſpect for the preſence of the king, and the hour was then ſtruck.

The clock of St. Mark's at Venice was alſo much celebrated, but is now entirely out of repair, and probably will never be reſtored. But in this place we muſt not omit to mention two clocks, equal perhaps to any of the above, and made by Engliſh artiſts, as a preſent from the Eaſt-India company to the late emperor of China. The clocks we ſpeak of are in the form of chariots, in which are placed, in a fine attitude, a lady, leaning her right hand upon a part of the chariot, under which is a clock of curious workmanſhip, little larger than a ſhilling, that ſtrikes and repeats, and goes eight days. Upon her finger ſits a bird finely modelled, and ſet with diamonds and rubies, with its wings expanded in a flying poſture, and actually flutters for a conſiderable time on touching a diamond button below it; the body of the bird (which contains part of the wheels that in a manner give life to it) is not the bigneſs of the ſixteenth part of an inch. The lady holds in her left hand a gold tube not much thicker than a large pin, on the top of which is a ſmall round box, to which a circular ornament ſet with diamonds not larger than a ſixpence is fixed, which goes round near three hours in a conſtant regular motion. Over the lady's head, ſupported by a ſmall fluted pillar no bigger than a quill, is a double umbrella, under the largeſt of which a bell is fixed at a conſiderable diſtance from the clock, and ſeems to have no connection with it; but from which a communication is ſecretly conveyed to a hammer, that regularly ſtrikes the hour, and repeats the ſame at pleaſure by touching a diamond button fixed to the clock below. At the feet of the lady is a gold dog; before which from the point of the chariot are two birds fixed on ſpiral ſprings; the wings and feathers of which are ſet with ſtones of various colours, and appear as if flying away with the chariot, which, from another ſecret motion, is contrived to run in a ſtraight, circular, or any other, direction; a boy, that lays hold of the chariot behind, ſeems alſo to puſh it forward. Above the umbrella are flowers and ornaments of precious ſtones; and it terminates with a flying dragon ſet in the ſame manner. The whole is of gold, moſt curiouſly executed, and embelliſhed with rubies and pearls.

The watch-trade has been doubled in Europe within the laſt fifty years. It increaſes with the progreſs of civilization, which renders the inſtrument which ſhows and divides time nearly as precious as time itſelf. If we may credit a French commercial agent's account of the trade in the Levant, England, before the interruption of her commercial relations with Turkey, uſed to ſell annually thirty dozen watches at Salonica, as many in the Morea, 300 dozen at Conſtantinople, 400 dozen at Smyrna, 150 dozen in Syria, 250 dozen in Egypt. Nineteen out of twenty were ſilver watches; the gold ones are not ſo eaſily ſold. The average amount of the whole Engliſh watch-trade in Turkey was valued at 110,000l. ſterling annually. The Eaſt and Weſt India trade is very conſiderable.

It is not eaſy to conceive how an horologium, or any kind of inſtrument, could point out the various hours, as time was computed by the ancient Romans. The time the earth takes to revolve once round its axis, or the ſpace between the riſing of the ſun till its next riſing, which makes a day and a night divided into 24 equal parts, we call hours. Now the Romans divided the day and the night into 24 hours. Twelve of theſe, from the riſing of the ſun to its ſetting, conſtituted their day; and the other twelve, from the ſetting of the ſun to its riſing, conſtituted their night. Thus, as the ſeaſons changed, the length of their hours muſt have varied. In winter, the twelve hours of the day were ſhort, and thoſe of the night long: in ſummer they were the reverſe. How, then, could theſe hours of unequal length, and which daily varied, be meaſured by an inſtrument? However, they had two fixed points, mid-day and midnight, which they called the ſixth hour, ſo that a meridian line would always point out the ſixth hour, or mid-day. It is not exactly known when the modern Romans changed this method of computing time.

There can be no doubt, however, but that men of ſcience among the ancients were acquainted with equal hours. Pliny calls them equinoxial hours. Theſe were uſed in aſtronomical calculations, for computing the length of the day in different climates and ſeaſons. In Egypt, likewiſe, the day was divided into unequal hours. Ptolemy marks the time of the ſame phenomenon, by theſe as well as equal hours, to accommodate his writings to the uſage of his country. The clock invented by Cteſibius (a celebrated mechanic of Alexandria, who lived 136 years before Chriſt) was ſo contrived as to lengthen or ſhorten the hours. About the thirteenth century, a more regular diviſion of the day into equal hours was introduced into Italy. The civil day was made to begin about the cloſe of evening twilight, and 24 equal hours are counted regularly on to the ſame time on the following evening. This mode is continued in many parts of Germany and Italy to this day. The clocks are uſually only numbered to, and ſtrike, ſix, making four revolutions in one day. This method is very inconvenient, as noon and the various offices of civil life occur perpetually at a different hour, ſo that a perſon muſt conſult an almanac to know the hour of dinner. The accumulated error which the clocks are liable to, from this unſkilful mode of computation, is corrected when it amounts to a quarter of an hour. To enable the people to regulate the domeſtic concerns, a calendar is publiſhed, which announces, for inſtance, that from the 16th of February to the 24th, it will be noon at a quarter paſt 18; that from the 1ſt of June to the 13th of July, it will be noon at 16. But the Italians were gradually adopting the more improved method which has ſo long been practiſed in England, France, and the other enlightened countries of the north of Europe; and a decree has been iſſued, in conſequence of Bonaparte's taking poſſeſſion of the papal dominions, that from and after the 1ſt of October of the preſent year 1809, the diviſion of time at Rome, and throughout the whole Roman territory, and all Italy, ſhall be the ſame as in France and other European countries.

The only difference that at preſent ſubſiſts between England and France relative to the diviſion of the day is, that with us we reckon by mean time: in France they uſe ſolar time. Our clocks ſometimes ſtrike twelve when the ſun is more than a quarter of an hour from the meridian: in France, the clocks ſtrike twelve at the moment of noon. The French aſtronomers have lately propoſed, that the aſtronomical day ſhould commence with the civil day at midnight.

When the calendar was reformed in France, at the era of the republic, the day was to be divided into 10 hours, the hour into 100 minutes, the minutes into 100 ſeconds. The two excellent watch-makers, Berthoud and Breguet, as well as others, made however remonſtrances to the directory, in the name of their whole body, on the great inconveniences which would enſue from ſuch a diviſion of time, and the particular injury which the whole trade would ſuffer in conſequence. This had the effect of obtaining from the government a reſolution to poſtpone this innovation. Some clocks were however conſtructed at Paris upon theſe diviſions. There was one ſet up in the middle of the façade of the Thuilleries, looking to the garden, which drew a vaſt many gazers, as being an object of curioſity: Berthoud made a time-piece on a ſimilar plan, which performs extremely well.

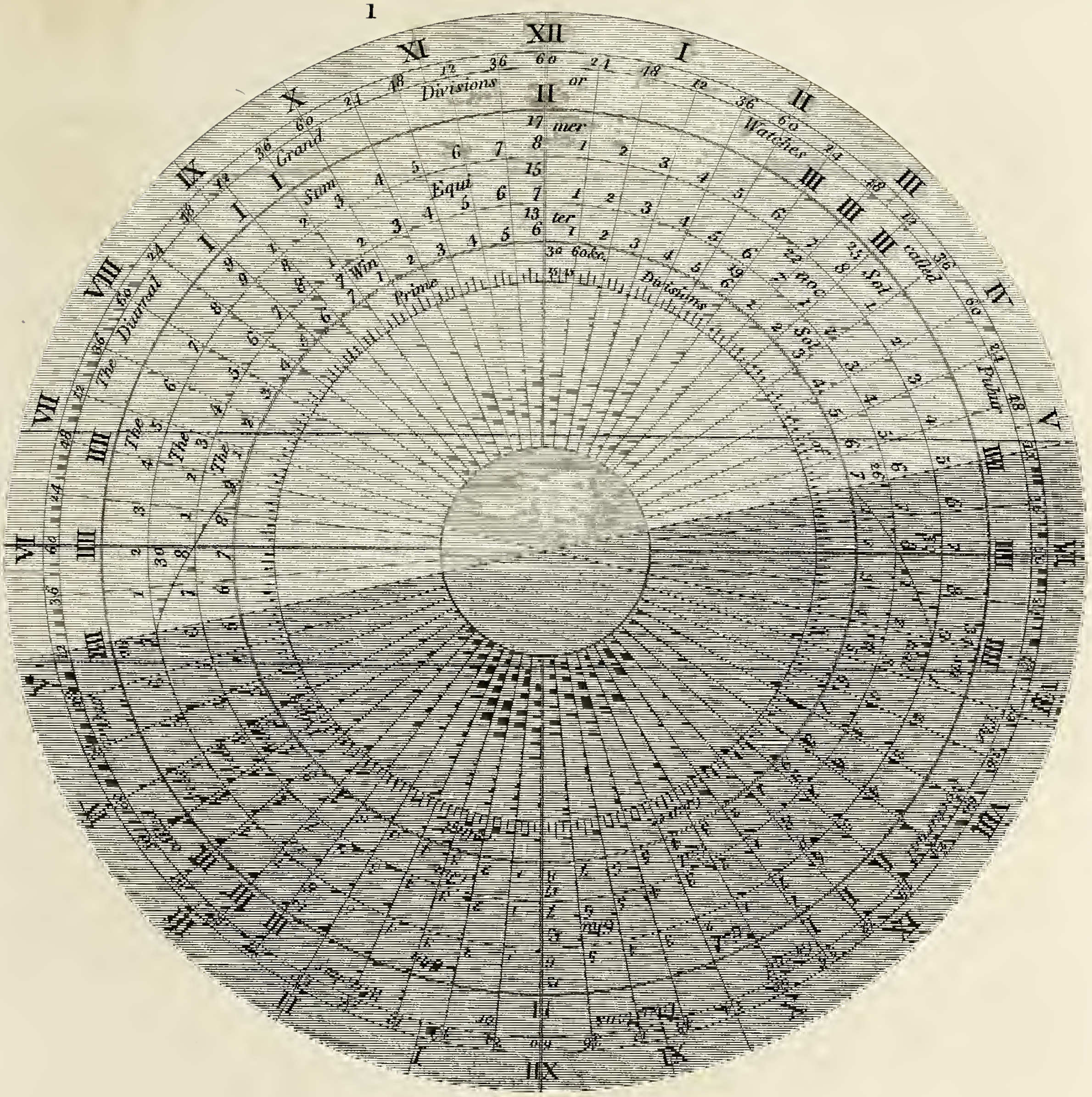
Although the cuſtoms and manners of the original Chineſe beſpeak great ſimplicity, and betray much ignorance with reſpect to many European inventions and improvements; yet their general or native knowledge is confeſſedly ſuch, as to prove them always to have been a civilized and enlightened people. This people are ſaid to have poſſeſſed, three hundred years before the birth of Chriſt, a treatiſe of Clepſydras and Gnomons, the latter of which directs how to find the latitude of a place, and to draw a meridian line: a degree of knowledge not attained, at that period, even by the Romans, who, for a conſiderable time, had no other way of determining the meridian, or midday, at Rome, than that of obſerving when the ſun came between the ſenate-houſe and the tribune; and who uſed for many years a ſun-dial calculated for another latitude, imagining that it was equally applicable to all places; an error into which ſome of the Chineſe have been ſince accuſed of falling themſelves. Ingenious, however, as theſe people are, they do not ſeem to have any idea of the earth's motion; but imagine that the ſun actually moves through the fixed ſtars. Their day is divided, as by the ancient Egyptians, into twelve parts only, conſiſting each of two European hours; the firſt beginning at eleven at night, and ending at one. Theſe portions of time are meaſured with tolerable accuracy, by means of a lighted taper made from the pith of a particular tree, of which the conſumption by ignition is ſo regular, that, divided into twelve equal parts, each continues burning during the twelfth part of the twenty-four hours. The gradual motion of ſand, and the deſcent of liquids, have been likewiſe applied to the ſame purpoſe. To announce the hour, even at preſent, in Pekin, they have no better method than that of ſtriking with a mallet upon a large bell, a number of ſtrokes correſponding to that of the hour, by a perſon who muſt wait and watch the progreſs of time, as indicated by ſome of the methods above deſcribed. In this ſtate they were found when conquered by the Tartar tribes; and in it they ſeem ever ſince to have continued.

The inhabitants of Hindooſtan commonly reckon and divide time in the following manner: 60 *til* or *unoopul* (a ſubdiviſion of time, for which we have no relative term but *thirds*, as the ſeries next to *ſeconds*) are one *bipul*; 60 *bipul* (which correſponds progreſſively only with our *ſeconds* or moments) one *pul*; 60 *pul* (correlative as above, in this ſexageſimal ſcale with our *minutes* or *primes*) one *ghuree*, and 60 ghuree (called alſo *dund*, which we may here tranſlate *hour*) conſtitute our twenty-four hours, or one whole day; divided into 4 *puhur din*, diurnal watches; and 4 *puhur rat*, nocturnal watches.

During the equinoctial months, there are juſt 30 ghurees in the day, and 30 alſo in the night; each ghuree properly occupying a ſpace, *at all times*, exactly equal to 24 of our minutes; becauſe 60 ghurees, of 24 Engliſh minutes each, are of courſe 24 Engliſh hours of 60 Engliſh minutes each. For nations under or near the equator, this horological arrangement will prove convenient enough, and may yet be adduced as one argument for aſcertaining with more preciſion the country whence the Hindoos originally came, provided they are, as is generally ſuppoſed, the inventors of the ſyſtem under conſideration here. The farther we recede from the line, the more difficult and troubleſome will the preſent plan appear. And as in this country the artificial day commences with the dawn, and cloſes juſt after ſun-ſet, it becomes neceſſary to make the *puhurs*, or watches, contract and expand occaſionally, in proportion to the length of the day, and the conſequent ſhortneſs of the night, by admitting a greater or ſmaller number of ghurees into theſe grand diurnal and nocturnal diviſions alternately, and according to the ſun's progreſs to or from the tropics. The ſummer ſolſtitial day will, therefore, conſiſt of 34 ghurees, and the night of 26 only, or *vice verſa*: but, what is moſt ſingular in the Indian horometry, their ghurees are unequally diſtributed among the day and night watches; the former varying from 6 to 9 in the latter, which are thus prevented from any definitive coincidence with our time, except about the equinoxial periods only, when one *puhur* nearly correſponds to 3 Engliſh hours. We ſay *nearly*, becauſe even then the four middle watches have only 7 ghurees, or 2 hours 48 minutes of ours; while the extremes have 8 ghurees a-piece, or 24 Engliſh minutes more than the others, and conſequently agree with our 3 hours 12 minutes; while at other times the puhur is equal to no leſs than 3 hours 36 minutes.

The Indian horometrical ſyſtem contraſted with our own, is ſhown on the annexed Engraving, Plate I. fig. 1, upon a dial or horal diagram, calculated for one natural day of 24 hours, and adjuſted to both the equinoctial and ſolſtitial ſeaſons, compriſing four months of the twelve, which may ſerve as ſome baſis or data for a general coincidence of the whole. Mr. Gilchriſt, from whoſe paper in the Aſiatic Reſearches this is taken, ſays he is ſanguine enough to hope that ſome able artiſts in Europe may yet be induced to conſtruct the dials of clocks, &c. for the Indian market, on the principles delineated here, and in Perſian figures alſo. But we muſt now proceed to an explanation of the horal diagram, which is adapted to the meridian of Patna, the central part of the Benares zemindary, and the middle latitudes of Hindooſtan. The two exterior rings of this circle contain the complete 24 Engliſh hours, noted by the Roman letters, I, II, III, IV, &c. and the minutes are marked in figures, 24, 48, 12, 36, 60, agreeably to the ſexageſimal ſcale, whereon the equi-diſtant interſections of this dial are founded; the meridional ſemicircles of which repreſent our ſemidian watch-plates, and, for obvious reaſons, with the modern horary repetition. The eight (4 diurnal and 4 nocturnal) watches, or *puhurs*, from I. to IV. are diſtinguiſhed by Roman letters alſo, with the number of bells ſtruck at each in large figures, below the puhur letter to which they belong, and in the ſame reiterated way; but theſe, inſtead of ranging from the meridian, like the Engliſh hours, commence with the equatorial and tropical lines alternately, as their ſituations and ſpaces muſt regularly accord

1



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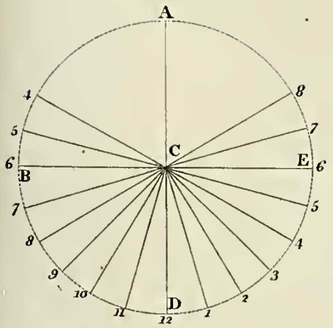

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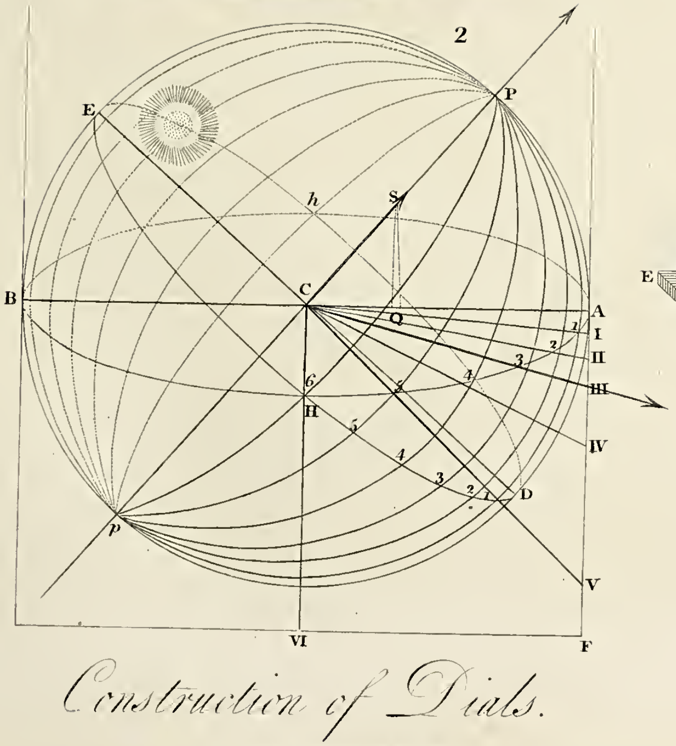

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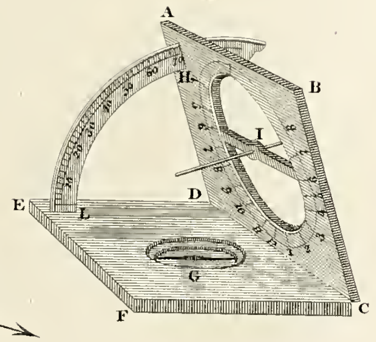

*Construction of Dials.*

London Publ.d as the Act directs, Sep.r 30 1809, by J Wilkes

J Paſs sculp.

cord with the riſing and ſetting of the ſun at the vernal and autumnal equinoxes, as alſo at the ſummer and winter ſolſtices. The days then differ in length alternately from 34 to 26 ghurees, as noted by the chime-figures of every watch; all of which will be more evident from the mode of inſerting them, and the manner that the plate has been ſhaded, to illuſtrate theſe circumſtances fully. The II. *puhur*, however, never varies; and, being upon the meridional line, it of courſe conſtantly falls in with our XII. day and night. The fourth ring from the circumference ſhows the ghurees when the day is longeſt, running with the ſun to the top, and from this to VI. P. M. for the ſubdiviſions of the day, and in the ſame manner by the bottom onwards for thoſe of the night, throughout theſe concatenated circular figures 1, 2, 3, 4, 5, 6, 7, 8, 9, 1, 2, &c. as ſeen in the plate. Still more interior appear the equinoctial ghurees, and on the ſame principles exactly. Within theſe come the winter ſolſtitial ghurees, ſo clearly marked as to require no further elucidation here; except that in the three ſeries of convergent figures now enumerated, the reader will recollect, when he comes to the higheſt number of *ghurees* in any puhur, to trace the latter, and its chime, or number of bells, out by the ghuree chord. For inſtance, when the days are ſhorteſt, begin 48 minutes after VI. A. M. and follow the coincident line inward to the centre, till you reach 9 and 34 for the cloſing ghuree and gujur of the night; thence go round in ſucceſſion upwards with the day ghurees, 1, 2, 3, 4, 5, 6,-7, the chord of which laſt terminates 36 minutes after IX. and has 7 upon it for 7 bells, and 1 for *ek puhur din*, the firſt watch of the day. In this way the whole may be compared with our time; allowing not only for the different meridians in this country, but for the ſeveral intermediate periods, and the difficulty of preciſely aſcertaining the real riſing of the ſun, &c. Neareſt the centre are inſerted the prime diviſions, or *puls*, of every ghuree, viz. 60, ſo—15, 30, 45, 60, in two ſpaces only, becauſe theſe are the invariable conſtituent minute parts of the ghuree at all ſeaſons of the year, and conſequently apply, (though omitted to prevent confuſion,) as in the plate, to every one of the horal ſections delineated there, into which the whole dial is equally divided. The intelligent reader may now conſult the dial itſelf, and, "I truſt, ſays Mr. G. with much ſatisfaction, as it, in fact, was the firſt thing that gave me any accurate knowledge of the arrangement and coincidence of the Hindooſtanee with the Engliſh hours, or of the rules on which their economy is founded. I certainly might have traced out and inſerted the whole for a complete year, had not the apprehenſion of making the figure too intricate and crowded for general utility, determined me to confine it to the elucidation of four months only."

The apparatus with which the hours are meaſured and announced, conſiſts of a ſhallow bell-metal pan, named, from its office, *ghuree-al*, and ſuſpended ſo as to be eaſily ſtruck with a wooden mallet by the *ghuree-alee*, who thus ſtrikes the ghurees as they paſs, and which he learns from an empty thin braſs cup called *kutoree*, perforated at bottom, and placed on the ſurface of water in a large veſſel, where nothing can diſturb it, while the water gradually fills the cup and ſinks it in the ſpace of one ghuree, to which this hour-cup, has previouſly been adjuſted aſtronomically by an aſtrolabe, uſed for ſuch purpoſes in India. But the whole appears, even to the better ſort of people, ſo perplexing and inconvenient, that they are very ready to adopt our diviſions of time, when their reſidence among or near us puts it in their power.

The firſt ghuree of the firſt puhur is ſo far ſacred to the emperor of Hindooſtan, that his ghuree-alee alone ſtrikes *one* for it. The ſecond ghuree is known by two blows on the ghuree-al, and ſo on: one ſtroke is added for every ghuree to the higheſt, which (aſſuming the equinoctial periods for this ſtatement) is eight, announced by eight diſtinct blows for the paſt ghurees; after which, with a ſlight intermiſſion, the gujur of eight bells is ſtruck or rung, as noted in the diagram by the chime-figure 8, and then one hollow ſound publiſhes the firſt, or *ek puhur din* or *rat*, as it may happen, and for which conſult the plate. In one ghuree, or 24 of our minutes, after this, the ſame reiteration takes place; but here ſtops, at the ſeventh or meridional ghuree, and is then followed with its gujur, or chime, of 15; of which 8 are for the firſt watch, and 7 for the ſecond, or *do puhur*, now proclaimed by two full diſtinct ſounds. We next proceed with 7 more ghurees, exactly noting them as before, and ringing the gujur of 22 ſtrokes, after the ſeventh ghuree, or *teen puhur*, alſo known by three loud ſounds. The fourth *puhur* has, like the firſt, 8 ghurees, and differs in no other reſpect than having a gujur of 30 after the equatorial ghuree has been ſtruck, the whole being cloſed by four loud blows on the ghuree-al for *char puhur din* or *rat*; the repetition being the ſame day and night during the equinoctial periods, which is here given merely as an example more eaſy for comprehenſion at firſt than the reſt. The extreme *gujurs* may be properly termed the evening and morning bell; and, in fact, the word ſeems much reſtricted to theſe, as *puhur* alone is more commonly uſed for the middle chimes than *gujur* appears to be.

Six or eight people are required to attend the eſtabliſhment of a ghuree; four through the day, and as many at night; ſo that none but wealthy men or grandees can afford to ſupport one as a neceſſary appendage of their conſequence and rank, which is convenient enough for the other inhabitants, as there are no other public clocks in all India.

From the remarks made at the outſet of this article, the reader is prepared to view the ſcience of Horology, or rather of Horometry, under three grand diviſions: 1. Of Sun-dials. 2. Of Clepſydræ, or Water-clocks. 3. Of Machines with toothed Wheels, including clocks, watches, &c. as uſed at preſent.

### I. *Of SUN-DIALS.*

The word *dial* is formed from *dies*, day, becauſe indicating the hour of the day. The ancients alſo call it *ſciathericum*, from its doing this by the ſhadow. The antiquity of dials is beyond doubt. Some attribute their invention to Anaximander, or his diſciple Anaximenes Mileſius, who flouriſhed in the ſixth century B. C. and others to Thales. Vitruvius mentions one made by the ancient Chaldee hiſtorian Beroſus, on a reclining plane, almoſt parallel to the equinoctial. Ariſtarchus Samius invented the hemiſpherical dial. And there were at the ſame time ſome ſpherical ones, with a needle for a gnomon. The diſcus of Ariſtarchus was an horizontal dial, with its limb raiſed up all round to prevent the ſhadow ſtretching too far.

It was late before the Romans became acquainted with dials. The firſt ſun-dial at Rome was ſet up by Papirius Curſor, the Roman general, about the year of the city 461, before Chriſt 293; before which time, ſays Pliny, there is no mention of any account of time but by the ſun's riſing and ſetting; this firſt dial was ſet up at or near the temple of Quirinus, but it was imperfect; about thirty years after, as Pliny informs us, on the authority of Varro, M. Valerius Meſſala, being conſul, brought from Catania in Sicily another dial, which he ſet up on a pillar near the roſtrum; but, for want of its being made for that latitude, it could not point out the hours with exactneſs. They, however, made uſe of it ninety-nine years; till the cenſor Marcius Philippus ſet up another more accurate, and conſtructed for the latitude of Rome, near that of Valerius. In that interval dials became common at Rome, as appears from a fragment of Plautus, preſerved by Aulus Gellius.

But there ſeem to have been dials among the Jews much earlier than any of theſe. Witneſs the dial of Ahaz, who began to reign four hundred years before Alexander, and within twelve years of the building of Rome, 741 years before Chriſt, mentioned in Iſaiah xxxviii. 8. The ancient Bramins ſeem alſo to have been acquainted with this inſtrument, and to have applied it to aſtronomical purpoſes. The Chineſe and Egyptians were likewiſe acquainted with it at a very early period. Learned men have generally aſcribed the invention of it to the Babylonians, from whom the Jews derived it before the time of Ahaz. Herodotus traces the knowledge of the art of dialling among the Greeks to the ſame ſource.

The diverſity of ſun-dials ariſes from the different ſituation of the planes, and the different figure of the ſurfaces, whereon they are deſcribed; whence they become denominated equinoctial, horizontal, vertical, polar, direct, erect, declining, inclining, reclining, cylindrical, &c.

Dials are ſometimes diſtinguiſhed into primary and ſecondary. *Primary Dials* are ſuch as are drawn either on the plane of the horizon, and thence called *horizontal* dials: or perpendicular to it, and called *vertical* dials; or elſe drawn on the polar and equinoctial planes, though neither horizontal nor vertical. *Secondary Dials* are all thoſe that are drawn on the planes of other circles beſides thoſe laſt mentioned; or thoſe which either decline, incline, recline, or deincline. Each of theſe again is divided into ſeveral others, as follow:

*Equinoctial Dial*, is that which is deſcribed on an equinoctial plane, or one parallel to it.

*Horizontal Dial*, is deſcribed on an horizontal plane, or a plane parallel to the horizon. This dial ſhows the hours from ſun-riſe to ſun-ſet.

*South Dial*, or *Erect direct South Dial*, is that deſcribed on the ſurface of the prime vertical circle looking towards the ſouth. This dial ſhows the time only from 6 in the morning till 6 at night.

*North Dial*, or *Erect direct North Dial*, is that which is deſcribed on the ſurface of the prime vertical looking northward. This dial only ſhows the hours before 6 in the morning, and after 6 in the evening.

*Eaſt Dial*, or *Erect direct Eaſt Dial*, is that drawn on the plane of the meridian, looking to the eaſt. This can only ſhow the hours till 12 o'clock.

*Weſt Dial*, or *Erect direct Weſt Dial*, is that deſcribed on the weſtern ſide of the meridian. This can only ſhow the hours after noon. Conſequently this, and the laſt preceding one, will ſhow all the hours of the day between them.

*Polar Dial*, is that which is deſcribed on a plane paſſing through the poles of the world, and the eaſt and weſt points of the horizon. It is of two kinds; the firſt looking up towards the zenith, and called the *upper*; the latter, down towards the nadir, called the *lower*.

*Declining Dials*, are erect or vertical dials which decline from any of the cardinal points; or they are ſuch as cut either the plane of the prime vertical, or of the horizon, at oblique angles. Declining dials are of very frequent uſe; as the walls of houſes, on which dials are moſtly drawn, commonly deviate from the cardinal points. Of declining dials there are ſeveral kinds, which are denominated from the cardinal points which they are neareſt to: as decliners from the ſouth, and from the north, and even from the zenith.

*Inclined Dials*, are ſuch as are drawn on planes not erect, but inclining, or leaning forward towards the ſouth, or ſouthern ſide of the horizon, in an angle, either greater or leſs than the equinoctial plane. *Reclining Dials*, are thoſe drawn on the planes not erect, but reclined, or leaning backwards to the zenith towards the north, in an angle greater or leſs than the polar plane. *Deinclined Dials*, are ſuch as both decline and incline, or recline. Theſe laſt three ſorts of dials are very rare.

*Dials without Centres*, are thoſe whoſe hour-lines converge ſo ſlowly, that the centre, or point of their concourſe, cannot be expreſſed on the given plane.

*Cylindrical Dial*, is one drawn on the curve ſurface of a cylinder. This may firſt be drawn on a paper plane, and then paſted round a cylinder of wood, &c. It will ſhow the time of the day, the ſun's place in the ecliptic, and his altitude, at any time of obſervation.

There are alſo *Portable Dials*, or *on a Card*, and *Univerſal Dials on a Plain Croſs*, &c.

*Refracted Dials*, are ſuch as ſhow the hour by means of ſome refracting tranſparent fluid.

*Ring Dial*, is a ſmall portable dial, conſiſting of a braſs ring or rim, about two inches in diameter, and one-third of an inch in breadth. In a point of this rim there is a hole, through which the ſun-beams paſs, and form a bright ſpeck in the concavity of the oppoſite ſemi-circle, which gives the hour of the day in the diviſions marked within it.

*General Principle of Sun-Dials.*—Conceive a ſphere, with its twelve horary circles or meridians, which divide the equator, and conſequently all its parallels, into twenty-four equal parts. Let this ſphere be placed in a ſituation ſuited to the poſition of the dial; that is, let its axis be directed to the pole of the place for which the dial is conſtructed, or elevated at an angle equal to the latitude. Now if we ſuppoſe a horizontal plane cutting the ſphere through its centre, the axis of the ſphere will repreſent the ſtyle, and the different interſections of the horary circles with that plane will be the hour-lines; for it is evident, that, if the planes of theſe circles were infinitely produced, they would form in the celeſtial ſphere the horary circles, which divide the ſolar revolution into twenty-four equal parts. When the ſun therefore has arrived at one of theſe circles, that of three in the afternoon for example, he will be in the plane of the ſimilar circle of the ſphere above-mentioned; and the ſhadow of the axis or ſtyle will fall upon the line of interſection, which that circle forms with the horizontal plane; this line then will be the line of 3 o'clock; and ſo of the reſt.

All this is illuſtrated in Plate I. fig. 2, which repreſents a part of the ſphere, with ſix of the horary circles. P *p* is the axis, in which all theſe circles interſect each other; A H B *h* the horizontal plane, or horizon of the ſphere, indefinitely continued; A B the meridian; D E the diameter of the equator, which is in the meridian; and D H E *h* the circumference of the equator, of which D H E is a half, and D H a quarter. This quarter of the equator is divided into ſix equal parts, D 1, 1 2, 2 3, 3 4, 4 5, 5 6, and through theſe paſs the horary circles, the planes of which evidently cut the horizon in the lines C 1, C 2, C 3, C 4, C 5, C 6: theſe are the hour-lines; and if we ſuppoſe them continued to A F, which is perpendicular to the meridian C A, they will give the hour-lines C I, C II, C III, C IV, C V, C VI. The ſtyle will be a portion C S of the axis of the ſphere; which conſequently ought to form with the meridian, and in its plane, an angle, S C A, equal to the height of the pole, or P C A.

Should this reaſoning appear too tedious, another method may be employed to acquire a clear idea of the principles of dialling. Conſtruct a ſolid ſphere, divided by its twelve horary circles, and cut it in ſuch a manner that one of its poles ſhall form with the plane of the ſection an angle equal to the height of the pole of the given place. If the ſphere, cut in this manner, be then made to reſt on a horizontal plane, with its pole directed towards the pole of the world, the points where the horary circles interſect the horizontal plane will be readily ſeen; and the common ſection of all the circles, which is the axis, will ſhow the poſition of the ſtyle.

For the ſake of illuſtration, we have here ſuppoſed the ſection of the ſphere to be formed by a horizontal plane; but, if the plane be vertical, the caſe would be ſimilar, and the lines of interſection would be the hour-lines of a vertical dial. If the plane be declining or inclining, we ſhall have a declining or inclining dial; it may even be eaſily ſeen that this holds good in regard to every ſurface, whatever be its form, convex, concave, or irregular, and whatever may be its poſition.

The *ſtyle* is an iron rod, generally placed in an inclined

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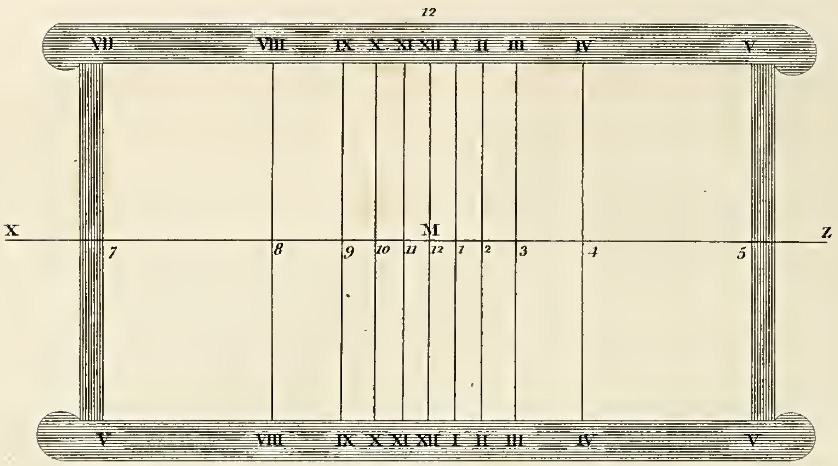

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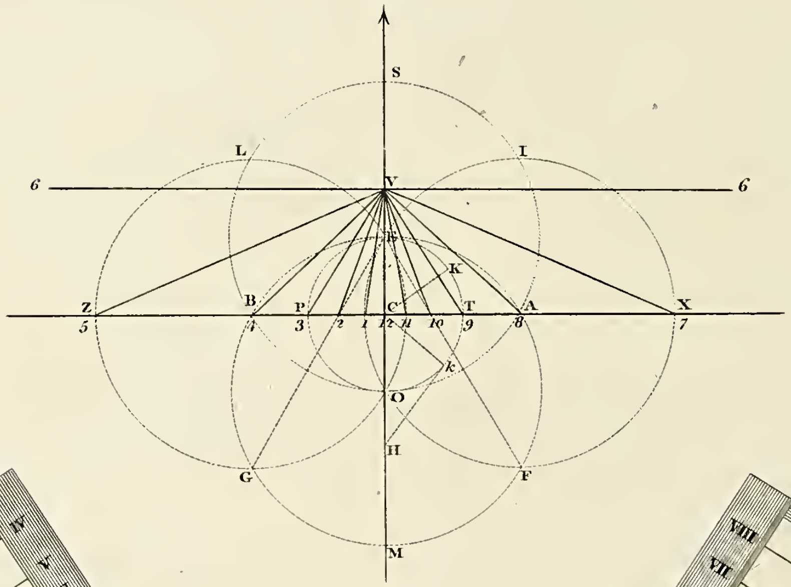

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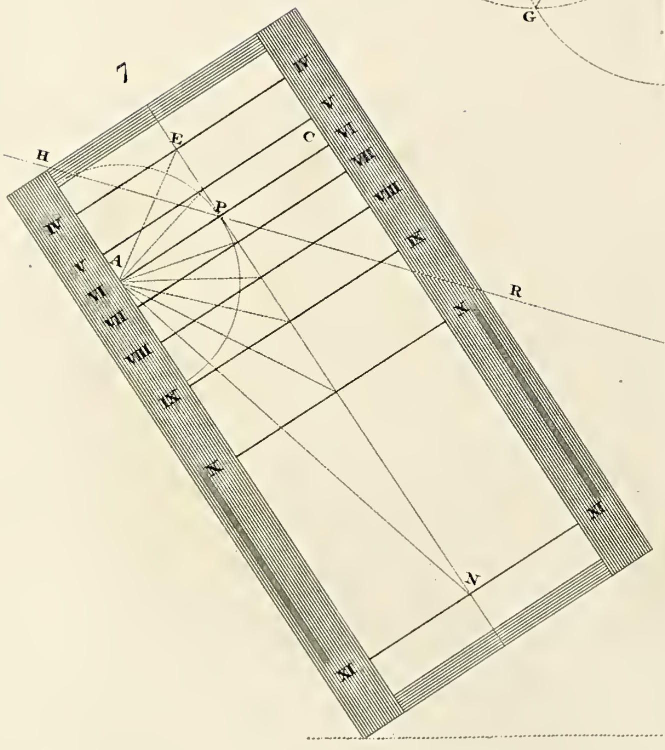

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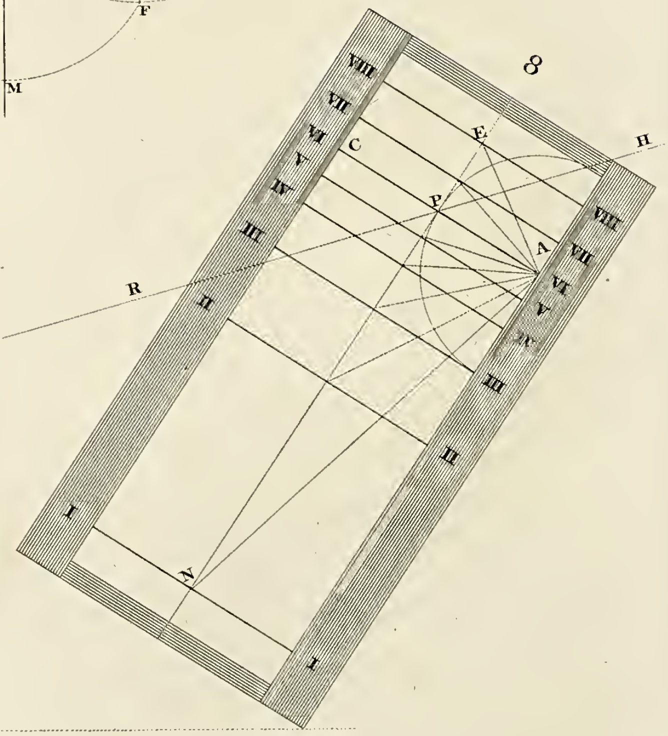


*Construction of Dials.*

London: Publish'd as the Act directs, Sept.r 27. 1809. by J. Wilkes.

J. Pass sculp.

direction, the ſhadow of which ſerves to point out the hours; as before ſaid, it is a portion CS of the axis of the ſphere; and in that caſe it ſhows the hour by the ſhadow of its whole length. An upright ſtyle, however, ſuch as SQ, is ſometimes given to dials; but in that caſe it is only the ſhadow of the ſummit S that indicates the hour, becauſe this ſummit is a point of the axis of the ſphere.

The centre of the dial is the point C where all the hour-lines meet. It ſometimes happens, however, that theſe lines do not meet. This is the caſe in dials which have their plane parallel to the axis of the ſphere; for it is evident that in ſuch dials the interſections of the horary circles muſt be parallel lines. Theſe dials are called *dials without a centre.* Vertical eaſt and weſt dials, and dials turned directly towards the ſouth, and inclined to the horizon at an angle equal to the latitude, or which if produced would paſs through the pole, are of this number.

The *meridian line*, as is well known, is the interſection of the plane of the meridian with the plane of the dial; when the plane of the dial is vertical, it is always perpendicular to the horizon. The *ſubſtylar line*, is that marked out by the plane perpendicular to the plane of the dial, and paſſing through the ſtyle. As this line is of great importance in declining dials, it is neceſſary to have a very diſtinct idea of it. For this purpoſe, conceive a perpendicular let fall on the plane of the dial, from any point in the ſtyle; and that a plane is made to paſs through the ſtyle and the perpendicular; this plane, which will neceſſarily be perpendicular to that of the dial, will cut it in a line paſſing through the centre, and through the bottom of the perpendicular, and this line will be the ſubſtylar line. This line is the meridian of the plane; that is, it ſhows the moment at which the elevation of the ſun above that plane is greateſt. Care however muſt be taken not to confound this meridian with the meridian of the place, or the ſouth line of the dial; for the latter is the interſection of the plane of the dial with the meridian of the place, which is the plane paſſing through the zenith of the place and the pole; whereas the meridian of the plane of the dial, is the interſection of that plane with the meridian, or the horary circle paſſing through the pole and the zenith of the plane.

In the horizontal plane, or any other which has no declination, the ſubſtyle and the meridian of the place coincide; but in every plane not turned directly towards the ſouth or the north, theſe lines form greater or leſs angles. Laſtly, the equinoctial is the interſection of the plane of the equator with the dial; it may eaſily be ſeen that this line is always perpendicular to the ſubſtyle.

Thus it appears, that the plane of every dial repreſents the plane of ſome great circle on the earth, and the gnomon the earth's axis; the vertex of a right gnomon the centre of the earth or viſible heavens; and the plane of the dial is juſt as far from this centre as from the vertex of this ſtyle. The earth itſelf, compared with its diſtance from the ſun, is conſidered as a point; and therefore, if a ſmall ſphere of glaſs be placed upon any part of the earth's ſurface, ſo that its axis be parallel to the axis of the earth, and the ſphere hath ſuch lines upon it, and ſuch planes within it, as above deſcribed, it will ſhow the hours of the day as truly as if it were placed at the earth's centre, and the ſhell of the earth were as tranſparent as glaſs.

*To deſcribe an Equinoctial Dial.*—From any point C (fig. 3), as a centre, deſcribe a circle A E D B; and, having drawn the two diameters interſecting each other at right angles in the centre C, divide each quadrant into ſix equal parts; and draw the radii C 1, C 2, C 3, and ſo on, as ſeen in the figure. Theſe radii will ſhow the hours by means of a ſtyle perpendicular to the plane of the dial, which muſt be placed in the plane of the equator; that is, in ſuch a manner as to form with the horizon an angle equal to the complement of the latitude. The line A D muſt coincide with the plane of the meridian, and the point A muſt be directed towards the ſouth. When this equinoctial dial is erected, if the hour-lines look towards the heavens, it is called a *ſuperior* dial; but, if they are turned towards the earth, an *inferior*. A ſuperior equinoctial dial ſhows the hours of the day only in the ſpring and ſummer; and an inferior one only during the autumn and winter; but at the equinoxes, when the ſun is in the equator, or very near it, equinoctial dials are of no uſe, as at thoſe periods they are never illuminated by the ſun.

It is well known that at London the elevation of the plane of the equator is 38° 29′, which is the complement of the elevation of the pole: the angle therefore which the plane of an equinoctial dial at London ſhould form with the horizon, ought to be 38° 29′.—Hence it appears that it is eaſy to conſtruct

*An Univerſal Equinoctial Dial,* which may be adjuſted to any elevation of the pole whatever.—For this purpoſe, join together two pieces of ivory, or copper, or any other matter, A B C D and C D E F, (fig. 4,) by means of a hinge at C D: then deſcribe on the two ſurfaces of the piece A B C D two equinoctial dials; and in the centre I place a ſtyle extending both ways in a direction perpendicular to A B C D. At G, in the middle of the piece C D E F, fix a magnetic needle, covered with a plate of glaſs, and towards the edge of the ſame piece apply a quadrant H L divided into degrees, and paſſing through an aperture H, made to receive it, in the upper piece A B C D. The degrees and minutes muſt begin to be counted from the point L.

When this dial is to be uſed, place the needle in the meridian, making a proper allowance for the declination; and cauſe the two pieces A B C D and C D E F to form an angle B C F, equal to the elevation of the equator at the given place; that is, equal to the complement of the latitude. If care be then taken to turn the quadrant towards the ſouth, either of theſe equinoctial dials will ſhow the hours at that place, except on the day of the equinox.

*To conſtruct a Horizontal Dial.*—Draw the meridian S M, (Plate II. fig. 5,) and from the point C, aſſumed towards the middle, as a centre, deſcribe the circle E T O P with the radius C E; then from O as a centre, with a radius equal to the diameter O E of the firſt circle, deſcribe the circle E A M B; and from the point E as a centre, with the ſame radius, the circle A O B S: theſe two circles will cut each other in A and B, which will be the centres of two other equal circles, X I E F and Z L E G. Through the points of interſection F and G, draw the lines E G and E F; and through the points A and B the ſtraight line X A C B Z. This line, which will be the equinoctial, will be cut both by the above circles, and by the lines E G and E F, and the centre C of the firſt circle, in 11 points, which will be thoſe of the hours: they muſt therefore be marked with the numbers 7, 8, 9, 10, 11, 12, 1, 2, 3, 4, 5.

The next thing is to find the centre of the dial, of which the above points are the horary diviſions: this is to be done in the following manner: In the circle E T O P aſſume, towards T or P, an arc E K equal to the complement of the latitude or elevation of the pole, that is, equal to 38° 29′ if the latitude be 51° 31′, and draw C K; if K V be then drawn perpendicular to C K, it will cut the meridian in V, which will be the centre of the dial; ſo that by drawing, from the point V, the lines V 7, V 8, V 9, &c. we ſhall have the hour-lines from 7 in the morning till 5 in the afternoon. If a line be drawn through the point V parallel to the equinoctial, it will be the line of 6 o'clock. The hour-lines of 7 and 8 in the morning, continued beyond the centre V, will give thoſe of 7 and 8 in the evening; and thoſe of 4 and 5 in the evening, if continued in the ſame manner, will give 4 and 5 in the morning. In the laſt place, if from the point V, or any other taken at pleaſure, two circles be deſcribed, they will ſerve to terminate the hour-lines, and to contain the numbers belonging to the different hours.

*Of the South Vertical Dial.*—If the vertical dial be turned directly towards the ſouth, then make the angle ECK or the arc EK (fig. 5), equal to the height of the pole; if CKV be then made a right angle, the point V will be the centre of the dial; and the angle CVK, which will then be equal to the complement of the latitude or of the elevation of the pole, will denote the angle which the ſtyle, in the plane of the meridian, ought to form with the plane of the dial.

*Of the North Vertical Dial.*—If the vertical dial be north; make, as before, the angle OC *k* (fig. 5), equal to the height of the pole, and the angle C *k* H a right angle: the point H will be the centre of the dial: and the angle CH*k* will be that which the ſtyle forms with the meridian. The ſtyle, inſtead of being inclined downwards, muſt be turned in a contrary direction, as may be readily conceived when we conſider the poſition of the pole in regard to a vertical plane turned directly towards the north.

*Of Polar Dials.*—To make a polar dial, draw the meridian XII XII, (fig. 6,) and XZ perpendicular to it. From the point M, in this line, make on each ſide the ſame conſtruction as taught in the preceding figure. If parallel lines be then drawn through the points of diviſion, they will be the hour-lines. For it may be eaſily ſeen, that, as the pole is in the continuation of this plane, they cannot meet but at an infinite diſtance, or that the centre of the dial is at an infinite diſtance; whence it follows that the lines muſt be parallel. The ſtyle muſt be placed in a perpendicular direction in the point M; and in height muſt be equal to the diſtance between 12 and 3; or if an iron ſpike be placed at that diſtance from the meridian XII XII, and parallel to that line, it will ſhow the hour by its whole length.

*Of Vertical Eaſt and Weſt Dials.*—Next to the dials already deſcribed, the ſimpleſt are thoſe which directly front the eaſt or the weſt. The method of conſtructing them is as follows: Draw the horizontal line HR, (fig. 7,) and aſſume in it any point P, for the bottom of the ſtyle, the upper extremity of which is intended to ſhow the hours. At the point P, make, towards the left for an eaſt dial, and towards the right for a weſt one, the angle HPE, equal to the complement of the latitude, or the elevation of the pole above the horizon; and continue EP to N. The line EN will be the equinoctial. Then through the point P draw the line CA, in ſuch a manner as to form with the line HR the angle APH, equal to the elevation of the pole; then AC, which will interſect the equinoctial EN at right angles, will be the hour-line of VI in the morning, and alſo the ſubſtylar line. When theſe lines have been traced out, the hour-lines may be drawn in the following manner. In the ſubſtylar line AC, aſſume a point A, at any diſtance from the point P, according to the intended ſize of the dial; and from A, as a centre, deſcribe a ſemicircle of any radius at pleaſure. Divide this ſemicircle into twelve equal parts, beginning at the point P, and then from the centre A draw dotted lines through each of the points of diviſion in the ſemicircle, till they meet the equinoctial EN; if lines parallel to the ſubſtylar line be then drawn through the points where theſe dotted lines cut the equinoctial, they will be the hour-lines required, the ſubſtylar line being that of VI in the morning. The parallels above the ſubſtylar line, in the eaſt dial, will correſpond to IV and V in the morning; thoſe below it to VII, VIII, &c. in the afternoon. The ſtyle, the figure of which is ſeen in the plate, at SM is placed parallel to the line of VI, on two ſupports raiſed perpendicular to the plane of the dial, and at a diſtance above it equal to that of VI hours from III or from IX.

It is here evident that a weſt is exactly the ſame as an eaſt dial, only in a contrary ſituation, (ſee fig. 8;) but inſtead of marking on it the morning hours, as IV, V, VI, &c. you muſt inſcribe on it thoſe of the afternoon, as I, II, III, IV, &c. It may be eaſily ſeen that theſe dials cannot ſhow the hour of noon: for the ſun does not begin to illuminate the latter till that hour, and the former ceaſes to be illuminated at the ſame period. We ſhall therefore introduce in this place a curious dial, which ſhows the time correct at *noon only*.

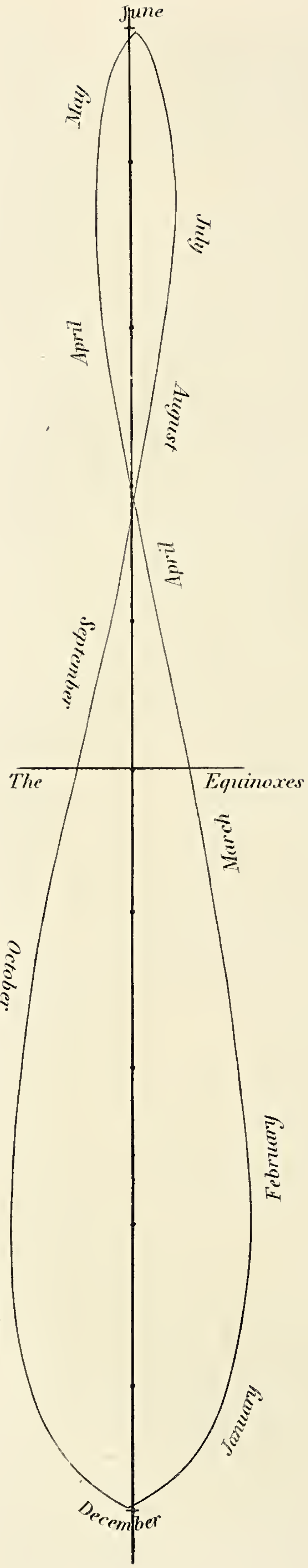
*Wollaſton's Univerſal Meridian Dial.*—It it well known that common dials give what the Engliſh call *apparent*, and the foreign aſtronomers *true*, time; which, on account of the unequal motion of the ſun, is unequal; the natural day being ſometimes longer, and ſometimes ſhorter, than the mean day, ſhown by clocks and watches which go equably. In order, therefore, to find whether a clock or watch goes right, by a common ſun-dial, or to ſet a clock or watch to mean time, when wrong, it is neceſſary to add to, or ſubtract from, the time ſhown by the dial, a certain number of minutes and ſeconds, uſually called "the equation of time;" in order to find the time which the clock or watch ought to ſhow, or to which it ſhould be ſet. As the quantity of this equation is continually changing, and is, beſides, ſometimes additive, and ſometimes ſubtractive, it is not ſurpriſing that it ſhould create difficulties among common people, and be the reaſon, as Mr. Wollaſton aſſerts it is, why the time ſhown by the clocks and watches in one pariſh differs ſometimes nearly half an hour from the time ſhown in an adjoining one; for the equation of time, at one ſeaſon of the year, amounts to ſixteen minutes and a quarter.

To remedy this inconvenience, Mr. Wollaſton has contrived a dial, which, notwithſtanding it will not give the time at any other part of the day, will always ſhow the inſtant when it is 12 o'clock, without any regard to the equation of time; as well as the inſtant of apparent noon; and, conſequently, the equation of time alſo, which is always the difference between the two.

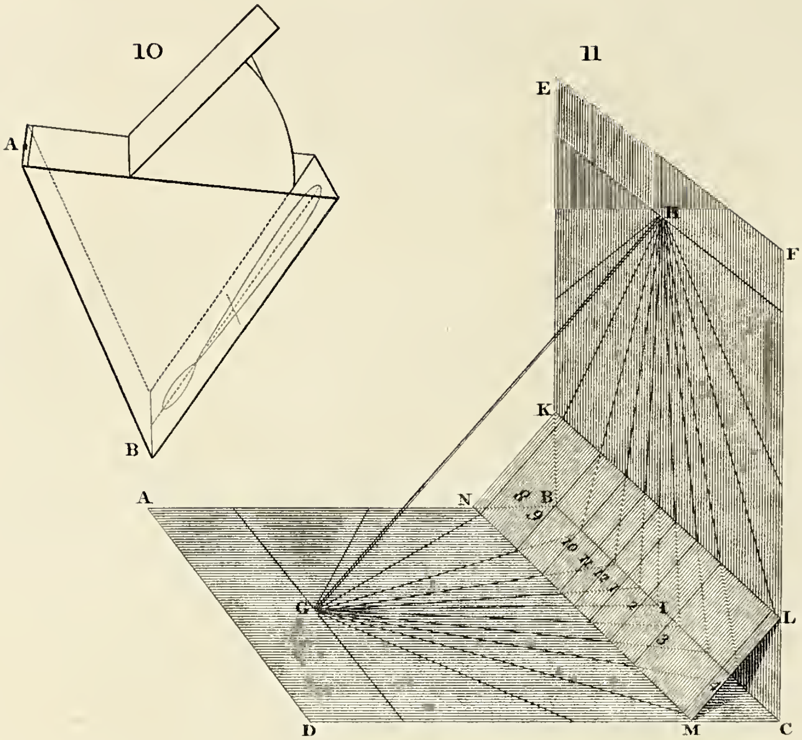
The principle upon which this dial is formed, is as follows:—As a ray of the ſun, being let through a ſmall hole into a dark room, gives his image on the floor; and, if a *ſtraight line* be drawn truly in the meridian from beneath that hole, the centre of the image, when cut by that line, ſhows *apparent* noon; ſo it was conſidered, that, if a *curve* were drawn at a proper diſtance on each ſide of that line, according to the equation of time and latitude of the place, the centre of the ſun's image croſſing that curve might ſhow the *mean* time time of noon, and continue true throughout the year. For ſince what is called the equation of time ariſes principally from the variation of the ſun's apparent motion in the ecliptic, together with the obliquity of the ecliptic to the equator; both of which depend upon his longitude or place in the ecliptic; and ſince his declination depends upon the ſame too; whatever be the ſun's declination aſcending or deſcending, the equation of time would very nearly correſpond with it; and this would hold good for half a century at leaſt, without any ſenſible difference. On this idea a *meridian curve* has been formed, and found to anſwer; and from it the following dial was contrived, on a more general plan; whoſe conſtruction it is apprehended will eaſily be underſtood.

A Table, here ſubjoined, was firſt made of the equation of time of each degree of the ſun's declination according to his longitude; in which, the middle column contains the ſun's declination north or ſouth; the next adjoining on each ſide, the ſun's longitude; next to them are the reſpective equations of time; and the outermoſt columns contain thoſe equations converted into degrees, and corrected by the coſine of the ſun's declination.

9



10



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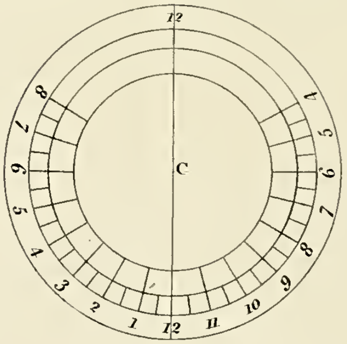
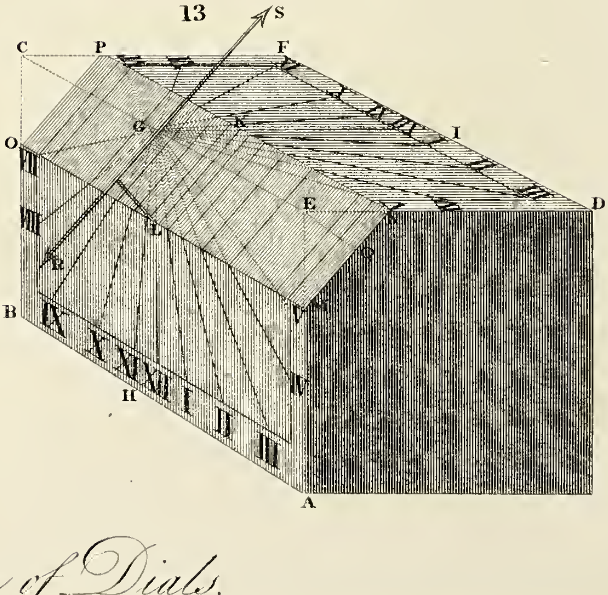


13



Construction of Dials.

London, Pub.d as the Act directs Oct.r 7th 1809 by J. Wilkes

J Pass sculp.

## TABLE.

| Equation +W. —E. | | | | | Equation +W. —E. | | Equation +W. —E. | | | | | Equation +W. —E. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| in Deg. corrected. | in Time. | Sun's Long. | Sun's Decl. N. | Sun's Long. | in Time. | in Deg. corrected. | in Deg. corrected | in Time. | Sun's Long. | Sun's Decl. S. | Sun's Long. | in Time. | in Deg. corrected. |
| ° ′ ″ | ′ ″ | s. ° ′ | ° ′ ″ | s. ° ′ | ′ ″ | ° ′ ″ | ° ′ ″ | ′ ″ | s. ° ′ | ° ′ ″ | s. ° ′ | ′ ″ | ° ′ ″ |
| +0 16 44 | +1 13 | 3 0 0 | 23.28 15 | 2 30 0 | +1 13 | +0 16 44 | —1 54 15 | —7 37 | 6 0 0 | 0 0 0 | 11 30 0 | +7 36 | +1 54 0 |
| 49 29 | 3 35 | 11 0 | 23 | 19 0 | —1 12 | — 16 34 | 2 7 14 | 8 29 | 2 32 | 1 | 27 28 | 8 22 | 2 5 29 |
| 1 10 28 | 5 4 | 19 50 | 22 | 10 10 | 2 46 | 38 29 | 2 19 55 | 9 20 | 5 2 | 2 | 24 58 | 9 8 | 2 16 57 |
| 1 20 4 | 5 43 | 3 25 51 | 21 | 2 4 9 | 3 32 | 49 29 | 2 32 18 | 10 10 | 7 35 | 3 | 22 25 | 9 50 | 2 27 19 |
| 1 24 19 | 5 59 | 4 0 4 | 20 | 1 29 20 | 3 54 | 54 59 | 2 44 22 | 10 59 | 10 5 | 4 | 19 55 | 10 33 | 2 37 53 |
| 1 25 34 | 6 2 | 5 15 | 19 | 24 45 | 4 2 | 57 12 | 2 55 35 | 11 45 | 12 40 | 5 | 17 20 | 11 11 | 2 47 5 |
| 1 23 56 | 5 53 | 9 5 | 18 | 20 55 | 3 59 | 56 50 | 3 6 15 | 12 29 | 15 15 | 6 | 14 45 | 11 49 | 2 56 18 |
| 1 20 5 | 5 35 | 12 47 | 17 | 17 15 | 3 48 | 54 31 | 3 16 3 | 13 10 | 17 5 | 7 | 12 10 | 12 25 | 3 4 57 |
| 1 14 5 | 5 9 | 16 9 | 16 | 13 51 | 3 31 | 50 42 | 3 25 31 | 13 50 | 20 29 | 8 | 9 31 | 12 57 | 3 12 41 |
| 1 7 22 | 4 39 | 19 29 | 15 | 10 31 | 3 5 | 44 40 | 3 33 7 | 14 23 | 23 3 | 9 | 6 57 | 13 25 | 3 18 45 |
| 1 0 49 | 4 5 | 22 35 | 14 | 7 25 | 2 38 | 38 19 | 3 40 8 | 14 54 | 25 51 | 10 | 4 9 | 13 51 | 3 24 35 |
| 50 25 | 3 27 | 25 36 | 13 | 4 24 | 2 6 | 30 42 | 3 46 2 | 15 21 | 6 28 29 | 11 | 11 1 21 | 14 11 | 3 28 51 |
| 40 21 | 2 45 | 4 28 30 | 12 | 1 1 30 | 1 29 | 21 46 | 3 50 53 | 15 44 | 7 1 30 | 12 | 10 28 30 | 14 27 | 3 32 1 |
| 29 12 | 1 59 | 5 1 21 | 11 | 0 28 29 | 0 48 | 11 48 | 3 53 51 | 16 0 | 4 24 | 13 | 25 36 | 14 38 | 3 34 17 |
| 17 44 | 1 12 | 4 9 | 10 | 25 51 | —0 10 | — 2 28 | 3 55 26 | 16 11 | 7 25 | 14 | 22 35 | 14 42 | 3 33 57 |
| + 5 26 | +0 22 | 6 57 | 9 | 23 3 | +0 34 | + 8 24 | 3 55 14 | 16 14 | 10 31 | 15 | 19 29 | 14 40 | 3 32 31 |
| — 6 41 | —0 27 | 9 31 | 8 | 20 29 | 1 16 | 18 49 | 3 52 53 | 16 9 | 13 51 | 16 | 16 9 | 14 28 | 3 28 38 |
| 19 36 | 1 19 | 12 10 | 7 | 17 50 | 2 3 | 30 31 | 3 48 18 | 15 54 | 17 15 | 17 | 12 45 | 14 8 | 3 22 46 |
| 32 49 | 2 12 | 14 45 | 6 | 15 15 | 2 49 | 42 1 | 3 40 27 | 15 27 | 20 55 | 18 | 9 5 | 13 37 | 3 14 27 |
| 46 34 | 3 7 | 17 20 | 5 | 12 40 | 3 38 | 54 18 | 3 29 45 | 14 47 | 24 45 | 19 | 5 15 | 12 51 | 3 2 17 |
| 59 51 | 4 0 | 19 55 | 4 | 10 5 | 4 25 | 1 6 6 | 3 13 50 | 13 45 | 7 29 20 | 20 | 10 0 40 | 11 40 | 2 44 28 |
| 1 13 37 | 4 55 | 22 25 | 3 | 7 35 | 5 15 | 1 18 38 | 2 53 0 | 12 21 | 8 4 9 | 21 | 9 25 51 | 10 10 | 2 22 24 |
| 1 27 27 | 5 50 | 24 58 | 2 | 5 2 | 6 1 | 1 30 11 | 2 22 20 | 10 14 | 10 10 | 22 | 19 50 | 7 57 | 1 50 34 |
| 1 40 44 | 6 43 | 27 28 | 1 | 2 32 | 6 50 | 1 42 29 | 1 22 51 | 6 0 | 19 0 | 23 | 11 0 | +4 8 | + 57 10 |
| —1 54 15 | —7 37 | 5 30 0 | The Equinoxes. | | +7 36 | +1 54 0 | — 16 30 | —1 12 | 8 30 0 | 23 28 15 | 9 0 0 | —1 12 | — 16 30 |

This Table being provided, it will be found moſt convenient to lay down a plan for general uſe, thus: On a metal plate, or a ſheet of fine paſteboard, draw a ſtraight line. In the middle of that line, raiſe a perpendicular, of the length you chooſe for the ſize of your dial. Twelve inches ſeems to be a moſt convenient one. With that length as radius, either by calculation or with a ſector and compaſſes, lay off the tangent of every degree along the original line, from each ſide of the middle, till you come to 23° 28′ 15″, whoſe tangent muſt be laid down upon it likewiſe. The middle point is here intended to correſpond with the equinoxes, while each of the others anſwers to a degree of declination north or ſouth.—See Plate III. fig. 9.

You are then, with the ſame radius as before, to lay off, for the equation of time, the tangents of ſo many degrees, minutes, and ſeconds, at right angles on either ſide of the line at the centre of it, as you find in the outermoſt columns of the Table at the equinoxes; laying that which you find + in the Table on what you deſign for the weſtern ſide of your meridian line, which will be for March; and the equation marked —, on the eaſtern ſide, for September; and making a dot at each. In the ſame manner you proceed at each degree of declination; taking the ſecant of that degree (or the diſtance from the farther end of the perpendicular to the end of the tangent of that degree) for your radius; and laying off its reſpective equation from the Table accordingly, at right angles to the meridian line; and marking its place by a dot. Through theſe dots, you then draw the curve formed by them; and mark the months, in which the curve on the one or the other ſide of the meridian is to be obſerved. This laying down on your plan requires to be executed with great care; becauſe it is the foundation of the whole. But, when it is once done, the points are eaſily transferred from it to any number of dials of the ſame radius. In order to draw the curve with a ſteady hand, it will be found convenient to form a pair of rulers ſuited to the curve of each half-year from ſolſtice to ſolſtice; by which, after laying down a few of the principal points, and placing the rules carefully, you ſtrike each half of the curve on the dial itſelf with eaſe.

With theſe data, for a dial of 12 inches radius, provide a box (fig. 10,) in the form of an equilateral triangle, each of whoſe ſides are 14½ inches clear within, and about 5 inches broad. On one of them paſte a paper perfectly ſmooth. Let the angle oppoſite to this ſide be cut ſo far down as to receive a braſs plate, whoſe inner ſurface may be exactly 12 inches from the centre of the paper oppoſed to it. In the middle of that braſs plate, let there be a very ſmall hole A, juſt to admit a ray of light (chamfered all round, to an angle of 60 degrees at leaſt, ſo as to be very thin at the edge next to the inner ſurface of the braſs), and mark the point on the paper at which the hole is exactly at right angles oppoſite to the ſurface; which, if your work be true, will be in the centre of your paper. Through that point, draw a ſtraight line on the paper for a meridian line, parallel to the triangular ſides; and croſs it at that point, with another at right angles, for an equinoctial line. On the meridian line, transfer from your original plan ſo many of the dots for declination as you ſee proper; and, on the equinoctial, the equations at the equinoxes. Transfer likewiſe the dots for the equation at each ſolſtice; and ſo many of the intermediate equations as may be neceſſary for being certain of laying your rules properly. Then, with a ſteel pen, ſtrike the curves; and inſert the months in their reſpective places; but at ſuch a diſtance from the line itſelf, as to be clear of the ſun's image when it is near the curve. Theſe things will require to be done before the box is finally put together, that they may be done with accuracy. And therefore it will be found moſt convenient to have that ſide fixed with ſcrews. Another of the ſides (viz. that neareſt to the winter ſolſtice, according as it is intended for north or ſouth latitude) muſt be made to open about ⅔ of its length; with a rule-joint and cheeks like the lid of a ſmall camera obſcura, to keep off falſe light, and enable you to ſee the image within. It is alſo to be obſerved, that the angle B muſt be equal to the latitude of the place.

Additions may be made to it, for elegance, or difference of adjuſtment; but this is the whole of the inſtrument: which, if carefully conſtructed, and once rightly fixed in the meridian, inclined properly according to the latitude of the place, (or fitted on a frame, ſo as to be applied occaſionally to a window,) will, throughout the year, give the *mean ſolar time* of noon far more accurately than any ſun-dial of the uſual conſtruction. On this account it is made public: becauſe it ſhould ſeem it might be convenient in moſt country-places. For it requires no ſkill in the obſerver, but merely to ſee that his clock or watch point to 12, or to ſet it to that hour, when the centre of the ſun's image is upon the curve line belonging to that month.

*To deſcribe three, and even four, Dials, on as many different planes, on which the hours may be known by the ſhadow of only one axis.*—Provide two rectangular planes, ABCD and CBEF, (Plate III. fig. 11 and 12,) equal in ſize, and join them together by the line CB; ſo as to form with each other a right angle, the one being horizontal, and the other vertical. Then divide their common breath BC into two equal parts in I; and draw the perpendiculars IG, IH, as the meridians of the two planes. Aſſume the point G at pleaſure, as the centre of the horizontal dial; and if GI be made the baſe of a right-angled triangle GIH, in which the angle G is equal to the height of the pole, the point H will be the centre of a ſouth vertical dial for that latitude. Deſcribe theſe two dials, viz. a horizontal and a ſouth vertical one, which will have the ſame points of diviſion in their common ſection BC; and extend a piece of iron wire, as an axis, from the point H to the point G; this wire will be the common axis and ſtyle of the two dials. Laſtly, having with any radius at pleaſure deſcribed a circle, trace out on it an equinoctial dial, which muſt be placed on the axis GH, in ſuch a manner that it ſhall paſs through its centre, and be perpendicular to its plane, and that the line of 12 o'clock ſhall be in the plane of the triangle GIH.

If this triple dial be expoſed to the ſun, ſo that the line GI ſhall be horizontal and in the plane of the meridian, it is evident that the ſhadow of the axis GH will ſhow the hour on the three dials at the ſame time.

If it be required to have a fourth dial, to ſhow the hour by means of the ſame ſtyle; in the plane of the triangle GIH draw a line parallel to GH, and through that line a plane perpendicular to the plane of the meridian, which will cut the vertical plane in the line KL, and the horizontal plane in MN: the hour-lines of both dials will be cut by theſe two lines in points, every two correſponding ones of which muſt be joined by tranſverſal lines; for example, the point of ſection of 11 hours on the one, with the point of ſection of 11 hours on the other, which will give on that plane parallel hour-lines, ſuch as ought to be on a polar dial that has no declination: theſe four dials will ſhow the hour at the ſame time, and by means of the ſame ſtyle or axis GH.

*Another Method.*—Provide a cube ABCED, (fig. 13,) and having divided the ſides AB, CE, and FD into two equal parts, in the points H, G, and I, draw the lines GH and GI: then aſſuming theſe lines as the meridians of the horizontal plane CD, and of the vertical one CA, and the point G as the centre, deſcribe on the former a horizontal dial, and on the latter a vertical dial, each adapted to the latitude of the place. Aſſume the lines EM and EN, in ſuch a manner, that the angle ENM ſhall be equal to the latitude of the place; make CO and CP equal to them; and let a plane paſs through MN and OP, ſo as to cut off that angle of the cube: this plane will interſect the hour-lines of the two dials already traced out in certain points, the correſponding ones of which will give the hour-lines of a third dial.

Nothing then remains but to fix the ſtyle, which will not be attended with any difficulty. For this purpoſe, having drawn EQ perpendicular to MN, fix in a perpendicular poſition on the meridian KL, and in its plane, two ſupporters equal in height to EQ, bearing the ſtyle RS, prolonged towards each end, and parallel to KL: the ſhadow of this ſtyle will ſhow the hours on the three dials at the ſame time.

*To cut a ſtone into ſeveral faces, on which all the regular dials can be deſcribed.*—Let the ſquare ABCD (Plate IV. fig. 14) be the plane of the ſtone, which is to be prepared ſo as to receive all the regular dials. If we ſuppoſe the ſtone to repreſent an imperfect cube, or any other irregular ſolid, after all its faces have been ſmoothed, it muſt be ſquared, and reduced to an uniform thickneſs. When this is done, proceed as follows: On the plane ABCD deſcribe the circle HELF, with as large a radius as the ſtone will admit; and draw at right angles the two diameters FE and HL. Then make the angle FOI equal to 38½ degrees, which is the complement of the latitude of London, and draw the diameter IOM; make the angle EOG equal to the latitude 51½ degrees, and draw the diameter GOK; then through the points I, G, M, K, draw tangents to the circle HELF, which will meet the other tangents paſſing through the points H, E, L, F, and form part of the ſides of the ſquare ABCD, that repreſents the plane of the ſtone. Cut the ſtone ſquare, according to theſe tangents, in order to obtain planes or faces perpendicular to the plane of the ſtone ABCD, and the ſtone will then be prepared for receiving on all its faces the dials which belong to them.

On the face or plane which paſſes through the line VX, deſcribe a horizontal dial; on that paſſing through XN, an upper equinoctial dial, and on the oppoſite plane, paſſing through SR, an inferior equinoctial dial. An upper polar dial muſt be deſcribed on the plane paſſing through TV, and an inferior one on the plane paſſing through QP. On the plane paſſing through TS make a ſouth vertical dial, and on the oppoſite plane NP a north vertical one. Laſtly, if an eaſt vertical dial be deſcribed on the ſide of the ſtone IM, and on the oppoſite ſide a weſt vertical one, the whole will be complete.

If it be required to have the ſtone hollow, or rather cut through, nothing will be neceſſary but to draw lines parallel to theſe tangents, and to cut the ſtone ſquare according to theſe lines, which will give, in the inſide of the ſtone, ſurfaces parallel to thoſe on the outſide. On theſe internal ſurfaces, dials ſimilar to thoſe on the oppoſite external ſurfaces may then be deſcribed. It is here to be obſerved, that when the ſtone is thus made hollow, neither an eaſt nor a weſt dial can be deſcribed on it; but if it be placed on a pedeſtal in the form of a regular octagon, having one of its faces turned directly towards the ſouth, different kinds of vertical dials may be deſcribed on this pedeſtal, viz. a ſouth, a north, an eaſt, and a weſt, dial, together with four vertical declining dials; ſo that on this ſtone and its pedeſtal there may be twenty or twenty-five dials.

If the ſouth vertical dial be placed directly ſouth, and if the horizontal one be perfectly level, all theſe dials together will ſhow the ſame hour.

*To conſtruct a Dial on the convex ſurface of a Globe.*—This dial, which is the ſimpleſt and moſt natural of all, is formed by dividing the equatorial circle into 24 parts. If a globe be placed on a pedeſtal, in ſuch a manner that its axis ſhall be in the plane of the meridian, and exactly elevated according to the height of the pole of the place, nothing then will be neceſſary to complete the dial, but to divide its equator into 24 equal parts.

The globe, (fig. 15,) in this ſtate, may be uſed without any farther apparatus; for, one half of it being enlightened by the ſun, the boundary of the illumination will exactly follow, on the equator, the motion of the ſun from eaſt to weſt. At noon, it will fall on thoſe points of the equator turned directly to the eaſt and weſt. At one o'clock, it will have advanced 15°; and ſo on. To render this globe then fit for being employed as a dial, VI muſt be inſcribed at the diviſion which correſponds with the meridian, VII at the following one, and ſo of the reſt; ſo that the twelfth will be exactly in the point turned towards the weſt; then I, II, III, &c. will be under the horizon. Nothing then will be neceſſary, but to obſerve what diviſion correſponds with the boundary of the light and ſhadow;

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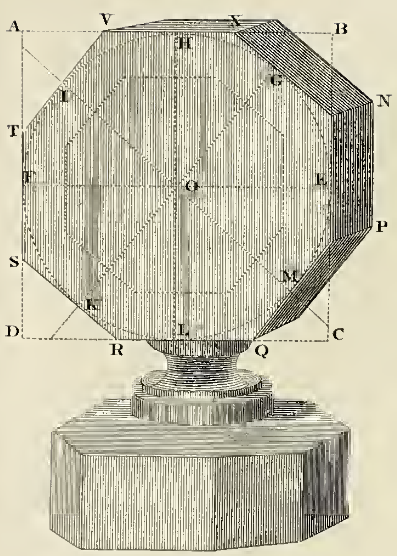

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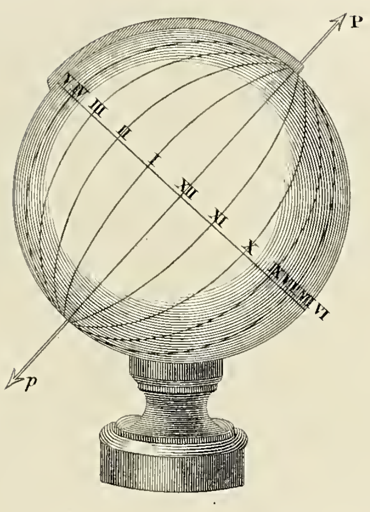

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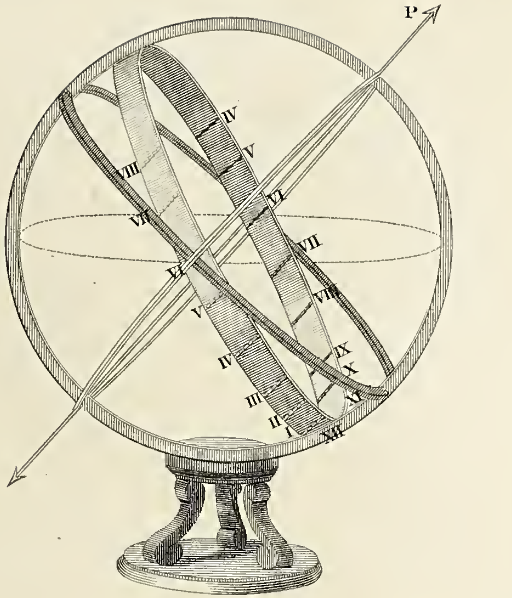

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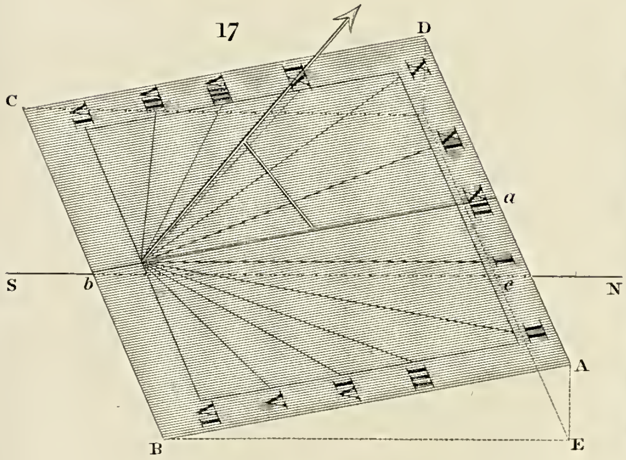

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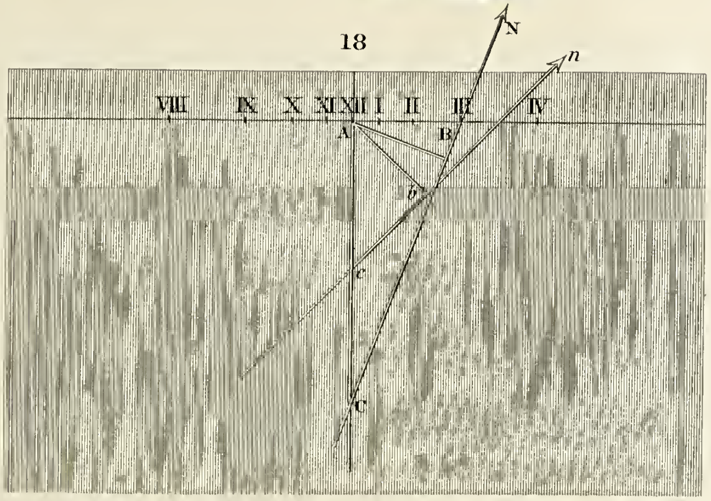

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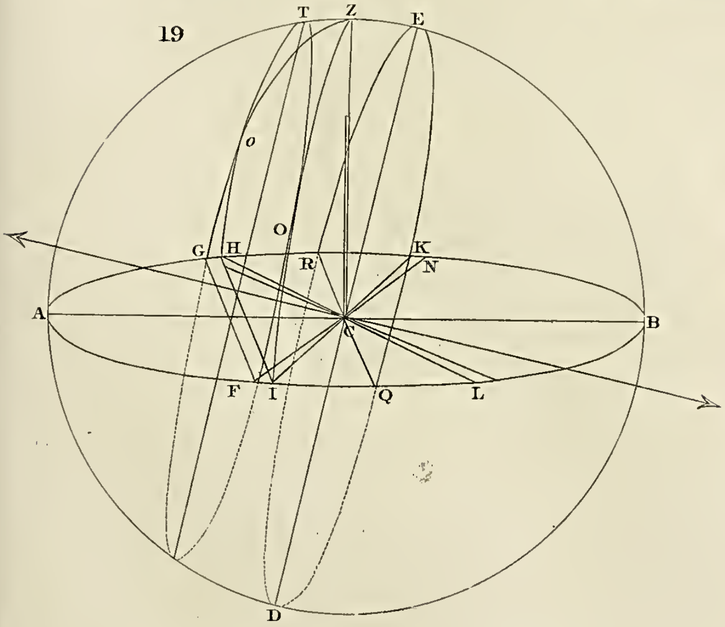

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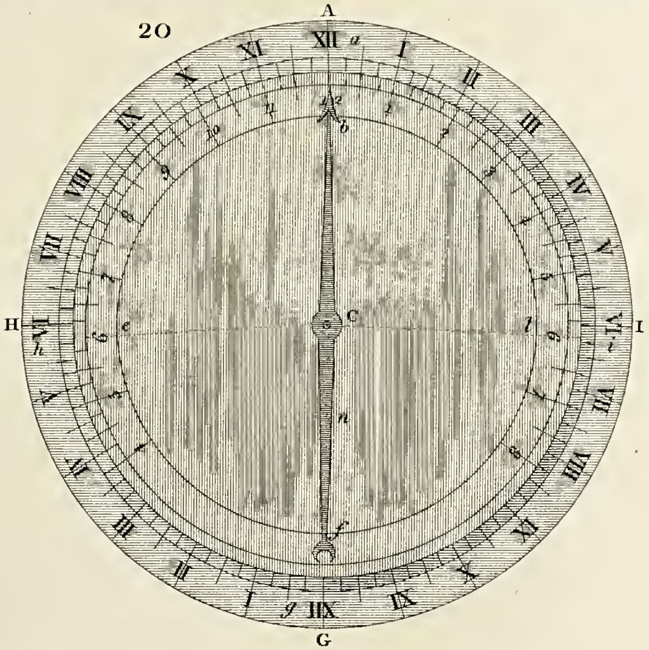

*Construction of Dials.*

Pass. sculp

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dow; for the number belonging to that diviſion will be the hour.

This dial however is attended with a very great inconvenience: as the boundary between the light and ſhadow is always badly defined, it cannot be preciſely known where it terminates; it will therefore be better to employ this dial in the following manner. Adapt to this globe a half-meridian, made of a piece of flat wire, ſeven or eight lines in breadth, and half a line in thickneſs, and moveable at pleaſure around its axis, which muſt be the ſame as that of the globe. Then, when you wiſh to know the hour, move the half-meridian in ſuch a manner, that it ſhall project the leaſt ſhadow poſſible, and this ſhadow will ſhow the hour on the equator. In this caſe however it is evident that the numbers naturally belonging to the points of diviſion in the meridian ſhould be inſcribed on them; that is, XII. at the meridian, I. at the following diviſion, towards the weſt, and ſo on.

*Ring Dial, in an armillary ſphere.*—This dial is equally ſimple as the preceding, and is attended with this advantage, that it may ſerve by way of ornament in a garden. Conceive an armillary ſphere, (fig. 16,) conſiſting only of its two colures, its equator, and zodiac, and furniſhed with an axis paſſing through it. If we ſuppoſe this ſphere to be placed on a pedeſtal, in ſuch a manner that one of its colures ſhall ſupply the place of a meridian, and that its axis ſhall be directed towards the pole of the place, it is evident that the ſhadow of this axis, by its uniform motion, will ſhow the hours on the equator. If the equator therefore be divided into 24 equal parts, and if the numbers belonging to the hours be inſcribed at theſe diviſions, the dial will be conſtructed.

But, as the equator in general is not of ſufficient thickneſs, the hours muſt be marked on the inſide of the zone which repreſents the zodiac, and which on that account ſhould be painted white. In this caſe, care muſt be taken not to divide each quarter of the zodiac into equal parts; for the ſhadow of the axis, which paſſes over equal arcs on the equator, will paſs over unequal ones on the zodiac: theſe diviſions will be narrower towards the points of the greateſt declination of that circle; ſo that the diviſion in the zodiac neareſt to the ſolſtitial colures, inſtead of 15°, which are equal to the interval of an hour on the equator, ought to comprehend only 13° 48′; the ſecond 14° 6′; the third 14° 38′; the fourth 15° 17′; the fifth 15° 54′; and the ſixth, or that neareſt the equinoxes, 16° 17′. It is in this manner that the zodiacal band, on which the hours are marked, muſt be divided; otherwiſe there will be ſeveral minutes of error; but each interval may be divided into four equal parts for quarters, without any ſenſible error. Tranſverſal lines may then be drawn through the breadth of the zodiac, taking care to make them concur in the pole.

*To conſtruct a Solar Dial, by means of which a blind perſon may know the hours.*—This may appear a paradox; but we ſhall ſhow that a ſun-dial might be erected near an hoſpital for the blind, by which its inhabitants could tell the hours of the day. If a glaſs globe, 18 inches in diameter, be filled with water, it will have its focus at the diſtance of 9 inches from its ſurface; and the heat produced in this focus will be ſo conſiderable, as to be ſenſible to the hand placed in it. This focus alſo will follow the courſe of the ſun, ſince it will always be diametrically oppoſite to it; and therefore, to conſtruct the propoſed dial, we may proceed as follows. Let the globe be ſurrounded by a portion of a concentric ſphere, 9 inches diſtant from its ſurface, and comprehending only the two tropics, with the equator, and the two meridians or colures; and let the whole be expoſed to the ſun in a proper poſition; that is, with the axis of the globe parallel to that of the earth. Let each of the tropics and the equator be divided into 24 equal parts; and let the correſponding parts be connected by a ſmall bar, repreſenting a portion of the hour-circle comprehended between the two tropics. By theſe means all the horary circles will be repreſented in ſuch a manner, that a blind perſon can count them, beginning at that which correſponds to noon, and which may be eaſily diſtinguiſhed by ſome particular form. When a blind perſon then wiſhes to know the hour by this dial, he will firſt put his hand on the meridian, and count the hour circles on the bars which repreſent them; when he comes to the bar on which the focus of the ſolar rays fall, he will readily perceive it by the heat, and conſequently will know how many hours have elapſed ſince noon; or how many muſt elapſe before it be noon. Each interval between the principal bars, that indicate the hours, may be eaſily divided by ſmaller ones, in order to have the half-hours and quarters.

*Method of arranging a Horizontal Dial, conſtructed for any particular latitude, in ſuch a manner as to make it ſhow the hours in any place of the earth.*—If the latitude of the place be leſs or greater than that of the place for which the dial has been conſtructed, after expoſing it in a proper manner, that is, with its meridian in the meridian of the place, and its axis turned towards the north, nothing will be neceſſary but to incline it till its axis forms with the horizon an angle equal to the latitude of the place in which it is to be uſed. Thus, for example, if it has been conſtructed for the latitude of Paris, which is 49° 50′, and you wiſh to employ it at London, in latitude 51° 31′; as the difference of theſe two places is 1° 41′, the plane of the dial muſt make with the horizon an angle of 1° 41′, as ſeen in the figure, (fig. 17,) where SN is the meridian, ABCD the plane of the dial, and ABE, or *abe*, the angle of the inclination of that plane to the horizon. If the latitude of the primitive place of the dial be leſs than that of the place for which it is uſed, it muſt be inclined in a contrary direction.

*Another Method.*—When this ſecond method of rendering a horizontal dial univerſal is employed, the hour-lines muſt not be deſcribed on it, but only the points of diviſion in the equinoctial line. In regard to the ſtyle, it muſt be moveable in the following manner. Let ABC, (fig. 18,) repreſent the triangle in the plane of the meridian, where NBC is the axis or oblique ſtyle, and AB the radius of the equator. The ſtyle muſt be moveable, though it always remain in the plane of the meridian, ſo that the radius AB of the equator, having a joint in the point A, may form the angle BAC equal to a given angle; that is, equal to the complement of the latitude. For this reaſon a groove muſt be formed in the meridian, ſo as to admit this triangle to be raiſed up or lowered, always remaining in the plane of the meridian. When every thing has been thus arranged, to adapt the dial to any given latitude, ſuch as that of 51° 31′, for example, take the complement of 51° 31′, which is 38° 29′, and make the angle BAC = 38° 29′. The ſtyle then will be in the proper poſition, and the dial being expoſed to the ſun, with its meridian correſponding to the meridian of the place, the ſhadow of the ſtyle, which ought to be pretty long, will ſhow the hour at the place where it interſects the equinoctial.

*Reflecting Dial.*—A dial to ſhow the hours by reflection may be deſcribed in the following manner, on a dark wall or ceiling. Deſcribe a dial on a horizontal plane, that can be illuminated by the rays of the ſun, ſuch, for example, as the bottom of a window; but in ſuch a manner, that the centre of the dial may be towards the north, and the equinoctial towards the ſouth; which will give to the hour-lines a poſition contrary to that which they ought to have in common horizontal dials. When the dial has been thus conſtructed, and furniſhed with a ſmall upright ſtyle, apply a piece of thread to any point at pleaſure of one of the hour-lines, and extend it over the end of the ſtyle, till it reach any point of the wall or ceiling; this point will be one of thoſe of the hour-line to which the end of the thread was applied. If four or five points be determined, in the ſame manner, for each hour-line, by then drawing lines through theſe points, the required dial will be conſtructed.

To know the hours by reflection; adapt a ſmall mirror, an inch or two in diameter, to the ſummit of the ſtyle, and let it be fixed in a poſition exactly horizontal; the light reflected from it will indicate the hour.

Inſtead of a mirror, a ſmall goblet, an inch or two in diameter, may be applied to the ſummit of the ſtyle, and be filled with water till its ſurface be exactly on a level with the extremity of the ſtyle; the light reflected from it will indicate the hours in the ſame manner, and will be more eaſily obſerved in cloudy weather, when the ſun ſcarcely appears; becauſe the ſurface of the water will generally have a ſmall movement, which, by making the light tremulous, will render it perceptible, notwithſtanding its weakneſs.

*Another Method.*—Place, in any part of the bottom of a window, a ſmall goblet, and fill it with water to a given height. Place alſo, on the bottom of the window, a ſun-dial; and, when the ſhadow of the ſtyle falls on the hour of noon, mark on the ceiling or wall, which receives the reflected light of the ſun, the central point of the image of that luminary; do the ſame thing in regard to all the other hours, and mark theſe points with the hours to which they correſpond. Two or three months after, when the ſun's declination has conſiderably changed, if the ſame operation be performed, you will have two points of each hour-line; and, if the ſurface, on which they are traced out, be a plane, to obtain the required hour-line, nothing will be neceſſary but to join them by a ſtraight line. But, if the ſurface, which receives the reflected light, be curved or irregular, to obtain the hour-line a greater number of points will be neceſſary. To trace it out exactly, the operation of finding a point for each hour-line ought to be repeated for five or ſix months, from the one ſolſtice to the other. If theſe points be then joined by a curve, they will give the hour-lines required.

*How the Shadow of a Style, on a Sun-dial, might go backwards without a miracle.*—This phenomenon, which on the firſt view may appear phyſically impoſſible, is however very natural, as we ſhall here ſhow. It was firſt remarked by Nonius or Nugnez, a Portugueſe mathematician, who lived about the end of the ſixteenth century. It is founded on the following theorem: "In all countries, the zenith of which is ſituated between the equator and the tropic, as long as the ſun paſſes beyond the zenith, towards the apparent or elevated pole, he arrives twice before noon at the ſame azimuth; and the ſame thing takes place in the afternoon."

Let Z, (fig. 19,) be the zenith of any place ſituated between E the equator, and T the point through which the ſun paſſes on the day of the ſummer ſolſtice; let the circle H A Q B K H repreſent the horizon; R E Q one half of the equator; T F the eaſtern part of the tropic above the horizon, and G T the weſtern part. It is here evident, that from the zenith Z there may be drawn an azimuth circle, ſuch as Z I, which ſhall touch the tropic in a point O, for example; and which ſhall fall on the horizon in a point I, ſituated between the points Q and F, which are thoſe where the horizon is interſected by the equator and the tropic; and, for the ſame reaſon, there may be drawn another azimuth, as Z H, which ſhall touch in *o* the other part of the tropic.

Let us now ſuppoſe that the ſun is in the tropic, and conſequently riſing in the point F; and let a vertical ſtyle, of an indefinite length, be erected in C. Draw alſo the lines I C K, and F C N; it is evident that at the moment of ſun-riſe the ſhadow of the ſtyle will be projected in C N; and that, when the ſun has arrived at the point of contact O, the ſhadow will be projected in C K. While the ſun is paſſing over F O, it will move from C N to C K; but, when the ſun has reached the meridian, the ſhadow will be in the line C B; it will therefore have gone back from C K to C B: from ſun-riſing to noon then it will have gone from C N to C K, and from C K to C B; conſequently it will have moved in a contrary or retrograde direction; ſince it firſt moved from the ſouth towards the weſt, and then from the weſt towards the ſouth.

Let us next ſuppoſe that the ſun riſes between the points F and I. In this caſe the parallel he deſcribes before noon will evidently cut the azimuth Z I in two points; and therefore, in the courſe of a day, the ſhadow will firſt fall within the angle K C L; it will then proceed towards C K, and even paſs beyond it, going out of the angle; but it will again enter it, and, advancing towards the meridian, will proceed thence towards the eaſt, even beyond the line C L, from which it will return to diſappear with the ſetting of the ſun within the angle L C B.

It is found by calculation, that in the latitude of 12 degrees, when the ſun is in the tropic on the ſame ſide, the two lines C N and C K form an angle of 9° 48′; to paſs over which the ſhadow requires 2 hours 7 minutes.

Hence we may conſtruct a dial, for any latitude, on which the ſhadow ſhall retrograde or move backwards.—For this purpoſe incline a plane, turned directly ſouth, in ſuch a manner, that its zenith ſhall fall between the tropic and the equator, and nearly about the middle of the diſtance between theſe two circles: in the latitude of London, for example, which is 51° 31′, the plane muſt make an angle of about 38°. In the middle of the plane, fix an upright ſtyle of ſuch a length, that its ſhadow ſhall go beyond the plane; and, if ſeveral angular lines be then drawn from the bottom of the ſtyle towards the ſouth, about the time of the ſolſtice the ſhadow will retrograde twice in the courſe of the day, as above-mentioned. This is evident, ſince the plane is parallel to the horizontal plane having its zenith under the ſame meridian, at the diſtance of 12 degrees from the equator towards the north: the ſhadows of the two ſtyles muſt conſequently move in the ſame manner in both.

Some may here ſay that this is a natural explanation of the miracle, which, as we are told in the ſacred Scriptures, was performed in favour of Hezekiah king of Jeruſalem; but we entertain no idea of leſſening the credibility of this miracle. Beſides, it is very improbable, if the retrogradation which took place on the dial of that prince had been a natural effect, that it ſhould not have been obſerved till the prophet announced it to him as a ſign of his cure; for in that caſe it muſt have always occurred when the ſun was between the tropic and the zenith; whereas we are not informed that it ever occurred before that time or after it.

*To know the hours on a Sun-dial, by the Moon ſhining on it.*—This problem will not appear difficult to thoſe who know that the moon's paſſage by the meridian is every day later by about 48 minutes; that, when new, ſhe paſſes the meridian exactly at the ſame time as the ſun; and, when full, 12 hours after.

Firſt, find the moon's age, which is given in every common almanac, where the days and hours of the new and full moon are always marked. Let us ſuppoſe then, that at the time when you wiſh to know the hour, 6 days and a half have elapſed ſince new moon. Multiply 48 minutes, or $\frac{4}{5}$ of an hour, by $6\frac{1}{2}$, and the product will be $\frac{26}{5}$, or 5 hours 12 minutes, which muſt be added to the hour indicated by the dial. If the dial therefore indicates 4 hours, the real time will be 9 hours 12 minutes.

But the hour may be found much more exactly in the following manner. Firſt find at what hour of the day the moon has paſſed, or will paſs, the meridian; which may be determined by the help of a common almanac, where the times of the moon's riſing and ſetting are marked; for if the interval between the riſing and ſetting be halved, it will give the time of the moon's paſſing the meridian nearly.

Let us ſuppoſe then, that the moon has paſſed the meridian at $3^h\ 30^m$ in the afternoon; the difference of this paſſage from that of the ſun, were the moon fixed in the heavens, would be $3\frac{1}{2}$ hours later than the ſun. Conſequently, if the moon indicates, on a ſun-dial, $7\frac{1}{2}$ in the

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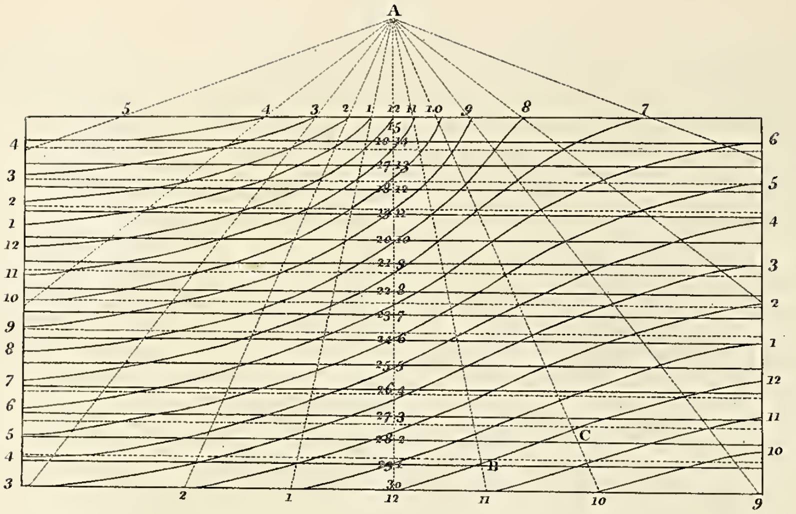

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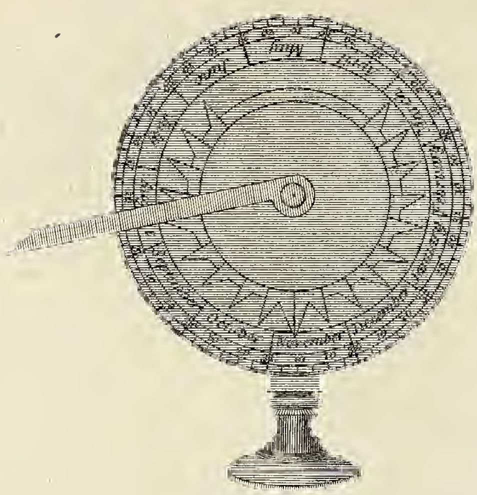

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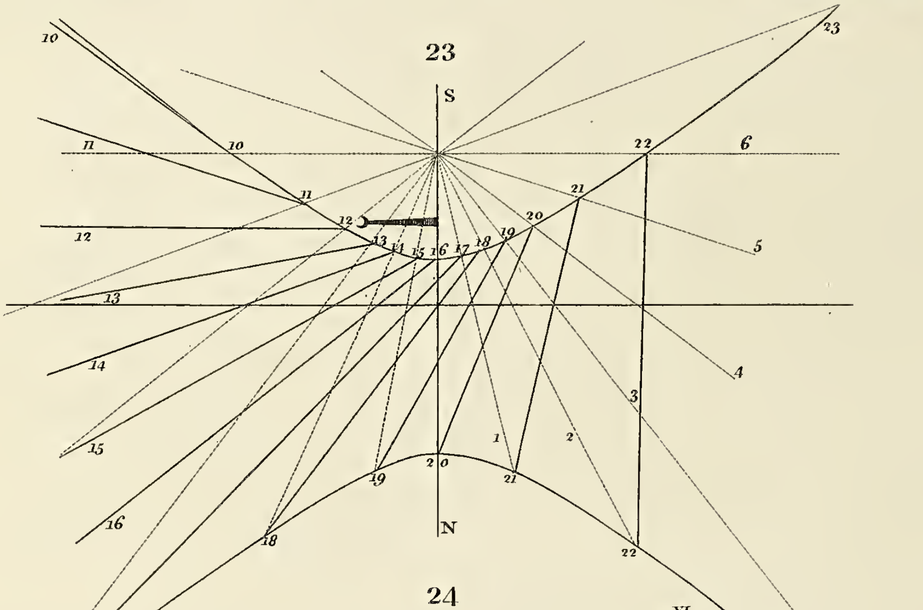

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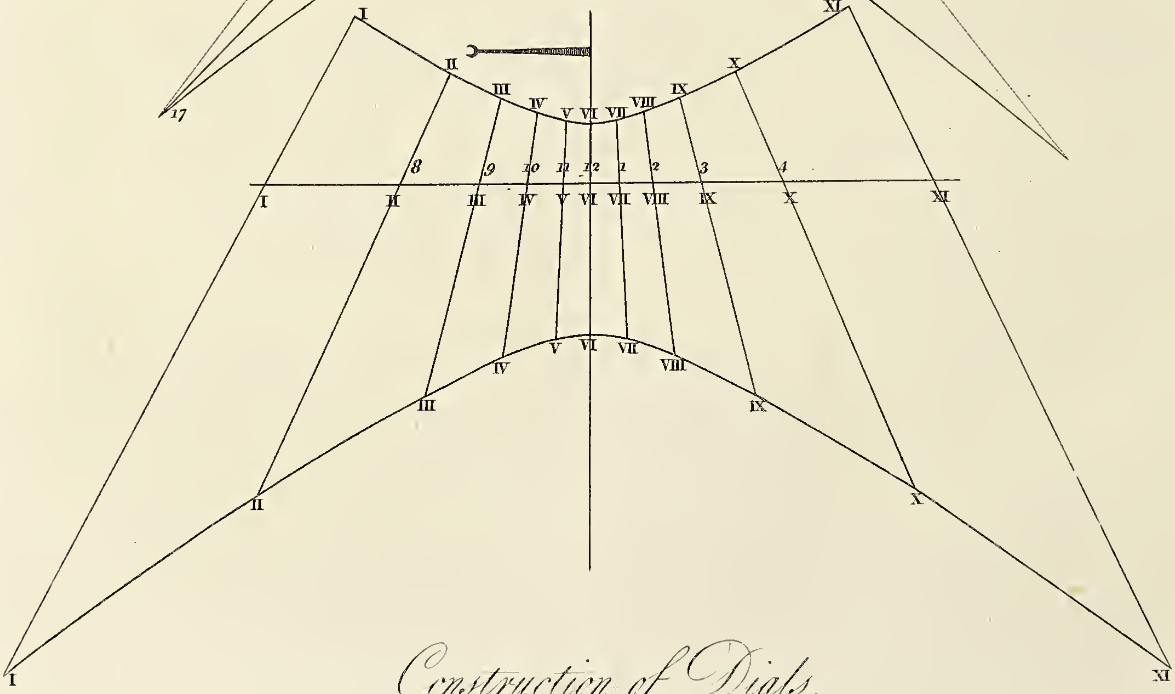

Construction of Dials.

J. Pass sculp

London: Pubd as the Act directs, Octr 12. 1809, by J. Wilkes.

evening, we may conclude, on the ſuppoſition of the moon being motionleſs, that it is eleven at night. But ſince, in this interval of $7\frac{1}{2}$ hours, the moon has had a retrograde motion towards the eaſt, which occaſions in her paſſage of the meridian a retardation of $48^m$ daily; which is at the rate of 2 minutes per hour, we ſhall have, for $7\frac{1}{2}$ hours, $15^m$, which muſt be added to the hour indicated by the moon, over and above the quantity by which her paſſage over the meridian has been later than that of the ſun.

If the moon had paſſed the meridian before the ſun, it would be neceſſary to deduct from the hour indicated by the moon the quantity by which ſhe preceded the ſun, and to add to the remainder as many times two minutes as the hours ſhe indicated. But this calculation, however ſhort, may be avoided by means of the following ſmall machine. This machine conſiſts of two circular plates of braſs or wood, or paſte-board, (fig. 20,) one of which AIGH is fixed, and the other *b e f l* moveable. On the fixed plate is deſcribed a circle *a i g h*, divided into 24 equal parts, repreſenting the 24 hours of the day; each of which muſt be ſubdivided into halves and quarters. Above this piece is applied the other plate *b e f l*, in ſuch a manner as to be moveable round the centre C, which is common to both; and the circumference of the latter is divided into parts which repreſent the hours indicated by the moon on a ſun-dial. Theſe hours are not equal to thoſe of the ſun deſcribed on the fixed plate, but muſt be each 2 minutes larger; ſince the moon's daily retardation is about 48 minutes, or 12 minutes in 6 hours. Therefore, ſince the degree of a ſign is equal to 4 minutes in time, it is evident that 3 degrees are equivalent to 12 minutes of time. For this reaſon, having drawn the ſouth-line ACG, ſet off on each ſide from the point *b*, to *e* and *l* 93 degrees for 6 hours; and divide each of theſe ſpaces into ſix equal parts, to repreſent as many hours; then into halves and quarters, as ſeen in the figure. To uſe this inſtrument, place the index *n b* of the moveable piece at the hour of the moon's paſſing the meridian on the propoſed day; then obſerve the hour indicated by the moon on a horizontal ſun-dial, and oppoſite to the ſame hour on the moveable piece, you will find on the other, the true hour of the day.

*Dial to ſhow the hour by the Moon.*—To employ a dial of this kind, it is neceſſary to know the moon's age, which may be always found either by a common almanac, or by ſome of the methods we have already pointed out, under the article Astronomy, vol. ii.

To deſcribe a lunar dial on any plane whatever, ſuch for example as a horizontal one, firſt trace out on it a horizontal ſun-dial for the given latitude, and draw the two lines 5 7, 3 9, parallel to the equinoctial, as ſhown in Plate V. fig. 21; the firſt of which being aſſumed as the day of full moon, the ſecond will repreſent that of new moon, where the lunar hours correſpond with the ſolar; and hence the hour-points marked on thoſe two parallels, by lines proceeding from the centre of the dial A, are common to the ſun and the moon. Then divide the ſpace bounded by the two parallel lines, 3 9, 5 7, into 12 equal parts; and through the points of diviſion draw as many parallel lines, which will repreſent thoſe days of the moon when ſhe ſucceſſively recedes an hour by her own motion towards the eaſt, and on which ſhe conſequently paſſes the meridian every day an hour later. The firſt parallel, 4 10, being the day on which the moon paſſes the meridian an hour later than the ſun, the point B, of 11 hours by the moon, will be the point of noon, or 12, according to the ſun; as the next, 5 11, repreſents a day on which the moon paſſes the meridian 2 hours after the ſun, the point C, of 10 hours by the moon, will be the point of noon by the ſun; and ſo of the reſt.

It is now evident, that if the points 12, B, C, and all the others belonging to noon, which can be found by the ſame method, be joined by a curved line, this curve will be the lunar meridian. The other lunar hour-lines may be eaſily traced out alſo by a ſimilar proceſs.

Becauſe the interval between the moon's conjunction with the ſun and her oppoſition, that is, between the time of new and full moon, or that when ſhe is diametrically oppoſite to the ſun, ſo that ſhe riſes when the ſun ſets, is about 15 days, all the preceding parallels, except the two firſt 5 7, 3 9, muſt be effaced; and, inſtead of dividing the interval into twelve equal parts, it muſt be divided into fifteen; in order that you may draw, through the points of diviſions other parallels, which will repreſent the days of the moon's age; and which therefore muſt be marked with the proper figures along the meridian line, as ſeen in the plate; by which means the true hour of the night may be known, when the moon ſhines, in the following manner: In the centre of the dial A, fix an axis or pin, ſo as to form at that centre with the line A 12 an angle equal to the elevation of the pole above the plane of the dial, which we ſuppoſe to be horizontal: this axis, by its ſhadow on the current day of the moon, will indicate the hour as required.

*To find the hour by means of ſome of the circumpolar Stars.*—The hour may be known by a ſtar's paſſage by the meridian, or even by its altitude; for by means of any Ephemeris, and a ſhort calculation, we can eaſily determine how much any ſtar precedes or is behind the ſun in culminating, or coming to the meridian; and when this is known, together with its declination, the hour may be found by obſerving its altitude. But a more eaſy method has been invented, by means of a ſmall inſtrument, called the *nocturnal*. It is adapted for employing the moſt brilliant of the two laſt ſtars in the Little Bear, which are called its guards. The conſtruction of it is as follows. Provide a circular piece of wood or metal, (fig. 22;) and, having deſcribed on it a circle, divide its circumference into 365 parts, correſponding to the days of the year; which muſt be afterwards diſtributed into months, according to the number that each contains. To this circular piece apply another, moveable around the centre, and divide the circumference of it into 24 equal parts, denoting the 24 hours of the day. At each of theſe diviſions there muſt be a ſmall notch on the edge, in order that theſe parts may be counted in the dark by the touch. One of theſe notches however muſt be longer than the reſt, for a purpoſe which will be explained hereafter. Then fix to the edge of the lower piece a ſmall handle; the middle of which ought to be in a line with the centre of the inſtrument, paſſing through the 7th of November; becauſe on that day the above ſtar paſſes the meridian at the ſame time as the ſun: that is, above the pole at noon, and below it at midnight. Laſtly, adapt to the inſtrument an index, moveable around a pin in the centre; and let a hole be pierced in the pin, in order to apply the eye to it.

To uſe this inſtrument, firſt make the edge of the longeſt notch correſpond with the day of the month; then apply your eye to the centre, and, turning towards the north, look at the pole-ſtar, holding the plane of the inſtrument in a direction as perpendicular as poſſible to the viſual ray, and the handle of it in the vertical plane; then move the index till the edge of it touches the above ſtar, or the brighteſt of the guards of the Little Bear, and count the number of notches between the index and the longeſt notch: this number will be that of the hours elapſed after midnight. The inſtrument might be eaſily adapted to any other ſtar: nothing would be neceſſary but to make the ſmall handle of the inſtrument correſpond with the day of the month when that ſtar paſſes the upper meridian with the ſun: in every thing elſe the conſtruction would be the ſame.

*Dials of a peculiar Conſtruction.*—Every thing hitherto ſaid has related only to the equinoctial and equal hours; ſuch as thoſe by which time is reckoned in England, the day being ſuppoſed to begin at midnight, and the hours being counted to the following midnight, to the number of 24, or twice twelve. This is the moſt common method of computing the hours in Europe. The aſtronomical hours are almoſt the ſame; the only difference is, that the latter are counted, to the number of 24, from the noon of one day to the noon of the day following. But there are ſome other kinds of hours, which it is proper we ſhould here explain; becauſe they are ſometimes traced out on ſun-dials: ſuch are the natural or Jewiſh hours, the Babylonian, the modern Italian, and thoſe of Nuremberg.

The natural or Jewiſh hours begin at ſun-riſe; and there are reckoned to be 12 between that period and ſun-ſet: hence it is evident that they are not of equal length, except on the day of the equinox: at every other time of the year they are unequal. Thoſe of the day, in our hemiſphere, are longer from the vernal to the autumnal equinox: thoſe of the night are, on the other hand, longer while the ſun is paſſing through the other half of the zodiac. The Babylonian hours were of equal length, and began at ſun-riſe; they were counted, to the number of 24, to ſun-riſe of the day following. The modern Italian hours (for the ancient Romans counted nearly as we do from midnight to midnight) are reckoned to the number of 24, from ſun-ſet to ſun-ſet of the day following; ſo that on the days of the equinox noon takes place at the 18th hour, and then, as the days lengthen, the aſtronomical noon happens at $17\frac{1}{2}$ hours, then at 17 hours, &c. and *vice verſa.* See, however, p. 292.

*To trace out, on a Dial, the Italian Hours.*—Deſcribe firſt on the propoſed plane, which we here ſuppoſe to be a horizontal one, a common horizontal dial, with the aſtronomical or European hours: delineate on it alſo the arcs of the ſolſtitial ſigns, Cancer and Capricorn; as well as the equinoctial line, which is the arc of the equinoctial ſigns. Then obſerve that, on the days of the equinox, noon, for a dial conſtructed at London, takes place at the end of the 18th Italian hour; and on the day of the ſummer ſolſtice at 17 minutes after the 16th hour. Noon, therefore, or 12 hours, counted according to the aſtronomical hours, correſponds, on the day of the equinox, to the 18th Italian hour; and on the day of the ſolſtice to 17 minutes after the 16th; conſequently the 18th Italian hour, on the day of the ſummer ſolſtice, will correſpond to 17 minutes paſt 2, counted aſtronomically. Join therefore, (fig. 23,) by a ſtraight line, the point of noon marked on the equinoctial line, and that of 2 hours 17 minutes on the tropic or arc of the ſign Cancer, and inſcribe there 18 hours. Join alſo by tranſverſal lines 1 hour on the equinoctial and $3^h\ 17^m$ on the arc of Cancer; then $2^h$ and $4_h\ 17_m$, &c. and before noon $11^h$ and $1^h\ 17^m$; $10^h$ and $12^h\ 17_m$; $9^h$ and $11^h\ 17^m$, &c. efface then the aſtronomical hours, which we ſuppoſe ought not to appear, and continue the above tranſverſal lines till they meet the parallel of Capricorn, inſcribing at their extremities the proper numbers; by which means you will have your dial traced out as ſeen in the figure.

It may be eaſily ſeen, by the above example, what calculation will be neceſſary for a latitude different from that of London, where the length of the day, at the ſummer ſolſtice, is 16 hours 34 minutes, and at the winter ſolſtice only 7 hours 44 minutes. In another latitude, where the longeſt day is only 14 hours and the ſhorteſt 10, noon at the ſummer ſolſtice will take place at the end of the 17th Italian hour. Noon therefore, or 12 hours, counted aſtronomically, will on the day of the ſolſtice correſpond to the 17th Italian hour; and conſequently the 18th Italian hour, at the ſame period, will correſpond to 1 in the afternoon counted aſtronomically. To have the hour-line of the 17th Italian hour, therefore, nothing will be neceſſary, but to join the point of 1 in the afternoon, on the arc of Cancer, and the point of noon on the equinoctial. And the caſe will be the ſame with the other hours.

*To trace out on a Dial the Lines of the Natural or Jewiſh Hours.*—We have already ſaid, that the equal hours which can be counted from ſun-riſe to ſun-ſet, to the number of 12, are called the natural hours; for it is this interval of time which really forms the day.

This kind of hours may be eaſily traced out on a dial, which we ſhall here ſuppoſe to be horizontal. For this purpoſe, it will be firſt neceſſary to draw the equinoctial and the two tropics by the preceding methods. Now it muſt be obſerved, that as, in the latitude of London, the ſun, on the day of the ſummer ſolſtice, riſes at $3^h\ 43^m$, and ſets at $8^h\ 17^m$, the interval between theſe periods is equal to $17^h\ 34^m$; conſequently, if we divide this duration into 12 parts, each of theſe will be about $1\frac{1}{2}$ hour: for this reaſon, draw lines from the centre of the dial to the points of diviſion on the equinoctial, correſponding to $5\frac{1}{2}$ hours, to 7 hours, to $8\frac{1}{2}$ hours, to 10 hours, to $11\frac{1}{2}$ hours, to 1 hour, and ſo on; but marking only, on the tropic of Cancer, the points of interſection which theſe hours form with it. In like manner, as the ſun at the winter ſolſtice, in the latitude of London, riſes at $8^h\ 8^m$, and ſets at $3^h\ 52^m$, the duration of the day is only 7 hours 44 minutes; which being divided into 12 parts, gives for each about 40 minutes, or $\frac{2}{3}$ of an aſtronomical hour. Draw therefore the hour-lines correſponding to $8\frac{2}{3}$ hours, to $9\frac{1}{3}$ hours, to 10 hours, and ſo on; marking only the points where they interſect the tropic of Capricorn; then, if the correſponding points of diviſion, on the two tropics and the equinoctial, be joined by a curved line, the dial will be deſcribed, as ſhown at fig. 24.

If more exactneſs be required, it will be neceſſary to trace out two more parallels of the ſigns, viz. thoſe of Taurus and Scorpio, and to find on each, by a ſimilar proceſs, the points correſponding to the natural hours: the natural hour-lines may then be made to paſs through five points, by which means they will be obtained with more exactneſs.

*Of fixing Dials.*—Every dial muſt be ſo placed, that the upper edge of the ſtyle may point directly to the pole, and that the horizontal line be perfectly level, and that it have its proper declination and inclination; and in an upright dial, that the 12-o'clock line be perpendicular to the horizon. Having prepared the plane on which the dial is to reſt, the hour may be found with tolerable accuracy by a large equinoctial ring-dial, to which a watch is to be ſet; and then the dial may be fixed by the watch at leiſure. But, in order to have the time more exactly, the ſun's altitude ſhould be taken by a good quadrant, and the preciſe time of obſervation noted by a clock or watch: then the time ſhould be computed for the obſerved altitude, and the watch ſet to agree with that time. Otherwiſe, take two equal altitudes of the ſun in the ſame day in ſummer; one between ſeven and ten in the morning, the other between two and five in the afternoon; mark the moment of the two obſervations by a clock or watch; and, if the watch ſhows the obſervations to be at equal diſtances from noon, it agrees exactly with the ſun; if not, the watch muſt be corrected by half the difference of the forenoon and afternoon intervals; and then the dial may be ſet true by the watch.

It is neceſſary to obſerve, that if a dial be made according to the ſtrict rules of calculation, and truly ſet at the inſtant when the ſun is in the meridian, it will be a minute too faſt in the forenoon, and as much too ſlow in the afternoon, by the ſhadow of the ſtyle; becauſe the edge of the ſhadow that ſhows the time is even with the foremoſt edge of the ſun in the forenoon, and with his hindmoſt edge in the afternoon, on the dial, whereas the ſun's centre determines the time in the (ſuppoſed) hour-circles of the heaven; and, as the ſun is half a degree in breadth, he takes two minutes to move through a ſpace equal to his breadth; and there will be two minutes at noon in which the ſhadow will have no motion at all on the dial. It likewiſe appears, that, if the dial be ſet true by the ſun in the forenoon, it will be two minutes too ſlow in the afternoon; and *vice verſa.* The way of remedying this error, is to ſet every hour and minute diviſion on the dial one minute nearer XII than the calculation requires. Every dial is alſo too faſt in the forenoon and too ſlow in the afternoon, on account of the refraction of the ſun-beams, by which the ſun is raiſed higher, and the ſhadow brought nearer the ſubſtyle.

### II. *Of CLEPSYDRÆ, or WATER-CLOCKS.*

Though we have ranked theſe in the ſecond claſs of time-meaſurers, yet ſome are of opinion that they might have been in uſe among the Egyptians and other eaſtern nations even before ſun-dials were invented; though the name of the original inventor is not handed down to us. The conſtruction has been varied in different ages and countries, according to the variation of the different modes of reckoning time; but one principle is the baſis of all the forms it has undergone, namely, the conſtant dropping or running of water, through a ſmall aperture, out of one veſſel into another. At firſt the indication of time was effected by marks correſponding to either the diminution of the fluid in the containing veſſel during the time of emptying, or to the increaſe of the fluid in the receiving veſſel during its time of filling; but it was ſoon found, that the eſcape of the water was much more rapid out of the containing veſſel when it was full than when it was nearly empty, owing to the difference of preſſures at different heights of the ſurface; this irregularity in the dropping preſented an obſtacle which required much ingenuity to correct.

At any rate, we are well aſſured that the ancients had machines by which, through the help of water, they were able to meaſure time. The invention of them is by Vitruvius aſcribed to Cteſibius of Alexandria, who lived under Ptolemy Euergetes, or about the year 245 before the Chriſtian era. They were introduced at Rome by P. Cornelius Scipio Naſica, in the year 595 after the building of the city, or 159 years before the birth of Chriſt. If under this name we underſtand thoſe meaſurers of time which were uſed in courts of juſtice, the clepſydra is a Grecian invention, firſt adopted at Rome under the third conſulſhip of Pompey. The moſt common kinds of theſe water-clocks all, however, correſponded in this, that the water iſſued drop by drop through a hole of the veſſel, and fell into another, in which a light body that floated marked the height of the water as it roſe, and by theſe means the time that had elapſed. They all had this failing in common, that the water at firſt flowed out rapidly, and afterwards more ſlowly, ſo that they required much care and regulation.

That ingenious machine, which we have at preſent under the name of a water-clock, was invented in the laſt century. The preciſe time ſeems to be uncertain; but, had it been before the year 1643, Kircher, who mentions all the then known machines of this kind, would in all probability have taken notice of it. It conſiſts of a cylinder divided into ſeveral ſmall cells, and ſuſpended by a thread fixed to its axis, in a frame on which the hour-diſtances, found by trial, are marked out. As the water flows from the one cell into the other, it changes very ſlowly the centre of gravity of the cylinder, and puts it in motion; much like the quickſilver puppets invented by the Chineſe. This machine, with improvements, will be deſcribed farther on.

Theſe machines muſt have been very ſcarce in France in 1691; for Graverol at that time gave a figure and deſcription of the external parts of one, but promiſed to give the internal conſtruction as ſoon as he ſhould become acquainted with it. This was the only one then in Niſmes. He ſays, alſo, that they were invented a little before by an Italian Jeſuit, who reſided at Bologna, but were brought to perfection by Taliaiſſon, profeſſor of law at Thouloufe, and a young clergyman named De L'iſle. Alexander ſays more than once that this machine was invented at Sens in Burgundy, in 1690, by Charles Vailly, a Benedictine of the brotherhood of St. Maur, and that he brought it to perfection by the aſſiſtance of a pewterer there, named Regnard. This account is in ſome meaſure confirmed by Ozanam; for he ſays expreſsly, that the firſt water-clocks were brought from Burgundy to Paris in 1693, and he deſcribes one which was made of tin at Sens. Vailly was born at Paris in 1646, and died in 1726; he was celebrated on account of his mathematical knowledge, though he is known by no works, as he burned all his manuſcripts. Alexander, however, who was of the ſame order, ſeems to have aſcribed to his brother Benedictine an honour to which he was not entitled: for Dominic Martinelli, an Italian of Spoletto, publiſhed at Venice, in 1663, a treatiſe written expreſsly on theſe water-clocks, which Ozanam got tranſlated into French, by one of his friends, and cauſed to be printed with his additions. This tranſlator ſays, that water-clocks were known in France twenty years earlier than Ozanam had imagined. It appears, therefore, that they were invented in Italy about the middle of the 17th century; and that Vailly, perhaps, may have firſt made them known in France.

It may, perhaps, afford ſome pleaſure to thoſe who are fond of the hiſtory of the arts, to know that Salmon, an ingenious pewterer at Chartres in France, has given very full and ample directions how to conſtruct and uſe this machine. He is of opinion, that the invention is ſcarcely a century old; and that theſe water-clocks, which are now common, were firſt made for ſale, and brought into uſe among the people in the country, by a pewterer at Sens in Burgundy. What this artiſt affirms, that they can be conſtructed of no metal ſo eaſily, ſo accurately, and to laſt ſo long, as of tin, is ſtill found in practice to be true.

The moſt ancient water-clock, then, of which we have any certain notice, was that of Cteſibius of Alexandria, the ſon of a barber, who, about 245 years before Chriſt, ſpent much time in deviſing mechanical contrivances for removing not only the obſtacle common to all theſe machines, but alſo another equally formidable one, which aroſe from the daily inequality of the Egyptian hours, as juſt noticed in treating of Sun-dials. As one-twelfth part of the time elapſed from ſun-riſe to ſun-ſetting of any day, was called an hour of that day; and as one-twelfth part of the time that paſſed from ſun-ſetting to ſun-riſe, was called an hour of the night; not only did the hours of day differ from the hours of night, but from one another, at all times, except at the vernal and autumnal equinoxes; hence it became neceſſary, either to make the water fall irregularly into a receiving veſſel, with equidiſtant hour-marks, or to have varying hour-marks for a regular efflux; the firſt of theſe methods (which probably preceded that of Cteſibius) was thus effected, viz. A conical hollow veſſel was inverted, or placed like a funnel in a frame, there being a very ſmall aperture at the apex of the cone, and another ſolid cone, every way ſimilar as to dimenſions, was plunged into the hollow one, when filled with water to a greater or a ſmaller depth, accordingly as the efflux was wanted to be more or leſs rapid; and then adjuſting-marks, correſponding to every day and night in the year, were put on a long ſtem, inſerted into the broad end of the ſolid cone, and kept in its poſition by the frame, to ſhow how much the inner cone was to be depreſſed or elevated, to accelerate or retard the iſſue of the fluid for the correſponding time; there was a ſpout which ſupplied a conſtant influx of water, and a waſte-pipe, connected with the top of the conical veſſel, which carried off the ſuperfluous water; hence the conſtant influx of water preſerved an unvarying height of the ſurface from the aperture, which aperture was varied at pleaſure, by the elevation or depreſſion of the inner cone. If now we ſuppoſe the ſubjacent veſſel to be a cube, cylinder, or any other regular figure, and equidiſtant hour-marks to be properly made on its ſide, the ſurface of the water, or an index borne by it on a piece of cork, would, as it roſe, indicate the hours correſponding to thoſe marks. The imperfections of this clepſydra were theſe: it required two daily manual adjuſtments, one in the morning, and another in the evening; and it made no allowance for the variation of fluidity, in different degrees of temperature, which, it is aſſerted, (but perhaps without proof,) greatly influenced the iſochroniſm of the drops. As an improvement, or rather appendage, to this conſtruction of the clepſydra, a bar, with rack-work at the upper end, was made to float on the ſurface of the lower veſſel by means of an affixed piece of cork, ſo that, as the cork and its bar roſe in the veſſel, the teeth of the bar turned a ſmall wheel, fixed to the upper part of the frame by a cock, on the arbor of which wheel a hand was put, which revolved and indicated the hours on a fixed dial-plate. This addition, however, did not render the inſtrument a more accurate meaſure of time, but only indicated the hours, ſuch as they were, in an improved manner. It may be worthy of remark here, that water was at once the regulator and the maintaining power of the inſtrument before us; the interval between two ſucceſſive drops was to the clepſydra what one vibration of the pendulum is to a clock, or one oſcillation of the balance is to a watch; and the floating of the indented bar was in place of a weight or ſpring to move the wheel to which the hand was attached; conſequently it might be ſaid to be an horological machine of the ſimpleſt conſtruction poſſible. The adjuſtment of the two cones was regulated by the latitude of the place, owing to the manner in which the hours were divided; at Alexandria, for inſtance, the greateſt and leaſt velocity of the drops were required to be to each other as 70 to 50, the longeſt and ſhorteſt hours in that latitude being reſpectively $1^h$ $10^m$ and $50^m$ of equable time; and in higher latitudes the diſparity is ſtill greater.

The next attempt to improve the clepſydra was by conſtructing it ſo that its aperture was variable, being adjuſted, as the year advanced, by the putting of an index to the ſun's place in an ecliptic circle; which attempt, of courſe, rendered the inſtrument more complex. Perrault conceives the parts to have been thus adapted, according to the deſcription given of it by M. Vitruvius Pollio, in his book *De Architectura*, cap. ix. lib. ix. But this clepſydra, like the preceding one, compoſed of two cones, requires two manual adjuſtments, one in the morning and the other in the evening, and makes no allowance for the (ſuppoſed) variation of fluidity occaſioned by the different ſtates of the weather; and the variation in the breadth of the groove or ſlit, it is preſumed, was more plauſible in theory than feaſible in practice. The contrivance, however, was ingenious, and beſpoke the inventor's acquaintance with aſtronomy.

The clepſydra, in one of its earlier forms, was uſed as an aſtronomical inſtrument, by the help of which the equator was divided into twelve equal parts, before the mathematical diviſion of a circle was underſtood; it was deemed of more value than a ſun-dial, on account of its dividing the hours of the night as well as of the day. Pliny ſays, (lib. xxxvii.) that Pompey brought a valuable one among his ſpoils from the Eaſtern nations: and Cæſar is ſaid to have met with an inſtrument of this kind in England, by the help of which he obſerved that the ſummer nights of this climate are ſhorter than they are in Italy. The uſe which Pompey made of his inſtrument was to limit the ſpeeches of the Roman orators; which Cicero alludes to when he ſays *latrare ad clepſydram.*

Beſides the ancient clepſydræ, above deſcribed, F. Berthoud mentions another (Hiſtoire de la Meſure du Temps, tom. i. p. 20.) which was called the *anaphoric*, on the dial-plate of which were projected the circles of the ſphere, including the parallels of the ſun's altitude, with the ſemi-diurnal and ſemi-nocturnal arcs, to which an adjuſtable bead, as the ſun's repreſentative, pointed as an index to ſhow the hours, parallels, &c. as the dial-plate revolved daily by means of wheel-work, which was impelled by water. It does not ſeem certain at what period this inſtrument was invented and uſed; but Berthoud thinks that tables of the ſun's motion muſt have exiſted previouſly to its invention, and alſo a knowledge of projections of the ſphere on a plane ſurface, whence he fixes the date poſterior to the time of Hipparchus, who, according to Pliny, died about 125 years B. C. The name *anaphoric* is evidently derived from *anaphora*, which was the ſecond houſe in the heavens, according to the doctrine of aſtrology, which prevailed about the time here ſpecified.

The modern method of dividing the natural day into 24 ſolar hours of equal length, has rendered the preceding conſtructions of the clepſydra uſeleſs for ſome centuries back; and, notwithſtanding the ſcience of hydroſtatics is much better underſtood by the modern than it was by the ancient philoſopher, ſo that a ſcale of altitudes correſponding to the variable velocities of the efflux of a fluid out of a given aperture can be aſcertained by calculation for a containing veſſel of any capacity or figure, yet, ſince the happy inventions of the balance and pendulum, as regulators of watches and clocks, horological machines, actuated by the motion of water, have become ſo rare, as to be conſidered objects only of curioſity.

The ſimpleſt form of the modern clepſydra derives its origin from that law in hydroſtatics by which the efflux of water out of an orifice is influenced under different preſſures, or, which is the ſame thing, at different depths from the ſurface, the velocity being directly as the ſquare root of the height of the ſurface from the aperture. If a glaſs veſſel, like that in Plate VI. fig. 25, therefore be taken, out of which all the water will flow in exactly 12 hours, from a ſmall aperture in its lower extremity, the whole height muſt be divided, or ſuppoſed to be divided, into the ſquare of 12 or 144 equal parts, of which parts 11 × 11, or 121 meaſured from the bottom, or 23 meaſured from the top, will give the diviſion for the hour 11, 10 × 10 or 100 from the bottom will give the line for 10, 81 for 9, 64 for 8, and ſo on down to the bottom, as repreſented in the figure; which ſcale is in the inverted proportion of that according to which heavy bodies fall in free ſpace by the ſole force of gravity.

If, inſtead of the veſſel itſelf being divided by hour-lines as above directed, the ſtem of a floating piece like an hydrometer were to have a ſimilar ſcale kept in a perpendicular direction, by paſſing through the central hole of a cap or cover of the veſſel, the indication of time would be made on the ſtem at the ſurface of the cap, which conſtruction would admit of the veſſel being of wood or metal.

But ſuch a figure might be given to the containing veſſel as would require the dividing marks to be equi-diſtant, which Dr. Hutton, in his recent edition of Ozanam's Recreations, has aſſerted to be a paraboloid, or veſſel, formed by the circumvolution of a parabola of the fourth degree, the method of deſcribing which, he has given thus: Let A B S, fig. 26, be a common parabola, the axis of which is P S, and the ſummit S. Draw, in any manner, the line R *v* T parallel to that axis, and then draw any ordinate of the parabola A P, interſecting R T in R; make P Q a mean proportional between P R and P A, and let *p q* be a mean proportional alſo between *p r* and *p a*; and ſo on. The curve paſſing through all the points Q *q*, &c. will be the one required, which, being made the mould for a veſſel to be caſt by, will produce an inſtrument, which, when perforated at the apex, will have the ſingular property of equalizing the ſcale, ſo as to correſpond to equal times while the water is running out. Mr. Varignon has given a geometrical and general method of determining the ſcale for a clepſydra, whatever may be the ſhape and magnitude of the veſſel. See Memoires de l'Academie Royale des Sciences, p. 78, 1699.

Another method of making a water-clock with equidiſtant hour-lines in any regular veſſel, is effected more ſimply than in the preceding one, founded on the property of the ſyphon, (which property will be more particularly elucidated under the article HYDROSTATICS.) Provide a ſyphon A B C, (fig. 27,) and affix to the ſhorter branch A B a piece of cork, capable of keeping the whole ſyphon in a vertical ſituation, as ſeen in the figure. When this apparatus is made to play, and the water begins to flow off through the longer branch, it will continue to eſcape with the ſame velocity, whatever may be the height of the water: for, in this machine, the efflux takes place in conſequence of the inequality of the force with which the atmoſphere preſſes on the ſurface of the liquid, and on the orifice of the longer branch; ſince the ſyphon then

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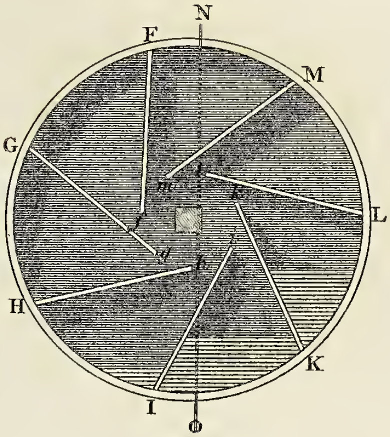

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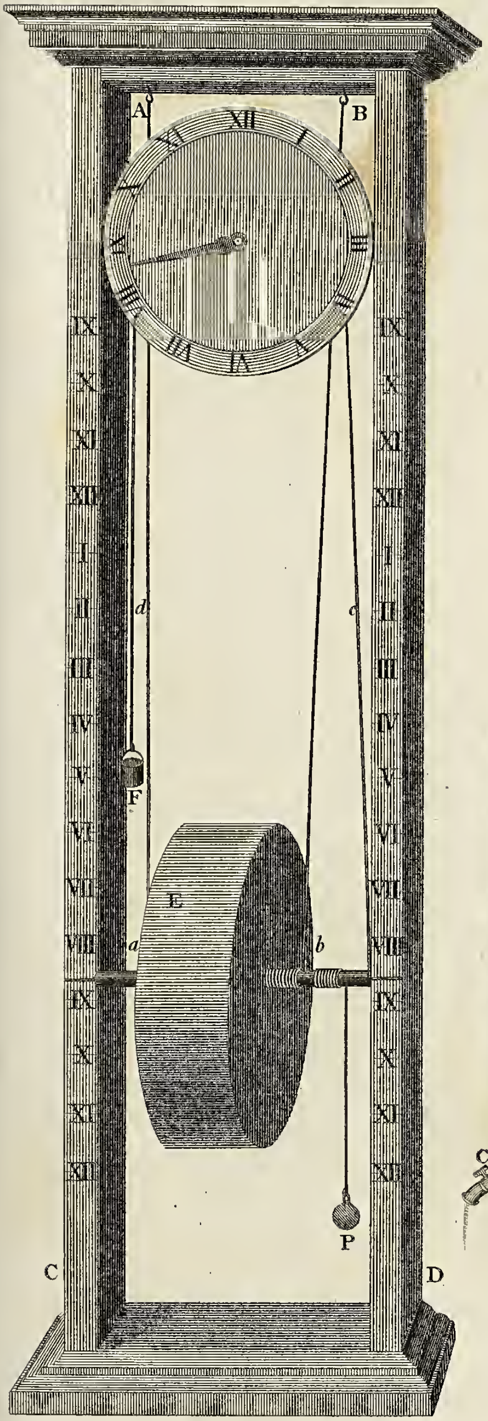

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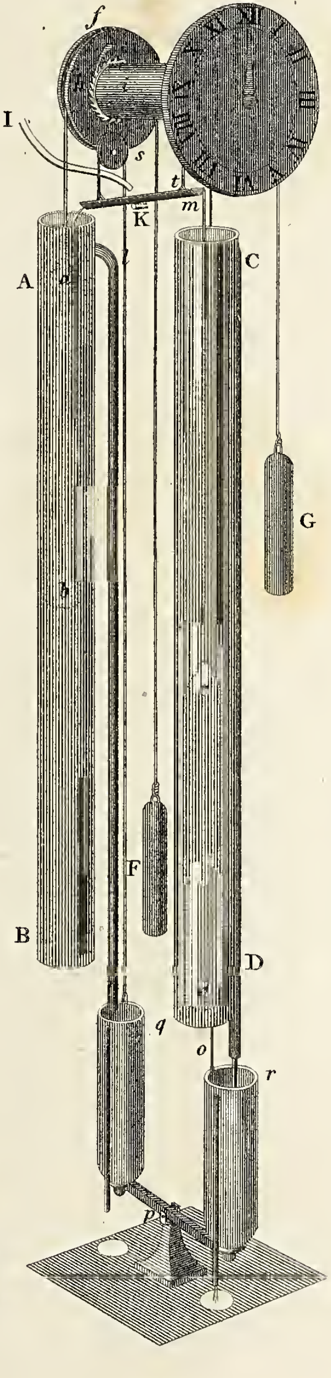

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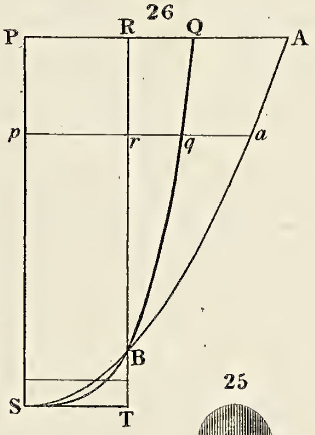

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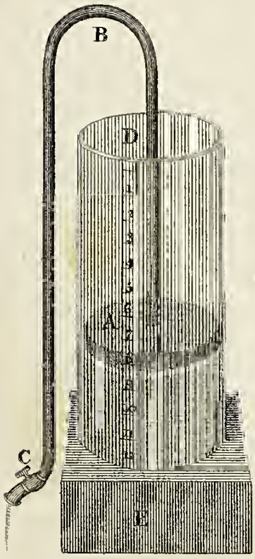

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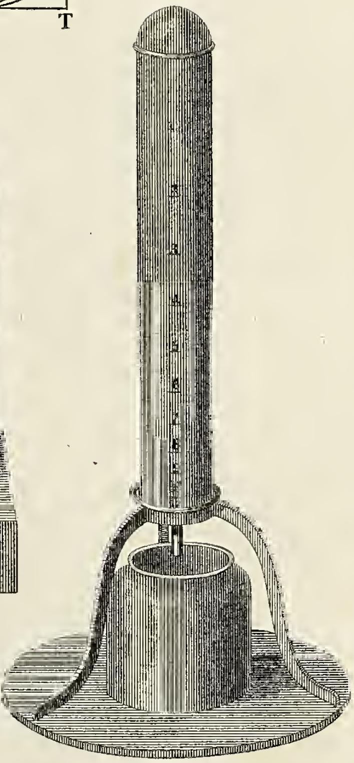

Construction of Clepsydræ or Water Clocks.

J. Paſs, sculp.t

London; Pub.d as the Act directs, Nov.r 1 1809, by J. Wilkes.

ſinks down as the ſurface of the liquid falls, it is evident that the velocity of its efflux will be uniform. If the height of the veſſel DE be therefore divided into equal parts, theſe diviſions will indicate equal intervals of time. To render this clepſydra more curious, the branch AB might be concealed, by a ſmall light figure made to float on the ſurface of the water in the veſſel, and indicating the hour with a rod, or its finger, on a ſmall dial-plate. On the other hand, the water might be made to flow from any veſſel whatever, through a ſimilar ſyphon, into another veſſel of a priſmatic or cylindric form, from which might ariſe a ſmall figure floating on the water, to indicate the hour above deſcribed.

In the ſame Recreations, vol. ii. it is noted that father Timothy, a Barnabite, had given the clepſydra all the excellence it was capable of, by conſtructing it ſo as to make it go a month at one winding up, and to exhibit not only the hours on a dial-plate, but alſo the ſun's place, day of the month, and feſtivals throughout the year. How theſe and ſimilar particulars might be indicated, will be eaſily apprehended from the following deſcription: ABCD, Plate VI. fig. 28, is an oblong frame of wood, to the upper part of which two cords, A*a* and B*b*, are fixed at their ſuperior extremities, and at their inferior to the metallic arbor, *ab*, of the drum, E, which contains diſtilled water; this water is confined in cells ſo peculiarly conſtructed, that they regulate the velocity with which the drum ſhall deſcend by the force of gravity from the top to the bottom of the frame, and the ends of the arbor indicate the hours marked on the vertical plane of the frame during the time of deſcent. An obſerver, who knows not the nature of the interior cells of the drum, is ſurpriſed to ſee that its weight does not make it run down rapidly, when mounted to the top of the frame by merely folding the ſtrings round the arbor, there being apparently no mechanical impediment to the natural action of gravity. To explain how this phenomenon is produced, we muſt refer to fig. 29, which is a ſection of the drum at right angles to its arbor; this circular plane we will ſuppoſe to be ſix inches, which is about the uſual ſize, in diameter, and to repreſent the inner ſurface of either of the two ends of the drum, which may be made of any of the unoxydable metals: then, if we conceive ſeven metallic partitions, F*f*, G*g*, H*h*, I*i*, K*k*, L*l*, and M*m*, to be cloſely ſoldered to both ends of the drum, in the ſloping direction indicated by the figure, where the black lines are equi-diſtant tangents to the ſmall dotted circle of an inch and half diameter at the points *f*, *g*, *h*, &c. it is evident, that any ſmall quantity of water introduced into the drum would fall into two, or at moſt three, of the lower compartments, and would remain there until ſome external force ſhould alter the poſition of the drum, ſuppoſing in this caſe the cords tied faſt to the arbor; but we have ſaid that they are wound round the circumference of an arbor, that has a ſenſible diameter, ſuppoſe one-eighth of an inch; therefore, they are removed one-ſixteenth of an inch, or upwards, if we take their thickneſs into the account, from the centre of the drum, which would alſo be its centre of gravity if it were empty, on which account it would, in that caſe, revolve to the left, in the direction FGH, downwards, from the cord being at the remote ſide of the centre, as repreſented by NO; but conceive the water to be included now, and then it would be elevated to the right, till its weight became a counterpoiſe to the gravity of the heavier ſide of the drum, in which ſituation all motion would ceaſe, and the drum would remain, ſuſpended, indeed, by the cords, but in a ſtate of equilibrio. Conceive again a ſmall hole perforated in the partition preſſed upon by the water near the circumference of the large circle, and alſo at the points F, G, H, I, K, L, M; and the conſequence will be, that the water will firſt force its way ſlowly through the perforation at K, from the more elevated to the lower compartment, which effect will diminiſh its power as a counterpoiſe, and give ſuch an advantage to the heavy ſide, FGH, of the drum, conſidered as empty, as will occaſion a ſmall degree of motion towards the left, and conſequently carry the water once more towards the right; but now the water paſſes through the perforation of the next partition alſo at I, and produces again the ſame effect as has been deſcribed with reſpect to K, and will continue to do ſo, at the ſucceſſive perforations, till all the compartments have been filled and emptied by means of theſe perforations in ſucceſſion; which kind of motion of the drum, contrary to that of the water, it is now not difficult to conceive will be pretty regular, if all the partitions are perforated exactly alike. The difference of the preſſures of the water in cells, nearly full and nearly empty, will occaſion ſome little deviation from regularity; but theſe will be periodic, and muſt be allowed for in the hour-diviſions, which ought to be made by a compariſon of the ſpaces fallen through with the time indicated by a clock or watch. About nine ounces of diſtilled water will ſuffice for a clepſydra of ſix inches diameter and two inches depth; and the velocity of the fall may be limited either by varying the quantity of water, or by hanging a ſmall metallic cup, F, to receive weights, by a cord wound in a direction contrary to the cords of ſuſpenſion, to act as a counterpoiſe in aid of the water, if the fall be too rapid, or *vice verſâ*.

It is abſolutely neceſſary that the arbor ſhould fit the central ſquare hole ſo well as to prevent the eſcape of water from the drum, otherwiſe the inſtrument would continue to gain velocity, till at length it would no longer afford a true indication of time.

Sometimes a cord, *cd*, with a weight, P, is made to paſs round a pulley fixed to an arbor at the top of the frame, with a nooſe paſſing over the axis near *a*, as is ſeen in the ſame figure; which arbor, projecting through a dial-plate or face, turns round and carries a hand to indicate the hours like an ordinary clock; when this conſtruction is preferred, it is an indiſpenſable requiſite that the circumference of the pulley's groove be exactly of the ſame dimenſions as the fall of the drum in 12 or 24 hours, accordingly as the dial is divided.

This clepſydra, it is ſaid, goes faſter in ſummer than in winter, which is owing to the drum being relatively heavier in rarefied than in denſe air; we can hardly ſuppoſe that any alteration in the fluidity of the water, as formerly ſuppoſed, would make any difference. The minute-hand and alſo the ſtriking-part of a common clock might eaſily be ſuperadded to this clepſydra.

We ſhall conclude our account of theſe horological inſtruments with detailing the conſtruction and action of a clepſydra, publiſhed in the 44th volume of the Philoſophical Tranſactions by the Hon. Mr. Charles Hamilton.

AB and CD, fig. 30, are two ſimilar oblong veſſels attached to a frame of wood, which may eaſily be conceived to ſurround the interior mechaniſm of the inſtrument: *ab* and *cd* are two columns of wood ſo floating in water, that their counterpoiſes, F and G, juſt keep their ſuperior ends equal with the ſurface of the water by means of connecting chains paſſing over the pulley *f*, and another hid by the dial-plate; the former of theſe pulleys *f*, has a click which puſhes the ratchet on the barrel, *i*, when the counterpoiſe, F, falls, but ſlips eaſily over the ſlopes of the teeth when the ſaid counterpoiſe riſes; the latter pulley has alſo a ſimilar click acting in like manner, with a ſecond ratchet at the oppoſite end of barrel, *i*, which ratchet is alſo hid in the drawing; ſo that, whichever of the two counterpoiſes ſhall at any time be falling, the barrel, *i*, will move forwards in the ſame direction; and carry the minute-hand along with it on the dial-plate; the hour-hand goes round by means of dial-work, as in an ordinary clock or watch, where a diminution of velocity is effected by two wheels and two pinions. The action is thus produced by means of five ſyphons and two balances.

The water enters with an unvaried influx, drawn from a reſervoir, by a ſyphon of ſmall bore, the longer leg of which is ſeen at I, into the middle of what may be called a horizontal trough, ſupported like a balance by a fulcrum at K, in ſuch a manner, that either end of the balance may be elevated accordingly as the long veſſels AB and CD require to be alternately filled; near the top of each of theſe veſſels is inſerted a long ſyphon or tantalus, *l* and *m*, the lower legs of which reach down to two ſmall cylindrical veſſels, *n* and *o*, which are poiſed by another balance at the fulcrum *p*; theſe cylindrical veſſels have, in like manner, each a ſmall ſyphon, *q* and *r*; laſtly, a ſilken thread tied to the upper end of the cylinder, *n*, is carried up round a ſmall pulley faſt to the frame at *s*, and is faſtened to the end of the trough under it, and a ſimilar thread is faſtened in like manner to the cylinder *o*, and end of the trough under the ſmall pulley *t*. Now it is eaſy to conceive, that when the veſſel, AB, is filled to nearly the head of the tantalus *l*, the bore of which is larger than of the feeding ſyphon I, the water will be diſcharged into the cylindrical vaſe *n*, which conſequently will preponderate, and by means of the ſilken chord elevate the end of the trough higher than the horizontal line, and make its oppoſite end under the ſmall pulley, *t*, to be depreſſed, which will therefore conduct the water into the other long veſſel CD; during this action the counterpoiſe, F, riſes, and its pulley, *f*, produces no effect on the ratchet by reaſon of the click, *h*, ſliding over the ſloping ſides of its teeth; but the counterpoiſe, G, falls, and the click of its pulley (not ſeen) puſhes the ſecond ratchet forwards in the direction of the figures of the face I. II. III. &c.

When CD is nearly full, the long ſyphon, *m*, begins to diſcharge its water; makes the cylindrical vaſe, *o*, preponderate, and again elevates by means of its ſilken ſtring the end of the trough under the ſmall pulley *t*, and depreſſes the oppoſite end to fill the veſſel, AB, again, during which time the click, *h*, of the pulley, *f*, acts with its ratchet; and thus the alternate increaſe and decreaſe of the water in the two veſſels are continued without interruption, ſo long as the feeding ſyphon continues to ſupply a ſufficient quantity of pure water. We think, however, that the mechaniſm is nearly as complex as that of a clock itſelf; and therefore we ſhall dwell no longer on this ſubject, more curious certainly than uſeful; but proceed to the laſt and moſt important diviſion of our ſubject.

### III. *Of MACHINES with TOOTHED WHEELS.*

Under this deſignation we include every kind of time-meaſurer, compoſed of a pendulum or balance, a ſpring or weight, and a train of wheels; as clocks, watches, and time-pieces for various purpoſes.

### GENERAL PRINCIPLES of TIME-MEASURERS.

From motion proceeds the natural meaſurement of time. A body or ſubſtance put in motion will paſs over a certain ſpace in a certain time. Such body, if ſuſpended by a thread and then put in motion, will *oſcillate* round the point of ſuſpenſion. Theſe *oſcillations*, or *vibrations*, will be performed in equal times, and may therefore ſerve to meaſure time. This vibrating body is called a PENDULUM. According to the laws of motion, a pendulum thus ſet in motion would vibrate continually: but the reſiſtance of the air, and the ſtiffneſs of the wire, or, what amounts to the ſame thing, the friction of the wire at the centre of oſcillation, will leſſen by degrees the velocity of the motion, and at length ſtop it entirely. To produce therefore ſomething like a perpetual motion, we muſt employ ſome exterior agent to counteract theſe obſtacles. As long as this agent acts, the pendulum will vibrate; and, by knowing the number of vibrations and the time of each, we ſhall know the portion of time which elapſes during the obſervation. But, to avoid the trouble of counting theſe vibrations, we diſpoſe the mechaniſm which works upon the pendulum in ſuch a manner that the number of vibrations, or the time thereby meaſured, may be ſhown by an index, or ſtyle, which in a clock is commonly called the *hand*.

Pendulums will not meaſure time correctly unleſs they vibrate round a fixed point; they cannot therefore be uſed for portable time-pieces, ſuch as pocket-watches, &c. In theſe machines we ſupply the place of the pendulum by a body whoſe vibrations are not materially affected by the motion of the whole machine. A circular body, turning upon its own axis, and having the centre of motion and the centre of gravity in the ſame point, is calculated to preſerve its motion in every poſition. A contrivance of this kind is called a *balance*; and to perpetuate its motion, we apply, as to the pendulum, an external force to repair the loſs of motion. This power acts alternately in contrary directions, in order that the balance, having paſſed through a certain ſpace, may return with equal velocity.

The *motive power* in time-meaſurers with a pendulum is uſually produced by the application of a *weight*. In time-pieces to be carried about, it is impoſſible to employ a weight, becauſe a weight, acting always in a line perpendicular to the centre of the earth, would have more or leſs effect, or none at all, according to the actual poſition of the machine, as is ſufficiently evident. Inſtead of a weight, therefore, we employ an elaſtic body, which, being bent or coiled up, produces a conſiderable effect. This is called a *ſpring*; and, as it acts by its elaſticity, and not by its weight, we may readily conceive that the poſition of the time-piece will not affect it.

The motive power communicates its effect through a train of *wheels* and pinions, which, by moving each other, act upon that part of the time-piece called the *ſcapement*. This laſt gives the neceſſary impulſes to the vibrating body; beſides this, it numbers the vibrations; and by this means the wheel-work which carries the hands ſhows the time.

The wheels and pinions act by means of *teeth* cut in their circumference: but the teeth of pinions are called *leaves*. Wheels and pinions turn upon *pivots*, which are nothing but the extremities of their axes reduced to a ſmaller diameter.

The ſpring acts in a cylinder which turns round an axis: this cylinder is called the *barrel*, and the axis the *barrel-arbor*. The ſpring is in the form of a ſpiral line; when it is to act in the barrel, its two extremities are faſtened, one to the arbor, the other to the circumference of the barrel. In fixing the barrel, we bend the ſpring by turning the arbor in a proper direction, as the ſpring then coils round the arbor: but in fixing the arbor, we bend the ſpring by turning the barrel. The arbor is made ſteady by means of a *ratchet*, or wheel with inclined teeth, which is acted upon by a *click*, or *ſtop*, and ſometimes by an *endleſs ſcrew*.

To the balance is applied a ſmall ſpring to regulate its vibrations. This is ſometimes called, from its form, the *ſpiral ſpring*; and ſometimes the *pendulum-ſpring*, but with more propriety the *balance-ſpring*. The ſtronger or thicker this ſpring, the quicker will be the vibrations of the balance. In common watches, a mechaniſm is applied to this ſpring, which, by lengthening or ſhortening the outer coil of the ſpiral, leſſens or increaſes the quickneſs of the vibrations: this is called the *curb and ſlide*; it is in fact the *regulator*.

The wheels commonly turn between two pieces of copper or braſs called *plates*, connected by *pillars* ſecured with pins. The *pivot-holes* are either ſimply drilled in the braſs plates, or elſe, the hole being made larger, is filled with a *collet* of ſome harder ſubſtance in which the pivot is to act, as ſteel, a ruby, &c. The piece above the upper plate, in which the upper pivot of the balance moves, is called the *cock*.

It is evident, then, that the principal and eſſential parts of a clock or watch are theſe four: 1. The pendulum, or the balance, as the caſe may be. 2. The moving power, whether weight or ſpring. 3. The maintaining power, or wheel-work. 4. The ſcapement.

# HOROLOGY.

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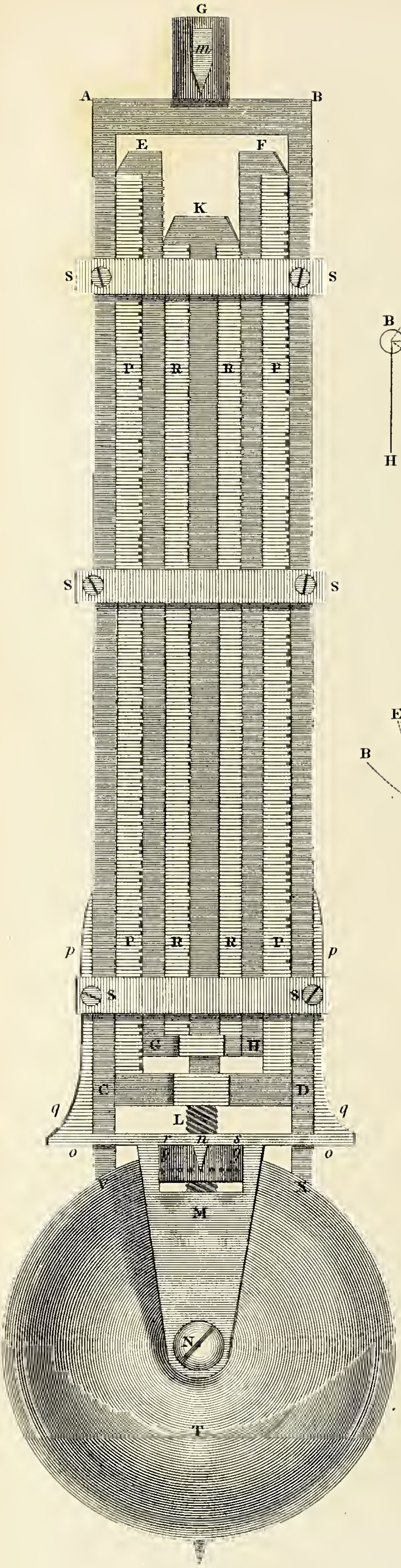

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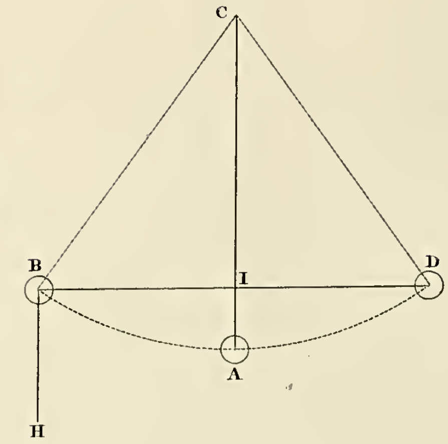

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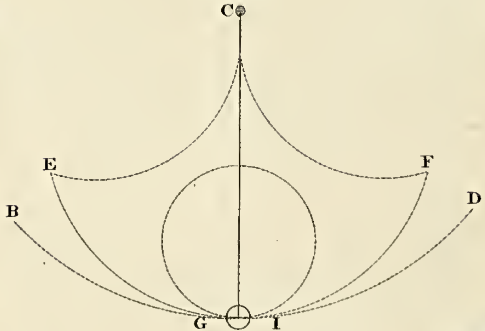

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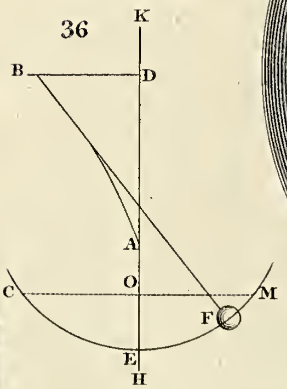

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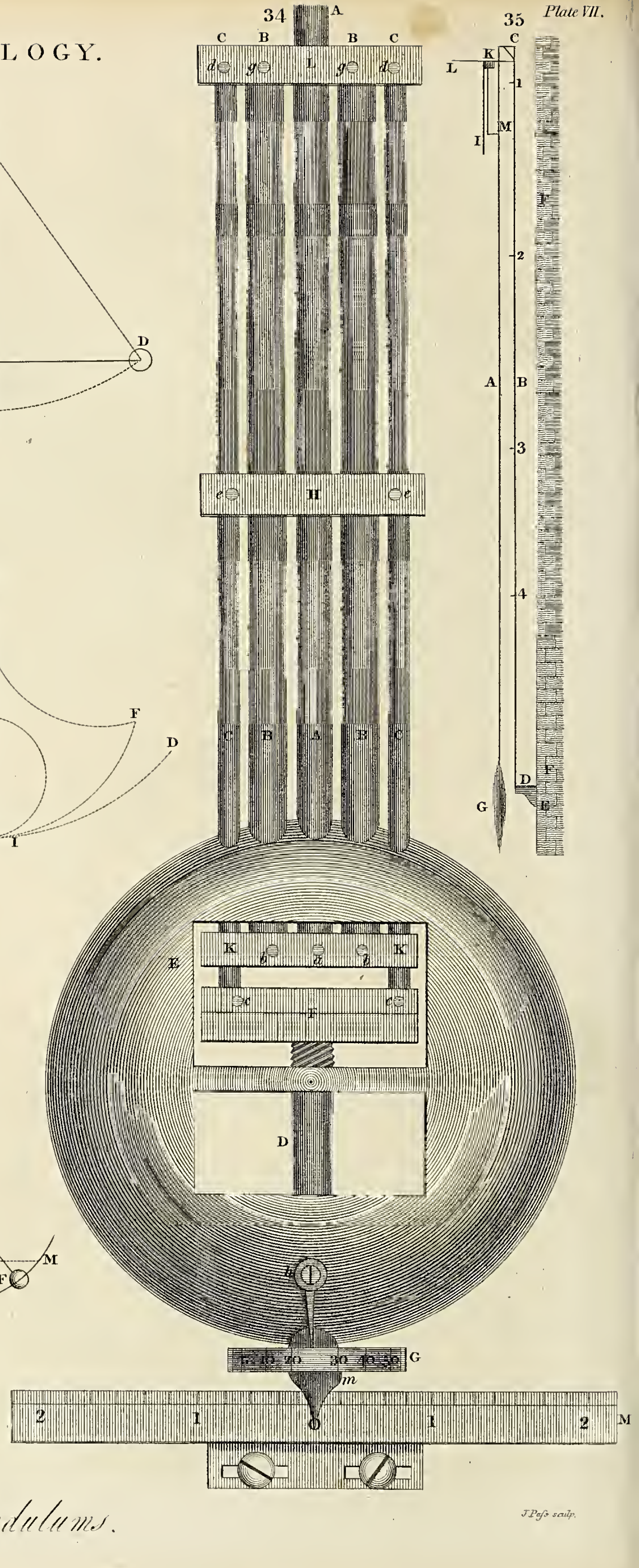


*Pendulums.*

J. Pass sculp.

London, Pub.d as the Act directs, Nov.r 8.1809, by J. Wilkes.

## I. OF THE PENDULUM.

Pendulums are of two kinds, ſimple and compound. The *ſimple* pendulum is ſuppoſed to have all its weight united in one point. The *compound* pendulum has more or leſs weight in its different parts. In the Horology Plate VII. fig. 31 repreſents the action of the ſimple pendulum. C is the point of ſuſpenſion; C A the rod, or wire, which carries the vibrating body, or *bob*, A. This body may deſcribe arcs of greater or leſs extent round the point C; one of which arcs is B A D. The motion of the pendulum is cauſed by the gravity of the body A, for A moved to B and then ſet at liberty, would fall in a direction B H, perpendicular to the centre of the earth; but, being retained by the rod C A always at an uniform diſtance from C, the fall muſt be in the line B A; and, being arrived at A, the body has acquired a velocity equal to what it would have gained by falling perpendicularly from I to A; and by this velocity the body is enabled to riſe from A to D in a time equal to that of the ſemi-vibration B A. The body, arrived at D, cannot remain at reſt, but will fall again to A, and thence riſe to B. Thus the vibrations will continue, till ſome exterior force puts an end to them. The ſpecific weight of the vibrating body does not ſenſibly affect the duration of the vibrations; nor would it affect them at all if the pendulum vibrated in a vacuum.

Iſochoniſm, or an equality in the duration of the greater and leſs arcs of vibration of a pendulum, is not obtained without difficulty when the pendulum makes large vibrations. Huygens found, that, by making the pendulum vibrate in a cycloidal curve, inſtead of circular arcs, the large and ſmall vibrations were performed in equal times. To produce theſe cycloidal vibrations, he employed the following method. In fig. 32, C E and C F repreſent two cycloids, deſcribed by a circle whoſe diameter is half the length of the pendulum. The wire C A, being extremely thin and flexible, in its courſe bends round the cycloids, and thence A deſcribes the cycloidal curve E A F, inſtead of the circular arc B A D. The two cycloids muſt be made of materials ſufficiently ſtrong not to yield to the vibrating force of C A. Though this principle be mathematically true in theory, it is not poſſible to reduce it effectually to practice, the difficulty of giving the two curves a perfectly-cycloidal ſhape is one great obſtacle; and, even were that obſtacle removed, it is evidently very inconvenient to ſuſpend a pendulum by a thread or very thin wire. But we can attain this object by a method extremely ſimple. By looking at the cycloid and the circle in the figure, it is evident that the two lines coincide from I to G, their curvatures not having any ſenſible difference for a certain ſpace. Therefore, by cauſing the pendulum to vibrate very ſmall acs, the vibrations may be conſidered as cycloidal; and thus we obtain iſochroniſm by the moſt ſimple means.

Experience has proved that two pendulums of equal length will not perform their vibrations in equal times if placed in different parts of the earth. Time is meaſured by the gravity of the vibrating body and by the length of the pendulum: and, when gravity increaſes or diminiſhes, it is evident that the times of the vibrations muſt differ. The earth being flatted near the poles, gravity is ſtronger there, as being nearer the centre, and produces quicker vibrations; while, towards the equator, gravity is weaker, and a pendulum of the ſame length will make ſlower vibrations. As gravity diminiſhes, centrifugal force increaſes, and the contrary; ſo that two cauſes combine to produce quicker or ſlower vibrations. But in the ſame latitude gravity cannot alter; conſequently pendulums of equal length will vibrate in equal times in every place under the ſame degree of latitude. A pendulum to vibrate once in a ſecond, in the latitude of London, ſhould be $39\frac{1}{8}$ inches long; at Paris, $36\frac{7}{12}$ inches, or $440\frac{1}{2}$ lines, Paris meaſure.

Mr. Emerſon has computed the following Table, ſhowing the length of a pendulum that ſwings ſeconds at every 5th degree of latitude, as alſo the length of the degree of latitude there, in Engliſh miles.

| Degrees of Lat. | Length of the Pendulum in Inches. | Length of the Degree in Miles. |
|---|---|---|
| 0 | 39·027 | 68·723 |
| 5 | 39·029 | 68.730 |
| 10 | 39·032 | 68·750 |
| 15 | 39·036 | 68·783 |
| 20 | 39·044 | 68·830 |
| 25 | 39·057 | 68·882 |
| 30 | 39·070 | 68·950 |
| 35 | 39·084 | 69·020 |
| 40 | 39·097 | 69·097 |
| 45 | 39·111 | 69·176 |
| 50 | 39·126 | 69·256 |
| 55 | 39·142 | 69·330 |
| 60 | 39·158 | 69·401 |
| 65 | 39·168 | 69·467 |
| 70 | 39·177 | 69·522 |
| 75 | 39·185 | 69·568 |
| 80 | 39·191 | 69·601 |
| 85 | 39·195 | 69·620 |
| 90 | 39·197 | 69·628 |

The mathematical rules as to the vibrations and lengths of pendulums are theſe: 1. That the vibrations are performed in times proportioned to the ſquare-root of their lengths. 2. That the lengths are in proportion to the ſquare of the times of the vibrations. Whence it follows, 3. That the number of vibrations in a given time is in the inverſe proportion of the ſquare-root of the lengths; and, 4. That the lengths are in an inverſe ratio of the ſquare of the vibrations; ſo that a pendulum, to make twice the number of vibrations in an equal time, muſt be reduced to one fourth of its original length.

The time of the vibrations of a pendulum, and its length, being given, we may thence diſcover the length of another pendulum to make vibrations in a given time; or, the length being given, we may diſcover the number of vibrations.

Example. It is required to know how many vibrations a pendulum of 10 inches or 120 lines in length will make in an hour.—We know that a pendulum $39\frac{1}{8}$ inches or $469\frac{1}{2}$ lines makes one vibration (at London) in a ſecond, or 3600 vibrations in an hour. Now the vibrations of the long pendulum, 3600, are to the required vibrations of the ſhort pendulum, as the ſquare-roots of the lengths of the two pendulums are to each other. The ſquare-root of 120 is 10·95; the ſquare-root of $469\frac{1}{2}$ is 21·67 nearly. Therefore, As 10·95 : 21·67 :: 3600 : 7124. A pendulum of 10 inches long will make about 7124 vibrations in an hour in the latitude of London.

To find the length of a pendulum that ſhall make a given number of vibrations in a given time, we recur to the ſecond rule above recited; or, if we obſerve a marked proportion between the given number of vibrations and 3600, we may ſhorten the labour of calculation by noticing the remark at the end of the 4th rule. Thus, if the length of a pendulum which ſhould vibrate 7200 times in an hour were required, we ſhould directly obſerve, that, 7200 being double 3600, the required length of the pendulum muſt be one-fourth of our common ſeconds pendulum, or 117·4 lines, nearly $9\frac{8}{12}$ inches. For, as the ſquare of 7200 is to the ſquare of 3600, ſo is 469·5 lines to the length required of the ſhort pendulum; or, As 518400 : 129600 :: 469·5 : 117·4. Thus we ſee that it is not difficult to proportion the lengths of pendulums to the number of vibrations required. And upon theſe ſimple principles Tables of the lengths of pendulums have been calculated.

The reſiſtance which a body in motion meets with from the air is in proportion to its ſurface and to the ſquare of its velocity. A body moving at the ſame rate with another whoſe ſurface is double, will experience but half the reſiſtance of the larger body. In fixing upon a proper ſhape for a pendulum, that is, for the part commonly called the *bob*, two things are particularly to be attended to: the ſhape which is beſt calculated for meeting with the leaſt reſiſtance from the air; and the weight which is beſt adapted for preſerving the iſochroniſm of the vibrations with a given maintaining power. Each of theſe conſiderations has been the ſubject of much inveſtigation. A ſphere is a ſolid, the ſurface of which bears the leaſt proportion to its ſolidity of any other, and a cube is one with great extent of ſurface compared to its ſolid content; conſequently, the former ſhape has obtained in cannon-balls, intended to paſs through the air with as little obſtruction as poſſible, and has ſometimes, for the ſame reaſon, been applied as a bob for a pendulum. Such a ſhape is better adapted for a large bob than a ſmall one; for the increaſe of the ſurface is in proportion to the ſquare of the diameter, whereas the increaſe of weight or quantity of matter is as the cube. Mr. B. Martin (Mathematical Inſtitutions, vol. ii. p. 417.) propoſed two equal fruſtra of ſimilar cones, to be joined together at the baſes, as a figure approximating nearly to a ſolid of leaſt reſiſtance, and recommended it as that out of which the middle one of three ſegments, cut longitudinally, will conſtitute the beſt ſhape for an appended weight, to anſwer the purpoſe of avoiding reſiſtance. Such a ſection, he conceived, would diſplace but a ſmall quantity of air in one vibration, and the impulſes of that quantity, being made obliquely on the ſloping ſurfaces of the ends, would produce but a ſmall effect. The *lenticular ſhape*, however, compoſed of two ſegments of a large globe joined to the line of ſection, has been generally adopted by clock-makers, from the conſideration, that, as the pendulum moves but in two directions, the action of the air can be but on two ſides of it; though others think the lenticular bob has been adopted chiefly becauſe two plates of braſs of that ſhape can be eaſily ſoldered together, and left hollow, ſo as to be filled with lead, or other heavy metal, in order to obtain a due degree of weight without adding to the thickneſs, which is an advantage that braſs or copper cannot have of itſelf in any ſhape. M. Ferdinand Berthoud (Eſſai ſur l'Horlorgerie, tom. ii. chap. xiii.) made ſome experiments with bobs of both a ſpherical and lenticular ſhape, of equal weight, attached ſucceſſively to the ſame free pendulum, from which it appeared, that, in the ſame temperature, the latter continued to vibrate ſeconds much longer than the former before they arrived at the quieſcent ſtate, which experiment was conſidered as a proof that the lenticular ſhape has the advantage in eſcaping the effect of reſiſtance; it was diſcovered, however, on a repetition of the experiment, with ſeconds and half-ſeconds pendulums, that the friction at the point of ſuſpenſion occaſioned by heavy weights, particularly when vibrating in long arcs, made conſiderable alterations in the reſults, and proved itſelf a ſecond ſource of reſiſtance to the free motion of the pendulum.

The ſecond conſideration to be attended to in making the bob, as has been ſaid, is the weight which a given pendulum requires with a given maintaining power. No theory is adequate to determine this deſideratum of itſelf, becauſe the diminution of the maintaining power by the friction of the pivots and the ſtate of the oil, the duration of the impulſe on the pallets, the nature of the ſcapements in other reſpects, the reſiſtance of the air, and at the point of ſuſpenſion, and particularly the nature and quantity of momentum of the pendulum, muſt all enter into the calculation; and theſe are data, many of which are conſtantly varying. The momentum, or whole quantity of motion of any pendulum, is the weight multiplied into the ſquare of its velocity, ſo that a large arc with a ſmall weight, and a ſmall arc with a correſponding large weight, cæteris paribus, ought to have an equal effect upon the iſochroniſm of the ſame pendulum. But the theory is not perfect; for firſt, large circular arcs deviate conſiderably from cycloidal ones, which, it has been demonſtrated by Huygens and others ſince, are thoſe which have the iſochronal property in an uniformly denſe medium; and ſecondly, they require a greater maintaining power than calculation gives: for inſtance, where the arc is 10° from the point of reſt, the addition to be made to the maintaining power beyond calculation is 57 parts in 100, according to Berthoud's experiments, which conſideration induces him to conclude, that irregularities in the maintaining power will affect the momentum principally compoſed of velocity more than the momentum principally compoſed of weight. Each kind of momentum, however, has its peculiar diſadvantage; for great velocity is ſubject to great reſiſtance from the air, and great weight to much friction at the point of ſuſpenſion. Mr. Alexander Cummings was an advocate for a large arc with a ſmall bob; but modern practice is in favour of a large ball or bob with a ſhort arc of vibration, as more nearly coinciding with the cycloidal curve.

The length of the pendulum-rod, of whatever metal it may be, increaſes with heat, and leſſens with cold. But different metals dilate and condenſe at different rates, and, according to M. Berthoud's pyrometer, in the following proportions:

| | | | |
|---|---|---|---|
| Lead | 193 | Gold annealed | 82 |
| Tin | 160 | Iron, hammered | 78 |
| Zink | 148 | Steel, tempered | 77 |
| Braſs | 121 | Iron, annealed | 75 |
| Silver | 119 | Steel, annealed | 74 |
| Copper | 107 | Platina and Glaſs | 62 |
| Gold-wire | 94 | | |

Some experimentaliſts give different proportions from the above; but it is to be obſerved, that metals will not always dilate and contract in the ſame proportion; much depends upon the quality of the metal, eſpecially of copper: ſo that a workman muſt not rely in all caſes upon the above Table, nor upon any other; but muſt verify all by actual experiment upon the materials he is about to uſe.

Another conſideration muſt be taken into the calculation; which is, that the metal pendulum-rod will dilate and condenſe in proportion to its length only. An iron rod 3 feet long, and one line ſquare, will dilate in the ſame degree as another of the ſame length, but of twice or thrice the thickneſs; but the thickeſt rod will longeſt reſiſt the influence of a change of temperature. By knowing, therefore, the degree of dilatation of a rod of a given length, it is eaſy to find the degree of dilatation of a rod of any other length. Suppoſe two rods, one of 10, the other of 15, inches long; and that the dilatation of the former is half a line in a certain temperature; we ſhall then have the following proportion: As 10 : 15 :: $\frac{1}{2}$ : $\frac{3}{4}$. A rod of 15 inches long, without regard to its thickneſs, will dilate three quarters of a line in the ſame temperature.

We have now to ſpeak of the actual effect of temperature upon the action of the pendulum. We have ſeen that the pendulum lengthens by heat, and ſhortens by cold; and we have alſo ſhown the proportions in which pendulums of different metals dilate or condenſe in a ſimilar temperature; but the temperature is ever varying, eſpecially in our country; and thus the length of a pendulum muſt be alſo continually varying. The duration of the oſcillations depends on the length of the pendulum; a clock will generally therefore go faſter in the winter, becauſe, as the pendulum ſhortens by cold, the vibrations are quicker; and in ſummer the contrary. But we may obſerve, that in clocks for common uſe, eſpecially if in a room where a fire is kept in winter, the variation is not worth notice. Where greater exactneſs is required, a thermometer ſhould be placed within the clock-caſe at a height nearly equal to that of the middle of the pendulum; and its height, for this purpoſe, ſhould be examined at leaſt once a-day. Now by a table conſtructed to exhibit the daily quantity of acceleration or retardation of the clock anſwering to every probable height of the thermometer, the correſponding correction may be obtained. It is alſo neceſſary to obſerve, that the mean height of the thermometer during the interval ought to be uſed. In Six's thermometer this height may be eaſily obtained; but in thermometers of the common conſtruction it will be more difficult to find this mean.

It had been found, by repeated experiments, that a braſs rod equal in length to a ſecond-pendulum will expand or contract one thouſandth part of an inch by a change of temperature of one degree in Fahrenheit's thermometer; and, ſince the times of vibration are in a ſubduplicate ratio of the lengths of the pendulum, hence an expanſion or contraction of $\frac{1}{1000}$ part of an inch will anſwer nearly to one ſecond daily: therefore, a change of one degree in the thermometer will occaſion a difference in the rate of the clock equal to one ſecond daily. Whence, if the clock be ſo adjuſted as to keep time when the thermometer is at 55°, it will loſe 10 ſeconds daily when the thermometer is at 65°, and gain as much when it is at 45°. Hence, the daily variation of the rate of the clock from ſummer to winter will be very conſiderable. It is true indeed that moſt pendulums have a nut or regulator at the lower end, by which the bob may be raiſed or lowered a determinate quantity; and therefore, while the height of the thermometer is the ſame, the rate of the clock will be uniform. But ſince the ſtate of the weather is ever variable, and as it is impoſſible to be raiſing or lowering the bob of the pendulum at every change of the thermometer, ſeveral contrivances have been propoſed, by conſtructing a pendulum of different materials, and ſo diſpoſing them that their effects may be in oppoſite directions, and whereby counterbalance each other; and by this means the pendulum will continue of the ſame length. Theſe are called *compound pendulums*.

*Mercurial Pendulum.* The firſt of theſe inventions is that by the celebrated Mr. George Graham. In this, the rod of the pendulum is a hollow tube, in which a ſufficient quantity of mercury is put. Mr. Graham firſt uſed a glaſs tube, and the clock to which it was applied was placed in the moſt expoſed part of the houſe. It was kept conſtantly going, without having the hands or pendulum altered, from the 9th of June 1722 to the 14th of October 1725, and its rate was determined by tranſits of fixed ſtars. Another clock made with extraordinary care, having a pendulum about 60 pounds weight, and not vibrating above one degree and a half from the perpendicular, was placed beſide the former, in order the more readily to compare them with each other, and that they might both be equally expoſed. The reſult of all the obſervations was this, that the irregularity of the clock with the quickſilver pendulum exceeded not, when greateſt, a ſixth part of that of the other clock with the common pendulum, but for the greateſt part of the year not above an eighth or ninth part; and even this quantity would have been leſſened, had the column of mercury been a little ſhorter: for it differed a little the contrary way from the other clock, going faſter with heat, and ſlower with cold. To confirm this experiment more, about the beginning of July 1723, Mr. Graham took off the heavy pendulum from the other clock, and made another with mercury, but with this difference, that inſtead of a glaſs tube he uſed a braſs one, and varniſhed the inſide to ſecure it from being injured by the mercury. This pendulum he uſed afterwards, and found it about the ſame degree of exactneſs as the other.

The ingenious Mr. Cumming objects to the mercurial pendulum, that, as the cylinder of mercury moves quicker through the air than the mean motion of the pendulum-rod, it will be ſooner heated and cooled by the air than the pendulum will. And he is of opinion, that neither the mercurial pendulum, nor any thermometer that does not move with the pendulum, can have a proper effect.

The *Gridiron Pendulum* was the invention of the celebrated Mr. John Harriſon, about the year 1725. It conſiſts of five round ſolid rods of ſteel, and four of braſs, placed in an alternate order, the middle rod being of ſteel, by which the pendulum ball is ſuſpended; theſe rods of braſs and ſteel, thus placed in an alternate order, and ſo connected with each other at their ends, that, while the expanſion of the ſteel rods has a tendency to lengthen the pendulum, the expanſion of the braſs rods, acting upwards, tends to ſhorten it. And thus when the lengths of the braſs and ſteel rods are duly proportioned, their expanſions and contractions will exactly balance and correct each other, and ſo preſerve the pendulum invariably of the ſame length. The ſimplicity of this ingenious contrivance is much in its favour; and the difficulty of adjuſtment ſeems the only objection to it. Mr. Harriſon, in his firſt machine for meaſuring time at ſea, applied this combination of wires of braſs and ſteel, to prevent any alterations by heat or cold; and in the machines or clocks he afterwards made for this purpoſe, a like method of guarding againſt the irregularities ariſing from this cauſe was uſed.

The principle of the gridiron pendulum is thus accurately laid down by Cumming. The expanſion of braſs is allowed to exceed that of ſteel generally in the proportion of 5 to 3; on which ſuppoſition, if any piece of ſteel, by the application of a certain degree of heat, expands ·3 of an inch, a piece of braſs will, with the ſame heat, expand ·5 or half an inch; ſo that the expanſion of a bar of ſteel is equal to the expanſion of a bar of braſs $\frac{3}{5}$ of its length. Therefore, when the length of the bars is inverſely as the expanſion of the relative metals, the whole expanſion in each bar will be equal, and conſequently may be applied to balance each other. Whatever be the length of the pendulum, three half-lengths of ſteel, and as much of braſs, muſt be added, in order to have as much expanſion upwards as downwards; and, when the whole length of the bars is thus aſcertained, they may be cut into ſuch ſeveral lengths as may beſt ſuit the purpoſe, and avoid the inconvenience of having any part of them below the ball of the pendulum; always obſerving, that the expanſion of the ſteel tend downwards, and that of the braſs upwards; in which caſe they will balance each other, without regard to the number of pieces into which they are cut; for, the effect of the whole conſiſts of the effects of all its parts. M. Berthoud's improved gridiron pendulum is correctly repreſented at fig. 33. A B C D is a frame of ſteel, forming the two outmoſt bars of pendulum; it is lengthened to V X, and enters the bob T, which is moveable up and down upon C D V X. A B carries the ſuſpenſion-piece *m*, fixed to G. E F G H is another frame of ſteel, with two elbows, E and F, ſuſtained by the two braſs rods P P, P P. The lower extremities of theſe braſs rods reſt upon the frame A B C D, near C D. The rod K L, which is of ſteel, with a double elbow or croſs-piece at K, is cylindrical, and formed into a ſcrew at its lower extremity. This rod is ſuſtained by the two braſs rods R R, R R, whoſe lower extremities reſt on the bottom part of the frame E F G H, near G and H. The pieces, S S, S S, S S, go round the frames and rods to keep them in their places, but not ſo as to hinder their free play upwards and downwards; they are ſcrewed to the frame A B C D, to keep them in their places. The bob T, which may be raiſed and lowered at will upon C D V X, is ſupported by the piece M, ſcrewed on at N, and the piece M is ſuſtained at *rs* by the nut *g g*, which is applied to the ſcrew-part L of L K, and by turning this ſcrew the bob is raiſed or lowered. The pieces *p q*, *p q*, are faſtened to M by ſcrews at *o* and *o*, and by two other ſcrews above at S and S. Theſe two pieces, *p q*, *p q*, do not preſs ſo hard againſt the frame A B C D as to prevent the bob from riſing or ſinking, but they hinder its ſhaking from ſide to ſide. It is to be obſerved alſo, that the ſcrews of this lower piece S S do not enter the frame A B C D, but into the pieces *p q*, *p q*, ſo that they offer no impediment to the motion of the bob T. The nut *g g* is graduated, and the little index *n* ſhows the number of degrees, or portion of a degree, it is turned for adjuſtment. The lower extremity of the bob alſo carries an index, which by the vibrations of the pendulum paſſes over the degrees of an arc of a circle which is applied below or behind it. By this arrangement (which we ſhall farther illuſtrate in the next figure) the number of degrees deſcribed by the pendulum is ſhown, and the quality or inequality of the vibrations is aſcertained.

It is eaſy now to underſtand the action and effect of this pendulum. Suppoſing heat to act upon it, it is evident that the frame A B C D becomes longer, i. e. its lower part deſcends, or recedes from the point of ſuſpenſion *m*. As the braſs rods P P, P P, lengthen alſo, their upper parts riſe, and, by *the exceſs of their dilatation*, (which we have before noticed is about as 5 to 3,) they lift up the inner frame E F G H by means of the ſhoulders E F. E F G H lengthens alſo by the heat, which cauſes the part G H to deſcend; but the other two braſs rods R R, R R, lengthening alſo, by their exceſs of dilatation raiſe up the middle ſteel rod K L; ſo that the bob T will remain at the ſame diſtance from the point of ſuſpenſion *m*. On the other hand, when cold acts upon the pendulum, the frame A B C D ſhortens, and the part C D comes a little nearer to the point of ſuſpenſion *m*; but, as the braſs rods P P, P P, ſhorten or contract in like manner, but in a greater degree, they puſh downwards the inner frame E F G H; which, contracting alſo, raiſes the braſs bars R R, R R: theſe, in their contraction draw down the rod K L, which carries the bob: and, if we ſuppoſe the bob T to be hereby puſhed down as much as the frame A B C D by its contracting had cauſed it to riſe, it is evident that the compenſation is complete.

Calculation will determine the length of the frames and bars, ſo as to form a juſt compenſation. We have already noted the proportions; but repeated experiments with a pyrometer muſt be reſorted to, before the work can be ſaid to be complete. Theſe experiments take up a conſiderable time; but great exactneſs is not to be attained without much labour. M. Berthoud gives the following dimenſions (in lines or twelfths of an inch) for the pendulum above deſcribed:

| | |
|---|---|
| Length of A C, B D, from the point of ſuſpenſion to the bottom of the frame - - | 474 lines. |
| E G, F H, from beneath the ſhoulders to the bottom of that frame - - - - | 427 |
| K L, from underneath the ſhoulders - - | 396 |
| Length of P P and P P - - - - | 438 |
| Length of R R and R R - - - - - | 355 |

M. Berthoud farther obſerves, that the thickneſs of the frames and bars muſt bear a certain proportion to the weight of the bob of the pendulum. He found that a compenſation-pendulum, which had a ball or bob of 63lbs. did indeed dilate with heat; but that afterwards the condenſation by cold did not take place in the ſame proportion. A pendulum ſuch as we have deſcribed may carry a bob of 24lbs. without danger of ſtraining the compenſation-bars, provided they are made of the following thickneſſes: A C, B D, E G, and F H, each 3½ lines; P P, R R, and K L, each 4½ lines; or perhaps it might be well to make K L ſomewhat thicker, eſpecially if a bob of 24lbs. be appended. It is neceſſary that the bars or rods ſhould be exactly parallel, that their motions upward and downward may be as free as poſſible: they ſhould be poliſhed, to leſſen the friction. The pieces marked S S ſhould be made large enough, ſo as not to confine the bars, nor ſuffer them to be too looſe. Mr. Cumming obſerves, that round bars or wires are much preferable to ſquare bars, in conſtructing gridirons, as there is a more equal and free admiſſion of air to each wire, to promote which the wires ſhould never ſtand cloſe together; for gridirons compoſed of ſquare bars cloſely fitted to each other, partake in ſome degree of the inconvenience of immoveable thermometers, though not to ſuch a degree as where hollow cylinders are uſed.

*Arnold's Gridiron Pendulum.* This pendulum conſiſts of only five bars, three of ſteel and two of zink. As the dilatation of zink is very conſiderable, (double that of ſteel,) theſe two rods will be ſufficient for the purpoſe; but, as zink is not ſo ſtrong as copper, the rods or bars muſt be made ſo thick as not to be acted upon by the weight of the bob. This pendulum is ſhown ſhortened at fig. 34. A A *a* is a cylindrical rod of ſteel, to which the ball or bob is ſuſpended; only part of this rod can be ſeen in the engraving; this rod moves freely in the croſs-piece L; its lower extremity enters a hole pierced in the piece K K, and is faſtened to it by a pin *a*. The two zink rods B B *b*, B B *b*, are alſo faſtened at their lower extremity to K K by the pins *b b*; and their upper ends are let into the piece L, to which they are ſecurely fixed by the pins *g g*. The two rods C C *c*, C C *c*, are of ſteel, fixed at top to the piece L by the pins *d d*, and below to F by the pins *c*, *c*. The croſs-piece H is fixed to the two outer rods by the pins *e*, *e*; and the three inner rods have a free motion in this piece. The bob E is alſo free to riſe and fall; being ſuſtained and fixed to the compenſation-rods by the ſcrew D, which works in the piece F. This ſcrew has a cylindrical head G, divided in the manner ſhown in the figure: theſe diviſions ſhow, by means of the upper index *k*, how much the bob is raiſed or let down. The graduated flat ſcale M ſhows the extent of the arcs of vibration, having over it the lower index *m*.

The action of the compenſation-rods is upon the ſame principle as that of the other gridiron-pendulum. Heat cauſes A A *a* to lengthen; but, being ſuſpended above, it lengthens downwards, and makes the piece K K deſcend a little. The rods B B *b*, B B *b*, lengthen more than A A *a*; and, being alſo faſtened to K K, their dilatation acts upwards, againſt the croſs-piece L, to which they are alſo faſtened, and raiſes it a little. The outer rods, being in like manner faſtened to L, riſe at the ſame time, notwithſtanding their dilatation, juſt enough to keep the piece F ſtill at the ſame diſtance from the point of ſuſpenſion. That the compenſation may be exact, the ſum of the dilatations of A A *a*, C C *c*, and the ſcrew F G, muſt be exactly equal to the dilatation of B B *b*. To attain this, Mr. Arnold made the different parts of this pendulum of the following dimenſions:

| | *in.* | *li.* |
|---|---|---|
| A A *a* from the point of ſuſpenſion to the lower extremity - - - - - - - | 38 | 3 |
| The zink rods B B *b*, each - - - - - | 17 | 2 |
| The ſteel rods C C *c*, each - - - - | 17 | 10 |
| Diameter of the ball - - - - - | 7 | 1 |

The zink rods ſhould be nearly twice the diameter of the ſteel ones, to avoid ſtraining. Mr. Arnold ſuſpends his pendulums by a gold ſpring: it is likely that a knife-edge ſuſpenſion would anſwer the purpoſe better. Upon the whole, the ſimplicity of this ingenious contrivance is much in its favour; and the difficulty of adjuſtment is not ſo great as in the common gridiron pendulum with nine bars. The principal objections to this mode of compenſation are, 1ſt. The difficulty of exactly adjuſting the lengths of the rods. 2dly. Of proportioning their thickneſs, ſo that they ſhall all begin to expand or contract at the ſame inſtant. 3dly. The connecting bars of a pendulum thus conſtructed are apt to move by ſtarts. 4thly. This kind of pendulum is more expoſed to the air's reſiſtance than a ſimple pendulum.

In Voigt's *Magazin fuer den neveſten Zuſtande de Naturkunde*, vol. iv. are deſcribed the gridiron-pendulums of Mr. Benzenberg, which are compoſed of *lead* and *iron*. Mr. B. was induced to employ lead on account of its great dilatability, which is to iron as 2·57 to 1, ſo that 16·5 inches of lead compenſate 1·3 of iron; and he choſe iron in preference to ſteel, becauſe eaſier to work. The compenſation was made by a ſingle rod in the centre, 16½ inches long, French meaſure, and half an inch thick. It was ſimply pinned into gorges in the croſs-piece of copper; but the other parts of the gridiron were riveted in the uſual way. The iron rods were made of the beſt thick iron wire. The materials of this pendulum are cheap, and it may be made in a couple of days. As the preſſure takes place in a vertical direction, there is no danger, according to Mr. B. of rods of theſe dimenſions bending. To correct the compenſation, the central rod of lead muſt be left ſo long that we may be ſure the compenſation is in exceſs. The quantity of error may then be found by the freezing apparatus, and how much it is requiſite to cut from the rod may be calculated with the greateſt exactneſs.

*Ward's Compenſation Pendulum* is ſimilar in principle to the above. It conſiſts of two flat rods of iron or ſteel, about half an inch wide, and an eighth of an inch thick, with a rod of zink interpoſed between them nearly a quarter of an inch thick. The corners of the iron rods are bevelled off, that they may meet with leſs reſiſtance from the air; and it likewiſe gives them a much lighter appearance. Theſe three rods are kept together by means of three or four ſcrews which paſs through two of them, and lodge in the third, beſides another ſcrew called the *adjuſting ſcrew*. The ſteel rods have a ſhoulder, one at top the other at bottom, turned at right angles, which ſupports the zink rod, and is ſupported by it. It is neceſſary to have ſeveral holes for the adjuſting ſcrew, in order to make an equal compenſation; ſo that, by removing the ſcrew one hole, it will produce an alteration in the going of the clock of about a quarter of a ſecond per day with a change of thirty degrees of Fahrenheit's thermometer. "Now it is evident, (ſays the inventor,) that, if any degree of heat or cold be applied to this compound rod, the one of zink expands and contracts as much as the two iron ones together; the diſtance from the point of ſuſpenſion to the centre of oſcillation muſt remain the ſame." In May 1807, the ſilver medal of the Society of Arts was voted to Mr. Ward, (of Blandford, Dorſet,) for the communication of this pendulum.

*Lever Pendulums.* From all that appears concerning this conſtruction of a pendulum, we are inclined to believe that the idea of making the difference of the expanſion of different metals operate by means of a lever, originated with Mr. Graham, who in the year 1737 conſtructed a pendulum, having its rod compoſed of one bar of ſteel between two of braſs, which acted upon the ſhort end of a lever, to the other end of which, the ball or weight of the pendulum was ſuſpended. This pendulum however was, upon trial, found to move by jerks; and therefore laid aſide by the inventor, to make way for the mercurial pendulum, juſt mentioned.

Mr. Short informs us, in the Philoſ. Tranſ. vol. xlvii. art. 88, that a Mr. Frotheringham, a quaker, in Lincolnſhire, cauſed a pendulum of this kind to be made: it conſiſted of two bars, one of braſs, and the other of ſteel, faſtened together by ſcrews, with levers to raiſe or let down the bulb; above which theſe levers were placed. M. Caſſini too, in the Hiſtory of the Royal Academy of Sciences at Paris, for 1741, deſcribes two ſorts of pendulums for clocks, compounded of bars of braſs and ſteel, and in which he applies a lever to raiſe or let down the bulb of the pendulum, by the expanſion or contraction of the bar of braſs.

Mr. John Ellicott alſo, in the year 1738, conſtructed a pendulum on the ſame principle, but differing from Mr. Graham's in many particulars. The rod of *Mr. Ellicott's Pendulum* was compoſed of two bars only; the one of braſs, and the other of ſteel. It had two levers, each ſuſtaining its half of the ball or weight; with a ſpring under the lower part of the ball to relieve the levers from a conſiderable part of its weight, and ſo to render their motion more ſmooth and eaſy. The one lever in Mr. Graham's conſtruction was above the ball: whereas both the levers in Mr. Ellicott's were within the ball; and each lever had an adjuſting ſcrew, to lengthen or ſhorten the lever, ſo as to render the adjuſtment the more perfect. See Cumming, p. 97, where Mr. Ellicott's methods of conſtruction are deſcribed, and illuſtrated by figures.

Notwithſtanding the great ingenuity diſplayed by theſe very eminent artiſts on this conſtruction, it muſt farther be obſerved, that Mr. Cumming has given an ample deſcription, with plates, of a conſtruction of a pendulum with levers, in which it ſeems he has united the properties of Mr. Graham's and Mr. Ellicott's, without being liable to any of the defects of either. The rod of *Cumming's Pendulum* is compoſed of one flat bar of braſs, and two of ſteel; he uſes three levers within the ball of the pendulum; and, among many other ingenious contrivances for the more accurate adjuſting of this pendulum to mean time, it is provided with a ſmall ball and ſcrew below the principal ball or weight, one entire revolution of which on its ſcrew will only alter the rate of the clock's going one ſecond per day; and its circumference is divided into 30, one of which diviſions will therefore alter its rate of going one ſecond in a month.

Another excellent contrivance for the ſame purpoſe is deſcribed by M. Thiout, a French author on clock-making. It was uſed in the north of England by an ingenious artiſt about forty years ago. This invention is as follows: A bar of the ſame metal with the rod of the pendulum, and of the ſame dimenſions, is placed againſt the back-part of the clock-caſe: from the top of this a part projects, to which the upper part of the pendulum is connected by two fine pliable chains or ſilken ſtrings, which juſt below paſs between two plates of braſs, whoſe lower edges will always terminate the length of the pendulum at the upper end. Theſe plates are ſupported on a pedeſtal fixed to the back of the caſe. The bar reſts upon an immoveable baſe at the lower part of the caſe; and is inſerted into a groove, by which means it is always retained in the ſame poſition. From this conſtruction, it is evident that the extenſion or contraction of this bar, and of the rod of the pendulum, will be equal, and in contrary directions. For, ſuppoſe the rod of the pendulum to be expanded any given quantity by heat; then, as the lower end of the bar reſts upon a fixed point, the bar will be expanded upwards, and raiſe the upper end of the pendulum juſt as much as its length was increaſed; and hence its length below the plates will be the ſame as before.

Of this pendulum, ſomewhat improved by Mr. Croſthwaite, watch and clock-maker, Dublin, we have the following deſcription in the Tranſactions of the Royal Iriſh Academy, 1788.—"A and B, (fig. 35.) are two rods of ſteel forged out of the ſame bar, at the ſame time, of the ſame temper, and in every reſpect ſimilar. On the top of B is formed a gibbet C; this rod is firmly ſupported by a ſteel bracket D, fixed on a large piece of marble E, firmly ſet into the wall FF, and having liberty to move freely upwards between croſs ſtaples of braſs, 1, 2, 3, 4, which touch only in a point in front and rear (the ſtaples having been carefully formed for that purpoſe); to the other rod is firmly fixed by its centre the bob G, of 24 pounds weight, although it ſhould in ſtrictneſs be a little below it. This pendulum is ſuſpended by a ſhort ſteel ſpring on the gibbet at C; all which is entirely independent of the clock. To the back of the clock-plate I, are firmly ſcrewed two cheeks nearly cycloidal at K, exactly in a line with the centre of the verge L. The maintaining power is applied by a cylindrical ſteel-ſtud, in the uſual way of regulators, at M. Now, it is very evident, that any expanſion or contraction that takes place in either of theſe exactly ſimilar rods, is inſtantly counteracted by the other; whereas in all *compenſation*-pendulums compoſed of different materials, however juſt calculation may ſeem to be, that can never be the caſe, as not only different metals, but alſo different bars of the ſame metal that are not manufactured at the ſame time, and exactly in the ſame manner, are found by a good pyrometer to differ materially in their degrees of expanſion and contraction, a very ſmall change affecting one and not the other."

In the ſame paper of the Iriſh Tranſactions, Mr. Croſthwaite deſcribes another pendulum of his invention; and alſo a very ingenious contrivance by which the maintaining power is applied immediately from the ſcapement-wheel to the axis of the pendulum, by means of a notch cut into the pendulum-rod itſelf, but deeper than its axis, in which the ſcapement-wheel is made to act exactly in the line of the centres of magnitude, oſcillation, ſuſpenſion, motion, and gravity.

Mr. Edward Troughton has lately invented a *tubular pendulum*, which acts on the principle of the gridiron pendulum: in this conſtruction the apparent rod is a tube of braſs reaching from the bob nearly to the top; this contains another tube and five wires in its belly, ſo diſpoſed as to produce all together (like the nine-bar gridiron of Harriſon) three expanſions of ſteel downwards, and two of braſs upwards; whoſe lengths being inverſely proportioned to their dilatation, when properly combined, deſtroy the whole effect that either metal would have ſingly. The ſmall viſible part of the rod near the top is a braſs tube, whoſe uſe is to cover the upper end of the middle wire, which is ſingle, and otherwiſe unſupported. This pendulum we have great reaſon to believe will ſhortly ſuperſede all the other compenſation-pendulums that have preceded it, on account of its poſſeſſing the following properties almoſt excluſively: firſt, it has all the advantages of oppoſite expanſions which the common gridiron pendulum poſſeſſes; ſecondly, the arrangement of the metallic parts gives it the ſimplicity in appearance of a ſingle rod, as well as a diminiſhed reſiſtance of the air in its vibrations; thirdly, it has great ſtrength without much weight above the ball; fourthly, its centre of oſcillation, compared with the centre of the ball, or with the centre of gravity, may conſequently be very nearly determined; fifthly, the motions of the compenſating parts upwards and downwards are not affected by jerks, but are progreſſive and ſteady, while yet the parts are ſufficiently braced to preſerve their relative ſituations and figures; ſixthly, the compenſation not only includes the ſpring of ſuſpenſion, and is adjuſtable for temperature, but has its adjuſtment for temperature made, independently of the rate of going, by a new pyrometer of great ſenſibility, and free from the uſual objections againſt pyrometers; ſeventhly, it is capable of being put into beat without altering the ſhape of the crutch or of any other part; and, laſtly, it is capable of adjuſtment for rate even while going.

*The Angular Pendulum* is formed of two pieces or legs like a ſection, and is ſuſpended by the angular point. This pendulum was invented with a view to diminiſh the length of the common pendulum, but at the ſame time to preſerve or even increaſe the time of vibration. In this pendulum the time of vibration depends on the length of the legs, and on the angle contained between them conjointly, the duration of the time of vibration increaſing with the angle. Hence a pendulum of this conſtruction may be made to oſcillate in any given time. At the lower extremity of each leg of the pendulum is a ball or bob as uſual. It may be eaſily ſhown, that in this kind of a pendulum, the ſquares of the times of vibration are as the ſecants of half the angle contained by the legs: hence, if a pendulum of this conſtruction vibrates half ſeconds when its legs are cloſe, it will vibrate whole ſeconds when the legs are opened, ſo as to contain an angle equal to 151° 2½′.

*Triangular Pendulum.* In the year 1807, Mr. Rigo laid before the Royal Society a propoſal for a new compenſation-pendulum. In the courſe of various experiments, he diſcovered, that of all modes of compenſation, that of triangles is the beſt. He accordingly conſtructed one in the triangular form, the two ſides being of ſteel, and the baſe of braſs, or of zink, which expands twice as much as ſteel; and hence the expanſion of the ſides is properly counteracted by that of the baſe. In this way Mr. Rigo affirms that pendulums may be conſtructed of any ſeries of triangles, that would continue the ſame length throughout all climates and ſeaſons. The idea appears very ingenious, and the principle true; but we have not heard of any actual experiments to aſcertain the utility or correctneſs of it in practice.

*The Conical or Circular Pendulum,* is ſo called from the figure deſcribed by the ſtring or ball of the pendulum. This pendulum was invented by Mr. Huygens, and is alſo claimed by Dr. Hook. In order to underſtand the principles of this pendulum, it will be neceſſary to premiſe the following lemma, viz. The times of all the circular revolutions of a heavy globular body, revolving within an inverted hollow paraboloid, will be equal whatever be the radii of the circles deſcribed by that body. In order, therefore, to conſtruct the pendulum ſo that its ball may always deſcribe its revolutions in a paraboloid ſurface, it will be neceſſary that the rod of the pendulum be flexible, and that it be ſuſpended in ſuch a manner as to form the evolute of the given parabola. Hence, let K H, (fig. 36,) be an axis perpendicular to the horizon, having a pinion at K moved by the laſt wheel in the train of the clock; and a hardened ſteel point at H moving in an agate pivot, to render the motion as free as poſſible. Now, let it be required that the pendulum ſhall perform each revolution in a ſecond, then the paraboloid ſurface it moves in muſt be ſuch whoſe *latus rectum* is double the length of the common half-ſecond pendulum. Let O be the focus of the parabola M E C, and M C the *latus rectum*; then make $AE = MO = \frac{1}{2} MC =$ the length of a common half-ſecond pendulum. At the point A of the verge, let a thin plate A B be fixed at one end, and at the other end B let it be faſtened to a bar or arm B D perpendicular to D H, and to which it is fixed at the point D. The figure of the plate A B is that of the evolute of the given parabola M E C. The ſtring of the pendulum muſt be of ſuch a length that when one end is fixed at B, it may lie over the plate A B, and then hang perpendicular from it, ſo that the centre of the bob may be at E when at reſt. Now, the verge K H being put into motion, the ball of the pendulum will begin to gyrate, and thereby conceive a centrifugal force which will carry it out from the axis to ſome point F, where it will circulate ſeconds or half-ſeconds, according as the line A E is 9·8 inches or 2¼ inches, and A B anſwerable to it. One advantage poſſeſſed by a clock having a pendulum of this conſtruction is, that the ſecond-hand moves in a regular and uniform manner, without being ſubject to thoſe jerks or ſtarts as in common clocks; and the pendulum is entirely ſilent.

*Balance Pendulum.* Beſides the effects of heat and cold on the length of the pendulum-rod, and of courſe on its iſochroniſm, it may certainly be worth while, in the conſtruction of clocks intended to meaſure time with the utmoſt poſſible exactneſs, to take into conſideration the reſiſtance of the air, which, by its unequal denſity, varying the weight of the pendulum, muſt in a ſmall degree accelerate or retard its motion. The celebrated David Rittenhouſe, who paid particular attention to this ſubject, eſtimates the extreme difference of velocity, ariſing from this cauſe, at half a ſecond a-day; and he obſerves, that a remedy dependent on the barometer will not be ſtrictly accurate, as the weight of the entire column of air does not preciſely correſpond with the denſity of its baſe. He propoſes, therefore, as a very ſimple and eaſy remedy, that the pendulum ſhall, as uſual, conſiſt of an inflexible rod carrying the ball beneath, and continued above the centre of ſuſpenſion to an equal (or an unequal) diſtance upwards: At this extremity is to be fixed another ball of the ſame dimenſions (or greater or leſs, according as the continuation is ſhorter or longer), but made as light as poſſible. The oſcillations of this upper ball will be accelerated by its buoyancy by the ſame quantity as thoſe of the lower would be retarded; and thus, by a proper adjuſtment, the two effects might be made to balance and correct each other. Our author made a compound pendulum on theſe principles, of about one foot in its whole length. This pendulum, on many trials, made in the air 57 vibrations in a minute. On immerſing the whole in water, it made 59 vibrations in the ſame time; ſhowing evidently, that its returns were quicker in ſo denſe a medium as water than in the air. (This is contrary to what takes place with the common pendulum.) When the lower bob or pendulum only was plunged in water, it made no more than 44 vibrations in a minute.

*Wooden Pendulums.*—The expanſion or contraction of ſtraight-grained fir-wood lengthwiſe, by change of temperature, is ſo ſmall, that it is found to make very good pendulumdulum-rods. The wood called *Japadillo* is ſaid to be ſtill better. There is good reaſon to believe, that the previous baking, varniſhing, gilding, or ſoaking of theſe woods in any melted matter, only tends to impair the property that renders them valuable. They ſhould be ſimply rubbed on the outſide with wax and a cloth. In pendulums of this conſtruction the error is greatly diminiſhed, but not taken away.

*Kater's Pendulum.* This is a compenſation-pendulum deſcribed by lieutenant Kater in Nicholſon's Philoſophical Journal, vol. xx. p. 214.—The principal novelty in this pendulum is, that, inſtead of the various expanſions of different metals being made to compenſate each other, as in other pendulums of this deſcription, in it the expanſion of a deal rod is compenſated by that of a zink tube or frame, about ten inches long.

Two methods of applying the zink are deſcribed: In the firſt it is caſt into the form of a frame, ten inches high, two inches broad at the bottom, and one inch at the top, which is ſcrewed to the cock of the time-piece in a vertical poſition. In the top of this frame, to regulate its length, a thick ſcrew of zink, with a fine ſpiral, is inſerted vertically, through a braſs plate half an inch thick, ſoldered to the frame and tapped to receive it, which has about a quarter of an inch of its top filed ſquare, to admit an inſtrument being applied to turn it; this zink ſcrew has a hole drilled through it lengthways, through which a ſteel wire-ſcrew paſſes freely from the ſuſpending ſpring of the pendulum, and is ſecured by a moveable nut reſting on the top of the zink ſcrew. The ſuſpending ſpring paſſes through a ſlit in a braſs plate on which the zink frame reſts, and through a hole in the bottom of this frame, and is faſtened to a ſlit in the lower end of the ſteel wire by a tranſverſe pin. The ſteel-wire ſcrew regulates the length of the pendulum, as the zink ſcrew does that of the zink compenſation: a thin nut of braſs is added to this latter ſcrew above the zink frame, to fix it more ſteadily at the deſired height.

In the ſecond method of applying the zink compenſation, a ſquare tube of zink, ſeven inches long, three quarters of an inch in diameter outſide, and four-tenths of an inch inſide, ſurrounds the lower end of the deal rod of the pendulum, to the extremity of which it is connected by a zink ſcrew and ſteel ſcrew, for the ſame purpoſes of regulation as in the firſt method, but in a reverſed poſition. The zink ſcrew has a ſmall octagonal plate of braſs ſoldered at its lower end to prevent injury from the nut of the ſteel ſcrew on which it reſts, and to form a ſort of index for dividing each revolution of the ſcrew, and of the nut, into eight parts. The zink tube, which riſes upwards from the nut, paſſes freely into the centre of the weight or bob of the pendulum, through a hole made ſo as to let it ſlide as it expands, but cloſe enough to prevent a ſhake; at its upper end it is faſtened to the centre of the bob by means of two grooves cut in its ſides; correſponding to which two ſimilar grooves are made in the ſides of the perforation of the bob, into the cavity formed by which melted lead is poured, after which the external plates of the bob are faſtened together.

The pendulum-rod, for both methods, is made of white deal, three quarters of an inch broad, and four-tenths of an inch thick, well-ſeaſoned, ſtraight-grained, and perfectly free from knots, baked in an oven till its outward ſurface became a little charred, then cleaned and coated ſeveral times with copal varniſh, and having its ends dipped in melted ſealing-wax, to exclude all moiſture, which it is of the greateſt importance to the perfection of the rod to repel perfectly. A cut is made at the top of the rod by a fine ſaw, to receive the end of the ſuſpending ſpring, where it is ſecured by two or three ſmall pins paſſing through both. When the ſecond mode of applying the zink is uſed, the lower end of the deal rod is cut at the ſides ſo as to ſlide freely in the zink tube, and at its extremity a braſs cap is faſtened, from the bottom of which proceeds the deal ſcrew, before deſcribed, by which the zink tube and the bob are ſuſtained.

The deal rod was found by experiments with a pyrometer to expand in one foot 0·0049 parts of an inch with 180° difference of temperature; the expanſion of zink Mr. Kater computes to be to that of deal as 353 to 49, and to that of ſteel as 353 to 147. And reckoning the ſteel ſcrew to be 12·5 inches long, the ſteel ſuſpending-ſpring 3 inches, and the deal rod 37 inches long, in the firſt method, he calculates that the proper length of the zink to compenſate the expanſions of theſe ſeveral parts ſhould be 10·3 inches: and in the ſecond method, reckoning the part of the ſteel ſcrew included between the nut and the end of the rod to be two inches long, the ſuſpending ſteel ſpring to be one inch long, and the deal rod to be 44·5 inches long, he computes that the zink compenſation ſhould be 7·42 inches long.

Mr. Kater attaches a ſmall weight below the bob, when he wiſhes to regulate the pendulum to the greateſt nicety in the ſecond method; which he thinks would be ſuperior to the firſt, in being more ſimple and having the compenſation ſhorter, if the zink tube in it was not excluded from the free contact of the atmoſphere, by being included in the bob of the pendulum. But the objection to this ſecond method might perhaps be obviated by leaving an open paſſage for the air in the lead of the bob round the zink tube, and preſerving the ſteadineſs of its motion by blunt points, or other ſmall ſmooth ſurfaces, or by ſmall friction-wheels, projecting from the ſides of the aperture.

It would moreover tend much to complete information on this ſubject, if the earthenware rods for pendulums, propoſed by Mr. Troughton, were tried in the ſame accurate manner in which the deal rods have been by lieut. Kater. The principle on which Mr. Troughton recommended rods of pottery was, the permanent contraction obſerved in this ſubſtance by Mr. Wedgewood at a given temperature. Rods of pottery would have the advantage of rods of deal in not being liable to be affected by damp.

## Of the BALANCE.

The balance is the regulator of portable time-pieces, or watches, as the pendulum is of fixed machines, or clocks. The balance is a circular body, concentric with its axis, and perfectly in equilibrium in every poſition. The extremities of the axis terminate in pivots, which, by moving in holes of a convenient ſize, facilitate the motion of the balance. The pendulum vibrates by means of a weight; the balance by the effect of a very elaſtic ſpiral ſpring, the inner coil of which is pinned to a collar juſt beneath the balance itſelf; and the outer coil of the ſpiral is pinned to a perforated piece, or ſtud, fixed on the upper plate.

It appears from the teſtimony of hiſtorical accounts, as well as other evidences, that the balance was univerſally adopted in the conſtruction of the firſt clocks and watches; nor was it till the year 1657, that Mr. Huygens united pendulums with clock-work. In watches of early conſtruction, the balance vibrated merely by the impulſes of the wheels, without any other control or regulation; the motion communicated to the balance by one impulſe continued till it was deſtroyed, partly by friction, and partly by a ſucceeding impulſe in the oppoſite direction; and therefore the vibrations muſt, of courſe, have been very unſteady and irregular. Theſe imperfections were in a great meaſure remedied by Dr. Hooke's ingenious invention of applying a ſpiral ſpring to the balance, the action of which on the balance of a watch is ſimilar to that of gravity on a pendulum; each kind of force having the effect of correcting the irregularities of impulſe and reſiſtance which otherwiſe diſturb the iſochroniſm of the vibrations. In clocks and watches, the real meaſure of time is the balance, and all the other work ſerves merely to continue the motion of the balance, and to indicate the time as meaſured by its vibrations.

The balance, being once ſet in motion, would continue to oſcillate for ever, if the reſiſtance of the air, and the friction of the pivots in their holes, were not by little and little to deſtroy that motion. To perpetuate the motion of the balance we muſt therefore have ſome exterior force, ſome *maintaining power*, to repair the loſs of motion; and this power muſt be in proportion to the greater or leſs reſiſtance of the air, and the greater or leſs friction of the pivots in their holes. By reducing friction and the reſiſtance of the air to a ſmall quantity, the motion of the balance will be continued by the help of very little reparative power; and thus the *natural* vibrations of the balance are leſs diſturbed, and time more exactly meaſured. Our object therefore is ſo to diſpoſe the balance as to reduce friction and the reſiſtance of the air to the ſmalleſt quantity poſſible; without, however, loſing ſight of various other properties of the balance neceſſary to the correct meaſurement of time.

We are greatly indebted to Monſ. F. Berthoud for the eſtabliſhment of ſound principles on the ſubject of the balance, as well as of the pendulum. He it was who firſt proved that it is not a matter of indifference whether the vibrations are quick or ſlow, the balance large or ſmall, light or heavy, &c.

A portable time-keeper, or watch, is expoſed to exterior motions or agitations which have an influence upon the vibrations of the balance, and upon the extent of their arcs. Suppoſing external motion to be in the ſame plane with the motion of the balance, it is evident that the arcs of vibration muſt be of greater or leſs extent according to the direction of the external motion. The meaſure of time is moſt exact when the vibrations are equal; and it is neceſſary therefore to make them as equal as poſſible. Perfectly equal, ſo as to annihilate the influence of external agitations, we cannot make them: but we have the means of attaining a very great degree of exactneſs.

Suppoſe a balance to make two vibrations in a ſecond, the arc of vibration to be 175°, and the external motion of the watch, on the ſame plane with the watch 25° in half a ſecond: it is evident that the motion of the balance is 7 times as ſtrong as that of the whole machine, conſequently the arcs of vibration cannot be increaſed or diminiſhed more than one ſeventh: the largeſt vibrations then will be 200°, the ſmalleſt 150°. But, if we ſuppoſe the balance to make four vibrations in a ſecond, with arcs of the ſame extent as before, we ſhall then find that the arcs of vibration cannot be increaſed or diminiſhed more than one fourteenth part, for the motion of the balance will be 14 times as ſtrong as that of the watch, and the largeſt arcs will be 187½, the ſmalleſt 163½. Upon our firſt ſuppoſition, the arcs might vary in extent 50 degrees; upon our ſecond, only 25. Hence we may draw this concluſion: "That, by increaſing the number of vibrations, the extent of the arcs remaining the ſame, we diminiſh the influence of the agitations of the watch, or the effect of exterior motion; and that, generally, the ſwifter the balance moves, the better it will reſiſt the effects of exterior agitation upon the whole machine."

Notwithſtanding the truth of the foregoing Rule, the number of vibrations and the velocity of the balance muſt be confined within certain limits; for experience has ſhown, that extremely-quick vibrations would increaſe friction ſo much, as preſently to deſtroy the different parts of the machine. A medium therefore muſt be obſerved; and experiment has ſhown wherein that medium conſiſts; namely, "To allow the balance to make not more than 5, nor leſs than 4, vibrations in a ſecond." Five vibrations may be allowed for machines expoſed to much agitation; and four for ſuch as are merely carried in a gentle manner. Our Engliſh chronometers and marine watches, ſo juſtly celebrated, commonly make 5 vibrations in a ſecond, (or 18000 in an hour;) ſometimes 4 only, but never leſs. As to the extent of the arc of vibration, that will vary according to the nature of the ſcapement. It is always deſirable that it ſhould reach from 180 to 200 degrees: ſometimes it will be neceſſary to have a larger arc; of which we ſhall have occaſion to ſpeak hereafter.

Before we inquire into the means for diminiſhing the friction in the pivots of the balance, it is neceſſary to ſhow what is meant by the *quantity of motion* in a balance. Two things are to be conſidered, the weight of the balance, and its velocity. It is not generally agreed whether the quantity of motion in a balance be in proportion to the product of the weight and the velocity, or in proportion to the weight and the ſquare of the velocity; M. Berthoud reckons the quantity of motion from the ſquare of the velocity; and, ſince his theory of the iſochroniſm of the ſpiral ſpring is founded upon this principle, and ſince, by the application of his theory he has been able to render equal the vibrations of unequal arcs, we think we may venture to aſſume it as a Rule, that "The maſs or weight of the balance multiplied by the ſquare of the velocity gives the quantity of motion."

The quantity of motion of the balance ought to be the greateſt poſſible, regard being had to the friction of its pivots; for by the quantity of motion friction is overcome. Now the ſame quantity of motion may be imparted to the balance in two different ways: by a greater weight and leſs velocity, or by a greater velocity and leſs weight. Suppoſe the weight of a balance to be 16, and its velocity 16 alſo: the quantity of motion (by the Rule) will be $16\times16^2=4096$. Suppoſing the weight of another balance equal to 4 only, and its velocity to 32: the quantity of motion will be $4\times32^2=4096$, as upon the firſt ſuppoſition.

We have next to inquire which will moſt conduce to leſſen the friction, increaſing the weight of the balance, or increaſing the velocity of the vibrations. To this end, let us ſuppoſe the velocity of one balance equal to 3, and of another equal to 4; the weight of the former being 16, and of the latter 9: it is evident theſe two balances will have the ſame quantity of motion; for $3^2\times16=4^2\times9=144$. It is known that the degrees of friction are nearly as the ſpaces deſcribed multiplied by the weight of the maſſes; conſequently the friction of the firſt balance may be expreſſed by $3\times16$, and that of the ſecond by $4\times9$. The quantity of motion in the firſt balance is to the friction as 144 to $3\times16$, or 48; and in the ſecond as 144 to $4\times9$, or 36. Hence, "There is leſs friction with a light balance and great velocity than with a heavier balance and leſs velocity."

Beſides this, with a heavy balance it is more difficult to regulate a watch, or adjuſt it to time, in the different poſitions. In the horizontal poſition, the pivots of the balance have leſs friction, ſince the friction can take place but juſt upon the end of the lower pivot which ſupports the balance; if the watch therefore be regulated in the vertical poſition, it will gain in the horizontal. In the vertical poſition, on the contrary, the friction of the pivots of the balance increaſes, for both pivots rub through their whole length againſt the ſides of the holes; and the watch, if it has been regulated in the horizontal poſition, will now loſe time. And it is very evident, that this variation muſt be much greater with a heavy balance. Such a balance therefore can be advantageous only in time-pieces which are never moved out of the horizontal poſition.

It remains to conſider whether the *diameter* of the balance has any influence upon friction. Let us then ſuppoſe two balances of equal weight, but of different diameters, their extremities deſcribing ſpaces of equal extent. (By equal ſpaces we do not mean the ſame number of degrees of a circle; for, if the diameter of one balance were double that of the other, to deſcribe equal ſpaces the ſmaller balance muſt paſs through twice as many degrees as the large one.) Now it is evident, that, though the extent of ſpace be the ſame for each balance, yet the pivots of the large balance will move through leſs ſpace than thoſe of the ſmall one; that is to ſay, only half the ſpace if the larger balance be double the diameter of the ſmall one. It is proved alſo, that "the frictions are in proportion to the ſpaces deſcribed and the weight of the maſſes." The weight being, upon our ſuppoſition, the ſame, the frictions are as the ſpaces deſcribed;

ſcribed; and, ſince the ſpace deſcribed by the pivots of the large balance is leſs than that deſcribed by the ſmall one, we may conclude, that, "Of two balances of equal weights, but of different diameters, the balance with a large diameter has the leſs friction."

We have ſeen that a due proportion between the weight, the velocity, and the ſize, of the balance, contributes greatly to annihilate, or at leaſt to leſſen, friction. Let us now conſider the means of leſſening friction in the pivots themſelves. Experiment has proved, that large pivots occaſion more friction than ſmall ones, and this in proportion to their diameters. We know alſo, that the length of the pivots does not ſenſibly increaſe friction; that ſmooth and well-poliſhed bodies produce leſs friction than thoſe with uneven ſurfaces; that hard bodies are moſt capable of receiving ſuch poliſh; alſo that friction is diminiſhed when the bodies in contact are made of different materials, (this rule is not without exceptions,) and if oil be introduced between them. Hence we have the following Rules:

1. That pivots of a ſmall diameter occaſion the leaſt friction; and that we ſhould make the pivots as ſmall in diameter as the material and a proper degree of ſtrength will admit.—Remark. A pivot of ſmall diameter wears away the pivot-hole ſooner; but this may be remedied by making the pivot and the hole longer; for we know that the length of the pivot does not ſenſibly increaſe friction, and a long pivot ſuffers leſs preſſure of its different parts in proportion to its length, and conſequently preſſes leſs againſt the different parts of the hole.

2. That the pivots and pivot-holes ſhould be poliſhed as highly as poſſible; as not only friction is thereby leſſened, but the parts are longer in wearing out.

3. That friction is diminiſhed by making the pivots of a different material from the holes; e. g. the pivots tempered ſteel, and the holes of braſs, or of gold well hardened, or (ſtill better) of diamonds. There is another very ingenious method of leſſening friction at the pivots of the balance, which is by means of *rollers*, of which H. Sully, an Engliſhman, is ſaid to be the inventor. It has been uſed by Monſ. Berthoud and Mr. Mudge with much ſucceſs; but has been laid aſide ſince the adoption of perforated jewels for pivot-holes, which is a ſimple and elegant method.

4. To keep the different parts from corroding, and to promote a free motion of the pivots in their holes, oil is uſed, which ought to be the cleareſt and pureſt olive-oil.

5. As the balance-ſpring might greatly increaſe friction if it preſſed the pivots with too much force againſt the ſides of the holes, to avoid that inconvenience, the centre of the ſpring and that of the balance, or the pivot, muſt be abſolutely united in one and the ſame point.

It remains only to ſpeak of the reſiſtance of the air. This, we have ſeen, is not a matter of indifference in the conſtruction of a pendulum; nor can it be ſo in the formation of a balance. But in this latter caſe we have ſome difficulties to ſurmount which did not occur in the former. We cannot reduce the reſiſtance of the air to a very ſmall quantity without increaſing friction, the effects of which are infinitely more injurious to the regularity of the motions of the balance than the reſiſtance of the air. The reſiſtance of the air increaſes with the reſiſting ſurfaces; yet we have ſhown that it is adviſeable to make the balance of a large diameter in order to leſſen friction. Taking therefore into conſideration that we muſt not attempt to leſſen the reſiſtance of the air by making ſhorter vibrations and a ſmaller balance, it only remains for us to make the balance preſent a ſurface as ſmall as may be. To this end the balance ſhould be made of a metal of the greateſt ſpecific weight poſſible: the newly-diſcovered metal called platina is the moſt advantageous; next to platina, gold; next to gold, braſs: but our balances are uſually made of ſteel. There are other metals of a greater ſpecific weight than braſs, but they fail in the needful quality of conſiſtence. As to the ſhape of the balance, that is to be preferred which contains the moſt matter, or largeſt maſs, in the ſmalleſt ſpace: this, no doubt, is the circular form. The three bars which go from the centre to the ring ſhould be ſharp-edged, in order to preſent a ſmall reſiſtance to the air.

That the balances of watches, when manufactured of ſteel, as they generally are, might be in a ſmall degree *magnetic*, and that this property might have ſome influence in diſturbing their vibrations, ſome have ſuſpected, and others have denied; but Mr. Varley has lately (ſee Phil. Mag. vol. i. p. 18.) pointed out a ſource of error which has been hitherto little, if at all, apprehended; and this is the *polarity* of the balance, or tendency of a particular point to the north; and of an oppoſite point to the ſouth, ſo ſtrong as to be ſufficient materially to alter the rate of going of the machine, when put in different poſitions. If this cauſe of error had been known, the uſe of ſteel balances would have been laid aſide long ago, particularly where accurate performance is indiſpenſable, as in timepieces for aſtronomical and nautical purpoſes. Mr. Varley, having aſcertained the fact, and knowing the poſition of the poles, proceeded to examine the effects produced by this cauſe upon the watch's rate of going. Having put on the ſpring, and replaced the balance in the watch, he laid the watch with the dial upwards, that is, with the plane of the balance horizontally, and in ſuch a poſition that the balance when at its place of reſt ſhould have its marked ſide towards the north; in this ſituation it gained 5′ 35″ in 24 hours. He then changed its poſition, ſo that the marked ſide of the balance when at reſt ſhould be towards the ſouth, and in 24 hours it loſt 6′ 48″; producing, by its change of poſition only, a difference of 12′ 23″ in its rate. This difference muſt be ſtill further augmented or diminiſhed as the wearer might happen to carry in his waiſtcoat pocket, a key, a knife, or any other article made of ſteel. Subſtituting, in the room of the ſteel-balance, one made of gold, he found that the watch's rate of going was as uniform as that of any watch on the like conſtruction.

When we have reduced friction and the reſiſtance of the air to the leaſt poſſible quantity, beſides having employed the means proper for annihilating, as nearly as poſſible, the influence of exterior motion, the balance has acquired a great degree of preciſion as a meaſurer of time. When greater preciſion is required, it behoves us to conſider the influence of temperature upon the balance, and to ſeek for methods of producing a *compenſation* for the effect of heat and of cold upon the duration and extent of the vibrations.

The oppoſition of two natural effects, produced by an artificial arrangement of the acting parts, is very properly called the *compenſation*, which has been effected in various ways. The moſt ſimple compenſation that has been produced in a machine for meaſuring time, is that which depends upon the variable fluidity of the oil applied to the pivot-holes of the balance-arbor, and of the other arbors of a watch: oil, it is well known, however good, is more fluid in hot weather than in cold, and therefore diminiſhes the friction at the pivots more in ſummer than in winter, the conſequence of which variation in the friction of a watch with the ordinary crown-wheel eſcapement, would have its rate accelerated in the former ſeaſon, and retarded in the latter, by this ſimple cauſe, if there were no compenſating property in the ſtructure of ſome part of the mechaniſm; but this property naturally exiſts in the balance and balance-ſpring, both which are ſubject to have their dimenſions enlarged by heat, and contracted by cold; and theſe changes alternately occaſion retardations and accelerations in the rate of going; but in ſuch a way, that, when the watch is diſpoſed to have its rate accelerated by the moſt fluid ſtate of the oil, it is alſo diſpoſed to have the ſame retarded by the contemporary enlargement of the balance and balance-ſpring; hence the quantity that one of theſe diſpoſitions prevails over the other in any watch, when regulated to mean time at a mean temperature, conſtitutes its liability to vary its rate of going in different months of the year. Berthoud, who attempted to proportion the thickneſs of his pivots to ſuit the oil with a given balance, ſo as to produce an approximation towards a good compenſation, has called this the *natural compenſation*, which is a very proper appellation, as it exiſts in a certain degree in all chronometers and watches that have oil applied to them. This natural compenſation, however, is found to be a very imperfect one, and unfortunately interferes with the effects produced by the better compenſations, which, in oppoſition to this, may be called the *artificial compenſations*. To baniſh the interference of the variable effects produced by oil, is one of the difficulties, and indeed now the principal one, that oppoſes the efforts of the chronometer-maker, to make the action of his mechaniſm permanently uniform.

To underſtand the effect of a *compenſation-balance*, we muſt be acquainted with the nature and uſe of the curb, or that mechaniſm, laid on the outſide of the upper plate, which is called the ſlide and curb, and is acted upon, when needful, by a wheel, furniſhed with a graduated circle, commonly called the *regulator*. We have ſeen that the quickneſs of the balance's vibrations depends upon the ſtrength of the balance-ſpring, a ſtrong ſpring producing ſwift vibrations, and vice verſa. Now the ſtrength of the ſpring depends upon its thickneſs and upon its length. The thickneſs of the ſpring being known, its ſtrength will vary according to its length, increaſing as the length is diminiſhed, and the contrary. To produce, therefore, in the balance, a certain number of vibrations, we furniſh it with a ſpring of a ſtrength proportionate to the effect required; and, in order to attain to this proportionate ſtrength the more readily, we apply to the ſpring a curb, which, by lengthening or ſhortening the outer coil of the ſpiral, produces more or leſs ſtrength, as may be required.

The action of the common curb on the balance-ſpring, and on the general going of a time-piece, is well known to every one who has occaſionally moved with his key that graduated circle called the regulator, to make his watch go faſter or ſlower. The *compenſation-curb* is made in a different way; and is applied, ſometimes to the balance-ſpring, ſometimes to the balance itſelf, and ſometime partly to both.

A comperſation-curb applied to the *ſpring of the balance*, is ſhown in the Horology Plate VIII. at fig. 37. B B is the balance, *b* the ſpring, whoſe outer coil is fixed to the cock A at *c*, and the inner ſpiral is fixed to the axis of the balance by the collar in the uſual manner. Upon the cock A is a cylindrical piece *e*, with a hole to receive the upper pivot of the balance. The curb is a piece of ſteel, *g m*, ſo adjuſted on the piece *e*, as that, while *m* is made to move along the diviſions from F towards L, the part *h* deſcribes the arc of a circle from *h* towards *l*; that is to ſay, *h* follows a part of the outer coil of the ſpiral. To keep the curb *g m* in its place, a bar might be ſcrewed over it, as *d d*, fig. 38.

Fig. 39, is an under view of the cock, the ſpring being ſhown as when the balance vibrates: *b* is the arm of the curb, on which are two pins, *m* and *n*. The outer coil of the ſpiral ſhould have but very little play between theſe pins, which prevent the end *b o* of the ſpiral from moving during the vibrations. It is now evident, that, by puſhing the curb towards *p*, the acting part of the ſpring is ſhortened, and thereby becomes ſtronger, and communicates quicker vibrations to the balance; the contrary effect, of courſe, is produced by moving the arm of the curb towards *g*. Thus, then, we remedy the natural ſtrength or weakneſs of the ſpring, or its lengthening or ſhortening by the influence of heat or cold. This figure ſhows the pins *m* and *n* at a ſmall diſtance from each other: if the diſtance were very great, they would have no effect, ſince the outer coil of the ſpiral would not reach either of them during its vibrations. The diſtance ſhould be ſuch as to allow the ſpiral a little play. If the two pins were moveable, ſo that they could approach to or recede from each other during the vibrations, this would evidently influence the velocity of them, as the part *b o* would then move more or leſs with what we have called the acting part of the ſpring. The receding of the pins from each other would make the vibrations ſlower, and their approach would render them quicker. This idea has given riſe to a compenſation equally ſimple and ingenious; which we ſhall preſently deſcribe.

The equality of a pendulum's vibrations is diſturbed by the influence of heat and of cold, or the variations of temperature: but the balance is affected by theſe cauſes in a higher degree. The variations in the pendulum are occaſioned merely by the dilatation and contraction of the rod; but thoſe of the balance ariſe not merely from the dilatation and contraction of the balance itſelf, but from ſimilar effects of heat and cold upon the balance-ſpring. Heat enlarges the balance, and makes its vibrations ſlower; heat at the ſame time lengthens the ſpring, makes it weaker, and thus the vibrations are ſlower ſtill. Cold has the contrary effect; and experiment has ſhown the influence of temperature to be ſo great, that a watch made to keep time in the greateſt heat of ſummer will gain 5 or 6 minutes a-day in the depth of winter; and the contrary. But it ſhould be noted, that in theſe experiments the watches were expoſed during winter night and day to the open air; a watch worn in the fob would not be affected in this manner. Still, however, it is very neceſſary to contrive ſome compenſation for theſe effects upon time-pieces which are required to meaſure time with great exactneſs.

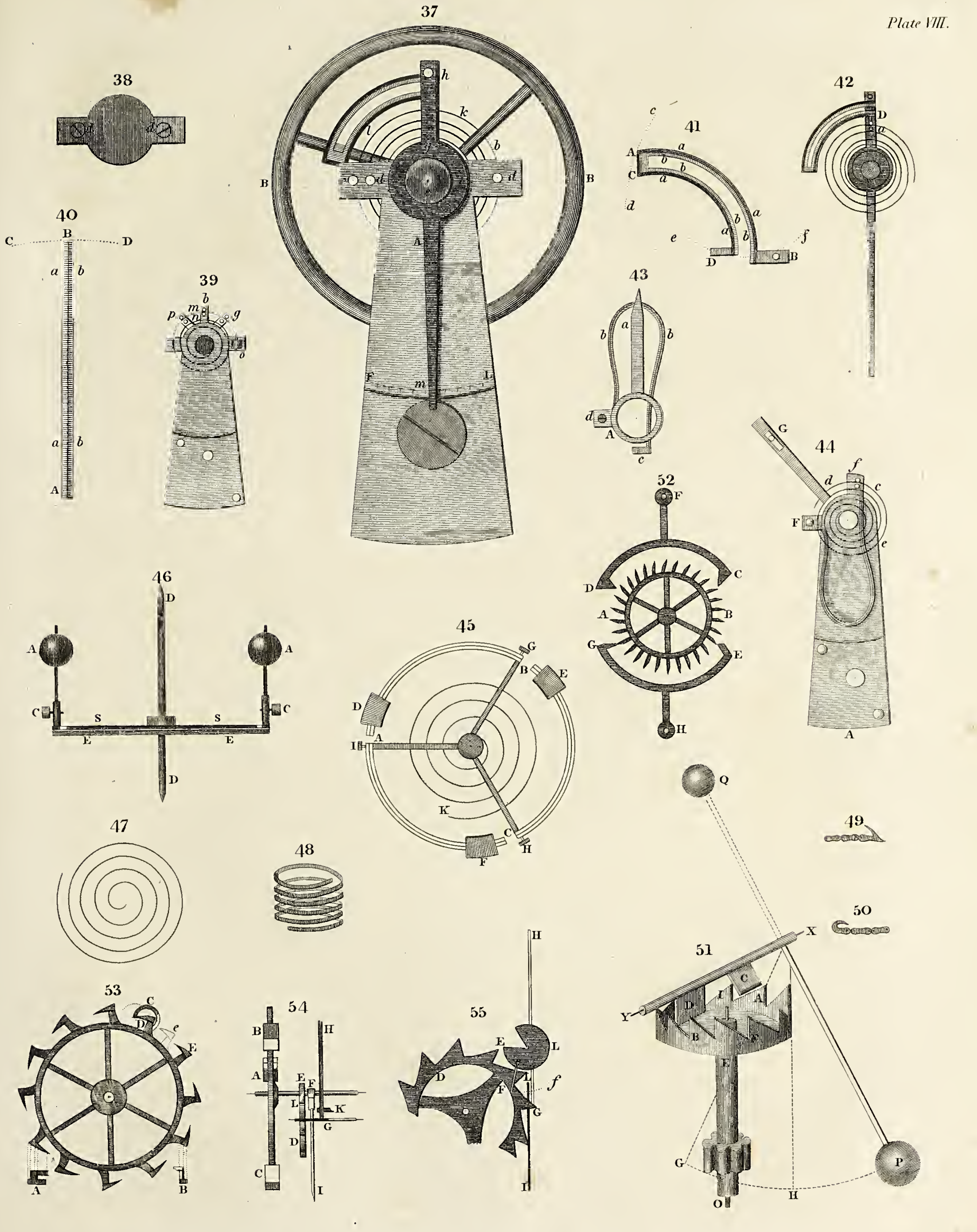
This compenſation may be produced various ways, and different means are employed according to the greater or leſs degree of exactneſs required. A ſimple compenſation applied to the balance-ſpring is ſufficient to make a watch for common uſe perform extremely well; but the compenſation by the balance is the moſt complete, and is moſtly applied to marine or longitude watches.

The better to underſtand the effect of a compenſation applied to the balance-ſpring, let us firſt obſerve the action of heat and cold upon two metals combined. A B, fig. 40, repreſents a thin lamina of which the ſide *a a* is ſuppoſed to be braſs, and the ſide *b b* ſteel. This compound lamina, being expoſed to heat, will dilate; but by the Table before given we obſerve that braſs dilates by heat, as well as contracts by cold, almoſt twice as much as ſteel; conſequently the ſide *a a*, by its greater expanſion, would force the part B towards D; and, if expoſed to cold, the braſs would contract more than the ſteel, ſo as to make the part B tend or bend towards C. Now ſuppoſe this piece of compound metal to be faſhioned into the ſhape A B C D, fig. 41; the outſide or dark part being the ſteel, as in the former figure, and the inner part braſs. Suppoſe the end B immoveably fixed; then the effect of heat will be to make the part A take a direction towards *c*, by which D muſt move towards *e*. Now the heat, acting alſo upon C D, will make D approach ſtill more towards *e*; ſo that the total motion of D becomes very conſiderable, and that more or leſs according to the degree of heat to which A B C D is expoſed. The direction of the motion of D, when A B C D is expoſed to *cdd*, is contrary; D will take a direction towards *f*, or, what is the ſame thing, it will approach B; while heat will make D recede from B. The effect of heat is to make A B C D open, of cold to make it cloſe. Now we have noticed, in deſcribing fig. 39, that the ſpring having leſs play between two pins would thereby vibrate faſter, and the contrary. If then we apply A B C D to the curb ſo that B may be fixed by a ſcrew, while the part D may be free to move as acted upon by the different degrees of temperature, as ſhown at fig. 42, it is evident that the play of the balance-ſpring muſt vary according to the influence of the heat or cold upon the compenſator. By heat, D will approach towards the fixed pin *a*, and the ſpring will have leſs play, and make quicker vibrations; by cold it will recede,

and

# HOROLOGY.

*Plate VIII.*



*Compensation Balances, and Scapements.*

J Paſs. sculp

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and the ſpring will have more play. Thus the effect of heat, which tends to make the balance perform ſlower vibrations, will be *compenſated* by the ſpring becoming more confined between the pins, which induces quicker vibrations; and the contrary. This ſimple compenſation is the invention of Monſ. Breguet.

The following compenſation is the invention of Mr. Urbain Jurgenſon, who publiſhed at Copenhagen, ſo lately as the year 1805, Principes généraux de l'exacte Meſure du Tems par les Horloges. The principle of this compenſation is to render the ſpiral ſpring longer or ſhorter as required, inſtead of giving it more or leſs play between the pins. A *a*, fig. 43, is the curb; *b b c* in a lamina compoſed of ſteel and braſs; this is fixed to the arm of the curb by a ſcrew at *d*, and the other extremity, *c*, carries the two pins between which the outer coil of the ſpiral ſpring acts. The part *d* of the lamina is ſo fixed that the whole of this compenſator lies free underneath the curb. Now to ſhow the action of this compenſator, A, fig. 44, is an under view of the cock; the outer part of the ſpring runs between the pins at *f*, and is pinned into the ſtud G. The compenſator is ſo fixed to the arm F of the curb, that the part *f* has a free motion as influenced by heat or cold. The interior part of this compenſator being of braſs, heat will make the part *f*, which carries the pins, move towards *c*, upon the principles before explained. The acting-part of the ſpring will thereby become ſhorter, conſequently ſtronger, and produce quicker vibrations, ſo that the effect of heat, which is to produce ſlow vibrations, is thus counteracted, or *compenſated*, and that more or leſs according to the dimenſions of the compenſator and the length of the ſpring. When cold acts upon the compenſator, it cauſes the end carrying the pins to recede towards *d*: this makes the active part of the ſpiral longer, conſequently weaker; and thus the effect of cold, which tends to produce quick vibrations, is compenſated. This compenſator is ſo contrived, that the arcs of the motion of the end *f* by the effect of heat and cold are concentric with the centre of the ſpring; and, during the compenſation, they follow the circular line of the outer coil of the ſpring; and, if we ſuppoſe this ſpring of equal thickneſs throughout, the compenſation muſt be in proportion to the variation of heat or cold; ſo that this may be conſidered as a very correct ſpecies of compenſation. The inventor ſays he has uſed this compenſator only for watches of a certain depth or thickneſs; for thoſe of the flat kind, he recommends M. Breguet's compenſator, before deſcribed.

We need not at preſent notice any other compenſations as applied to the ſpring, becauſe, after all, the moſt perfect compenſations muſt be ſuch as are applied to the balance itſelf. Yet many capital artiſts have, even in longitude-watches, applied the compenſation to the ſpring; and Mr. Hardy has lately produced two compenſations of this kind; for which he obtained a ſilver medal from the Society of Arts in May 1807. Monſ. F. Berthoud has deſcribed at great length his modes of compenſation at the ſpiral in his Traité des Horloges marines; and Mr. Mudge, in his Deſcription of a Time-keeper, Lond. 1799, gives us the mode of compenſation at the ſpiral ſpring as applied by his father, a moſt ingenious watch-maker. But this method is now moſtly abandoned; and Berthoud himſelf afterwards made ſeveral marine watches with the compenſation acting on the balance itſelf. Mr. Mudge, however, never changed his mode; and to this ſome are inclined to attribute that his machines, in other reſpects ſo excellently formed, have not had all the ſucceſs that might have been expected.

The principle of a *compenſation applied to the balance* is very ſimple, though very ingenious. Heat, which produces ſlower vibrations, does at the ſame time, by means of the compenſation, make the diameter of the balance leſs, ſo that the centre of oſcillation is brought nearer the centre of motion; and thus the effect of heat is compenſated; and ſo, on the contrary, of cold.

There are various conſtructions of compenſation-balances; but the general principle is, that they are compoſed of two different metals, which poſſeſs different degrees of expanſibility, as braſs and ſteel for inſtance; of which two metals it has been obſerved, that the increaſe of dimenſions by expanſion, in like elevations of temperature, is nearly as 8 to 5. One of the moſt approved conſtructions of an expanſion balance, is exhibited at fig. 45, and is thus deſcribed by Mr. Nicholſon: The outer part of the rim is braſs, and the inner ſteel. After this compound rim is brought to its figure by turning, it is cut through in three places, A, B, C, which ſets one end of each third part of the periphery at liberty to move outwards, when the temperature is diminiſhed, or inwards when it is increaſed. D, E, F, are three ſimilar and equal maſſes of metal, fitted upon the circular bars in a proper manner to admit of their being fixed at any required diſtance from the extremity, where the motion is moſt conſiderable. G, H, I, are three ſcrews, the heads of which may be ſet nearer to, or further from, the centre, and ſerve as weights to effect the adjuſtments for poſition and rate. The peculiar advantage of this balance may be explained as follows: When an increaſe of heat diminiſhes the elaſtic force of the ſpring K, the outer braſs rim being lengthened more than the ſteel, muſt throw the weights D, E, F, nearer to the axis, and diminiſh the effect of the inertia of the balance, which conſequently is as ſpeedily carried through its vibrations as before. And on the contrary, when cold weather adds to the elaſtic force of the ſpring, the ſame weights are alſo thrown further out, and prevent the acceleration which would have followed. The exact adjuſtment of the weights is found by trial of the going of the machine: if it gain by heat, the weights do more than compenſate, and muſt be moved inwards, or from the extreme ends of the circular compound bars; but, if the gain be produced by cold, the ſpring predominates, and the weights will accordingly require to be ſet further out. Care muſt however be taken to move the three weights equally, that the balance may not loſe its equilibrium. Mr. Arnold's compenſation-balance is in two pieces only.

We ſhall have occaſion to reſume the ſubject of compenſation-balances when we deſcribe the complete machines of Mudge, Arnold, Earnſhaw, &c. but in the mean time cannot avoid noticing a balance of a ſingular form conſtructed by W. Hardy of Red-Lion-ſquare, London, for which he received a premium of thirty guineas, in the year 1805, from the Society of Arts. Mr. Hardy's deſcription of his "permanent compenſation-balance," with his remarks upon other contrivances for the ſame purpoſe, we ſhall give in his own words.

"We have at preſent two compenſation-balances: one ſort conſiſts of ſeveral ſlips of braſs and ſteel ſoldered or fluxed together, and diſpoſed in form of two S S's on the balance; but this is now almoſt out of uſe. The other is a ſteel balance, having a rim of braſs fluxed upon its outſide, and cut open in two or three places, with ſliding weights placed on the rim, to increaſe or diminiſh the effect of the balance. The nature of this balance (the only one now in uſe) is well known, as well as its defects, which it is unneceſſary for me to ſtate at this time. Inſtead of this uncertain way of conſtructing a balance, which never continues long in the ſame ſtate, but requires to be adjuſted every time the watch wants cleaning, I have contrived a method of applying the direct expanſion of metals, which I find by experience to be conſtant and permanent in its effects.

"My balance conſiſts of a ſteel flat bar, which forms its diameter. Beneath this ſteel bar are two metallic rods, ſecured at one end by a ſtud, formed out of the ſteel bar, and the other end acting on the ſhort end of a lever, formed out of the other end of the ſame ſteel bar, being made to ſpring at the place where the centre of the lever would fall; to this lever is faſtened a ſmall cylindrical ſtem of braſs, upon which a ſmall globe of braſs ſlides or ſcrews; there is alſo a ſcrew paſſing through the ſtem, to ſerve to regulate to mean time. Another metallic bar, equal and ſimilar, and furniſhed like the other, but reverſed in poſition, is placed parallel to it.

"When the whole balance is heated, the metallic rods will puſh forward the ſhort ends of the levers, and which quantity will be juſt equal to the difference of the expanſion of the two metals. Suppoſe the ſhort ends of the two levers to be each equal to 1, and the long ends of the levers to be each equal to 20, then it is evident that the motion of each globe will be twenty times the exceſs of the ſteel bar and metallic rods nearer to the centre of the axis of the balance than before the expanſion took place; and, what is a very grand and neceſſary property in the motion of the two globes, they will always move directly to the axis of the balance; that is, their action will be conſtantly in a plane paſſing through the axis of the globes and axis of the balance. To increaſe or diminiſh the expanſion of the balance, will be only to ſlide or ſcrew up or down the globes upon their ſtems, until the balance produces the deſired effect; and, however we increaſe or diminiſh the expanſion of the balance, or whatever may be the degree of temperature, it ſtill retains this admirable property, namely, that the two ſpherical weights move not only in the ſame plane in a ſtrict mathematical ſenſe, but alſo in the ſame right line in a phyſical one. This quality, united with the direct motion of the braſs bars, renders the motion of the globes ſimple and uniform, and therefore the effect (depending on ſuch ſimple and direct cauſes) is regular and certain.

"The common compenſation-balance, when in motion, cauſes the weights to fly off or recede from the axis of the balance, and this flying off will increaſe and diminiſh with the arc of vibration in the balance: for, as there is nothing to brace the rim at the extremity of which the weight is ſuſpended; as the arc of vibration increaſes, the weight and rim are thrown outward as much as the centrifugal force of the weight exceeds that of the elaſticity of the rim. And as the arc of vibration diminiſhes, and conſequently the centrifugal force, the weight is thrown inward by the elaſticity of the rim. My weights or ſpheres are firmly braced in every degree of temperature, and conſequently not influenced in the ſmalleſt degree by any change in their centrifugal forces; therefore, in every reſpect, this balance may be conſidered as *permanent.*

"The great difficulty in conſtructing a balance, and in applying the direct expanſion of metals, is to contrive it ſo as that it ſhall preſerve its equilibrium in every degree of temperature, and alſo admit of having all its parts made perfectly equal and ſimilar by mechanical means. Both theſe important problems I have ſolved, by the introduction and application of a different principle from any yet uſed in the conſtruction of the balance of a time-keeper; and I am fully ſatiſfied, from a variety of experiments which I have made, that by this total change of ſyſtem, I have made a higher ſtep towards the perfection of time-keepers, than has been effected by any other means that have come within my knowledge."

This balance is ſhown at fig. 46. A A are two globes which ſlide on the cylindrical ſtems of two upright levers, and are faſtened by ſcrews, by which the effect of the expanſion is increaſed or diminiſhed. C C, two equal and ſimilar ſcrews, by which the watch is adjuſted to mean time. D D, the verge or axis of the balance. E E, S S, the combination of the ſteel bar with the braſs bars. In the model preſented to the Society, the following are the proportions of the compenſation-bars: The length of the ſteel bar is 1·6 inch; breadth, 0·232; thickneſs, 0·032. The two braſs bars, in length each, 1·47 inch; breadth, 0·078; thickneſs, 0·32. Length of the two ſprings formed out of the ſteel bar, 0·03.

The above invention has in its favour the teſtimony of Mr. Nicholſon, and of that veteran artiſt Mr. Cumming.

*Of the form of the Balance-ſpring.*—In common watches the balance-ſpring lies flat, the coils of the ſpiral being in the ſame plane, as ſhown at fig. 47. But to longitude time-pieces, the ſpiral is uſually thrown into the cylindrical form, as delineated at fig. 48. The latter has this advantage, that the coils cannot touch each other in the largeſt vibrations, even in thoſe of two turns and more, which may be eaſily proved by trial. Their motion is alſo more concentric to the pivot of the balance, which leſſens friction. Suppoſing the balance always to lie horizontally, as is moſtly the caſe with marine watches and all box time-keepers as they are called, we can, by means of a cylindrical ſpring, diminiſh the friction on the lower end of the pivot which bears the whole weight of the balance, by compreſſing the ſpring according to its height; the coils then approach each other, and tend to raiſe the balance, ſo that the pivot will have leſs preſſure. But in this caſe the ſpring muſt be high enough, and the coils or turns ſufficiently diſtant, ſo that in the compreſſed ſtate they may not touch each other.

We have ſeen the ſimple mode by which iſochroniſm is obtained in the pendulum. To render the vibrations of a balance iſochronous is not ſo eaſy. F. Berthoud has proved that this regularity is to be obtained by means of the ſpiral, regard being had to its ſhape and its length. A very ſhort ſpring makes the large vibrations quicker than the ſmall ones; a very long ſpring, but of the ſame power in other reſpects as the ſhort one, makes the large arcs ſlower than the ſmall ones. It is therefore evident, that between theſe extremes a medium-length is to be ſought in which the greateſt and leaſt vibrations will be performed in equal times. If the large arcs are ſlower than the ſhort ones, the ſpring muſt be ſhortened; and the contrary.

Mr. Berthoud farther informs us, that a ſpring conſiſting of many turns or coils pretty cloſe together is more favourable to iſochroniſm than one of the ſame length with fewer and wider coils; and this becauſe the aſcending force during the vibrations acts by the inflections of the ſpring upon levers more equal to each other. Hence it follows, that cylindrical ſprings are more favourable to iſochroniſm than flat ſprings; for we know that the coils of the cylindrical ſpring are equally diſtant from the centre of the balance; conſequently the motion of the coils acts by levers evidently equal to each other. Added to this and the other advantages of the cylindrical ſpring, before mentioned, we may obſerve, that ſprings of this form are more eaſily made by the workmen, and may even be tempered after they are bent, a thing extremely difficult with common balance-ſprings.

Another mode of obtaining more eaſily the iſochroniſm of vibrations of unequal lengths, conſiſts in making the balance itſelf to deſcribe very large arcs. From Mr. Berthoud's experiments it appears, that the difference of a certain number of degrees in the extent of large arcs of vibrations cauſes leſs variation in the going of a watch than the ſame difference acting upon ſmaller arcs; and this indeed is moſt conſonant to reaſon. With ſome detached ſcapements it is practicable to make the balance deſcribe 360 degrees, or a complete circle; by which means a great quantity of motion is produced, and the balance thereby better calculated to reſiſt the external agitations of the whole machine.

According to the theory and experiments of Mr. Berthoud, the ſpring when once rendered iſochronous, will continue ſo, although the weight of the balance ſhould be increaſed or diminiſhed, or even though the centre of oſcillation ſhould be ſhifted. It is unneceſſary therefore to regulate the watch till the iſochroniſm of the balance-ſpring is effected; and the regulating weights may be moved to or from the centre of the compenſation-balance, without fear of diſturbing the iſochroniſm of the ſpring. But for a full explanation of the principles upon which the iſochroniſm of the balance-ſpring is founded, we muſt refer the reader to Mr. Berthoud's valuable work before quoted, Traité des Horloges marines, and the Supplement to the ſame; and for three new methods of producing equal vibrations, ſee the communications of Mr. William Hardy to the Society of Arts, as contained in their Tranſactions, vol. xxv. p. 113–116.

*Of the Pivots and Pivot-holes.*—It has been noted before, that jewelled holes leſſen friction, and preſerve the oil better. It has therefore become very common to let the pivots of the balance at leaſt run in holes cut out of well-poliſhed rubies. To render the friction of the balance very ſmall, but without weakening the pivots, the pivots are ſometimes filed into a conical form, and of courſe the ruby-holes muſt be ſcooped out accordingly.

The only objection, till lately, againſt jewelled holes for all the pivots of longitude-watches, &c. has been the great expence. But Mr. P. P. Barraud, an excellent practical watch-maker now living, is of opinion that this expence may very well be ſpared. The following is an extract of a letter from him to Mr. Ezekiel Walker upon this ſubject, dated January 28, 1804. "The ſtate of my regulator I have already deſcribed in a former letter; from which I infer, that, ſo far from jewelled holes being advantageous in clock-work, they are abſolutely injurious. That they are equally ſo in chronometers, I have had abundant experience, having found, almoſt without exception, in chronometers coming off a long voyage, the oil in a much worſe condition in the jewelled holes (particularly in thoſe where the friction was conſiderable) than in the braſs ones. I have therefore been induced, in every inſtance, to reject jewelled holes, and introduce thoſe of braſs; and the alteration has been conſtantly favourable to the performance of the time-keeper. I ſhould be happy in having a communication with you *viva voce* on this theme, &c. &c."

That Mr. Barraud had not made this alteration in his chronometers in a haſty manner, will appear from the following extract taken from another of his letters to the ſame gentleman, of an earlier date, namely, July 17, 1800. "Dear Sir, Since we parted, I have found additional reaſons to believe that jewelled holes (where friction is great) are injurious. A box time-keeper which I have recently taken to pieces, on its return from a long voyage, had the oil in the braſs holes in a much purer ſtate than in the jewelled ones. In the former it ſtill remained in a ſtate favourable for action; but in the latter, the pivots were ſo fixed by the tenacity of the oil, as to require force to extricate them; the ſteel was alſo deeply ſtained, and had parted with all its luſtre, &c. &c."

From theſe and many other obſervations made by Mr. Barraud upon the effects of oil on time-keepers, it appears that ſmall particles of ſteel are worn off by friction in the jewelled holes, and, mixing with the oil, form a glutinous ſubſtance that cauſes the time-keeper to go irregularly.

It is a known property of ſome oils, that they freeze much ſooner than water. The oil of olives freezes at 42½° on Fahrenheit's ſcale, conſequently the pureſt oil of this kind will loſe its fluidity ſooner than that which contains ſome aqueous particles. Hence we may conclude, that watch-makers ought to make choice of that oil which freezes with the leaſt degree of cold; and, as cold has no power to decompoſe olive-oil, it need not be rejected on account of its having aſſumed the concrete form.

## II. Of the MOVING POWER.

To repair the loſs of motion in the regulator (whether pendulum or balance) of time-pieces, cauſed by friction, the reſiſtance of the air, &c. we communicate to the regulator, through a train of wheels and pinions of increaſing velocity, and by the ſcapement, the reſtorative effect of an exterior agent, or *moving power*. It is not till after repeated experiments that we can determine the required force of the moving power, ſince it is difficult to aſcertain the amount of the quantity of friction in the wheel-work, the ſcapement, and the regulator, added to the vis inertiæ; which muſt be known before we can aſcertain by calculation the power neceſſary to overcome them.

The moving power is produced either by weights or by ſprings. In fixed pieces, as clocks, a weight is the moving power; in watches, or other pieces expoſed to agitation from being moved about, a ſpring, called the *main ſpring*, is the moving power. Weights act upon the firſt mover of a clock by means of a cord wound round a cylinder combined with the firſt mover. The effect of weights is ever uniform; the moving power produced by them is the moſt equal poſſible; weights are therefore preferable to ſprings wherever they can be applied. But in watches and in machines to go at ſea, we are obliged to uſe ſprings, which either act immediately upon the wheel-work, or through the medium of a *fuſee*, or truncated cone. The ſubſtitution of a ſpring inſtead of a weight, as a moving power, was an ingenious thought; for by this means the ſize of time-pieces could be reduced, and hence came at length the invention of pocket-watches.

Figures of theſe parts will be given further on, when we come to deſcribe the complete watch. The *main ſpring* works in a box, or *barrel*; it is coiled up in the manner we have deſcribed the flat balance-ſpring; and has a ſquare hole at each end, one of which holes clings on to a hook in the inner circumference of the barrel, and the other to a hook on the *barrel-arbor*, the pivots of which turn freely in holes in the barrel. Under the barrel is a *ratchet-wheel*, or a wheel with ſloping teeth; and in this works a *click*, which preſſes again one or other of the teeth, ſo as to allow the wheel to go one way, but not to recede; and is continually preſſed againſt the ratchet by a ſpring. The main ſpring, being coiled round the barrel-arbor, tends by its elaſticity to reſume its liberty, and acts with all its force upon the barrel-arbor and upon the barrel itſelf; but the arbor, being held by the ratchet and click, remains immoveable.

The ſpring, thus wound up, will continue to act till it has loſt all its tenſion. It is not neceſſary to make all the coils of the ſpring act, nor to wind up to the extent; becauſe, being ſo ſtrained, it might be in danger of breaking, or of loſing ſome of its ſtrength or of its elaſticity. Neither ſhould the firſt turns of the ſpring be made to act upon the wheel-work, or train, becauſe, as theſe would act with but a ſmall force comparatively with the laſt turns, the action of the ſpring would be thereby made very unequal. Suppoſing the thickneſs of the ſpring and the diameter of the barrel and its arbor to be ſuch as to admit the ſpring to be wound ſeven turns, it will be proper, to avoid the danger of ſtraining or breaking, to give it only five turns, in order that two may be at reſt; and, of theſe five, not more than two and a half or three ſhould act upon the wheel-work. The longer the ſpring, and the more turns it makes within the barrel, (within certain limitations,) the leſs fear is there of its loſing its elaſticity, ſince more turns are left at reſt, even though it be fully coiled up. A large barrel is therefore accounted deſirable. If the barrel were ſo large as to allow 9 turns of the ſpring round the arbor, while two revolutions of the barrel were found ſufficient for the going of the watch, the ſpring might be wound four turns only; and then, allowing two more turns for winding up the watch, there will always be the quantity of three turns remaining at reſt. And thus the ſpring will act with equality and eaſe.

Since many turns of the ſpring is a deſirable object, it may be imagined that this might be attained by making the barrel-arbor of a ſmall diameter. This is however a dangerous error, though by no means uncommon. The diameter of the arbor ſhould be about one-third of the diameter of ſpace within the barrel; never ſo little as one fourth; for, when the arbor is too ſmall, the inner turns of the ſpring round it are too much contracted, while the outer turns are comparatively inactive; producing an inequality very unfavourable to the action of the ſpring. The barrel-arbor ſhould be perfectly cylindrical, and the barrel very ſtraight and upright; or the ſpring cannot act with freedom.

The main-ſpring ſhould be made of good ſteel, and as equally tempered throughout as poſſible; the whole ſhould be well-poliſhed, in order to ſoften the friction that muſt neceſſarily attend its winding and unwinding. It ſhould be of uniform breadth throughout; and the rims ſhould be rounded, that they may not ſcratch the bottom or top of the barrel, and that the friction againſt theſe two parts may be as equal and as little as poſſible. Broad or high ſprings, within certain limits, are to be preferred, as they work more equally in the ſame plane, conſequently have leſs friction againſt the top and bottom of the barrel. The two ends of the ſpring muſt be untempered, in order to facilitate the making the ſquare holes by which it is to be hooked to the barrel and barrel-arbor, and to prevent it from breaking at thoſe places. The ſituation of the hook which holds the ſpring to the arbor is not a matter of indifference. It is frequently left ſo high, that it bears up the ſpring immediately upon it, by which means thoſe parts, during the contraction (or winding) of the ſpring, become ſo violently and unproportionably heated by the configuration, that it breaks at the moſt agitated part. Workmen, in the habit of putting main ſprings into barrels, frequently ſee them break in the act of raiſing about two or three turns from the arbor; which muſt proceed from one of the foregoing reaſons, either too ſmall an arbor, or too long a hook. Mr. Parr, the author of an (unfiniſhed) Treatiſe on Pocket Watches, 1804, obſerves as follows: "I called at the ſhop of a finiſher in the year 1796, who was finiſhing a high-priced horizontal watch. The main-ſpring he happened to break juſt on my entering his ſhop, and, according to cuſtom, proceeded to the ſpring-maker for a new one. During his abſence, I examined the barrel-arbor, and found the hook about one thickneſs of the ſpring too high, and informed him of it on his return; but he determined to try a ſecond, which ſhared exactly the ſame fate; it broke three turns from the eye, or hook-hole. He proceeded again to the ſpring-maker for a third, which broke only two turns from the eye. By this means, together with the loſs to the ſpring-maker, he employed three hours of his time, which induced me again to requeſt him to lower his hook. This, after much perſuaſion he did, with ſeeming reluctance, obſerving at the ſame time, the ſteel of which the ſprings were made muſt be bad. However, having examined the laſt broken ſpring, and finding a clear grain and full length, I requeſted his permiſſion to re-make it, which I accompliſhed, by drawing the ſpring from the curl, lowering the temper of it at the arbor end, making a new hook-hole, and turning it again into the barrel, which, to his ſurpriſe, made an equal adjuſtment. The ſame workman has ſince informed me, that, by obſerving my rule, he has not had two broken ſprings in a year; and frankly declares, that, before he knew that rule, he had frequently two or three in one day. He ſaid alſo, that, from the fullneſs of the ſpring in the barrel, which muſt unavoidably reduce the arbor, to give ſufficient turns, if the ſpring is not ſhortened, he very ſeldom procured a paſſable adjuſtment."

We have now to ſpeak of the *fuſee*, which is an aſſiſtant to the moving power, tending to make action of the main-ſpring upon the wheel-work equal in all its windings. The fuſee is in the form of a truncated cone, and carries the firſt wheel which communicates the power of ſpring to the train of wheels: this power is communicated to the fuſee by means of the *chain*, which winds and unwinds in a ſpiral groove round the circumference of the fuſee. When the watch is wound up, the chain is all upon the fuſee except that ſmall part which connects the fuſee to the ſpring-barrel. The watch being now in motion, the chain gradually diſengages itſelf from the fuſee, by the impulſe of the ſpring turning the barrel; and, when the chain is all round the barrel, the watch is down.

Now the effect, or action, of the ſpring, is continually diminiſhing from firſt to laſt; and, unleſs that inequality were rectified, it would draw the chain with more force, and wind a greater quantity upon the box, at the firſt going than afterwards; hence the machine could never keep equal time, but would go ſlower and ſlower as the chain advanced upon the barrel. To correct this inequality in the moving power, nothing could be more happily contrived than to have the ſpring applied to the arms of levers which are continually longer as the force of the ſpring is weaker: for this is the effect of the fuſee; and it is for this reaſon that it is made of a conical form. Its axis, which is immoveable, is the ſeries of the centres of all the unequal circumferences which compoſe the ſurface of the fuſee. According as the part of the chain which is untwiſting is applied to a larger circumference, it is at a greater diſtance from the fixed point in the axis correſponding thereto; and of conſequence the power which draws by this chain, viz. the ſpring, acts with more advantage. This ſpring begins to draw from the vertex of the cone, the moſt diſadvantageous part, becauſe its own force is then the greateſt. The chain is connected to the upper part of the ſpring-barrel by a hook of the form ſhown at fig. 49, and to the lower part of the fuſee by one of the form at fig. 50. The axis of the fuſee terminates in a ſquare arbor; to this the key is applied to wind up the watch. The wheel at the bottom of the fuſee is not acted upon by the turning of the fuſee in the winding-up of the watch, though when the watch is going it makes as many revolutions as there are turns of chain on the fuſee, and always in the ſame direction. The fuſee is hollowed out underneath to admit of a ratchet-wheel and click to keep the wheel ſteady while the fuſee is turned in a retrograde direction for winding up the watch; but, when the ſpring is wound up, the wheel follows the motion of the fuſee; and, working in the firſt pinion of the train, communicates the power of the ſpring to the reſt of the machine.

### III. Of the WHEEL-WORK.

The wheel-work communicates, through a train of wheels and pinions, the action of the moving power to the regulator. The ſwiftneſs of the wheels increaſes in proportion to their diſtance (being intercepted by other wheels) from the moving power: but they decreaſe in force or ſtrength in proportion to their velocity. The ſtrength of the laſt or ſcapement wheel ſhould be ſufficient to repair the loſs of motion which the regulator is ſubject to from the reſiſtance of the air and from friction; and conſequently it muſt be proportionate to the number of revolutions of the laſt wheel, and increaſe or diminiſh in the ratio of its velocity. Suppoſing the required ſtrength of the laſt wheel = 1, and the number of its revolutions during one revolution of the firſt wheel = 4800, then the moving power muſt be 4800 times greater than that of the laſt wheel, according to the firſt principles of mechanics, allowance being made for the influence of friction.

Velocity increaſes by combining two wheels of different diameters in ſuch a manner that the larger wheel may drive the ſmaller, which is called a pinion. The pinion will make more revolutions than the wheel in proportion as its diameter is leſs than that of the wheel; ſo that the velocity of the laſt mover may be increaſed at pleaſure, by combining ſeveral wheels and pinions, ſo that the firſt wheel ſhall drive a pinion carrying concentrically a ſecond wheel, and this ſecond driving a ſecond pinion carrying a third wheel, and drawing another pinion carrying a fourth wheel, &c. &c. This aſſemblage of wheels and pinions is called the wheel-work, or *train*; and by this means the moving power may be made to act for a conſiderable time, and even for a given time, upon the regulator, till it may be neceſſary to renew it, or, in other words, to wind up the machine. The wheel-work alſo impels the indexes, or hands, which point out the time elapſed.

The number of teeth in two wheels which connect and work together ſhould be in proportion to their diameters.—Example. Suppoſe the diameter of a wheel = 30, and of a ſmaller wheel, or pinion, = 3; the wheel having 120 teeth, how many teeth ſhould the pinion have? Anſwer, As 30 : 3 :: 120 : 12. The pinion therefore muſt have 12 teeth, or *leaves* as they are commonly called.

Now, the number of the teeth of wheels being always in the ratio of the diameters, it is evident that we can expreſs the ſize of the wheel by the number of teeth, and conſequently uſe theſe numbers in calculating the revolutions of wheels.

The number of revolutions made by the laſt wheel of a train of wheels and pinions may be found by multiplying the teeth of all the wheels (except that laſt) together, and dividing it by the product of the teeth of all the pinions.—Example. Required the number of revolutions which the laſt or ſcapement-wheel will make while the firſt or fuſee-wheel makes one revolution; the train conſiſting of five wheels and four pinions; the firſt wheel having 100 teeth, the ſecond 80, the third 60, the fourth 50; the firſt pinion having 20 leaves, the ſecond 16, the third 10, the fourth 8. Anſwer, $100 \times 80 \times 60 \times 50 = 24000000$; and $20 \times 16 \times 10 \times 8 = 25600$; 24000000 divided by 25600 gives a quotient of $937\frac{1}{2}$, being the proportionate velocity of the laſt wheel of the train, (of whatever number of teeth it may conſiſt,) or the number of revolutions it will make while the firſt wheel makes one. Or, Divide the number of the teeth in each wheel by the number of teeth in the pinion it drives; then, by multiplying all theſe quotients together, you will have the ſame reſult. Thus: $100 \div 20 = 5$; $80 \div 16 = 5$; $60 \div 10 = 6$; $50 \div 8 = 6\frac{1}{4}$: and $5 \times 5 \times 6 \times 6\frac{1}{4} = 937\frac{1}{2}$, as before.

M. le Roy, a celebrated artiſt of Paris, pointed out ſome inconveniences attending the uſual diſpoſition of the wheels and pinions of watches, and propoſed a method of remedying them. Every wheel of a watch is fixed in an arbor, or ſtem, which terminates in two pivots, and theſe turn in holes drilled in the plates of the watch. Each arbor is charged both with a wheel and a pinion; and it is the pinion which receives the action of the immediately preceding wheel, and tranſmits it to the wheel fixed on its own arbor. M. le Roy obſerves, that a watch-wheel placed near the middle of its arbor is in the moſt advantageous poſition, eſpecially if its pinion be nearly in the ſame poſition; becauſe then, the effort it receives is diſtributed equally between the two pivots; the pivot-holes in the plates wear equally and on the ſame ſide, and their enlargement will always let the wheel continue parallel to the plates; and therefore, the poſition of the planes of the wheels ſuffering no alteration by ſuch wearing, with reſpect to one another, they drive one another on without any alteration as to the pitching or the friction. But it will be otherwiſe when the wheel or the pinion is near one of the extremities of the arbor, becauſe the friction ariſing from the action of the wheel is no longer equal on both the pivots; that which is neareſt the pinion receiving almoſt the whole effort of the preceding wheel, whilſt the other is very ſlightly affected by it. Hence it will follow, that the hole of ſuch pivot muſt wear much more, and in a ſhorter time, than the other; the poſition of the arbor will be altered, and conſequently that of the paralleliſm of the planes of the wheels. This is the great defect of common watches; the pinion of the ſmall middle wheel, or third wheel, and that of the contrate wheel, are ſo near one of their pivots, that it is often neceſſary to ſtop or buſh up their holes, and drill them anew, in a year or two. M. le Roy ſet himſelf about remedying this inconvenience; in order to which he was under a neceſſity of inverting the fuſee, ſo that the wide baſe ſhould be at top, and the little end at bottom, near the great wheel; and thus the middle wheel might be made to act upon the pinion of the contrate wheel near the middle of its arbor. M. le Roy makes the lower pivots to turn, not in the plate of the frame, but in another little plate or cap, called a *bar*, placed on the outſide of the frame-plate; by which contrivance he renders the effort of the pivots nearly equal, and keeps the oil from quitting the pivots, as it is too apt to do in the common conſtruction. By the inverſion of the fuſee, its baſe being on the ſame ſide as the ſquare of the great pivot, the diameters of the pivots are proportioned to the friction they ſuffer; whereas in Engliſh watches, the great pivot is on the ſide where the chain draws neareſt the centre, or on the wrong ſide.

It is hardly neceſſary to inſiſt upon the neceſſity of having all the teeth of a wheel perfectly equal, both for diſtance and for ſize, and that their extremities, or points, be equally diſtant from the centre. All this is equally eſſential, perhaps more ſo, in regard to the pinions. Pinions ſhould be very hard and well poliſhed, to leſſen friction and facilitate motion; and it is advantageous to have the wheels as light as is conſiſtent with ſtrength, in order that the moving power may more eaſily overcome the reſiſtance cauſed by their inertia.

The ſize of pinions may be determined, in general, by the following Rule, though there are particular caſes to which it will not exactly apply: As the number of teeth in the wheel which drives the pinion is to the number of leaves in the pinion itſelf, ſo is the ſemi-diameter or radius of the wheel to that of the pinion. Suppoſe a wheel with 50 teeth, and its radius $= 20$, to drive a pinion of 10: the radius of the pinion muſt be $= 4$; for, As 50 : 10 :: 20 : 4.

The teeth of wheels and leaves of pinions, require great care and judgment in their formation, that they may neither clog the machinery with unneceſſary friction, nor act ſo irregularly as to produce any inequalities in the motion, and a conſequent wearing-away of one part before another is much affected.

Several eminent mathematicians upon the continent, and a few in England and Scotland, have directed their inveſtigations towards a ſubject ſo eſſential to the perfection of machinery: yet, although Roemer, Varignon, De la Hire, Camus, Euler, Kæſtner, and Robiſon, have turned their thoughts to this object, and have ſtruck out ſome rules of ready application in practice, it is to be regretted that theſe rules have been little followed by practical mechanics, moſt of whom have in this caſe been more inclined to follow in their conſtructions the rules of Imiſon and others, though completely deſtitute of mechanic principle. As the conſtruction of teeth of a proper form is exceedingly eaſy, we beg to recommend it earneſtly to practical men; and it may not be amiſs to enter a little into detail, availing ourſelves, for the moſt part, of the judicious remarks lately publiſhed by Mr. Brewſter.

It has been long known to mathematicians, and need not here be demonſtrated, that one wheel will not drive another with uniform velocity, unleſs the teeth of one or of both wheels have their faces formed into a curve generated *after the manner of an epicycloid*, comprehending, under curves of this kind, thoſe which are formed by evolving the circumferences of circles. But, in order to enſure an uniformity of preſſure and velocity in the action of one wheel upon another, it is not abſolutely neceſſary that the teeth either of one or both wheels be exactly epicycloids, in the ſenſe to which geometricians commonly reſtrict that term. If the teeth of one of them be either circular or triangular, with plain ſides, or like a triangle with its ſides converging to the centre of the wheel, or, in ſhort, of any other form, this uniformity of force and motion will be attained, provided that the teeth of the other wheel have a figure which is compounded of that of an epicycloid and the figure of the teeth of the firſt wheel. But, as it is often difficult to deſcribe this compound curve, and ſometimes impoſſible to diſcover its nature, we ſhall endeavour to ſelect ſuch a form for the teeth as may be eaſily deſcribed by the practical mechanic, while it enſures an uniformity of preſſure and velocity. In order to avoid circumlocution and obſcurity, we ſhall call, as is cuſtomary with practical men, the ſmall wheel (which is ſuppoſed always to be driven by a greater one) the *pinion*, and its teeth, the *leaves* of the pinion. The line which joins the centres of the wheel and pinion may be called the *line of centres*. Now there are three different ways in which the teeth of one wheel may act upon the teeth of another; and each of theſe modes of action requires a different form for the teeth.

I. When the teeth of the wheel begin to act upon the leaves of the pinion juſt as they arrive at the line of centres; and, when their mutual action is carried on after they have paſſed this line.

II. When the teeth of the wheel begin to act upon the leaves of the pinion before they arrive at the line of centres, and conduct them either to this line, or a very little beyond it.

III. When the teeth of the wheel begin to act upon the leaves of the pinion before they arrive at the line of the centres, and continue to act after they have paſſed this line.

1. The firſt of theſe modes of action is recommended by Camus and De la Hire, the latter of whom has inveſtigated the form of the teeth ſolely for this particular caſe. When this mode of action is adopted, the acting faces of the leaves of the pinion ſhould be parts of an *interior epicycloid* generated by a circle of any diameter rolling upon the concave ſuperficies of the pinion, and the acting faces of the teeth of the wheel ſhould be portions of an *exterior epicycloid* formed by the *ſame* generating circle rolling upon the convex ſuperficies of the wheel.

Now it is demonſtrable that, when one circle rolls within another whoſe diameter is double that of the rolling circle, the line generated by any point of the latter will be a *ſtraight line*, tending to the centre of the larger circle. If the generating circle, therefore, mentioned above, ſhould be taken with its diameter equal to the radius of the pinion, and be made to roll upon the concave ſuperficies of the pinion, it will generate a ſtraight line tending to the pinion's centre, which will be the form of the acting faces of its leaves; and the teeth of the wheel will, in this caſe, be exterior epicycloids, formed by a generating circle, whoſe diameter is equal to the radius of the pinion, rolling upon the convex ſuperficies of the wheel. This form of the teeth, viz. when the acting faces of the pinion's leaves are right lines tending to its centre, is perhaps the moſt advantageous, as it requires leſs trouble, and may be executed with greater accuracy than if the epicycloidal form had been employed: it is juſtly recommended both by De la Hire and Camus as particularly advantageous in clock and watch work.

2. Having hitherto ſuppoſed, that the mutual action of the teeth does not commence till they arrive at the line of centres, let us now attend a little to the form which muſt be given them, when the whole of the action is carried on before they reach the line of centres, or when it is completed a very little below this line. This mode of action is not ſo advantageous as that which we have been conſidering, and ſhould, if poſſible, always be avoided. It is evident that the tooth of the wheel acts upon the leaf of the pinion before they arrive at the line of centres, that it quits the leaf when they reach this line, and that the tooth works deeper and deeper between the leaves of the pinion the nearer it comes to the line of centres. From this laſt circumſtance a conſiderable quantity of friction ariſes, becauſe the tooth does not, as before, *roll* upon the leaf, but *ſlides* upon it; and from the ſame cauſe the pinion ſoon becomes foul, as the duſt which lies upon the acting faces of the leaves is puſhed into the hollows between them. One advantage, however, attends this mode of action, for it allows us to make the teeth of the large wheel rectilineal, and thus renders the labour of the mechanic leſs, and the accuracy of his work greater, than if they had been of a curvilineal form. If the teeth therefore of the wheel are made rectilineal, having their ſurfaces directed to the wheel's centre, the acting faces of the leaves muſt be epicycloids formed by a generating circle, whoſe diameter is equal to the radius of the wheel, added to the depth of one of its teeth, rolling upon the circumference of the pinion. But, if the teeth of the wheel and the leaves of the pinion are made curvilineal, the acting faces of the teeth of the wheel muſt be portions of an interior epicycloid formed by any generating circle rolling within the concave ſuperficies of the large circle, and the acting faces of the pinion's leaves muſt be portions of an exterior epicycloid produced by rolling the ſame generating circle upon the convex circumference of the pinion.

3. The third way in which one wheel may drive another, is when the action is partly carried on before the acting teeth arrive at the line of centres, and partly after they have paſſed this line. This mode of action, is a combination of the two firſt modes, and conſequently partakes of the advantages and diſadvantages of each.

## IV. OF THE SCAPEMENT.

We have ſeen the manner in which the moving power, which is the main-ſpring, communicates its influence to the wheels. Now that part of a clock or watch which connects the impulſe of the wheels (which move always in one direction) with the regulator, whether pendulum or balance, is called the SCAPEMENT. We have already explained the mode in which the pallets of the verge of the balance work in the balance-wheel, which is properly the ſcapement-wheel: in clocks it is called the *ſwing-wheel.* When a tooth of this wheel, acting on the pallet, has given the balance or pendulum a motion in one direction, it muſt quit it, that it may get an impulſion in the oppoſite direction; and it is this *eſcaping* of the tooth of the wheel from the pallet, or of the latter from the former, whichever we pleaſe to call it, that has given riſe to the general term, eſcapement, or ſcapement.

The parts neceſſary to be ſhown in deſcribing a *ſcapement* are, the pendulum or the balance, the pallets that work in the ſcapement-wheel, and that wheel itſelf; together with any compenſation that may be applied to the balance or its ſpring, or both. In ſpeaking of clocks or watches upon different principles, the difference in the ſcapement is chiefly meant, for this is the part of a timepiece that is moſt frequently varied. And thus it appears that conſiderable ſcientific ſkill as well as mechanical ingenuity may be diſplayed in the conſtruction of ſcapements; and the judicious conſideration of them becomes of great importance to the artiſt: yet, notwithſtanding this, no material improvement was made in them from the firſt application of the pendulum to clocks till the days of Mr. George Graham; nothing more was attempted before his time than to apply the impulſe of the ſwing-wheel in ſuch manner as was attended with the leaſt friction, and would give the greateſt motion to the pendulum. Dr. Halley diſcovered, by ſome experiments made at the Royal Obſervatory at Greenwich, that, by adding more weight to the pendulum, it was made to vibrate larger arcs, and the clock went faſter; by diminiſhing the weight of the pendulum, the vibrations became ſhorter, and the clock went ſlower: the reſult of theſe experiments being diametrically oppoſite to what ought to be expected from the theory of the pendulum, probably firſt rouſed the attention of Mr. Graham, who was not only ſkilful in practice, but had much mathematical knowledge, and was well qualified to examine the ſubject ſcientifically: he ſoon made ſuch further trials as convinced him, that this ſeeming paradox was occaſioned by the retrograde motion which was given to the ſwing-wheel by every conſtruction of ſcapement that was at that time in uſe; and his great ſagacity ſoon produced a remedy for this defect, by conſtructing a ſcapement which prevented all recoil of the wheels, and reſtored to the clock-pendulum, wholly in theory, and nearly in practice, all its natural properties in its detached ſimple ſtate.

Scapements, whether for clocks or watches, and however various, may be reduced to four kinds: the recoiling ſcapement; the dead-beat; the horizontal, which is ſimilar in effect to the dead-beat; and the free or detached ſcapement.

1. The old *recoiling ſcapement*, which has been in uſe for

clocks and watches ever ſince their firſt appearance in Europe, is extremely ſimple; and its mode of operation is too obvious to need much explanation. In fig. 51, Plate VIII. XY repreſents a horizontal axis, to which the pendulum P is attached by a ſlender rod, or otherwiſe. This axis has two leaves (pallets) C and D, attached, one near each end, and not in the ſame plane, but ſo that when the pendulum hangs perpendicularly, and at reſt, the piece C inclines a few degrees to the right hand, and D as much to the left. They commonly make an angle of from 70 to 90 degrees. AFB repreſents a wheel turning round on a perpendicular axis EO, in the order of the letters AFEB. The teeth of this wheel are cut into the form of the teeth of a ſaw, leaning forward, in the direction of the motion of the rim. As they ſomewhat reſemble the points of an old-faſhioned royal diadem, this wheel has got the name of the *crown wheel*. In watches it is often called the *balance-wheel*, or *ſcapement-wheel*. The number of the teeth is generally odd, 9, 11, 13, 15, or 17; ſo that, when one of them B is preſſing on a pallet D, the oppoſite pallet C is in the ſpace between two teeth A and I. The figure repreſents the pendulum at the extremity of its excurſion to the right hand, the tooth A having juſt eſcaped from the pallet C, and the tooth B having juſt dropped on the pallet D. It is plain, that as the pendulum now moves over to the left, in the arch PG, the tooth B continues to preſs on the pallet D, and thus accelerates the pendulum, both during its deſcent along the arch PH, and its aſcent along the arch HG. It is no leſs evident, that when the pallet D, by turning round the axis XY, raiſes its point above the plane of the wheel, the tooth B eſcapes from it, and I drops on the pallet C, which is now nearly perpendicular. I preſſes C to the right, and accelerates the motion of the pendulum along the arch GP. Nothing can be more obvious than this action of the wheel in maintaining the vibrations of the pendulum. We can eaſily perceive, alſo, that when the pendulum is hanging perpendicularly in the line XH, the tooth B, by preſſing on the pallet D, will force the pendulum a little way to the left of the perpendicular, and will force it ſo much the further as the pendulum is lighter; and, if it be ſufficiently light, it will be forced ſo far from the perpendicular, that the tooth B will eſcape, and then I will catch on C, and force the pendulum back to P, where the whole operation will be repeated.

The ſame effect will be produced in a more remarkable degree, if the rod of the pendulum be continued through the axis XY, and a ball Q put on the other end to balance P. And, indeed, this is the contrivance which was firſt applied to clocks all over Europe, before the application of the pendulum. They were *balance-clocks*. The force of the wheel was of a certain magnitude, and therefore able, during its action on a pallet, to communicate a certain quantity of motion and velocity to the balls of the balance. When the tooth B eſcapes from the pallet D, the balls are then moving with a certain velocity and momentum. In this condition, the balance is checked by the tooth I catching on the pallet C. But it is not inſtantly ſtopped; it continues its motion a little to the left, and the pallet C forces the tooth I a little backward. But it cannot force it ſo far as to eſcape over the top of the tooth I; becauſe all the momentum of the balance was generated by the force of the tooth B; and the tooth I is equally powerful. Beſides, when I catches on C, and C continues its motion to the left, its lower point applies to the face of the tooth I, which now acts on the balance by a long and powerful lever, and ſoon ſtops its further motion in that direction; and now, continuing to preſs on C, it urges the balance in the oppoſite direction. Thus we ſee that in a ſcapement of this kind the motion of the wheel muſt be very hobbling and unequal, making a great ſtep forward, and a ſhort ſtep backward, at every beat. This has occaſioned the contrivance to get the name of the *recoiling ſcapement*, or the *ſcapement of recoil*. This is the ſcapement ſtill in uſe for common pocket-watches.

In this ſcapement the vibrations are quicker than if the balance or pendulum vibrated freely: for the recoil ſhortens the aſcending part of the vibration, by contracting the extent of the arc, and the re-action of the wheel accelerates the deſcending part of the vibration. In this ſcapement, too, if the maintaining power be increaſed, the vibrations will be performed in larger arcs, but in leſs time: becauſe the greater preſſure of the crown-wheel on the pallet will cauſe the balance to vibrate through larger arcs; and the time will be leſs increaſed on this account than it will be diminiſhed by the acceleration that preſſure gives to the balance and the diminution of the time of recoil.

The preceding ſcapement not being well adapted to ſuch vibrations as are performed through arcs of a few degrees only, another conſtruction has been made which has been in conſtant uſe for about a century in clocks, with a long pendulum beating ſeconds. In fig. 52, AB repreſents a vertical ſcapement-wheel called the ſwing-wheel, having thirty teeth. CD repreſents a pair of pallets connected together, and moveable in conjunction with the pendulum on the centre or axis F. One tooth of the wheel, as ſhown in the figure, reſts on the inclined ſurface of the inner part of the pallet C; on which its diſpoſition to ſlide tends to throw the point of the pallet further from the centre of the wheel, and conſequently aſſiſts the vibration in that direction. While the pallet C moves outwards, and the wheel advances, the point of the pallet D of courſe approaches towards the centre in the opening between the two neareſt teeth; and, when the acting tooth of the wheel ſlips off, or eſcapes from the pallet C, another tooth on the oppoſite ſide immediately falls on the exterior inclined face of D, and by a ſimilar operation tends to puſh that pallet from the centre. The returning vibration is thus aſſiſted by the wheel, while the pallet C moves towards the centre, and receives the ſucceeding tooth of the wheel, after the eſcape from the point of D. Thus may the alternation be conceived to go on without limit.

In this ſcapement, as well as the former, the vibrating part is conſtantly under the influence of the maintaining power, except during the interval of the drop, or actual eſcape of the wheel from one pallet to the other. One principal recommendation of this ſcapement ſeems to have been the facility with which it affords an index for ſeconds in the face of the clock. Though the pendulum, according to this conſtruction, is conſtantly connected with the maintaining power in a clock, yet the variations of that power have not the ſame miſchievous effect as in a watch, becauſe the momentum of the pendulum, compared with the impulſe of the maintaining power, is prodigiouſly greater in the former of theſe inſtruments. A very conſiderable change in the maintaining power of a clock with a long pendulum will only cauſe a variation of a few ſeconds in the daily rate.

2. Mr. Graham's ſcapement, already ſpoken of, was a conſiderable improvement upon that juſt deſcribed. He took off part of the ſlope furtheſt from the points of the pallets; and inſtead of that part he formed a circular or cylindrical face, having its axis in the centre of motion. Pallets of this kind are ſhown at the lower part of fig. 52, at E and G, having H for their centre or axis. A tooth of the wheel is ſeen reſting upon the circular inner ſurface of the pallet G, which therefore is not affected by the wheel, excepting ſo far as its motion, ariſing from any other cauſe, may be affected by the friction of the tooth; and this reſiſtance is exceedingly minute, not amounting to one-eighth of the preſſure on the arch. Nay, we think it appears from the experiments of Coulomb, that, in the caſe of ſuch minute preſſures on a ſurface covered with oil, there is no ſenſible retardation analogous to that produced by friction, and that what retardation we obſerve ariſes entirely from the clammineſs of the oil. If the vibration of the pendulum be ſuppoſed to carry G outwards, the ſlope ſurface will be brought to the point of the tooth,

which will ſlide along it, and urge the pallet outwards during this ſliding action. When the tooth has fallen from the point of this pallet, an oppoſite tooth will be received on the circular ſurface of E, and will not affect the variation, excepting when the ſlope ſurface of E is carried out ſo as to ſuffer the tooth to ſlide along it. This contrivance is known by the name of the *dead-beat*, or *dead-ſcapement*; becauſe the ſeconds index ſtands ſtill after each drop, whereas the index of a clock with a recoiling ſcapement is always in motion, hobbling backward and forward. In this ſcapement, an increaſe of the maintaining power renders the vibrations larger and ſlower: becauſe the greater preſſure of the tooth on the edge of the pallet throws it round through a greater arch; and its increaſed preſſure on both ſurfaces of the pallet retards its motion.

3. The effect of the ſcapement which has been called *horizontal*, becauſe the laſt wheel in watches of this conſtruction has its plane parallel to the reſt of the ſyſtem, is ſimilar to that of the dead-beat ſcapement of Graham. In fig. 53, the horizontal ſcapement-wheel is ſeen with twelve teeth, upon each of which is fixed a ſmall wedge ſupported above the plane of the wheel, as may be ſeen at the letters A and B. On the verge of the balance there is fixed part of a hollow cylinder of ſteel or other hard material, the imaginary axis of which paſſes through the pivots of the verge. C repreſents this cylindrical piece, into which the wegde D may be ſuppoſed to have fallen. While the vibration cauſes the cylindrical piece to revolve in the direction which carries its anterior edge towards the axis of the wheel, the point of the wedge will merely rub the internal ſurface, and no otherwiſe affect the vibration of the balance than by retarding its motion. But, when the return of the vibration clears the cylinder of the point of the wedge D, the wheel will advance, and the ſlope ſurface of the wedge acting againſt the edge of the cylinder will aſſiſt the vibration of the balance. When the edge of the cylinder arrives at the outer point of the wedge D, its poſterior edge muſt arrive at the poſition denoted by the dotted lines of continuation; immediately after which the wedge or tooth E will arrive at the poſition *e*, and reſt on the outer ſurface of the cylinder, where it will produce no other effect than that of retardation from friction, as was remarked with regard to the wedge D, until the courſe of the vibration ſhall bring the poſterior edge of the cylinder clear of the point of the wedge. In this laſt ſituation, the wedge will act on the edge of the cylinder, and aſſiſt the vibration, as in the former caſe, until that edge ſhall arrive at the outer or poſterior point of the wedge; immediately after which the leading point will fall on the inner ſurface of the cylinder in the firſt poſition, as was ſhown in the wedge D.

Horizontal watches were greatly eſteemed during the laſt thirty years, until lately, when they gave place to thoſe conſtructions which are known by the name of detached or free ſcapements. In the common ſcapement, fig. 51, an increaſe of the maintaining power increaſes the recoil and accelerates the vibrations: but with the horizontal ſcapement there is no recoil; and an increaſe of the maintaining power, though it may enlarge the arc of vibration, will not neceſſarily diminiſh or alter the time. It is accordingly found, that the experiment of altering the maintaining power by the application of the key, does not alter the rate in the ſame perceptible manner as in common watches.

4. Fig. 54, repreſents the *free* or *detached* ſcapement of our beſt portable time-pieces. Fig. 55, exhibits a part of the ſcapement on a larger ſcale; but the ſame letters refer to the ſame parts in both figures. On the verge of the balance is fixed a circular piece of ſapphire, or of hard ſteel, EL, fig. 55, out of which a ſectoral piece is cut. HG is a ſtraight ſpring fixed near its extremity H, and having at the other extremity a pin G, againſt which one of the teeth of the wheel D reſts when the train is at reſt. This ſpring has a ſlight tendency towards the centre of the wheel, but is prevented by the ſtop K, fig. 54, from throwing the pin further inwards than juſt to receive the point of the tooth. I is a very ſlender ſpring fixed at the end I, and preſſing very ſlightly againſt the pin G, in a direction tending to throw it from the wheel D, but which, on account of the greater power of HG, it cannot effect. It may be obſerved, that the ſpring I proceeds a little beyond the pin G. F is a lever proceeding from the verge of the balance directly oppoſite the end of the ſpring I, and long enough to ſtrike it in its vibration. The action is as follows: From the preſſure of the main ſpring, the wheel, fig. 55, is urged from D towards F, but is prevented from moving by the pin G. Let the balance be made to vibrate, and the lever F will move through the arc F*f*, ſtrike the inner extremity of the ſpring I, and diſplace the pin G. At this inſtant the face E, which may be called the pallet, will have arrived at the poſition *e*, againſt which the tooth of the wheel will fall, and communicate its impulſe through about 15° or 16° of the vibration. But F quits the ſpring I ſooner than the wheel quits the pallet E, and conſequently the pin G will have returned to its firſt ſtation before the wheel can have advanced a whole tooth, and the ſpring or detent HG will receive the wheel as before, immediately after its eſcape from the pallet. The returning vibration of the balance will be made with the piece EL perfectly at liberty between two teeth of the wheel, as in the ſketch, and the back ſtroke of the lever F againſt the tender ſpring I will have no effect whatever on the pin G; this ſpring being like the back ſpring of the jacks of the harpſichord, active in one direction only. The third vibration of the balance will unlock the detent as before; the impulſe will again be given, and the whole proceſs will be repeated: and in this manner, the balance, though it may vibrate through the greateſt part of the entire circle, will be entirely free of the works, except during the very ſmall time of the drop of the wheel.

It is hardly neceſſary to make any remark on this ſcapement. It requires little or no oil; and when all the parts, particularly the balance-ſpring, are duly adjuſted, it is found that a very great variation in the firſt mover will remarkably alter the arc of vibration without affecting the rate. The piece EL might have conſiſted of a ſingle pallet or arm, inſtead of a portion of a circle or cylinder; but ſuch a piece would have been rather leſs convenient to make in ſapphire, or ruby, as in the beſt time-pieces, and would alſo have been leſs uſeful. For, if by any accident or ſhock the pin G ſhould be diſplaced for an inſtant, the wheel D will not run down, becauſe it will be caught upon the circular ſurface of EL. It is indeed very eaſy to obſerve, that the piece EL would operate without the detent, though with much friction during the time of repoſe. The tooth of the wheel would in that caſe reſt upon its circular face.

Moſt of the improved time-pieces lately produced are upon the principle of the detached ſcapement combined with the dead-beat; for it is univerſally found that clocks and chronometers formed with detached ſcapements regiſter time with more accuracy than others. The duration of the detachment does not exceed one ſecond in any of theſe hitherto made; at the end of that period, the pendulum or balance comes again into contact with the train, receives a new impulſe, and is again detached. Mr. Congreve (Patent, dated Aug. 1808) propoſes to extend the period of the detachment much beyond the common time; ſome of his methods ſhow how to do this for the ſpace of a minute; and, though the principle of one of his inventions can extend it much longer, not having any limits but what conveniency may aſſign, yet this period is fully ſufficient for every purpoſe required, and will probably be that fixed on for uſe, on account of its being one of the chief diviſions of time.

Two primary methods of effecting the above purpoſes are detailed in the ſpecification annexed to his patent. The firſt relates to a new mode of meaſuring time; the ſecond to means of prolonging the duration of the ſcapement of common pendulums and balances.

The new mode of meaſuring time conſiſts in the proportion of ſpace which a ball will paſs on a plane inclined in a given angle, in a ſecond, or other determinate period. The machinery by which the patentee propoſes to apply this principle is of different ſorts, but all very ſimple. The firſt method is by a ſtraight tube placed on the top of an axis inclined a little from the upright, ſo as to give the tube that degree of ſlope, which experience determines will admit a ball to run from its upper to its lower extremity in a given time. The axis is connected with the train by a pinion attached to it; and is prevented from revolving by a detent that locks on the lower end of the tube, and which is diſengaged by the force with which a ball, encloſed in the tube, falls againſt it in running down from the upper part. When the tube is unlocked, it is turned half round by the train, and its other extremity deſcends to the detent on account of the obliquity of its axis, and is held by it, till the ball (which has in the mean time been raiſed to its greateſt elevation by the aſcent of the end of the tube, where it had arrived) falls down to again ſet it free.

The proportion of time in which a ball will paſs through a tube ſix inches long, Mr. Congreve aſſerts to be equal to that of the vibration of a pendulum 7 feet 4·038 inches in length, and that it will make forty beats in a minute; but, as he has not mentioned the angle in which the tube is to be inclined to the horizon, farther than ſtating to be "a little inclined," no great benefit can be derived from this information; this point ſtill remaining to be decided by experiment. The revolution of the axis regiſters the time on dials by wheels, divided in the uſual manner, connected with its pinions. The action of the revolving tube and ball in meaſuring time, is partly that of a revolving pendulum, where the centre of gravity oſcillates, and partly that of a ball rolling down an inclined plane. The time is regulated in this machine by a ſmall hand, which increaſes or diminiſhes the inclination of the tube and its axis, according as it is moved.

In the ſecond method, five ſtraight tubes, inclined in the ſame angle, are connected in ſucceſſion on the face of a vertical wheel in alternately reverſed order, ſo that a ball placed at the upper end of the higheſt ſhall run down from it into the next, and ſucceſſively through all, changing its direction at each tube. When the ball arrives at the bottom of the loweſt tube, it diſengages a catch, and the vertical wheel, being then ſet free, is inſtantly turned half round; the tube which was loweſt is, with the ball in it, raiſed to the top, the other end of the train of tubes falls into the detent, and the ball again runs down to again diſengage the wheel. Six ſeconds will be conſumed in the running down of the ball, and the turning of the wheel; ſo that fewer wheels will be neceſſary in the train in this mode than the firſt, and the detachment will be carried with it to as great an extent as with a pendulum 116 feet 8·608 inches in length in the common method.

The third method increaſes the duration of the detachment ſtill more than the ſecond. In it a plane, fourteen inches long and eight wide, is balanced on a knife-edge ſuſpenſion, ſo that it may be inclined in a certain ſmall angle at either ſide by a ſmall force; along the face of this plane thirty grooves are joined in ſucceſſion to each other from ſide to ſide, ſo as to form the ſame angles with each alternately; by which means a ball placed at the top of the plane will run down from ſide to ſide out of one groove into another, till it reaches the bottom, where its impetus diſcharges a detent that retains the plane in its inclination on that ſide. The train of the clock is ſo managed, that by a crank, or ſome ſimilar movement, on the detent being diſengaged, the plane is inſtantly inclined in the contrary direction, and its lower part locked in another detent; the ball, by this movement being at the ſame time raiſed to its firſt elevation, deſcends through the grooves back again till it reaches the ſecond detent, which it unlocks in the ſame manner as the firſt; the inclination of the plane is then reverſed by the train to its firſt poſition, and the above movements are repeated as long as the primary moving force operates on the train. The degree of inclination of the plane is ſuch, that the ball traverſes the thirty grooves along its ſurface, and its inclination is reverſed, exactly in one minute. A bridge is placed along the plane, under the arches of which the ball paſſes, and ſhows the ſeconds by the figures placed over them, which are contrived ſo as to be ſhifted in the turning of the plane, in ſuch a manner as always to have the numerical order in the direction in which the ball is moving. A ſpring is mentioned to be ſo placed at each extremity of the plane, that, when the ball touches the detent, it gives it an impulſe in the contrary direction to its former motion, to prevent loſs of time during the ſhifting of the plane; but the machine would perform better without this addition. Small braſs reflectors are alſo to be fixed at each angle where the grooves meet, which, the patentee erroneouſly ſtates, will deſtroy the whole of the momentum of the ball acquired in each traverſe. The detachment in this machine will be continued as long as could be effected in the common method, by a pendulum of the vaſt length of 11,788 feet 4·800 inches; and by its great duration, the weight or ſpring of a common eight-day clock, with a train of no more teeth, will continue its motion for 480 days: or a proportionally leſs power, and ſimpler train, may be uſed for the firſt period.

A fourth method of regulating the ſcapement is deſcribed, in which two balls move in three troughs or tubes, arranged in an equilateral triangle on the face of a vertical wheel; but it poſſeſſes no property ſufficiently remarkable to merit farther deſcription, and ſeems only inſerted to guard againſt unjuſt imitations of the principle, which the patentee intends ſhould include "every poſſible application of the deſcent of ſolid bodies or fluids, down inclined planes, to the increaſe of the duration of detachment between the regulating organ of clocks and their maintaining powers."

The patentee after this deſcribes the ſecond chief part of his inventions for protracted detachments, in which the time is regulated by the pendulums or balances in common uſe. To increaſe the detachments of a pendulum, two pallets are connected with it of the uſual form; which act on a very light vertical ſwing-wheel of thirty teeth, and turn it round by their motion, when the pendulum is made to oſcillate; a pin projects from the face of this ſwing-wheel, which at each revolution raiſes a detent, that unlocks another ſwing-wheel of ſixty teeth, connected with the train, which immediately gives a freſh impulſe to the pendulum by a third pallet attached to it for this purpoſe. The pendulum advances the ſmall ſwing-wheel one tooth every ſecond, ſo that it only comes into contact with the train once in a minute, and will of courſe be detached from it fifty-nine parts out of ſixty of the whole time. The operation of turning the light ſwing-wheel will have ſo much leſs effect on the regularity of the pendulum, than that of raiſing detents every ſecond in the uſual mode, that this method is evidently much ſuperior to it; and will have beſides the advantage, of not requiring a train by many degrees ſo complicated, or formed by ſuch nice workmanſhip, in common with the various other methods firſt deſcribed. One of the ſwing-wheels revolves in a minute, and the other in an hour, and they may carry hands to ſhow the uſual diviſions of theſe periods. With theſe wheels only one pinion and a very ſmall weight will be neceſſary for an eight-day clock; and a year-clock may be made, with only two pinions and the ordinary train of an eight-day clock, to go with a very little more weight.

It is evident that the method deſcribed for pendulums, will alſo anſwer for the ſpring-balance wheels of chronometers and watches. A pendulum, the patentee thinks, may be detached for a minute; but a balance-wheel he does not ſuppoſe can be made to move independent of the train for more than from five to ten, or perhaps a few more, of its vibrations, on account of the inferiority of the power, which, he ſuppoſes, its ſpring will have in continuing its motion, independent of the train, to that which gravity poſſeſſes in moving the pendulum.

Of the inventions here deſcribed, we prefer that moſt on which Mr. Congreve ſeems to place leaſt value, by the ſlight manner in which he mentions it. The importance of improvements in modes of meaſuring time, depends chiefly on their being applicable to nautical purpoſes; and of all thoſe mentioned, the laſt is the only one which can be of any uſe at ſea. We have great hopes that farther trials and experience will ſhow how to make this principle add ſo much to the accuracy of chronometers, that the longitude may be aſcertained by them at ſea to a greater preciſion than has hitherto been done, the great advantages of which are too well known to need any detail. The limits of the detachment of balances are rated too low by the patentee; of which he may find a ſatiſfactory proof in the experiments made by Deſaguliers to determine the agency of friction-wheels with a ſpring-balance, which vibrated fifty times before it ſtopped, though loaded with a conſiderable weight on its axis; and which, when quite free, moved ſo long, that it was computed a point on the rim muſt have traverſed a ſpace equal to a mile. We may therefore expect, without being too ſanguine, that a balance-wheel may be ſo conſtructed as to act very well with a detachment of a minute in Mr. Congreve's method; we imagine this will be beſt effected by increaſing the length of the balance-ſpring; and the method propoſed by the patentee, of "increaſing the weight of the balance in proportion to the ſtrength of the ſpring," ſhould be tried with various lengths of ſpring, till the beſt ratio of the weight of the balance, to the length and ſtrength of the ſpring, for protracting the duration of the detachment, ſhould be diſcovered.

Chronometers of this deſcription will require ſo few parts, and ſo little nice workmanſhip, that they may certainly be ſold to good profit, at a much inferior rate to any yet made, and thus be within the reach of every commander of a ſhip above the rank of a coaſter.

The principle of keeping time with a protracted detachment, by balls running in inclined tubes, or troughs, is very ingenious; and as far as we know is new. In Mr. Nicholſon's Philoſophical Journal, vol. x. p. 76, Mr. J. W. Boſwell has propoſed a method of regulating time by a ball moving in a trough, applied to a circular pendulum; and by a cylinder oſcillating on a cycloidal ſurface to ſerve as a vibrating pendulum, which would be free from error cauſed by expanſion or contraction of dimenſions; and has, above a year ſince, contrived a method of making the oſcillations of a ball in a cycloidal trough, act in the ſame manner; but none of theſe methods were intended to continue the detachment of the vibration for more than a ſecond.

The rate at which balls roll on planes inclined in different angles, has not as yet been reduced to any certain rules, and therefore muſt for the preſent remain in inferior eſtimation, as a means of meaſuring time, to the rate at which bodies oſcillate in circular and cycloidal curves, which has been ſo well aſcertained by our moſt eminent philoſophers and mathematicians; and for this reaſon the method of regulating a time-keeper by a ball oſcillating in a cycloidal trough muſt now be preferred to it. We do not pretend to determine exactly what may be the rank as to accuracy which the ball and plane may attain as a regulator of time, when its principles are minutely inveſtigated; but to give it in its preſent imperfect form, the ſuperiority to others ſo well known, which the patentee has done, before this inveſtigation has taken place, is premature, and not ſtrictly philoſophical. In the preſent ſtate of the queſtion as to its accuracy, there however can be no doubt that it is very ſufficient for the regulation of clocks for common purpoſes, which can be made ſo cheaply on this principle, that, if it ever comes into general uſe, there is ſcarcely a cottager but may have the comfort of poſſeſſing an inſtrument for meaſuring time at leaſt correct enough for his occaſions.

The patentee has been erroneous in propoſing braſs deflectors for deſtroying the momentum of the rolling ball; if they were of leather, or ſome other ſoft ſubſtance, they would in ſome degree have the effect propoſed; but braſs is ſo elaſtic, that the ball would be reflected from it with nearly the ſame force with which it ſtruck it; and have its momentum and velocity thus ſo increaſed at every turn, that it would run through the laſt trough, or groove, in much leſs time than it did through the firſt; this reflecting of the ball would alſo cauſe it ſometimes to leap over a part of the groove without touching it, which would be another cauſe of inequality of motion, and of conſequent inaccuracy.

Another defect in the ſame machine (for which a remedy has been propoſed by the patentee, that would rather add to the inaccuracy than remove it,) ariſes from the inequality of the time ſpent in reverſing the inclination of the plane at the different turns; no proviſion is made for equalizing this motion, and it is evident that every caſual inequality of the action of the prime mover muſt cauſe its velocity to vary, and that the changes of the denſity of the air, acting on ſo large a ſurface as 112 ſquare inches, muſt alſo influence it conſiderably, as the effect of theſe will be multiplied in a duplicate ratio to this velocity; the reſiſtance of the air to a body in motion being in that proportion.

Having thus cleared the way, by explaining the principles upon which horological machines act, and the nature of their component parts, we proceed to deſcribe the machines themſelves, under the three heads of Clocks, Watches, and Time-keepers; underſtanding by the laſt term ſuch machines as cannot with ſtrict propriety be included under either of the former, though either or both of the former we are aware might be included under the latter.

## I. Of Clocks.

From what has been ſaid in the introduction to this article, and from the teſtimonies which have been there adduced reſpecting the origin of a clock, the concluſion to be drawn is, that this machine is neither of ſo ancient a date as ſome writers ſuppoſe, nor yet among thoſe more recent inventions which are placed in the laſt two centuries; and that the inventor is not certainly known. Fer. Berthoud, who has written more volumes on the ſubject of clock-work than any other man, concludes his reſearches with a belief, founded in ſtrong probability, that a clock is not the invention of any one man, but an aſſemblage of ſucceſſive inventions, each of which is worthy of a ſeparate contriver; for inſtance—1. Wheel-work was known in the time of Archimedes. 2. The weight applied as a maintaining power had at firſt a fly, moſt likely ſimilar to that of a kitchen jack. 3. The ratchet-wheel and click, for winding up a heavy weight without detaching the teeth of the great wheel, was found the next indiſpenſable contrivance. 4. The regulation of the fly, depending on the ſtate of the air, was abandoned, and a balance ſubſtituted. 5. An eſcapement conſequently became neceſſary; which, in conjunction with the balance, conſtituted a more regular check upon the tendency which a falling weight has to accelerate its velocity, than a fly uſed a regulator could of itſelf be. 6. The application of a dial-plate and hand, to indicate the hours, was the conſequence of the regularity introduced into the going part of the mechaniſm. And, laſtly, the ſtriking portion, to proclaim at a diſtance, without the aid of a watching-man, the hour that was indicated; completed the liſt of inventions. Such a ſucceſſion of ingenious contrivances, introduced by different men, to improve upon the firſt rude inſtrument, is perfectly analogous to the ſucceſſive improvements which the preſent clock has experienced at different periods.

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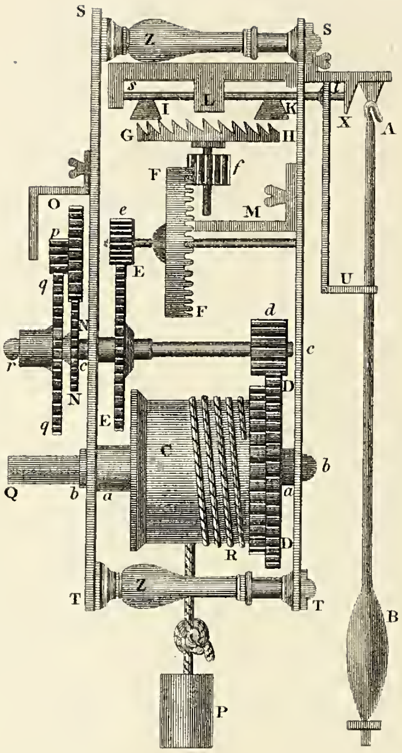

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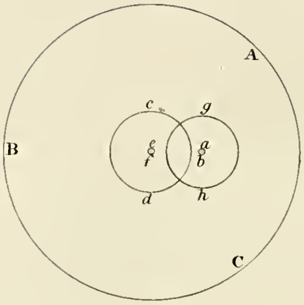

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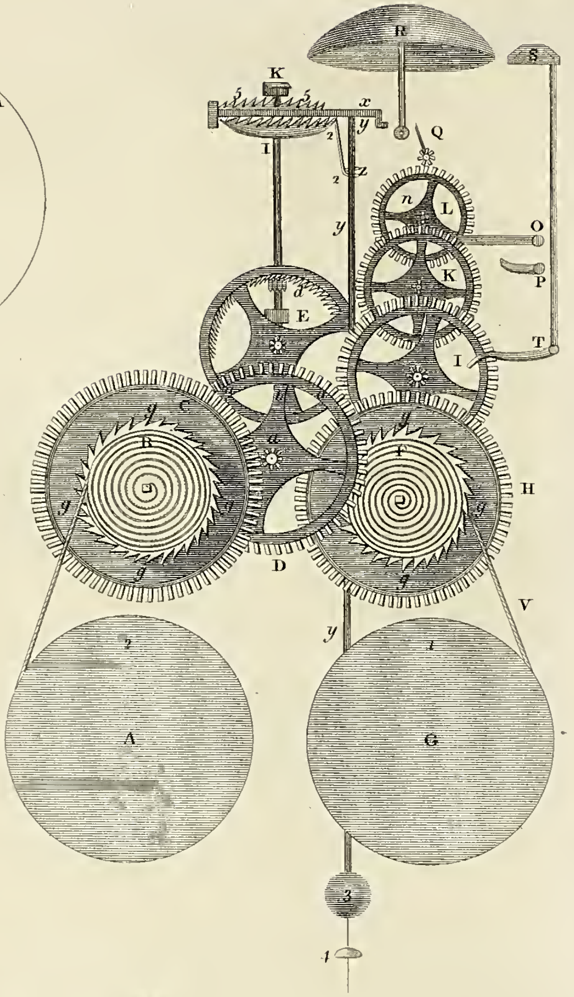

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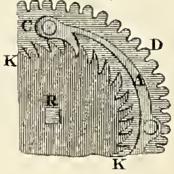

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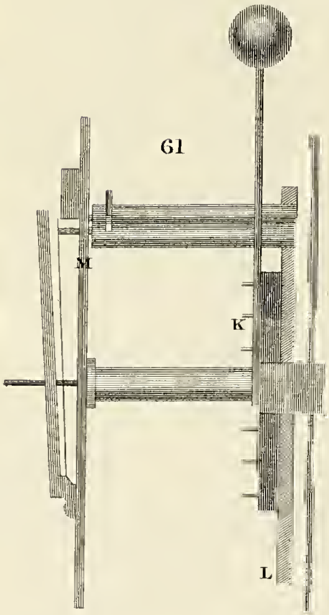

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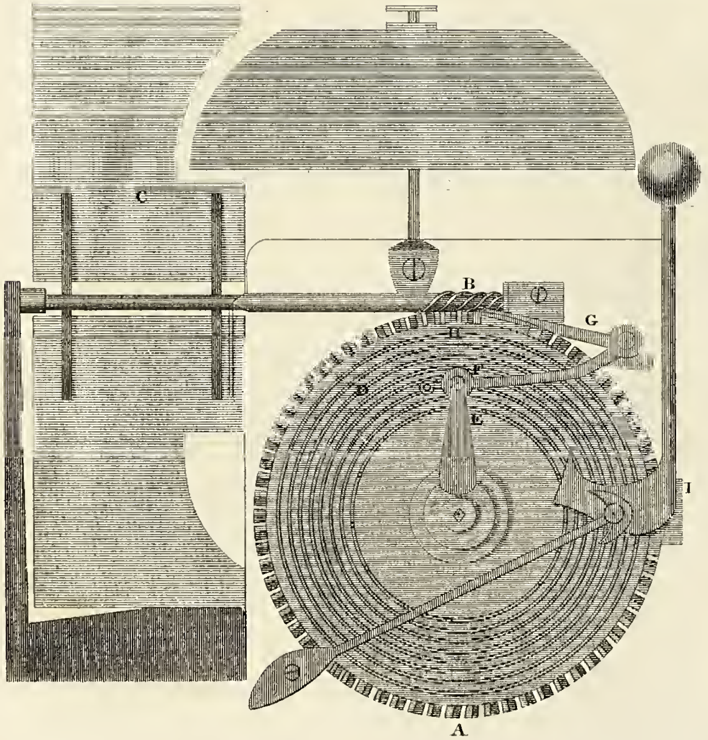

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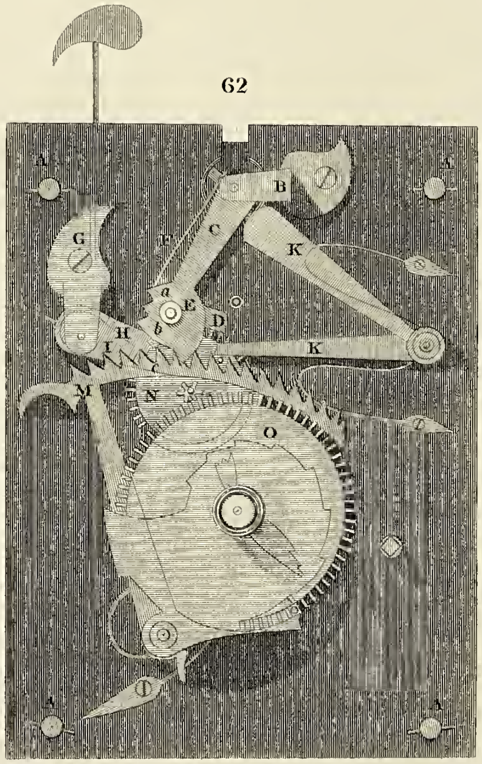

*Clock Work.*

J. Pass sculp.t

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According to Dr. Derham, the oldeſt Engliſh clock extant is in a turret of the palace at Hampton Court, conſtructed in the year 1540, which time was in the reign of king Henry VIII. by a maker whoſe initials are N. O. When we conſider that this clock contains mechaniſm for repreſenting the motions of ſome of the heavenly bodies, and that the celebrated Copernicus was living at the time of its date, and had not publiſhed his book On the Revolutions of the Celeſtial Orbs; when we reflect alſo, that more than a century elapſed after this time before the pendulum was applied as the regulator of clocks; theſe conſiderations appear ſufficiently intereſting to induce a minute examination of this ancient clock, particularly of that part of it which conſtitutes its celeſtial mechaniſm. The account of the wheel-work which produces the celeſtial motions, from Dr Derham's Artificial Clock-maker, publiſhed in 1714 (third edition,) we ſhall copy in his own words. "The Hampton Court clock," ſays the doctor, "ſhows the time of the day, and the motion of the ſun and moon through all the degrees of the zodiac, together with the matters depending thereon, as the day of the month, the ſun's and moon's places in the zodiac, moon's ſouthing, &c. To ſhow how completely (for that age) the wheel-work is laid under the moving part of the dial-plate, I have given the calliper thereof, which repreſents the ſeveral wheels and pinions only which lie under the dial-plate, and drive the ſeveral motions in this manner. In the centre of all, both the dial-plate and its wheel-work are placed on a fixed arbor, which hath a pinion on the end of it, which drives both the ſolar and lunar motions, by means of a large wheel of 288 teeth turning round upon it once in 24 hours, which large wheel is drawn round by a pinion of 12, fixed on the arbor of the great wheel within the clock, which turneth round once in an hour. The wheel 288, thus turning round in 24 hours, carries about with it the wheel 37, and its pinion of 7 leaves, as alſo the other prickt (dotted) wheel, and its pinion, on the other ſide. The pinion 7, of the wheel 37, drives another wheel of 45 teeth, which carries round the moon's ring or circle. On the oppoſite ſide the aforeſaid pinion 8 drives round the prickt wheel, whoſe pinion drives a wheel of 29 teeth, whoſe pinion, of 12 leaves, drives round the wheel 132 that carries the ſun and the zodiacal matters. Theſe were the numbers of the wheel-work (continues the doctor) remaining in the year 1711; but the prickt wheel and pinion were taken out formerly by ſome ignorant workman that was not able otherwiſe to amend the clock; but were ſupplied, and the whole movement repaired lately, by that ſkilful artiſt, Mr. Lang. Bradley, in Fenchurch-ſtreet, London."

Bradley however made more alterations than theſe, or the clock muſt have ſince been very conſiderably altered indeed; for at preſent the whole of both the annual and lunar movements are different from the original ones recorded by Dr. Derham.

The lunar movement is $\frac{59}{10}+\frac{45}{9}=29\frac{1}{2}$ days, and the annual one $\frac{73}{12}+\frac{42}{7}+\frac{130}{15}=365$ exactly. The preſent central pinion is a double one conſiſting of a 10 and a 12, fixed as the former one of 8 is deſcribed to have been, and pinned together; they are made of box, as are alſo the pinions of 7 and 9, to prevent their cankering, or oxyding as it is now called; and both the trains are arranged as already decribed. The wheel of 42 is made of braſs; but the reſt, being very large, are made of iron. The great wheel of 288, which connects the clock-work with the aſtronomical movements, appears to be the only portion of the original work, both by its marks of antiquity and the number of its teeth, which are cut on the inner edge of its circular part; there are two croſs bars riveted to this indented rim to carry the heavenly movements; and, as there is no counterpoiſe to theſe, it was ſuſpected at the time that their riſing and falling weight would alternately accelerate and retard the going of the clock, which is connected with it by means of an horizontal arbor about three yards long by eſtimation; accordingly, on inquiry, it turned out that the time of the day indicated is ſometimes 5 minutes or more too back, and again as much too forward on the ſame day, every day, which circumſtance had not before been accounted for.

The inſcription "L. Bradley, 1711," is marked on the frame of the going-part of the clock, which has evidently been new, either all of it at that time, or ſome part of it ſince, ſo that what the original regulator was, does not appear, nor are the initials N. O. to be found at preſent. There are three barrels and weights, one for the going-part, which has a very heavy long pendulum; one for the ſtriking-part; and one for ſtriking the quarters: the preſent ſcapement is a pair of pallets acting alternately into pins projecting from the plane of a wheel with a horizontal arbor, which kind is now pretty common in England, and, according to Berthoud, was invented by M. Amant, a clock-maker at Paris, late in the eighteenth century.

In Groſe's Antiquities it is ſaid that this clock, conſidered as an aſtronomical clock, was invented by Tompion; but this account cannot be true, becauſe that famous artiſt lived in Dr. Derham's time, a century and half after the original conſtruction; he may in all probability have been employed in making ſome of the alterations, either in the aſtronomical or going part.

The hand and divided circles are in the following order on the face, viz. 1. Or inmoſt ſmall circle—twice XII for moon's ſouthing. 2. Moon's age, $29\frac{1}{2}$. 3. Ecliptic with ſigns and days of the month. 4. Sun and hour hand revolving in 24 hours. 3. Twenty-four hours, marked I. II. &c. The moon's phaſe is ſhown by a circular hole cut on the hour-index, covering more or leſs of a blackened plate placed under it on the lunar dial.

There is ſaid to be a clock at Padua, of the date of 1428, which points out the hour of the day, the days of the month, the motion of the ſun through the twelve ſigns of the zodiac, and the aſpects of the moon. However, we ſhall detain the reader no longer upon the ſubject of ancient and imperfect machines, but proceed immediately to deſcribe the common thirty-hour clock according to the preſent improved conſtruction. On the Horology Plate IX. fig. 56 repreſents the profile of ſuch a clock: P is a weight that is ſuſpended by a rope that winds about the cylinder or barrel C, which is fixed upon the axis *a*, *a*; the pivots *b*, *b*, go into holes made in the plates TS, TS, in which they turn freely. Theſe plates are made of braſs or iron, and are connected by means of four pillars Z, Z, of which only two can be ſeen in the plate; and the whole together is called the *frame*. The weight P, if not reſtrained, would neceſſarily turn the barrel C with an uniform accelerated motion, in the ſame manner as if the weight were falling freely from a height. But the barrel is furniſhed with a ratchet-wheel KK, fig. 57, the right ſide of whoſe teeth ſtrikes againſt the click, which is fixed with a ſcrew to the wheel DD, ſo that the action of the weight is communicated to the wheel DD, fig. 56; the teeth of which act upon the teeth of the ſmall wheel *d*, which turns upon the pivots *cc*. The communication or action of one wheel with another is called the *pitching*. Several things are requiſite to form a good pitching, the advantages of which are obvious in all machinery where teeth and pinions are employed.

The wheel EE is fixed upon the axis of the pinion *d*; and the motion communicated to the wheel DD by the weight is tranſmitted to the pinion *d*, conſequently to the wheel EE, as likewiſe to the pinion *e* and wheel FF, which moves the pinion *f*, upon the axis of which the crown or balance-wheel GH is fixed. The pivots of the pinion *f* play in holes of the plates LM, which are fixed horizontally to the plates TS. In a word, the motion begun by the weight is tranſmitted from the wheel GH to the pallets IK, and by means of the fork UX, riveted on the axis of the pallets, communicates motion to the pendulum AB, which is ſuſpended upon the hook A. The pendulum AB deſcribes round the point A an arc of a circle alternately going and returning. If then the pendulum be once put in motion by a puſh of the hand, the weight of the pendulum at B will make it return upon itſelf, and it will continue to go alternately backward and forward till the reſiſtance of the air upon the pendulum, and the friction at the point of ſuſpenſion at A, deſtroys the original impreſſed force. But at every vibration of the pendulum, the teeth of the balance-wheel GH act ſo upon the pallets IK (the pivots upon the axis of theſe pallets play in two holes of the potence *st*), that, after one tooth, H, has communicated motion to the pallet K, that tooth eſcapes; then the oppoſite tooth, G, acts upon the pallet I, and eſcapes in the ſame manner; and thus each tooth of the wheel eſcapes the pallets IK, after having communicated their motion to the pallets in ſuch a manner that the pendulum, inſtead of being ſtopped, continues to move. The wheel EE revolves in an hour; the pivot *c* of this wheel paſſes through the plate, and is continued to *r*; upon the pivot is a wheel NN with a long ſocket faſtened in the centre; upon the extremity of this ſocket *r*, the minute-hand is fixed. The wheel NN acts upon the wheel O; the pinion of which, *p*, acts upon the wheel *qq*, fixed upon a ſocket which turns along with the wheel N. This wheel *qq* makes its revolution in 12 hours, upon the ſocket of which the hour-hand is fixed.

From the above deſcription it is eaſy to ſee, 1. That the weight P turns all the wheels, and at the ſame time continues the motion of the pendulum. 2. That the quickneſs of the motion of the wheels is determined by that of the pendulum. 3. That the wheels point out the parts of time divided by the uniform motion of the pendulum.

When the cord upon which the weight is ſuſpended is entirely run down from off the barrel, it is wound up again by means of a key, which goes on the ſquare end of the arbor at Q, by turning it in a contrary direction from that in which the weight deſcends. For this purpoſe, the inclined ſide of the teeth of the wheel K, fig. 57, removes the click C, ſo that the ratchet-wheel R turns while the wheel D is at reſt; but, as ſoon as the cord is wound up, the click falls in between the teeth of the wheel D, and the right ſide of the teeth again act upon the end of the click, which obliges the wheel D to turn along with the barrel; and the ſpring A keeps the click between the teeth of the ratchet-wheel R.

We ſhall now explain how time is meaſured by the motion of the pendulum; and how the wheel E, upon the axis of which the minute-hand is fixed, makes but one preciſe revolution in an hour. The vibrations of a pendulum are performed in a ſhorter or longer time in proportion to the length of the pendulum itſelf. A pendudulum of $39\frac{1}{8}$ inches in length, makes 3600 vibrations in an hour: i. e. each vibration is performed in a ſecond of time, and for that reaſon it is called *a ſecond pendulum.* But a pendulum of $9\frac{25}{32}$ inches makes 7200 vibrations in an hour, or two vibrations in a ſecond of time, and is called *a half-ſecond pendulum.* Hence, in conſtructing a wheel whoſe revolution muſt be performed in a given time, the time of the vibrations of the pendulum which regulates its motion muſt be conſidered. Suppoſing, then, that the pendulum AB, fig. 56, makes 7200 vibrations in an hour, let us conſider how the wheel E ſhall take up an hour in making one revolution. This entirely depends on the number of teeth in the wheels and pinions. If the balance-wheel conſiſts of 30 teeth, it will turn once in the time that the pendulum makes 60 vibrations; for at every turn of the wheel, the ſame tooth acts once on the pallet I, and once on the pallet K, which occaſions two ſeparate vibrations in the pendulum; and the wheel having 30 teeth, it occaſions twice 30, or 60, vibrations. Conſequently this wheel muſt perform 120 revolutions in hour; becauſe 60 vibrations, which it occaſions at every revolution, are contained 120 times in 7200, the number of vibrations performed by the pendulum in an hour. Now, in order to determine the number of teeth for the wheels EF and their pinions *ef*, it muſt be remarked, that one revolution of the wheel E muſt turn the pinion *e* as many times as the number of teeth in the pinion is contained in the number of teeth in the wheel. Thus, if the wheel E contains 72 teeth, and the pinion *e* 6, the pinion will make 12 revolutions in the time that the wheel makes 1; for each tooth of the wheel drives forward a tooth of the pinion, and, when the 6 teeth of the pinion are moved, a complete revolution is performed; but the wheel E has by that time only advanced 6 teeth, and has ſtill 66 to advance before its revolution be completed, which will occaſion 11 more revolutions of the pinion. For the ſame reaſon, the wheel F having 60 teeth, and the pinion *f* 6, the pinion will make 10 revolutions while the wheel performs 1. Now, the wheel F, being turned by the pinion *e*, makes 12 revolutions for one of the wheel E; and the pinion *f* makes 10 revolutions for one of the wheel F; conſequently, the pinion *f* performs 10 times 12 or 120 revolutions in the time the wheel E performs one. But the wheel G, which is turned by the pinion *f*, occaſions 60 vibrations in the pendulum each time it turns round; conſequently the wheel G occaſions 60 times 120 or 7200 vibrations of the pendulum while the wheel E performs one revolution; but 7200 is the number of vibrations made by the pendulum in an hour, and conſequently the wheel E performs but one revolution in hour; and ſo of the reſt.

From this reaſoning, it is eaſy to diſcover how a clock may be made to go for any length of time without being wound up. 1. By increaſing the number of teeth in the wheels. 2. By diminiſhing the number of teeth in the pinions. 3. By increaſing the length of the cord that ſuſpends the weight. 4. By increaſing the length of the pendulum. And, 5. By adding to the number of wheels and pinions. But, in proportion as the time is augmented, if the weight continues the ſame, the force which it communicates to the laſt wheel GH will be diminiſhed.

We are next to notice the number of teeth in the wheels which turn the hour and minute hand. The wheel E performs one revolution in an hour; the wheel NN, which is turned by the axis of the wheel E, muſt likewiſe make only one revolution in the ſame time; and the minute-hand is fixed to the ſocket of this wheel. The wheel N has 30 teeth, and acts upon the wheel O, which has likewiſe 30 teeth, and the ſame diameter; conſequently the wheel O takes one hour to a revolution; now the wheel O carries the pinion *p*, which has 6 teeth, and which acts upon the wheel *qq*, of 72 teeth; conſequently the pinion *p* makes 12 revolutions while the wheel *qq* makes one, and of courſe the wheel *qq* takes 12 hours to one revolution; and upon the ſocket of this wheel the hour-hand is fixed. All that has been ſaid here concerning the revolutions of the wheels, &c. is equally applicable to watches as to clocks.

A portable eight-day clock differs from an ordinary 30-hour clock principally in five reſpects: in the firſt place, it is actuated by a ſpring; ſecondly, it has a ſhorter pendulum; thirdly, it has conſequently a higher train; fourthly, it requires a fuſee; and, laſtly, it has frequently a crown-wheel ſcapement; in ſhort, it may be conſidered as a watch on an enlarged ſcale, except that it has uſually the ſtriking mechaniſm, which is introduced in the repeating watches only. But a portable clock, ſuch as we have here deſcribed, is eaſily converted into a clock with a long caſe, and a ſuſpended weight for the maintaining power, by ſubſtituting a cylindrical barrel for the fuſee on the arbor of the great wheel, on which barrel the chain is wound, inſtead of being made to ſurround the fuſee; for, as a ſuſpended load acts at all times with the ſame power, it is neceſſary that the barrel ſhould have the ſame diameter at every part of it. Of this conſtruction are the eight-day houſehold clocks in general uſe. Alſo, by introducing a wheel and pinion between the great and centre wheels, the clock may be made to go a month or more, and by introducing two ſuch wheels and pinions, it may be made to go a year at one winding up, with a maintaining power proportionably great.

It now remains to ſpeak of that part of the movement which ſtrikes the hour, &c. The wheels compoſing this part are correctly exhibited in the preceding Engraving, viz. The great or firſt wheel H, fig. 58, which is moved by the weight or ſpring at the barrel G, in ſixteen or thirty hour clocks; this has uſually pins, and is called the *pin-wheel*; in eight-day pieces, the ſecond wheel, I, is commonly the pin-wheel, or ſtriking-wheel, which is moved by the former. Next to the ſtriking-wheel is the detent-wheel, or hoop-wheel, K, having a hoop almoſt round it, wherein is a vacancy at which the clock locks. The next is the third or fourth wheel, according to its diſtance from the firſt, called the *warning-wheel*, L. The laſt is the flying pinion Q, with a fly or fan, to gather air, and ſo bridle the rapacity of the clock's motion. To theſe muſt be added the pinion of report; which drives round the locking-wheel, called alſo the *count-wheel*; ordinarily with eleven notches in it, unequally diſtant, to make the clock ſtrike the hours. Beſides the wheels, to the clock part belongs the raſh or ratch; a kind of wheel with twelve large fangs, running concentrical to the dial-wheel, and ſerving to lift up the detents every hour, and make the clock ſtrike; the detents or ſtops, which, being lifted up and let fall, lock and unlock the clock in ſtriking; the hammer, as S, which ſtrikes the bell R; the hammer-tails, as T, by which the ſtriking-pins draw back the hammers; latches, whereby the work is lifted up and unlocked; and lifting-pieces, as P, which lift up and unlock the detents.

That part of the movement which is deſigned to meaſure and exhibit the time on the dial-plate is called the *watch-part* of either clock or watch, becauſe much of the mechaniſm is common to both. This will give us an opportunity of ſhowing the principal wheels of the clock in a different poſition from what they appear in fig. 56. Fig. 58, which ſhows the ſtriking-part, exhibits the watch or dial work alſo. Firſt you will notice the pendulum; whoſe parts are, the verge *x*, the pallets 5, 5, the rod *yyy*, the fork *z*, the flat 2, the bob or great ball 3, and the corrector or regulator 4, being a contrivance of Dr. Derham for bringing the pendulum to its nice vibrations. 2. The wheels, which are the crowned wheel F, in pocket-pieces, and ſwing-wheel in pendulums; ſerving to drive the balance or pendulum. 3. The contrate wheel E, which is that next the crown-wheel, &c. and whoſe teeth and hoop lie contrary to thoſe of other wheels; whence the name. 4. The great or firſt wheel C, which is that the fuſee B, &c. immediately drives, by means of the chain or ſtring of the ſpring-box or barrel A; after which are the ſecond wheel D, third wheel, &c. Laſtly, between the frame and dial-plate, is the pinion of report, which is that fixed on the arbor of the great wheel; and ſerves to drive the dial-wheel, as that ſerves to carry the hand.

For the illuſtration of this part of the work which lies concealed, let ABC, fig. 59, repreſent the uppermoſt ſide of the frame-plate, as it appears when detached from the dial-plate; the middle of this plate is perforated with a hole, receiving that end of the arbor of the centre-wheel which carries the minute-hand; near the plate is fixed the pinion of report *ab* of 10 teeth; this drives a wheel *cd* of 40 teeth; this wheel carries a pinion *ef* of 12 teeth; and this again drives a wheel *gh* with 36 teeth.

As in the body of the clock the wheels every where drive the pinions; here, on the contrary, the pinions drive the wheels, and by that means diminiſh the motion, which is here neceſſary; for the hour-hand, which is carried on a ſocket fixed on the wheel *gh*, is required to move but once round while the pinion *ab* moves 12 times round. For this purpoſe the motion of the wheel *cd* is $\frac{1}{4}$ of the pinion *ab*. Again, while the wheel *cd*, or the pinion *ef*, goes once round, it turns the wheel *gh* but $\frac{1}{3}$ part round; conſequently the motion of *gh* is but $\frac{1}{3}$ of $\frac{1}{4}$ of the motion of *ab*; now $\frac{1}{3}$ of $\frac{1}{4}$ is $\frac{1}{12}$; *i. e.* the hour-wheel *gh* moves once round in the time that the pinion of report, on the arbor of the centre or minute-wheel, makes 12 revolutions, as required. Hence the ſtructure of that part of a clock or watch which ſhows the time may be eaſily underſtood. The cylinder A, fig. 58, put into motion by a weight or incloſed ſpring, moves the fuſee B, and the great wheel C, to which it is fixed by the line or cord that goes round each, and anſwers to the chain of a watch.

The method of calculation is eaſily underſtood: for, ſuppoſe the great wheel C goes round once in 12 hours, then if it be a royal pendulum clock, ſwinging ſeconds, we have $60 \times 60 \times 12 = 43200$ ſeconds or beats in one turn of the great wheel. But becauſe there are ſixty ſwings or ſeconds in one minute, and the ſeconds are ſhown by an index on the end of the arbor of the ſwing-wheel, which in thoſe clocks is in an horizontal poſition; therefore, it is neceſſary that the ſwing-wheel F ſhould have thirty teeth; whence $\frac{43200}{60} = 720$, the number to be broken into quotients for finding the number of teeth for the other wheels and pinions.

In ſpring-clocks, the diſpoſition of the wheels in the watch-part is ſuch as is repreſented in the figure, where the crown-wheel F is in an horizontal poſition; the ſeconds not being ſhown there by an index, as is done in the large pendulum-clocks. Whence in theſe clocks the wheels are diſpoſed in a different manner; C is the great wheel, and D the centre or minute-wheel, as before; but the contrate-wheel E is placed on one ſide, and F the ſwing-wheel is placed with its centre in the ſame perpendicular line ID with the minute-wheel, and with its plane perpendicular to the horizon, as are all the others. Thus the minute and hour hands turn on the end of the arbor of the minute-wheel at *a*, and the ſecond hand on the arbor of the ſwing-wheel.

The ſtriking-part of a clock is ſubject to great variety in the conſtruction, according to the genius of different artiſts. In the year 1803 the Society for the Encouragement of Arts, &c. preſented to Mr. John Prior, of Neſsfield, Yorkſhire, a reward of thirty guineas, on account of his contrivance for the ſtriking part of an eight-day clock. It conſiſts of a wheel and fly, with ſix turns of a ſpiral line, cut upon the wheel for the purpoſe of counting the hours. The pins below this ſpiral elevate the hammer, and thoſe above are for the uſe of the detent. This ſingle wheel ſerves the purpoſe of count-wheel, pin-wheel, detent-wheel, and fly-wheel, and has ſix revolutions in ſtriking the 12 hours. If we ſuppoſe a train of wheels and pinions uſed in other ſtriking parts to be made without error, and that the wheels and pinions would turn each other without ſhake or play; then allowing the above ſuppoſition to be true, (though every mechanic knows it is not,) Mr. Prior's ſtriking-part would be found ſix times ſuperior to others, in ſtriking the hours 1, 2, 5, 7, 10, 11; twelve times ſuperior in ſtriking 4, 6, 8; and eighteen times, in ſtriking 3, 9, and 12. In ſtriking 2, the inventor purpoſely made an imperfection equal to the ſpace of three teeth of the wheel; and, in ſtriking 3, an imperfection of nine or ten teeth; and yet both theſe hours are ſtruck perfectly correct. The flies in clocks turn round, at a mean, about ſixty times for every knock of the hammer, but this turns round only three times for the ſame purpoſe; and, ſuppoſe the pivots were of equal diameters, the influence of oil on them would be as the number of revolutions in each.

This invention is exhibited in the Engraving at fig. 60 and 61. A, fig. 60, ſhows the large wheel, on the face of which are ſunk or cut the ſix turns of a ſpiral. B, the ſingle worm ſcrew, which acts on the above wheel, and moves the fly C. D, the ſpiral work of the wheel A. The black ſpots ſhow the grooves into which the detents drop on ſtriking the hour. E, the groove into which the locking-piece F drops when it ſtrikes one, and from which place it proceeds to the outward parts of the ſpiral in the progreſſive hours, being thrown out by a lifting-piece H at each hour; the upper detent G being pumped off with the locking-piece F, from the pins in the wheel A. In ſtriking the hour of twelve, the locking-piece, having arrived at the outer ſpiral at H, riſes up an inclined plane, and drops by its own weight to the inner circle, in which the hour one is to be ſtruck, and proceeds on in a progreſſive motion through the different hours till it comes again to twelve. I, the hammer-work, made in the common way, which is worked by thirteen pins on the face of the ſpiral. In fig. 61, at K, are ſhown the pins on the face of the ſpiral, which regulate the hammer-work, and are thirteen in number. L, the outer pins, which lock the detent. M, the pump-ſpring to the detent.

In the year 1805, the ſame Society voted fifteen guineas to Mr. Henry Ward, of Blandford, in Dorſetſhire, for a clock-movement, wherein the ſtriking-part is ſo far ſimplified, that the whole train of wheels uſed in common clocks, together with the barrel and weight, are entirely ſuperſeded, and the power neceſſary for raiſing the hammer is obtained from the pendulum.

AAAA, fig. 62, repreſents the front ſide of the frame. B, a cock in which reſts the pivot of the pallet-arbor. C, a braſs arm firmly fixed on the ſame. D, the gathering-pallet; and E, a thin plate of braſs; both riveted on the ſame collet, which turns on a ſmall ſtud fixed in the arm C; this braſs plate has two notches in it, at *a b*, in which acts a ſlender ſpring F, faſtened to the collet of the arm C by a ſmall ſcrew, and ſerves to keep the gathering-pallet in its proper poſition. G, the cock of the hammer-bar. H, the hammer-tail, which acts alſo as a hook in the teeth of the rack. I, a braſs arm, or rather a lever, which lies behind the minute-wheel N, and is fixed with the hammer-tail to the hammer-bar by means of a pin. K, the flirt. M, the rack. N, the minute-wheel. O, the hour-wheel. The bridge and ſnail are the ſame as in a common clock.

The operation of this work is as follows. A pin is fixed in the back of the minute-wheel N, and, as it revolves, raiſes the lever I, by which the hammer-tail H is lifted out of the rack; the rack is then at liberty to fall; the lever I, by bearing againſt the pin, returns gradually, and prevents the hammer from ſtriking the bell. Before the pin has quitted the lever I, another pin in the front ſide of the ſame wheel begins to lift the flirt; when raiſed to a ſufficient height, it is let go by the pin, and falls on the gathering-pallet D, which forces it into the rack; it is prevented from riſing out of the rack by the ſpring F having got into the notch *b* of the braſs plate E; the pallet immediately acts on the rack; for, as the arm C moves from left to right, it lays hold of a tooth, and carries it along with it by means of the *vis inertiæ* of the pendulum, at the ſame time the hammer-tail is raiſed by another tooth of the rack, and on quitting it the hammer ſtrikes the bell; when the arm C returns with the gathering-pallet from right to left, the rack is prevented from returning with it by the tooth reſting againſt the end of the hammer-tail; the pallet is then carried over another tooth, and at the next vibration moves the rack and hammer-tail as before; thus they continue to act alternately on each other till the rack is up, and the clock makes one ſtroke regularly at every other vibration. Now, in order to diſengage the gathering-pallet, there is a pin fixed in the rack at *c*; and, as ſoon as the laſt tooth of the rack has got paſt the hammer-tail, the ſhoulder of the braſs plate E, which is rivetted to the pallet, ſtrikes againſt the pin *c*, and lifts it out of the rack, the ſpring F jumps into the notch *a*, and prevents it from returning; thus it remains detached, and the pendulum continues to vibrate without any obſtruction. The ball of the pendulum weighs about eight pounds thirteen ounces: and the weight twenty-four pounds. The clock has a dead ſcapement.

"The objection that may perhaps be made to this clock (ſays Mr. Ward) is, that the ſtriking-part diſturbs the iſochroniſm of the pendulum; but whoever will take the trouble to try it againſt another pendulum of the ſame length, both before and after it has ſtruck, will find no ſenſible alteration; and, even if that were the caſe, the irregularities would be periodical, and return to themſelves every twelve hours. The advantages which I conceive this clock to have over a common clock, are as follow: 1. That it is not attended with that diſagreeable roaring which is frequently heard in the wheels and pinions of others, and particularly the fly-pivots, when in want of oil. 2. That the interval between the ſtrokes is uniformly the ſame; the caſe is very different in other clocks, for as they get foul they always ſtrike ſlower, and more ſo ſtill when the weather is cold. 3. That, in conſequence of its ſimplicity, it is not liable to be out of repair. 4. That it can be manufactured for conſiderably leſs expence."

To the ſtriking-part of a clock are ſometimes added *chimes*, a ſpecies of muſic mechanically produced by the ſtrokes of hammers againſt a ſeries of bells, tuned agreeably to a given ſcale in muſic; the hammers are lifted by levers acted upon by metallic pins or wooden pegs ſtuck into a large barrel which is made to revolve, and is ſo connected with the ſtriking-part of the clock-mechaniſm, that it is ſet in motion by it at certain intervals of time, moſt uſually either at every hour, or at every quarter of an hour. The muſic thus produced may conſiſt of a direct ſucceſſion of the notes conſtituting an octave frequently repeated, or otherwiſe may be a pſalm tune, or ſhort popular air, in the key to which the bells are tuned. This ſpecies of mechanical muſic is by no means calculated to improve the taſte, and had its origin moſt probably, like clock-work itſelf, in ſome of the monaſtic inſtitutions of Germany, where, according to Dr. Burney, it prevails greatly, and where the ringing of changes on bells, as in England, is but little, if at all, practiſed. The chime-mechaniſm may be adapted either to act with the large bells of a church ſteeple, by means of wheel-work proportionably ſtrong to raiſe heavy hammers, or a ſet of bells of different diameters may be arranged concentrically, within one another, on one common axis, ſufficiently ſmall to be introduced into the frame of a clock, or even of a watch, as was performed by Margetts, who lately died in a ſtate of inſanity. The manner in which the hammers are moved by the pins of the chime-barrel muſt neceſſarily vary according to circumſtances, as the wires of different rooms are differently placed to produce the ſound of a houſe-bell; but an ingenious workman will vary the length and ſhape of his levers of communication agreeably to the ſituation and diſtance of his bells from the clock-work.

In the Tranſactions of the Society for the Encouragement of Arts, for 1786, is given a deſcription of an improved piece of mechaniſm of this kind, invented by Mr. Sampſon. The ſame duty can be ſafely performed by one train of wheels in this clock as it can by two trains of wheels in the common one; becauſe, in this clock, the wheels of communication are puſhed into their place before the clock gives warning, and that warning makes it ſafe, for the locking cannot drop into its place again, therefore the clock muſt chime and ſtrike; but in common chime-clocks the uſual way of diſcharging the chime is by a flirt, which in many inſtances has been known to fail. The pieces A, B, D, and E, repreſented in the Horology Plate X. at fig. 63, all move together on the centre C. The wheels of communication, marked 24 each, are both on one arbor, and communicate motion from the pin-wheel in the ſtriking-train to the chime-barrel. When the pin in the minute-wheel begins to lift the piece D, conſequently the piece E will puſh the wheel 24 into the teeth of the pin-wheel, now at reſt, before the clock gives warning. Alſo B will be lifted out of the locking-plate, and A will be moved over the detent on which is the hammer-tail F, and thereby pump it off the pins in the pin-wheel, and prevent it from ſtriking the hour-bell while the muſic is playing. When the rack is diſcharged,

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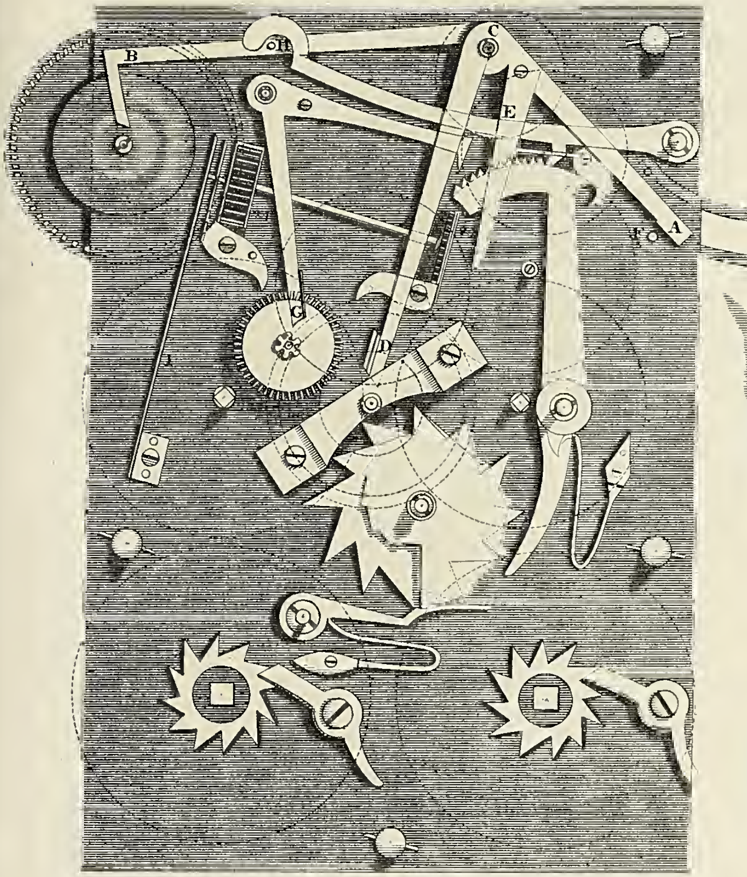

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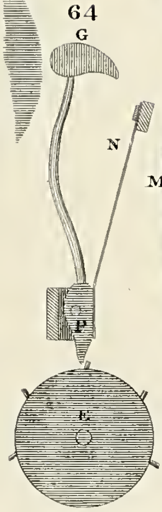

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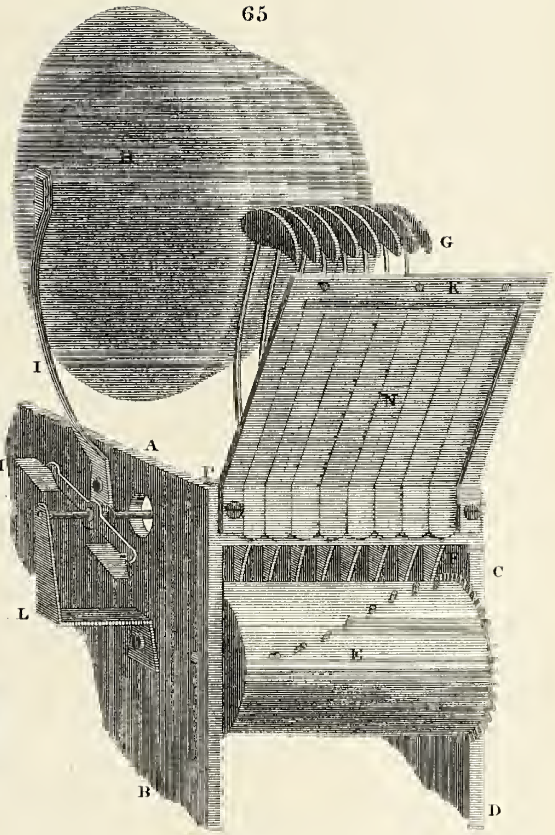

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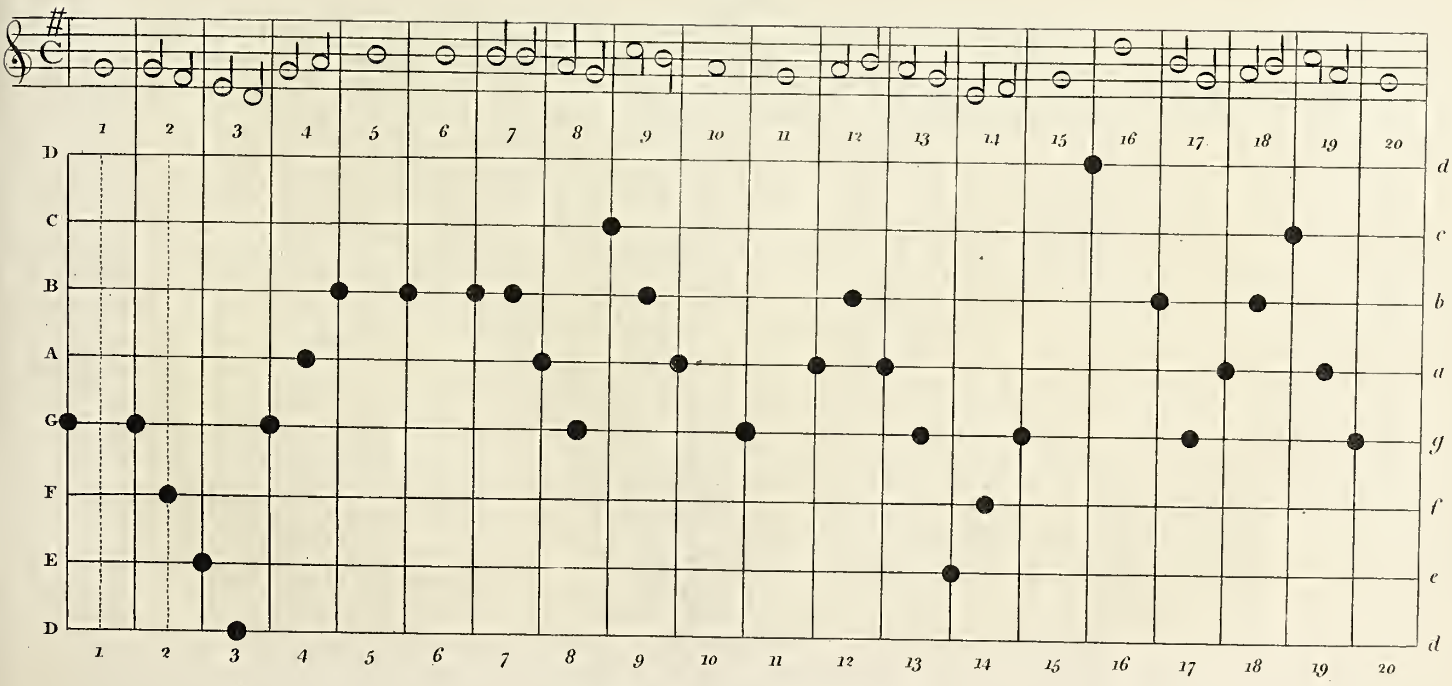

*Clock with Chimes.*

J. Pass sculp.t

London; Publ.d as the Act directs Dec.r 4.1809. by J. Wilkes.

and the warning-piece G has dropped off the pin in the other minute-wheel, the ſtriking-train will be in motion, and turn the chime-barrel, which while it is playing, the pin at H prevents the hook from gathering up the rack. When the chime has done playing, the ſmall ſpring I puſhes the wheels 24 out of the teeth of the pin-wheel; and the pieces A, B, D, and E, return into the places as repreſented in the callipers; and then the clock ſtrikes the hour.

We muſt next endeavour to give the reader an idea how a communication is made from the barrel to the bells, which portion could not eaſily be repreſented in the ſame figure. But the figures 64 and 65 ſhow as much of the chime-mechaniſm of an ordinary clock as will ſerve for our preſent purpoſe: ABCD, fig. 65, conſtitutes a portion of the clock-frame, of which one connecting pillar only is ſhown; E is the chime-barrel, of braſs, nearly equal in length to the pillar, and of a diameter ſufficient to admit of diagonal rows of braſs or ſteel pins to lift the hammer-tails F, in the ſucceſſive order of a deſcending octave, while the barrel is revolving, there being eight hammers G, uſually ſtriking ſucceſſively againſt as many bells H, which are mounted concentrically, within one another, on a common axis held faſt by the bearing-piece of ſteel, I, ſcrewed to the face of one of the plates at its lower extremity. The mechaniſm connected with the ſtriking-part of the clock is ſo ingeniouſly contrived and arranged, that at and after the firſt quarter from any hour, it will repeat the octave once; at and after the ſecond quarter, it will repeat the ſame twice; at and after the third, three times; and at and after the hour itſelf, four times; alſo, whenever the octave is repeated four times, the chime-part unlocks the ſtriking-part, and allows the clock to ſtrike the laſt hour as ſoon as the chimes have ceaſed, but not before. K is a braſs frame ſcrewed at the lower end acroſs the ſide of the ſuperior part of the clock-frame, which holds the works, and has a braſs plate N, of hammered metal, attached to it by ſcrews; this plate, N, is divided nearly to the top by eight parallel vertical ſlits, made by a ſaw, which form ſo many ſprings; the hammers all turn upon a common fixed arbor near P, fig. 64, 65, by means of a perforation made in each ſolid part P above the tails, which ſolid part has a ſtraight edge in each, againſt the central point of which the reſpective ſpring bears a little above its inferior extremity, as ſhown at fig. 64; this mode of applying a ſpring gives it the advantage of performing two offices, for it will not only keep the hammer-tail in its proper ſituation, to be taken by a pin of the barrel, but will give a ſmartneſs to its blow, and then reſtore it to its original poſition, by acting alternately, partly above and partly below the central hole; which kind of action will readily be underſtood, by examining the opening joint of a pen-knife, and attending to the manner in which its ſpring is applied. L is a cock ſcrewed to the face of one of the plates of the frame, and holds the projecting pivot of the fly-wheel, to which the fly M is attached, with a ſpring preſſing againſt it in ſuch a manner as to hold it to the arbor of the wheel when the latter revolves, and yet to allow it to turn in a detached ſtate, when the motion of the wheel is ſuddenly arreſted at the concluſion of the chiming, which is a neceſſary precaution for preventing the deſtructive effect which might be produced by an inſtantaneous check of the momentum of the fly.

The chime-barrel here deſcribed, is pricked for the performance of a repetition of the eight notes of the octave by a deſcending gradation; but it might as eaſily have been made to chime the ſame ſcale by an aſcending gradation, or to play any hymn or other tune within the compaſs of the eight notes, or even with more notes, by the addition of a few more bells; which is what we muſt now proceed to explain.

In making a chime-barrel for any given tune, there are certain neceſſary conditions to be attended to: Firſt, the barrel muſt be well turned in a lathe upon its own arbor, ſo as to have the whole ſurface of its circumference concentrical, when revolving on its pivots. Secondly, the train of wheel-work, belonging to the chime-work, muſt make the barrel revolve in a ſpace of time exactly equal to what is required for playing the requiſite tune on any other inſtrument, which time may be exactly limited by proportioning the fly on the laſt wheel to the power of the weight or ſpring that urges the firſt wheel of the train. Thirdly, there muſt be as many bells as the compaſs of the propoſed tune contains muſical notes, and alſo as many rows of pegs inſerted into parallel circular lines on the circumference of the barrel as there are hammers to be lifted by them; and, laſtly, the whole circumference of the barrel muſt be divided into as many longitudinal parallelograms of equal breadth, as there are muſical bars in the propoſed tune, each of which muſt be again ſubdivided into as many parts as there are notes of the loweſt denomination, whether crotchets, quavers, or ſemi-quavers, in each bar; then the parallel dividing lines will correſpond to the bars, and the ſubdiviſions within will be the guides for placing the pegs in thoſe bars reſpectively: for inſtance, ſuppoſe that the 100th Pſalm be required to be played by a chime-clock of any deſcription, and that the points on the barrel where the pegs or pins are to be inſerted be required to be aſcertained.

In fig. 66, it will be ſeen that this pſalm is marked C, which implies, that the bar is meaſured by four crotchets, or two minims, in each bar; it is alſo obſervable that the quickeſt note in the tune is a minim, of which denomination two conſtitute four crotchets, or one bar; conſequently the bar muſt be ſubdivided into two parts, as expreſſed by the dotted lines in the figure for the two firſt bars on the chime-barrel; but, if the tune had contained any crotchets, the bar muſt have been ſuppoſed to be divided into four parts; or, if quavers, into eight parts, &c. in order that each note might occupy its proportionate ſpace within the bar. Now ſuppoſe the length of the barrel to be repreſented by the line DD, or *dd*, becauſe the compaſs of the pſalm is juſt one octave beginning and ending with D incluſively, the line DD, or *dd*, muſt be divided into ſeven equal parts, which will require eight points in each to include them, viz. D, E, F, G, A, B, C, D, and *d*, *e*, *f*, *g*, *a*, *b*, *c*, *d*; then, becauſe the whole pſalm contains 20 bars, the whole line, D*d*, which we aſſume as equal to the circumference of the barrel, muſt be divided into 20 equal parts, which we have made to fall oppoſite their reſpective bars, the better to elucidate our example. From the dividing points let ſtraight lines be drawn to complete the ſquare, or parallelogram, as the caſe may be, and there will be a figure, DD *dd*, with 8 × 20 = 160 ſmall ſquares or parallelograms, which we will ſuppoſe to be on paper that will exactly cover the barrel when paſted round it, in order to convey a more diſtinct idea of the method of aſcertaining the true places of the pins on the barrel, which may be thus done: The pin belonging to the firſt note, G, is repreſented by a dot upon the beginning of the line G*g*; now this note, being a ſemibreve, occupies a whole bar; no other note therefore can be inſerted in the remaining ſpace, but the next following pin muſt be one whole bar forward; accordingly the next note, which is G alſo, is placed on the ſame line, upon the beginning of the next bar; the ſecond G is a minim, occupying but half a bar; it therefore requires the next ſucceeding note, F, to be removed only half a bar; namely to the interſection of the lines F*f* and 2 2. The next note, E, ſtands on the following bar-line, where it interſects the line E*e*; and the following note, D, the loweſt note of the tune, ſtands on the loweſt line in the middle of the bar, (at the interſection of the lines D*d* and 3 3,) to complete the meaſure; each note occupying half a bar only till we come to the fifth and ſixth bars, which are ſimilar to the firſt. We might thus have analyſed the whole ſurface of the barrel, ſo far as relates to this pſalm; but it is preſumed the preceding detail, clearly underſtood, will render the reſt perfectly intelligible without further explication. We have here elucidated the mode of chiming the 100th Pſalm in preference to any other tune, becauſe in Derham's Artificial Clockmaker, publiſhed in 1714, the notes of this pſalm, which he gave as an example, were unfortunately wrong pricked down, and the barrel was wrong marked alſo; theſe miſtakes were copied into Chambers's Cyclopædia; thence, with a few additional blunders, into the Encyclopædia Britannica; and ſo on into all the abbreviations and imitations of thoſe excellent works.

When the hammers are very heavy, as in church-clocks, thoſe bells which have quavers or ſemi-quavers of the ſame note, to be ſtruck immediately in ſucceſſion, require to have each two hammers and each a pair of parallel circles pricked to perform within the limit of time; but this is not required in common houſe-clocks; for, where the mechaniſm is light, the hammers may be made to act with as much rapidity as the jacks of a harpſichord.

This method of pricking a chime-barrel for playing on bells differs from that of an organ-barrel in this reſpect; that in the former the length of the note is meaſured by the ſpace between the contiguous pins, whereas in the latter the limit of the note is produced by crank-pieces, inſtead of pins, which pieces keep the pipes open, and therefore muſt cover the very ſpaces which lie between the pins of the other, the projecting parts of one barrel mutually correſponding to the vacant parts of the other.

The ingenious Dr. Franklin contrived a clock to ſhow the hours, minutes, and ſeconds, with only three wheels and two pinions in the whole movement. The dial-plate, fig. 67, Plate XI. has the hours engraven upon it in ſpiral ſpaces along two diameters of a circle containing four times 60 minutes. The index A goes round in four hours, and counts the minutes from any hour by which it has paſſed to the next following hour. The time, therefore, in the poſition of the index ſhown in the figure is thirty minutes paſt either XII. IIII. or VIII. and ſo in every other quarter of the circle it points to the number of minutes after the hours which the index laſt left in its motion. The ſmall hand B, in the upper circle, goes round once in a minute, and ſhows the ſeconds. A plan of the wheel-work of this clock may be ſeen in fig. 68. A is the firſt or great wheel, containing 160 teeth, and carries round in four hours, the index A, in fig. 67, let down through a hole on its axis. This wheel turns a pinion B, of ten leaves, which therefore goes round in a quarter of an hour. On the axis of this pinion is the wheel C, of 120 teeth; which goes round in the ſame time, and turns a pinion D, of eight leaves, round in a minute, with the ſeconds hand B, of fig. 67, fixed on its axis, and alſo the wheel E of 30 teeth, for moving a pendulum (by pallets) that vibrates ſeconds, as in a common clock. This clock is wound up by a line going over a pulley on the axis of the great wheel, like a common thirty-hour clock, as ſhown at F, fig. 68. Many of theſe ſimple machines have been conſtructed, which meaſure time exceedingly well. It is ſubject, however, to the inconvenience of requiring frequent winding by drawing up the weight; and likewiſe to ſome uncertainty as to the particular hour ſhown by the index A.

Mr. Ferguſon propoſed to remedy theſe inconveniences by the following conſtruction. In the dial-plate of this clock, fig. 69, there is an opening *a b c d*, below the centre; through which appears part of a flat plate, on which the 12 hours, with their diviſions into quarters, are engraved. This plate turns round in 12 hours; and the index A points out the true hour, &c. B is the minute-hand, which goes round the large circle of 60 minutes, whilſt the plate *a b c d* ſhifts its place one hour under the fixed index A. There is another opening *e f g*; through which the ſeconds are ſeen on a flat moveable ring at the extremity of a fleur-de-lis, engraved on the dial-plate. The plan of the wheel-work of this clock may alſo be readily conceived from fig. 68. A ſhows the great wheel, containing 120 teeth, and turning round in 12 hours. The axis of this wheel bears the plate of hours, which may be moved by a pin paſſing through ſmall holes drilled in the plate, without affecting the wheel-work. This great wheel A turns a pinion B of 10 leaves round in an hour, and carries the minute-hand B on its axis round the dial-plate in the ſame time. On this axis is a wheel C, of 120 teeth, turning round a pinion D, of ſix leaves, in three minutes; on the axis of which there is a wheel E, of 90 teeth, that keeps a pendulum in motion, vibrating ſeconds by pallets, as in a common clock, when the pendulum-wheel has only 30 teeth, and goes round in a minute. In order to ſhow the ſeconds by this clock, a thin plate muſt be divided into three times 60, or 180, equal parts, and numbered 10, 20, 30, 40, 50, 60, three times ſucceſſively; and fixed on the ſame axis with the wheel of 90 teeth, ſo as to turn round near the back of the dial-plate; and theſe diviſions will ſhow the ſeconds through the opening *e f g h*, fig. 69. This clock will go a week without winding, and always ſhow the preciſe hour; but Mr. Ferguſon candidly acknowledges, that it has two diſadvantages, from which Dr. Franklin's clock is free. When the minute-hand B, fig. 69, is adjuſted, the hour-plate muſt alſo be ſet right by means of a pin; and the ſmallneſs of the teeth in the pendulum-wheel will cauſe the pendulum-ball to deſcribe but ſmall arcs in its vibrations; and therefore the momentum of the ball will be leſs, and the times of the vibrations will be more affected by an unequal impulſe of the pendulum-wheel on the pallets. Beſides, the weight of the flat ring on which the ſeconds are engraved, will load the pivots of the axis of the pendulum-wheel with a great deal of friction, which ought by all poſſible means to be avoided. To remedy this inconvenience, the ſecond plate might be omitted. A clock ſimilar to Dr. Franklin's was made in Lincolnſhire about the end of the 17th century; and is now in London in the poſſeſſion of a grandſon of the perſon who made it. Mudge ſays, that clocks of the ſame kind were uſed in Tompion's houſe; ſo that he reckons the invention by no means new.

A clock, ſhowing the apparent diurnal motions of the ſun and moon, the age and phaſes of the moon, with the time of her coming to the meridian, and the times of high and low water, by having only two wheels and a pinion added to the common movement, was contrived by Mr. Ferguſon, and deſcribed in his Select Exerciſes. The dial-plate of this clock as ſhown in the ſame plate, at fig. 70, contains all the twenty-four hours of the day and night. S repreſents the Sun, which ſerves as the hour-index, by going round the dial-plate in twenty-four hours; and M the Moon, which goes round in twenty-four hours fifty minutes and a half, the time of her going round in the heavens from one meridian to the ſame meridian again. The Sun is fixed to a circular plate, as ſhown at fig. 71, and is carried round by the motion of that plate on which the twenty-four hours are engraven; and within them is a circle divided into twenty-nine and a half equal parts for the days of the moon's age, reckoning from new moon to new moon; and each day ſtands directly under the time, in the twenty-four hour circle, of the moon's coming to the meridian; the XII under the Sun ſtanding for noon, and the oppoſite XII for midnight. The Moon M, is fixed to an inner circular plate, fig. 70, of the ſame diameter with that which carries the Sun, part of which may be ſeen through the opening over which the ſmall wires *a* and *b* paſs in the moon-plate. The wire *a* ſhows the moon's age and time of her coming to the meridian, and *b* ſhows the time of high-water for that day in the ſun-plate. The diſtance of theſe wires anſwers to the difference of time between the moon's coming to the meridian and high-water at the place for which the clock is made. At London their difference is two hours and a half. Above the moon-plate there is a fixed plate N, ſupported by a wire A, fixed to it at one end, and fixed at right angles into the dial-plate at the midnight

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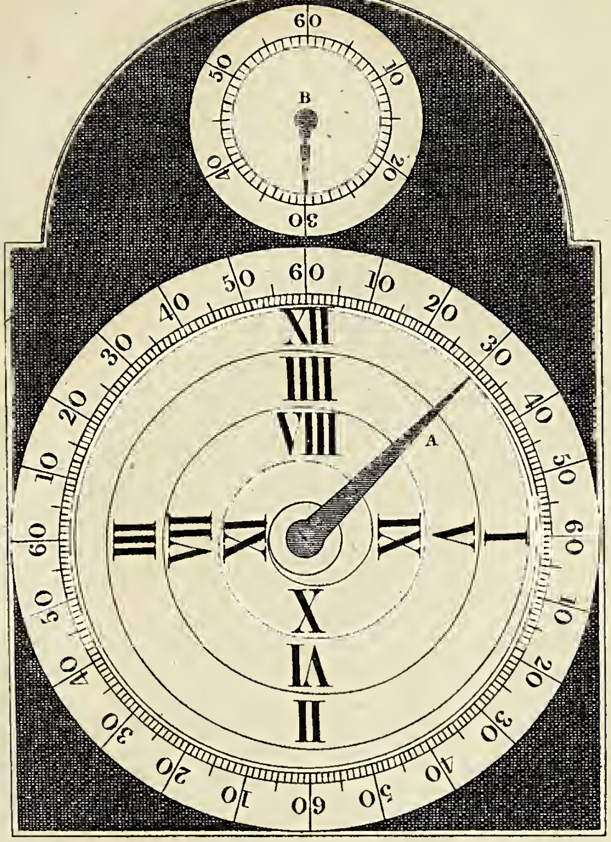

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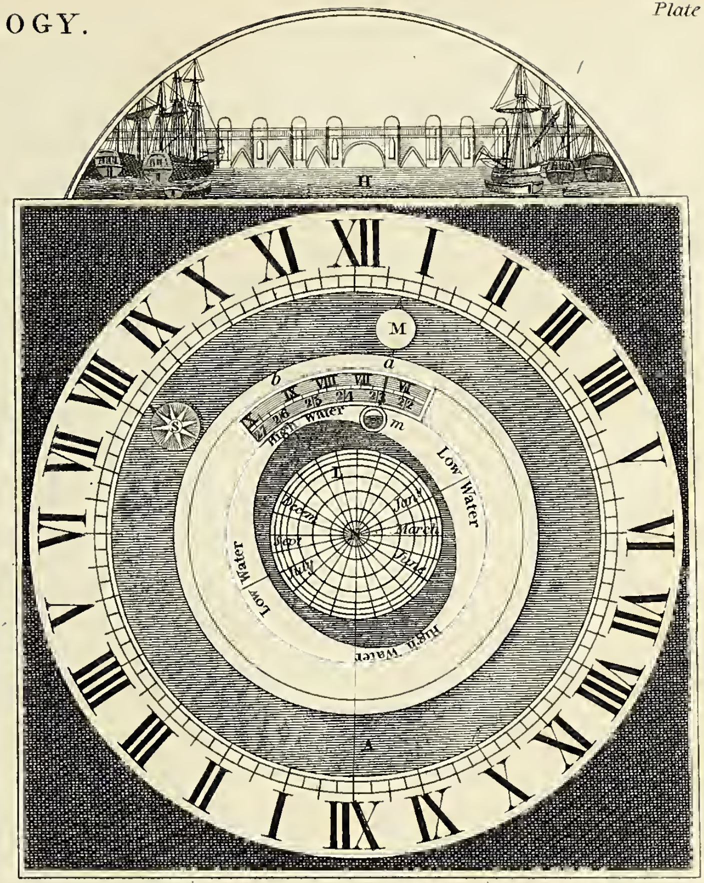

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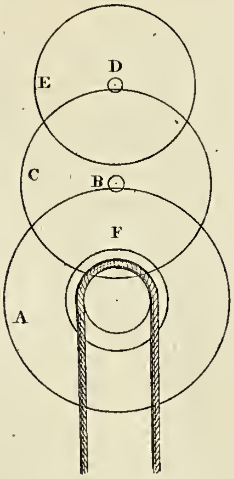

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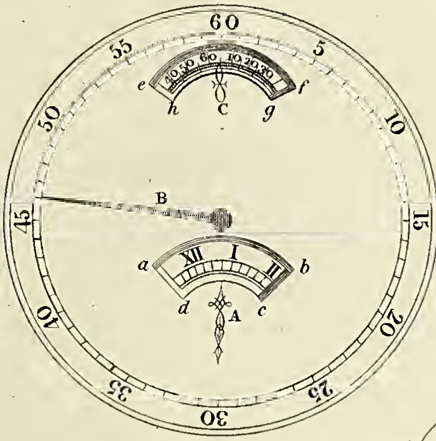

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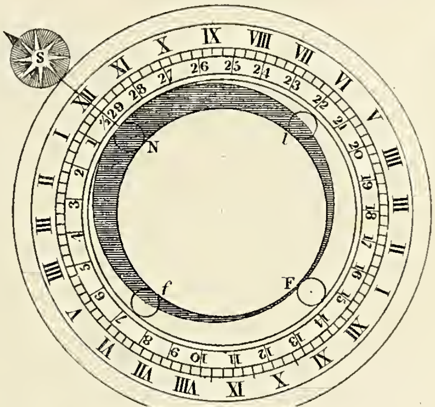

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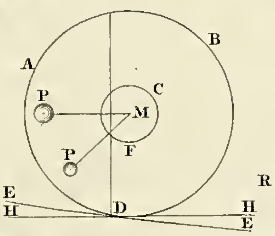

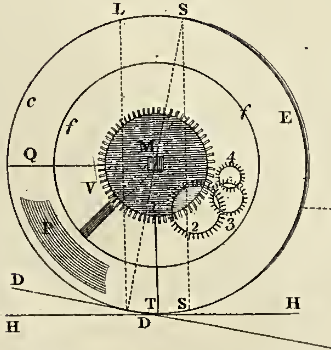

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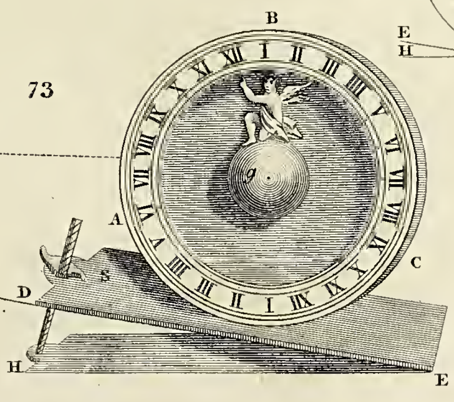

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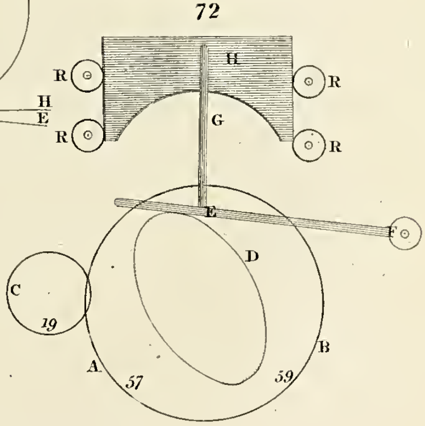

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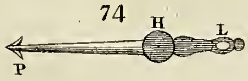

*Improved Clocks.*

J. Roe sculp.

London; Published as the Act directs, Jan. 1. 1810, by J. Wilkes.

midnight XII. This plate may repreſent the Earth, and L, London, or the place to which the clock is adapted. Around this plate there is an elliptic ſhade on the moon-plate, the higheſt points of which are marked High-water, and the loweſt Low-water. As this plate turns round below the plate N, theſe points come ſucceſſively even with L, and ſtand over it at the times when it is high or low water at the given place; which times are pointed by the ſun S on the dial-plate; and the plate H, above XII at noon, riſes or falls with the tide. As the Sun S goes round the dial-plate in twenty-four hours, and the Moon M in twenty-four hours fifty minutes and a half, it is plain that the Moon makes only twenty-eight revolutions and a half whilſt the Sun makes twenty-nine and a half; ſo that it will be twenty-nine days and a half from conjunction to conjunction. And thus the wire *a* ſhifts over one day of the moon's age on the ſun-plate in twenty-four hours. The phaſes of the moon for every day of her age may be ſeen through a round hole *m* in the moon-plate: thus, at conjunction or new-moon, the whole ſpace ſeen through *m* is black; at oppoſition or full-moon this place is white; at either quadrature half black and half white; and at every poſition the white part reſembles the viſible part of the moon for every day of her age. The black-ſhaded ſpace N *f* F *l*, on the ſun-plate, fig. 71, ſerves for theſe appearances. N repreſents the new moon, F the full-moon, and *f* her firſt quarter, and *l* her laſt quarter, &c.

The wheel-work and tide-work of this clock are repreſented at fig. 72. A and B are two wheels of equal diameters; A has fifty-ſeven teeth, with a hollow axis that paſſes through the dial of the clock, and carries the ſun-plate with the Sun S. B has fifty-nine teeth, with a ſolid ſpindle for its axis, which turns within the hollow axis of A, and carries the moon-plate, (fig. 70.) Both wheels are turned round by a pinion C, of nineteen leaves, and this pinion is turned round by the common clock-work in eight hours; and, as nineteen is the third part of fifty-ſeven, the wheel A will go round in the twenty-four hours, and the wheel B in twenty-four hours fifty minutes and a half; fifty-ſeven being to twenty-four as fifty-nine to twenty-four hours fifty minutes and a half very nearly. On the back of the wheel B is fixed an elliptical ring D, which, in its revolution, raiſes and lets down a lever EF, whoſe centre of motion is on a pin at F; and this, by the upright bar G, raiſes and lets down the tide-plate H twice in the time of the moon's revolving from the meridian to the meridian again; this plate moves between four rollers RRRR. A contrivance of this kind was adapted by Mr. Ferguſon to the movement of an old watch; the great wheel of a watch goes round in four hours; on the axis of this he fixed a wheel of twenty teeth, to turn a wheel of forty teeth on the axis of the pinion C; by which means that pinion was turned round in eight hours, the wheel A in twenty-four, and the wheel B in twenty-four hours fifty minutes and a half.

We ſhall ſubjoin a brief account of two curious contrivances. The firſt, for giving motion to the parts of a clock by making it to deſcend along an inclined plane, is the invention of Mr. Maurice Wheeler; and the clock itſelf may be ſeen in Don Saltero's coffee-houſe at Chelſea. DE, fig. 73, is the inclined plane on which the clock ABC deſcends; this conſiſts externally of a hoop about an inch broad, and two ſides or plates ſtanding out beyond the hoop about one-eighth of an inch all round, with indented edges, that the clock may not ſlide, but turn round whilſt it moves down. One of theſe plates is inſcribed with the twenty-four hours, which paſs ſucceſſively under the index LP, fig. 74, which is always in a poſition perpendicular to the horizon, and ſhows the hour on the top of the machine; for this reaſon the lower part of the index, or HL, is heavieſt, that it may preponderate the other, HP, and always keep it pendulous, with its point to the vertical hour, as the movement goes on. Inſtead of this index, an image may be fixed for ornament on the axis *g*, which with an erected finger performs the office of an index. In order to deſcribe the internal part or mechaniſm of this clock, let LETQ, fig. 73, be the external circumference of the hoop, and *ff* the ſame plate, on which is placed the train of wheel-work 1, 2, 3, 4, which is much the ſame as in other clocks, and is governed by a balance and regulator as in them. But there is no need of a ſpring and fuſee in this clock; their effects being otherwiſe ſupplied. In this machine the great wheel 1 is placed in the centre, or upon the axis of the movement, and the other wheels and parts towards one ſide, which would therefore prove a bias to the body of the clock, and cauſe it to move, even on the horizontal plane, for ſome ſhort diſtance; this makes it neceſſary to fix a thin plate of lead at C, on the oppoſite part of the hoop, to reſtore the equilibrium of the movement. This being done, the machine will abide at reſt in any poſition on the horizontal plane HH; but, if that plane be changed into the inclined plane DE, it will touch it in the point D; but it cannot reſt there, becauſe the centre of gravity at M acting in the direction M 1, and the point T having nothing to ſupport it, muſt continually deſcend, and carry the body down the plane. But now if any weight P be fixed on the other ſide of the machine, ſuch as ſhall remove the centre of gravity from M to the point V, in the line LD, which paſſes through the point D, it will then reſt upon the inclined plane, as in the caſe of the rolling cylinder. If this weight P be ſuppoſed not fixed, but ſuſpended at the end of an arm, or vectis, which arm or lever is at the ſame time faſtened to the centrical wheel 1, moving on the axis M of the machine, which wheel by its teeth ſhall communicate with the train of wheels, &c. on the other ſide, and the power of the weight be juſt equal to the friction or reſiſtance of the train, it will remain motionleſs, as it did before when it was fixed; and conſequently the clock alſo will be at reſt on the inclined plane. But, ſuppoſing the power of the weight P to be ſuperior to the reſiſtance of the train, it will then put it into motion, and of courſe the clock likewiſe; which will then commence a motion down the plane; while the weight P, its vectis PM, and the wheel 1, all conſtantly retain the ſame poſition which they have at firſt when the clock begins to move. Hence it is eaſy to underſtand, that the weight P, may have ſuch an intrinſic gravity, as ſhall cauſe it to act upon the train with any required force, ſo as to produce a motion in the machine of any required velocity; ſuch, for inſtance, as ſhall carry it once round in twenty-four hours; then, if the diameters of the plates ABC be four inches, it will deſcribe the length of their circumference, viz. 12·56 inches in one natural day; and therefore, if the plane be of a ſufficient breadth, ſuch a clock may go ſeveral days, and would furniſh a perpetual motion, if the plane were infinitely extended. Let SD be drawn through M, perpendicular to the inclined plane in the point D; alſo let LD be perpendicular to the horizontal line HH, paſſing through D; then is the angle HDE = LDS = DMT; whence it follows, that the greater the angle of the plane's elevation is, the greater will be the arch DT; and conſequently the further will the common centre of gravity be removed from M; therefore the power of P will be augmented, and of courſe the motion of the whole machine accelerated. Thus it appears, that by duly adjuſting the intrinſic weight of P, at firſt to produce a motion ſhowing the mean time as near as poſſible, the time may be afterwards corrected, or the clock made to go faſter or ſlower, by raiſing or depreſſing the plane, by means of the ſcrew at S. The angle to which the plane is firſt raiſed, is about ten degrees. The marquis of Worceſter is alſo ſaid to have contrived a watch that moved on a declivity. See Phil. Tranſ. Abr. vol. i. p. 468, &c.

The other contrivance is that of M. de Gennes, for making a clock aſcend on an inclined plane. To this end let ABC, fig. 75, be the machine on the inclined plane EDE, and let it be kept at reſt upon it, or in equilibrio, by the weight P, at the end of the lever PM. The circular area CF is one end of the ſpring-barrel in the middle of the movement, in which is included a ſpring as in a common watch. To this end of the barrel the arm or lever PM is fixed upon the centre M; and thus, when the clock is wound up, the ſpring moves the barrel, and conſequently the lever and weight P, in the ſituation PM. In doing this, the centre of gravity is conſtantly removed farther from the centre of the machine, and therefore it muſt determine the clock to move upwards, which it will continue to do as long as the ſpring is unbending itſelf; and thus the weight and its lever PM will preſerve the ſituation they firſt have, and do the office of a chain and fuſee. See Phil. Tranſ. Abr. vol. i. p. 467.

C. Janvier preſented, in the year 1800, a beautiful clock to the national inſtitute at Paris, in which are repreſented the nodes of the moon, the preceſſion of the equinoxes, and the two parts of the equation of time. Alſo a machine which contains new inventions for eclipſes, tides, ſatellites, the annual parallaxes, the true movements, &c. in which machine the motions are not increaſed ſo as to affect the moving power of the regulating wheel.

The Rev. Burgiſs Alliſon has given, in the American Philoſophical Tranſactions, 1803, a deſcription of a newly-invented globe time-piece, by which the following problems may be readily worked: 1. To find the hour and minute of the day. 2. To find, with great accuracy, the time of ſun-riſing and ſun-ſetting in every part of the world. 3. To find the different ſeaſons, and the length of day and night. 4. The ſun's place in the ecliptic, and the day of the month. 5. The phaſes of the moon, her age, place of the nodes, eclipſes, &c. &c.

It is to be lamented that we have not in the Engliſh language any regular inſtructions for the ſucceſſive portions of work to be performed in the conſtruction of a good clock; for, until the clock-maker by profeſſion can proceed in his work on ſcientific principles, he muſt be content to be a mere ſlave of imitation in an art, which is capable of affording him genuine pleaſure, from the opportunities it gives, of calling in ſcience to his aid in every ſtep that he takes, through an infinite variety of practical conſtructions. We do not pretend, within the compaſs of this ſingle article, to ſupply the deſideratum; but ſome information will be expected from us; and which, if it may not afford the expert and informed workman much inſtruction, will, we preſume, gratify the curioſity of the inquiſitive mind, as far as the detail goes.

We will ſuppoſe that a portable eight-day clock, with a half-ſeconds pendulum, and a ſpring for a maintaining power, is fixed upon as the inſtrument to be made. The firſt thing to be done, and that in which the clock-maker is generally deficient, is, to calculate the movement, or proper number of teeth in the wheels, and of leaves in the pinions, of the going part of the mechaniſm. Dr. Derham, in his Artificial Clock-maker, has treated this ſubject at conſiderable length, and has laid down rules which have tended more to puzzle than aſſiſt the workman in the choice of his numbers: he propoſes to take at random a certain number of vibrations per hour for a pendulum of an aſſumed length, to repreſent his train, and then to find the factors or numbers, which, uſed as multipliers, ſhall give the requiſite product, or nearly ſo; after which each factor is repreſented by a ratio of two optional numbers, to conſtitute a wheel and its pinion. We will not follow the doctor through his proceſſes here, but merely obſerve, that, by calculating his whole movement *at one operation* from an aſſumed number of vibrations, he has introduced a variety of ſuch trains into portable clocks and watches, as make a vibration of the ſhort pendulum, and an oſcillation of the balance, no exact fraction of a ſecond; in ſhort, he has begun at the wrong end; has firſt fixed on the length of his pendulum in inches, without conſidering exactly the number of vibrations it would make, and then calculated a train that would ſo nearly ſuit it, that the adjuſtment for time by the bob would compenſate the defect of the numbers; the conſequence has been, that the exact value of a vibration in a portable clock, and of an oſcillation in an ordinary watch, has hitherto been diſregarded in the conſtruction. On the contrary, we recommend to the clock-maker, firſt to fix upon his number of vibrations per ſecond, and then to calculate the true length of his pendulum, and exact value of his train, agreeably to the number of vibrations per ſecond that he previouſly determined.

The moſt ſimple way of calculating the numbers proper for the movement of any clock, intended to ſhow ſeconds, is, by *dividing it into three portions*, and then by calculating the wheels and pinions for each ſeparate portion, by a ſeparate calculation, beginning at the bottom of the train. Thus, 1. we firſt fix upon the pinion of the hour-arbor to be, ſuppoſe 8, which is a good practical number; and, as our piece is to go eight days, we will make the fuſee to revolve in 12 hours, which conſtruction will require the great wheel on its arbor to be 8 × 12, or 96, becauſe the pinion of 8 revolves, with the minute-hand on its projecting pivot, in one hour; hence if we divide 192, the number of hours in eight days, by 12, the time of one revolution of the great wheel, the quotient 16 will be the number of effective ſpiral grooves neceſſary to be cut on the circumference of the fuſee, in order that the piece may go juſt eight days. This portion of the movement is not, however, called a part of the train, but only determines, as has been ſaid, the time that the clock ſhall continue to go after each winding up of the maintaining power; and it is eaſy to conceive, that, if a fuſee or a barrel, with 24 turns of the catgut or chain, were placed on the hour-arbor, the clock would go a natural day without the large wheel; and alſo, that, if an intermediate wheel and pinion where placed on the arbor between the hour-arbor and the great wheel, the time of going might be prolonged to 10, 12, or even 20, times eight days; but then the maintaining power muſt be proportionally increaſed; which circumſtance renders ſuch a conſtruction by no means deſirable in a regulator, particularly as the auxiliary ſpring now in uſe will keep the piece in motion during the act of winding up.

2. The remaining portion of the movement is properly called the *train*, including thoſe wheels and pinions only which are uſed for counting the vibrations made in an hour; the train is moſt eaſily aſcertained by two calculations, one for the two wheels and two pinions which multiply the minutes into ſeconds, and the other for that wheel and pinion, or thoſe wheels and pinions, which ſubdivide the ſeconds into vibrations; the former of theſe two portions of the train, like the firſt portion of the movement, or portion for the period of continuance, is the ſame for all clocks, let the time of vibration be what it may, a circumſtance not uſually conſidered: the ratio of velocity to be gained by the pinion on the arbor of the ſeconds-hand, compared with the wheel on the arbor of the minutes-hand, is required to be as 60 to 1; which effect might be produced by one wheel of 300 teeth, and a pinion of 5 leaves, as is done in ſome of the ornamental French pieces; but the ſize of the wheel is cumberſome, therefore a pair of wheels, with a pair of pinions, one conſtituting a ratio or vulgar fraction equal in value to 8, and the other equal to $7\frac{1}{2}$, making $8 \times 7\frac{1}{2} = 60$, or any other two numbers making a ſimilar product, will produce the ſame effect with fewer teeth; for if the pinions be each 8, the wheels, in this caſe, will be reſpectively 64 and 60, the compound ratio $\frac{8}{64} \times \frac{8}{60}$ being equal to the ſimple $\frac{1}{60}$; and, by the ſame proceſs, if pinions of 10 had been choſen, the wheels would have been $8 \times 10 = 80$, and $10 \times 7\frac{1}{2} = 75$, which numbers would indeed have leſs friction than the preceding ones, by reaſon of their teeth acting at leſs depth, the diameters of the wheels remaining

the ſame, and would moreover be capable of acting more behind than before the line joining the centres of the wheel and pinion; in like manner, pinions of 6 would require wheels of 48 and 45, and pinions of 12 wheels of 96 and 90, as may be ſeen in Table II. farther on.

3. The laſt portion of the movement, or ſecond portion of the train, for a half-ſeconds pendulum, will require only one wheel of 60 teeth on the ſeconds-arbor, properly ſhaped for the ſcapement; for, as one tooth in the dead-beat and common anchor ſcapements eſcapes completely at two vibrations of the pendulum, 60 teeth will eſcape, that is, a whole revolution of the ſeconds-hand will be made, in 120 vibrations; if, however, the pendulum had been required to vibrate ſeconds, the wheel in queſtion, called uſually the ſwing-wheel, in oppoſition to the crown-wheel, which requires another ſcapement, would have demanded only 30 teeth for that purpoſe; and, if three vibrations had been fixed upon, the number to correſpond muſt have been 90, otherwiſe there muſt have been a wheel and pinion of the value of 3, like $\frac{8}{24}$, or $\frac{10}{30}$, in addition to the uſual ſwing-wheel of 30; or, which is the ſame thing, a wheel and pinion of the value of 6, like $\frac{8}{48}$, or $\frac{10}{60}$, muſt have been introduced between the ſeconds arbor and a pallet or ſpring-wheel of 15. See Table III. Thus all the variety in the calculation of trains, where ſeconds are indicated, is confined, as we have intimated, to the laſt portion of the movement; and the calculation itſelf is ſo ſimple, that the mere altering of the numbers of the pallet-wheel will convert a clock with a ſeconds pendulum into one with half-ſeconds, and *vice verſâ*.

The calculation of numbers ſuitable for an eight-day clock with a half-ſeconds pendulum being thus readily obtained by three ſimple operations, which may be had by mere inſpection from the three Tables which we ſhall preſently give, the whole may be repreſented, and its value eſtimated again, by a compound fraction, thus: viz. $\frac{8}{96}$ of $\left.\overline{\frac{8}{64}\times\frac{8}{60}}\right|$ of $\frac{1}{60\times 2}$ of 12 hours, or, which is the ſame thing in effect, thus, $\frac{8}{96}\times\frac{8}{64}\times\frac{8}{60}\times\frac{1}{60\times 2}=\frac{512}{44236800}=\frac{1}{86400}$ of $12^h$, or 86400 vibrations in 12 hours, which is the time of a revolution of the fuſee, and great wheel, 96, on its arbor, and therefore $\frac{86400}{12}$, or 7200 vibrations, each of half a ſecond in duration, in one hour, conſtitute the value of this train. This mode of notation gives the value better than any other perhaps that has been adopted; but the poſition of the wheels and pinions will be better underſtood from the ordinary mechanical method of writing them down; thus:

Great wheel 96
Pin. 8—64 hour-wheel
Pin. 8—60 ſecond-wheel
Pin. 8—60 ſwing-wheel
2 pallets.

Indeed it is difficult to write down the movement by any one notation that ſhall expreſs, at the ſame time, both the value and poſition of the wheel-work; on which account we recommend to the workman to write down his numbers by both forms, taking care, in the method by compound ratios, to put all the drivers under the line of diviſion, and all the driven ones above; ſo that, when an aſcending movement is repreſented, the wheels may be the denominators, and, when a deſcending one, the pinions. In our mode of calculation from the bottom of the train, the notation muſt be, as we have made it, aſcending.

The calculation of proper numbers being made and noted down, the next ſtage of the work is proportioning the diameters of the wheels and of their reſpective pinions, ſo as to tranſmit the maintaining power from the fuſee, or barrel in an ordinary 30-hour clock, to the pallets, and thence to the pendulum, to compenſate the loſs of motion which, when unaided, it would ſuſtain from friction and the reſiſtance of the air. If a wheel and pinion were to be made like two rollers, preſſing their edges againſt one another, to produce a communication of rotatory motion, their diameters might and ought to be in geometrical proportion directly as their calculated numbers of teeth; but the force of the maintaining power would be too great to be ſuſtained by mere friction at the points of contact of ſuch rolling wheels and pinions; they have therefore been neceſſarily indented, and their teeth mutually inſerted ſo far into their correſponding ſpaces, as to prevent the revolution of one wheel or pinion without a correſponding motion produced in the next adjoining, which would not be the caſe with rollers, if a conſiderable force impelled them at one end of the train, and at the ſame time a retarding force oppoſed them at the other; for their ſurfaces, at the point of greateſt oppoſition to free motion, would mutually rub without effecting a communication of rotatory motion beyond ſuch point. If now we call the points of contact of the two rollers, made in geometrical proportion to each other, or, in other words, the points where they pitch againſt one another, the pitch-line, and conceive a number of projecting little levers, or teeth, fixed at proper intervals from each other at theſe points of contact, in the circular pitch-line of each roller, we ſhall have a true idea of two wheels properly proportioned to act together; which, when of unequal diameters, will not now be in geometrical proportion to each other, by reaſon of an equal lever, or length of tooth, being added to each ſeparately, after they were in exact geometrical proportion; moreover, it will be eaſily apprehended that the deviation from their original proportion, in the ſtate of rollers, will be the greater, the greater their diſparity of numbers. Hence it will be readily conceived, that the due proportioning of wheels and pinions is an important object in clock-making; for, ſuppoſing the teeth reſpectively of the true epycycloidal forms, unleſs the reſpective ſizes be properly adjuſted, the tranſmiſſion of the maintaining power, and communication of motion, will both be unequable, and the mechaniſm ſubject to rapid deſtruction.

The uſual mode of proportioning, or *ſizing*, wheels and pinions, as it is often called, is, firſt to make both a little too large for the propoſed calliper, and then, having rounded all the teeth of the pinion and a few of the correſponding wheel, to diminiſh the latter in the lathe, or turning-frame, gradually, until, by ſucceſſive trials in the clock-frame, they are found to act at a proper depth, when placed in the pivot-holes previouſly made; this vulgar mode we reprobate, as calculated to deſtroy the due practical proportions, and hope to ſee it baniſhed from the workſhops by the general adoption of a better method, which we have now to propoſe.

In proportioning wheels and pinions, after the numbers of their teeth are determined upon, two particulars are to be attended to; the coarſeneſs or ſolidity, and the ſhape, of the tooth; the former may be expreſſed by the number of teeth per inch in the circumference of the wheel; and the latter by the denomination epicycloidal; if a tooth were rounded in a circular ſhape, which we by no means recommend, the pitch-line would be conſidered as at one half the breadth of the tooth from the extreme edge; but when it is rounded in an epicycloidal ſhape, or, as the workmen call it, the *bay-leaf* form, Hatton has found, from numerous experiments, that the depth, or diſtance of the pitch-line from the circumference, will generally be ¾ of the breadth of the tooth in any wheel or pinion; and, as the epicycloidal is the beſt ſhape for the regular tranſmiſſion of force and velocity, we will adopt it as the beſt for practice. We have juſt ſaid that, when an epicycloidal tooth is uſed, the diſtance of the pitch-line from the end of the tooth is equal to $\frac{3}{4}$ of its breadth; and, if we ſuppoſe the tooth and ſpace cut to be reciprocally equal, we ſhall have the true acting diameter of any wheel or pinion greater than the geometrical diameter, which Camus calls alſo the primitive diameter, by $\frac{3}{4}$ of a tooth or ſpace on each ſide of the centre, or $1\frac{1}{2}$ in the whole diameter. Let now a ſpace or a tooth be called a *meaſure*, and there will be double the number of meaſures as teeth in any wheel; alſo let theſe meaſures of the circumference be reduced into meaſures of the diameter by the uſual ratio of 3·1416 to 1, and then $1\frac{1}{2}$ added to ſuch geometrical meaſures of the diameter will give the proper acting diameter, which may be expreſſed in inches and parts when the meaſures per inch are known. For inſtance, let our great wheel and its pinion $\frac{8}{96}$ be taken at 12 teeth per inch at the pitch-line, which may in practice be more or leſs, according to the thickneſs of the metal compared with the maintaining power as modified at the wheel's circumference; the number of meaſures of the great wheel is 192, viz. 96 teeth and 96 ſpaces, each meaſuring 1-24th of an inch; then, as 3·1416 : 1 :: 192 : 61·1; therefore, if to the geometrical diameter expreſſed by 61·1 meaſures there be added 1·5, the ſum 62·6 or $62\frac{6}{10}$ will be the acting diameter in the ſame denomination, which are ſo many 24th parts of an inch; but $\frac{62·6}{24}$ gives 2·6 inches for the full acting diameter of the wheel in queſtion. Again, the pinion 8 has 16 ſimilar meaſures in its circumference, and by the ſame proportion the diameter will be 5·09 meaſures; to which if 1·5 be added, the acting diameter will be 5·09 + 1·5 = 6·59, or with ſufficient accuracy $6\frac{6}{10}$, which divided by 24 as before, will give the ſame $\frac{27}{100}$ of an inch, or ſomewhat more than a quarter, for the acting diameter of the pinion. Upon theſe principles Hatton (Introduction to the Mechanical Part of Clock and Watch-work, page 334) has conſtructed a Table of the ſizes of the pinions meaſured diametrically, and compared by a pair of callipers with a given number of teeth and ſpaces in their correſponding wheels, which many workmen copy in practice; but, as his calculations are founded on a ſuppoſition that the ends of the teeth are circular, requiring unity as the ſupplemental portion, we find them differ eſſentially from Berthoud's determination in his Eſſai ſur l'Horlogerie, tom. i. and ſhall therefore inſert here a Table which we find in Dr. Rees's Cyclopædia, calculated on a ſuppoſition that the curve is epicycloidal, and that the circumference is to the diameter as 3 to 1, inſtead of 3·1416 to 1; the reſult of which mode agrees very nearly with Berthoud's experiments on the proper ſizes of wheels and pinions, and therefore we recommend it to the notice of the accurate workman.

*Table of the true practical Sizes of Pinions.*

| Teeth in the Pinions. | Meaſures of the Wheel for a Diameter of the Pinion. | Teeth in the Pinions. | Meaſures of the Wheel for a Diameter of the Pinion. |
|---|---|---|---|
| 3 | 3·5 | 10 | 8·1 |
| 4 | 4·1 | 11 | 8·8 |
| 5 | 4·8 | 12 | 9·5 |
| 6 | 5·5 | 13 | 10·1 |
| 7 | 6·1 | 14 | 10·8 |
| 8 | 6·8 | 15 | 11·5 |
| 9 | 7·5 | 16 | 12·1 |

The proceſs by which this Table is calculated is ſimply this: Multiply the pinion by 2 for the meaſures in the circumference; divide by 3 for the diameter, and add thereto $1\frac{1}{2}$ for the acting ſize; thus for the diameter of a pinion of 6, it is $\overline{6 \times 2 \div 3 + 1\frac{1}{2}} = 5\frac{1}{2}$ or 5·5; namely, 6 × 2 = 12, and $\frac{12}{3} = 4$, and 4 + 1·5 = 5·5 for the meaſures; which laſt quantity, taken by the callipers acroſs the extreme edge of the wheel, will be 3 teeth and $2\frac{1}{2}$ ſpaces, or 3 ſpaces and $2\frac{1}{2}$ teeth, which are here ſuppoſed to be cut, but not rounded.

The application of this Table, it is preſumed, cannot be eaſily miſtaken by any workman who underſtands that the figures in the ſecond column, to the left of the decimal point, mean ſo many meaſures, either teeth or ſpaces, and the figure to the right of the ſaid point, ſo many tenth parts more of a meaſure to be added to the integral meaſures. It may be proper to add here, that a proportioned pinion muſt be made ſomewhat ſmaller for a ſmall wheel than for a large one, and alſo ſmaller when driven than when it is the driver.

We now know the numbers of our movement, and alſo that, whatever the diameters of the wheels may be, our pinions of 8 muſt be turned in the lathe till their diameters are preciſely each 6·8 meaſures, or three teeth and very nearly four ſpaces (taken by a pair of pinion callipers from their reſpective wheels, in a ſtraight line acroſs the ends of the teeth,) either before or after they are ſlit, as the operation of dividing and cutting is called by the workmen. The diameters of the wheels are uſually made to diminiſh as the train aſcends, probably becauſe the force to overcome their inertia diminiſhes, and the friction alſo is leſs in fine teeth with ſlender pivots, than in coarſe ones with thick pivots; indeed there ſeems to want a ſtandard rule for the guide of workmen in this particular. Having taken the great wheel at 12 teeth per inch, meaſured at the pitch-line, we will take the centre wheel of 64 at 14, and the ſecond wheel of 60 at 16, which will make ſomething like a regular diminution in the ſizes in the aſcent of the train, and allow us room enough in our plates for the repreſentation. From theſe data, by the help of the foregoing directions, we readily aſcertain the requiſites for drawing the calliper as expreſſed in the ſubjoined

*Table of Wheels and Pinions.*

| Wheels. | | Teeth per Inch. | Acting Diameters in Inches. | Geometrical Diameters meaſured from the Pitch Lines. |
|---|---|---|---|---|
| Great wheel | 96 | 12 | 2·60 | 2·55 |
| Its pinion | 8 | 12 | 0·273 | 0·21 |
| Centre wheel | 64 | 14 | 1·514 | 1·46 |
| Its pinion | 8 | 14 | 0·234 | 0·18 |
| Second wheel | 60 | 16 | 1·24 | 1·19 |
| Its pinion | 8 | 16 | 0·207 | 0·16 |
| Swing wheel | 60 | 16 | 1·24 | |

Pennington, of Camberwell, the ingenious mechanic who conſtructed Mr. Mudge's time-piece, and gave the drawings in Mr. Mudge's pamphlet, has paid particular attention to the ſubject of ſizing wheels and pinions, and has publiſhed a ſmall pamphlet, recommending the uſe of his method of calculation by a ſector of a peculiar conſtruction; but we do not find that its uſe has become general. His practice is, to add $2\frac{1}{2}$ meaſures of the geometrical diameter to the wheel, and $1\frac{1}{2}$ to the pinion, in watch-work, when the wheel is the driver; and $1\frac{8}{10}$ to each, when the pinion is the driver. The rule, it will be ſeen, differs very little from the theory above laid down, where we obſerved that the driver ought to be ſomewhat larger than the proportion aſſigned by the addition of $1\frac{1}{2}$ parts or meaſures to each, and more particularly where the wheels have ſmall diameters, as is the caſe in watch-work. But, as the good action of wheels and pinions depends upon their being duly proportioned and callipered, as well as on a proper ſhape being given to the teeth, we will add moreover the method of ſizing pinions practiſed and recommended by F. Berthoud, in his Eſſai ſur l'Horlogerie, which is as follows: viz.

| No. of Teeth. | *Full or acting Diameter of the Pinion.* |
|---|---|
| 4 | = two full teeth of the wheel, unrounded, and the ſpace between. |
| 5 | = three teeth, rounded from point to point. |
| 6 | = three full teeth, unrounded. |
| 7 | = three full teeth and a quarter of a ſpace beyond. |
| 8 | = four teeth, rounded from point to point. |
| 9 | = ſomewhat leſs than four full teeth. |
| 10 | = four full teeth. |
| 11 | = no meaſure given. |
| 12 | = five full teeth. |
| 13 | = no meaſure given. |
| 14 | = ſix teeth, rounded from point to point. |
| 15 | = ſix full teeth. |

The pinions in watches, he remarks, muſt be ſmaller in compariſon with their wheels than in clocks, agreeably to what we have above ſaid.

Having recommended the plan of dividing the whole movement of the going-part into three portions, (any one of which may be altered at pleaſure, without affecting the other two,) we ſhall here introduce three ſeparate Tables of the different portions, with a view of giving a great variety of trains, and of thus ſaving clock-makers the trouble of tedious calculations.

I. *Firſt Portion of a Clock-movement.*

| Hours. | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 18 | 21 | 24 | 27 | 30 | 33 | 36 | 39 | 42 | 45 | 48 |
| 4 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 52 | 56 | 60 | 64 |
| 5 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 |
| 6 | 36 | 42 | 48 | 54 | 60 | 66 | 72 | 78 | 84 | 90 | 96 |
| 7 | 42 | 49 | 56 | 63 | 70 | 77 | 84 | 91 | 98 | 105 | 112 |
| 8 | 48 | 56 | 64 | 72 | 80 | 88 | 96 | 104 | 112 | 120 | 128 |
| 9 | 54 | 63 | 72 | 81 | 90 | 99 | 108 | 117 | 126 | 135 | 144 |
| 10 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 | 160 |
| 11 | 66 | 77 | 88 | 99 | 110 | 121 | 132 | 143 | 154 | 165 | 176 |
| 12 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 | 192 |
| 13 | 78 | 91 | 104 | 117 | 130 | 143 | 156 | 169 | 182 | 195 | 208 |
| 14 | 84 | 98 | 112 | 126 | 140 | 154 | 168 | 182 | 196 | 210 | 224 |
| 15 | 90 | 105 | 120 | 135 | 150 | 165 | 180 | 195 | 210 | 225 | 240 |
| 16 | 96 | 112 | 128 | 144 | 160 | 176 | 192 | 208 | 234 | 240 | 256 |

II. *Second Portion of a Clock-movement.*

| Factors. | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4<br>15 | 24<br>90 | 28<br>105 | 32<br>120 | 36<br>135 | 40<br>150 | 44<br>165 | 48<br>180 | 52<br>195 | 56<br>210 | 60<br>225 | 64<br>240 |
| $4\frac{2}{7}$<br>14 | 84 | 30<br>98 | 112 | 126 | 140 | 154 | 168 | 182 | 60<br>196 | 210 | 224 |
| $4\frac{1}{2}$<br>$13\frac{3}{4}$ | 27<br>80 | | 36 | 120 | 45 | | 54<br>160 | | 63 | 200 | 72 |
| $4\frac{8}{13}$<br>13 | 78 | 91 | 104 | 117 | 130 | 143 | 156 | 60<br>169 | 182 | 195 | 208 |
| 5<br>12 | 30<br>72 | 35<br>84 | 40<br>96 | 45<br>108 | 50<br>120 | 55<br>132 | 60<br>144 | 65<br>156 | 70<br>168 | 75<br>180 | 80<br>192 |
| $5\frac{5}{11}$<br>11 | 66 | 77 | 88 | 99 | 110 | 60<br>121 | 132 | 143 | 154 | 165 | 176 |
| 6<br>10 | 36<br>60 | 42<br>70 | 48<br>80 | 54<br>90 | 60<br>100 | 66<br>110 | 72<br>120 | 78<br>130 | 84<br>140 | 90<br>150 | 96<br>160 |
| $6\frac{2}{3}$<br>9 | 40<br>54 | 63 | 72 | 60<br>81 | 90 | 99 | 80<br>108 | 117 | 126 | 100<br>135 | 144 |
| 7<br>$8\frac{4}{7}$ | 42 | 49<br>60 | 56 | 63 | 70 | 77 | 84 | 91 | 98<br>120 | 105 | 112 |
| $7\frac{1}{2}$<br>8 | 45<br>48 | 56 | 60<br>64 | 72 | 75<br>80 | 88 | 80<br>96 | 104 | 105<br>112 | 120 | 120<br>128 |

III. *Third Portion of a Clock-movement.*

| | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Vibrations per ſecond. | Length of the pendulum. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 2 | 9·80 |
| 15 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 52 | 56 | 60 | | |
| 20 | 18 | 21 | 24 | 27 | 30 | 33 | 36 | 39 | 42 | 45 | | |
| 30 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | | |
| 12 | | | 50 | | | | 75 | | | | $2\frac{1}{2}$ | 6·27 |
| 15 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | | |
| 25 | 18 | 21 | 24 | 27 | 30 | 33 | 36 | 39 | 42 | 45 | | |
| 30 | 15 | | 20 | | 25 | | 30 | | 35 | | | |
| 15 | 36 | 42 | 48 | 54 | 60 | 66 | 72 | 78 | 84 | 90 | 3 | 4·35 |
| 18 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | | |
| 30 | 18 | 21 | 24 | 27 | 30 | 33 | 36 | 39 | 42 | 45 | | |
| 45 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | | |
| 15 | 42 | 49 | 56 | 63 | 70 | 77 | 84 | 91 | 98 | 105 | $3\frac{1}{2}$ | 3·20 |
| 21 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | | |
| 35 | 18 | 21 | 24 | 27 | 30 | 33 | 36 | 39 | 42 | 45 | | |
| 15 | 48 | 56 | 64 | 72 | 80 | 88 | 96 | 104 | 112 | 120 | 4 | 2·45 |
| 20 | 36 | 42 | 48 | 54 | 60 | 66 | 72 | 78 | 84 | 90 | | |
| 24 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | | |
| 30 | 24 | 28 | 32 | 36 | 40 | 44 | 48 | 52 | 56 | 60 | | |
| 40 | 18 | 21 | 24 | 27 | 30 | 33 | 36 | 39 | 42 | 45 | | |
| 15 | 54 | 63 | 72 | 81 | 90 | 99 | 108 | 117 | 126 | 135 | $4\frac{1}{2}$ | 1·935 |
| 27 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | | |
| 45 | 18 | 21 | 24 | 27 | 30 | 33 | 36 | 39 | 42 | 45 | | |
| 15 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 | 5 | 1·57 |
| 25 | 36 | 42 | 48 | 54 | 60 | 66 | 72 | 78 | 84 | 90 | | |
| 30 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | | |
| 50 | 18 | 21 | 24 | 27 | 30 | 33 | 36 | 39 | 42 | 45 | | |

*Explanation.*—Table I. contains numbers ſuitable for the great wheel, and the pinion on the arbor of the centre-wheel, together denominated the *firſt portion of a clock-movement*, which is that on which the duration of motion at one winding-up depends; the numbers on the uppermoſt horizontal column, from 6 to 16 incluſively, repreſent ſo many pinions; the numbers in the firſt vertical column, from 3 to 16 incluſively, are the reſpective hours in which the barrel or fuſee turns once, as the caſe may be; and the larger numbers, beginning with 18 and ending with 256, in the interſections of the horizontal and vertical columns, are the great wheels. By way of exemplification, ſuppoſe we want a fuſee to revolve in twelve hours, with a pinion of 8 on the arbor of the centre-wheel, the interſection of 12 hours at the left-hand ſide, and eight at the top, gives 96 for the number of teeth in the great wheel, to produce the deſired effect; or if the pinion had been required for a wheel of 96, to revolve in 12 hours, over 96, in the column of 12 hours, ſtands the pinion 8. In the ſame manner for 4 hours, and a wheel of 48, the pinion will be 12, and *vice verſâ*.

Table II. contains wheels and pinions ſuitable for the *ſecond portion of a clock-movement*, or firſt portion of the train, being that which effects a multiplication of 60, and regulates the velocity of the ſeconds-hand, by making its arbor revolve in one minute. This might be done by one large wheel of 300, and a ſmall pinion of 5; but ſuch a conſtruction would require a large frame; a compoſition of two wheels and two pinions is therefore ſubſtituted to produce the ſame effect more conveniently, the firſt wheel being placed on the centre or hour arbor that carries the minutes-hand, and the laſt pinion on the arbor of the ſeconds-hand that revolves in a minute. The uppermoſt horizontal column contains the pinions from 6 to 16 incluſive, like Table I. and the left-hand vertical column contains couplets of factors, which, multiplied together, produce 60 always as a product. Any pair of factors, which are coupled together by a }, may be taken at pleaſure, and the wheels in the ſpaces made by the interſections of the vertical and horizontal columns, under the pinions made choice of, and oppoſite the factors ſelected, will be proper for the ſecond portion of the movement. For inſtance, when pinions of 8 are uſed with the factors $\left.\begin{matrix}7\frac{1}{2}\\8\end{matrix}\right\}$, the wheels, found in the ſpace formed by the interſection of the vertical column under 8 and horizontal column in which $\left.\begin{matrix}7\frac{1}{2}\\8\end{matrix}\right\}$ ſtand, are 64 and 60; but if the pinions were to be aſſumed, one 10 and the other 8, then the wheels would be either 80 and 60, or otherwiſe 75 and 64, accordingly as the pinion 10 is made a part of the ratio to repreſent the factor 8, or the factor $7\frac{1}{2}$, which it may be taken to do indifferently; hence the notation may be $\frac{10}{80} \times \frac{8}{60}$, or $\frac{8}{80} \times \frac{10}{60}$, or $\frac{10}{75} \times \frac{8}{64}$, or $\frac{8}{75} \times \frac{10}{64}$; the reſult in point of accuracy is the ſame, but in the conſtruction, the wheels of the largeſt diameter and weight are required to be taken firſt in the movement, becauſe the diameters diminiſh as the train aſcends, by reaſon of the diminution of the tranſmitted force, which otherwiſe would not overcome the inertia of the wheels, which it is required to do at each vibration of the pendulum. Any two pair of wheels and pinions properly taken out of the correſponding columns, when reduced to a ſimple ratio by the uſual method of multiplying the numerators together for one numerator, and the denominators for one denominator, will be found equal to $\frac{1}{60}$; thus $\frac{10}{80} \times \frac{8}{60} = \frac{80}{4800} = \frac{1}{60}$, and $\frac{10}{75} \times \frac{8}{64} = \frac{80}{4800} = \frac{1}{60}$, as before; therefore, if the firſt wheel revolve in an hour, the laſt pinion will, in this and in every other inſtance, revolve in a minute. The diminution of the diameter of the third wheel of the movement, which is the ſecond wheel of the train, may be effected in two ways, either by taking the ſeconds pinion ſmaller than the firſt from a column at the bottom of the Table, where the factors are nearly of equal value, or by taking the pinions alike, and the wheels from one of the higher horizontal columns where the factors differ conſiderably in value; thus $\frac{7}{60} \times \frac{6}{42}$ from column $\left.\begin{matrix}7\\8\frac{4}{7}\end{matrix}\right\}$, and $\frac{7}{70} \times \frac{7}{42}$ from column $\left.\begin{matrix}6\\10\end{matrix}\right\}$, are each equal to $\frac{1}{60}$, but in the firſt portion of the movement the ratio of the ſize of the two wheels is as 60 to 42, and in the other as 70 to 42, from which mode of compariſon of the columns it will be ſeen that a decreaſe in the diameters of almoſt any given ratio may be adopted from this Table, ſo comprehenſive in its extent, as it relates both to the variety of 11 pinions, and to the choice of 10 pair of factors, which begin with the ratio 4 to 15, or 1 to 4, and end with $7\frac{1}{2}$ to 8. The principal care to be taken is, that every wheel be taken under its own pinion and oppoſite its own factor; for another inſtance, in the horizontal column of factor $\left.\begin{matrix}6\frac{2}{3}\\9\end{matrix}\right\}$, the pinions of 9 will do for wheels 81 and 60; or otherwiſe, wheel 90 may be taken with pinion 10, and wheel 60 with pinion 9; that is, any wheel may be taken oppoſite its own factor, provided the pinion in the ſame column over it be uſed as its fellow; ſo that examples may be given to a very great extent, which will afford abundant means of aſcertaining by experiment the beſt poſſible numbers for this part of the movement, without the trouble of calculation.

Table III. contains the *third portion of a clock-movement*, or ſecond portion of the train, which is that on which the number of vibrations per ſecond depends. When a vibration is performed in an exact ſecond, one wheel only is neceſſary for this purpoſe, with 30 teeth, becauſe one tooth completely eſcapes the pallets at every ſecond vibration, which wheel muſt be placed in this caſe on the arbor of the ſeconds-hand, and is uſually denominated the ſwing-wheel; alſo a wheel of 60, ſimilarly placed, will be proper for half-ſeconds, 75 for $2\frac{1}{2}$ vibrations per ſecond, and 90 for 3 per ſecond; but theſe laſt numbers are found too high for portable clocks, time-pieces, &c. therefore a wheel and pinion are introduced in addition to the ſcapement-wheel, in order to diminiſh its diameter into a convenient ſize for a portable conſtruction, as well as to render it light, ſo as to have but little inertia to be overcome by the diminiſhed force, which acts at this part of the movement. In ordinary pieces the two wheels are, one a contrate-wheel, and the other called the crown-wheel, with the pinion on its arbor; but the wheels may all have the ordinary form of the wheels of a clock that ſwings ſeconds, it being not the ſhape, but the numbers of the teeth, of the wheels and pinions that determine the frequency of the vibrations. The uppermoſt horizontal column in this Table, like that in the two preceding Tables, contains all the variety of pinions from 6 to 15 incluſively; the pinion of 16 being omitted, however, to make room for two additional vertical columns at the right hand of the Table, the firſt for the number of vibrations per ſecond made by the pendulum, and the other for the length of the correſponding pendulum in inches and decimal parts, meaſured from the centre of ſuſpenſion to the centre of oſcillation, which two data once fixed upon determine the horizontal column out of which the wheels muſt be taken with a given pinion; the left-hand vertical column is that in which one of the two wheels is found, and the number ſtanding on the ſame horizontal line, under the given pinion, is the other; for as the product of the two wheels, divided by the pinion under which one of them ſtands, is always equal to 60 in the higheſt large column, or column of 2 vibrations per ſecond, it is of no importance to the accuracy which of the two wheels is made the pallet-wheel; the determination of this point being a matter of practical convenience; in the ſame manner, in the ſecond large horizontal column, the quotient ariſing from the product of any two wheels ſtanding in the ſame line taken horizontally, one in the firſt vertical column, and the other under the choſen pinion, divided by the pinion, is always 75; in the third parallel column the quotient ſo obtained is 90; in the fourth 105, and ſo on; hence any of the combinations adopted will be equal in value reſpectively to thoſe large ſimple numbers uſed as pallet-wheels without ſuch combination, which, it has been ſaid, are objectionable in practice.

Let our firſt example be to aſcertain the requiſites contained in the Table for a half-ſeconds pendulum, where a pinion of 8 is uſed.

In the firſt place, 12 with 40 may be taken as the required numbers for the two wheels; in the ſecond, 15 with 32; in the third, 20 with 24; and, laſtly, 30 with 16; any one of which wheels may be the pallet-wheel, as the nature of the ſcapement may require; if the crown-wheel ſcapement is uſed, which requires an *odd* number of teeth for its action to take place at oppoſite ſides of the wheel, 15 muſt neceſſarily be the pallet-wheel, and 32 the other, with the given pinion of 8; but, whichſoever of theſe couplets of wheels is adopted, the effective length of the pendulum muſt, according to the laſt vertical column, be 9·80 inches. Again, for a pendulum that is required to vibrate 3 times per ſecond with a pinion of 12, we have, in the firſt place, 15 with 72; ſecondly, 18 with 60; thirdly, 30 with 36; and, laſtly, 45 with 24; ſo that either 15 or 45 may be in this inſtance the crown-wheel, and for a different ſcapement any of the eight numbers mentioned; and the choice is equally extenſive with any other pinion that may be choſen from 6 to 15; the pendulum in this caſe is only 4·35 inches.

In this way, by means of the Table before us, the third portion of a clock-movement may be varied almoſt at pleaſure without affecting the other two portions, and a pendulum of any of the calculated lengths may be applied to works previouſly conſtructed; which circumſtance will enable the workman to metamorphoſe a portable clock into a large one, and the contrary, without difficulty, or without even a knowledge of the operations of arithmetic.

We might have extended this Table to take in different intermediate lengths of the pendulum and correſponding number of vibrations per ſecond; but our object is to baniſh incommenſurate vibrations from clock-movements, and to introduce thoſe only which conſtitute ſome convenient ſubdiviſion of the ſecond, to anſwer the nicer purpoſes of philoſophy without extra labour and expence. The three or four laſt horizontal columns indeed, it may be ſaid, will not be of much ſervice in *clock-movements*, by reaſon of the ſhortneſs of the pendulums; but they will be found particularly uſeful in *watch-work*, as will alſo the other Tables, which are ſo comprehenſive as to apply with equal propriety to clock and watch movements; ſo that we ſhall not have occaſion to revert to this ſubject again.

We ſhall not pretend to teach the manipulation of the arbors, pinions, and wheels, of a clock, but have merely ſpoken of their diameters, numbers of teeth, &c. It cannot be neceſſary to enter into a detail of the manner of forging the arbors, or of caſting the braſs by models of given dimenſions, the ironmongers and tool-ſellers having on ſale ſets of wheels, and arbors with pinions of different numbers ready ſlit, and alſo pinion ſteel-wire drawn into a proper ſhape for the teeth of ſmall pinions, of all which clock-makers uſually avail themſelves inſtead of preparing them; otherwiſe the braſs-founders in Chancery-lane, and in other parts of London, as well as in Lancaſhire, will caſt wheels to any model at a certain price per pound, which is a great convenience to the workman who has occaſion for unuſual ſizes in his wheel-work.

It will not, however, be deemed foreign to our purpoſe to mention, that it is often found requiſite to ſoften the pinions of ſteel, and their arbors, before the graver for turning can cut them with ſufficient eaſe in the turning-frame; this ſoftening is uſually effected by putting the ſteel pieces into a wood fire for ſome hours, and leaving them to cool gradually as the fire goes out. The wheels are generally croſſed in their original caſt ſtate, to make them light, in order to avoid the effect of their inertia, and to prevent friction on the pivots of the arbors; but it is neceſſary to hammer the rims and other parts of a wheel well before they are filed flat, to be put on the arbor for turning, otherwiſe the metal would be too ſoft to wear well, and the teeth of a wheel would not ſtand the graver in the operation of being turned, after it is cut by the engine, in caſe the diameter ſhould require to be reduced, as is commonly done, to work well in its calliper with its pinion. When the wheels are hammered, and filed flat to nearly their exact thickneſs, according to the force they are deſtined to tranſmit, they are turned in the turning-frame to their practical diameters, after being previouſly perforated in the centre, and ſcrewed faſt on a ſuitable arbor. They are then in a ſtate to be cut by an engine made on purpoſe, which is not always in the poſſeſſion of the clock-maker, particularly in large towns, but which is uſually kept by ſome individual, whoſe buſineſs is chiefly to cut wheels for the clock-makers at a certain price per ſet. An ingenious workman, of the name of Brown, who lived in King-ſtreet, Seven-dials, but who is now dead, was noted in London for his dexterity and accuracy in cutting clock-wheels, and occaſionally pinions, into any number of teeth; his engine, however, is now in the hands of Mr. Fidler, mathematical inſtrument-maker, Oxford-market, London, who has lately begun to uſe it; but the beſt engine for this purpoſe at preſent in conſtant uſe, belongs to Mr. Edward Troughton, of Fleet-ſtreet, and is uſed by James Fayer, at No. 35, White-lion-ſtreet, Pentonville, London. This engine, which was contrived and made by the late ingenious mechanic Rehe, will round the teeth at the ſame time that it cuts them, if required; and is valued at 300l. in its preſent ſtate.

The clock-makers of the preſent day have greatly the advantage of thoſe who laboured in the art in the infancy of clock-making, in that they have ſome of the moſt difficult operations in theory, ſuch as dividing and cutting the wheels, and forming the ſpiral groove of the fuſee, done by engines not only in leſs than one-hundredth part of the time, but with infinitely more accuracy, than they could be performed by hand with manual tools; and it is much to be deſired that they would, like watch-makers, have their wheels cut and rounded in the engine at the ſame time. But it has been remarked, by a philoſopher well qualified to make the remark, (Mr. W. Nicholſon,) that the introduction of new inſtruments, and of new operations, requires the ſame ſpace of time that is neceſſary for inſtructing another generation; ſo much does that facility, which ariſes out of habit, militate againſt the adoption of new practices. We muſt, therefore, ſuppoſe our wheels returned from the engine with their teeth not rounded, and proceed with our detail.

When a wheel has been cut, in the ordinary way, by the engine, there are uſually ſome filaments of metal, denominated burs, left at the edges of the teeth by the cutter, as well as general roughneſs on the ſides and at the bottom of the ſpaces. Theſe are firſt cleared away by a fine file, juſt thin enough to go into the ſpace left by the cutter, which is called an *equalling file*, from its ſuppoſed property of leaving all the ſpaces equal, when the burs are removed. The croſſes of the wheel and interior edges of the rim are next dreſſed, firſt by a rough file, then by a ſmooth one, and laſtly by a burniſher of poliſhed ſteel. The arbor is next turned in a frame, by a well-tempered tool, or ſtrong graver, to its propoſed thickneſs, and the pinion reduced to its practical diameter; after which its teeth are rounded, hardened, and poliſhed, each of which operations we will ſuppoſe to be underſtood, and the wheel is riveted on a ſhoulder left on the proper end of the pinion, exterior or interior, as the work may require, if it is on the hour-arbor; otherwiſe it may be riveted, or ſtill better fixed by two oppoſite ſcrews, on a braſs collet, which is previouſly ſoldered upon ſuch part of the arbor, to which it belongs, as the place of the pinion which it actuates may require. The French call that portion of an arbor, which is between the wheel and the remote pivot, a *tige*; and that portion a *tigeron*, which lies between the wheel and the nearer pivot. Some of the moſt ſkilful workmen contend that the wheel ought always to be placed on its arbor, ſo as to be equally diſtant from both pivots, and we have ſeen clocks conſtructed with cocks, at the back of the plates, to hold the pivots of projecting arbors, in order to effect this purpoſe; but we will not undertake to affirm that this additional work is compenſated by any advantage thus gained; we rather conceive that the grievance complained of in the ordinary method of pivoting in the plates, *viz.* the alleged unequal preſſure and conſequent unequal friction in the oppoſite pivot-holes, when a pinion is at one end of the arbor, is to be attributed to another cauſe principally; *i. e.* the too great aperture of the pivot-holes; for workmen have a maxim, that "the pivots muſt have play to avoid friction," but they ſeem not always to underſtand what this play means; it certainly ought not to mean, that the holes ſhould be much larger than the pivots which are to turn in them, for in that caſe the pivots would be driven round the interior circumference of the holes, and cauſe the wheel to act at different depths in the pinion, which would be a great evil; the meaning of the maxim is, that the ſhoulders of the arbors ſhould not preſs againſt the plates when mounted, but that each arbor ſhould have a little play in the direction of its length, or, in other words, be left ſo as to be at liberty to move a little backwards and forwards; which condition ſeems requiſite. Time and wear generally make them eaſy enough.

We will now ſuppoſe all the wheels and pinions rounded neatly in the bay-leaf form, and their action tried in the deepening-tool, with the correſponding pivot-holes drilled with drills reſpectively proportioned to the propoſed thickneſs of the pivots; the next ſtep will be to attach them to their arbors. The great wheel, however, notwithſtanding what we have ſaid about riveting, ſcrewing, and ſoldering, is not fixed by any of theſe operations, but is attached to its arbor by a method which admits of its being taken off at pleaſure, thus:—a hole is opened by a broach in the centre of this wheel, large enough to take the arbor of the fuſee without play, and, when it is preſſed cloſe againſt the end of the fuſee, or, in our preſent inſtance, againſt the plane of the ſecond large ratchet, two marks are made, with a fine file, at oppoſite ſides of the arbor, cloſe to the plane of the wheel; it is then taken off the arbor, and two ſquare-ſided notches are filed carefully in the ſaid marks of the arbor, but not deep enough to injure its ſtrength; a collet with a circular hole, like that at the centre of the wheel, made at one ſide of its centre, and with a ſtraight-edged ſlit acroſs the centre from the ſaid hole, is then put on the arbor, after the wheel has been firſt put on, and is puſhed forcibly along the notches of the arbor, till, by means of the oblong aperture, it is concentric with the wheel, againſt the plane of which it preſſes, when in the notches, and keeps it cloſe in its place, and at the ſame time allows it to turn on its centre without the arbor. The auxiliary ſpring is ſcrewed or pinned, in the next place, at one end to the great ratchet, and at the other to the great wheel, as before noticed. When the wheel is thus firmly attached to the fuſee arbor, with a power to recede but not to proceed, on account of the click, without carrying the arbor with it, it muſt be put into the turning-frame and examined, as to its being truly centred, and alſo as to its being in a plane perpendicular to the arbor; which trial may detect ſome ſlight alterations, neceſſary to be made, to fulfil theſe two conditions: after which, its pivots may be turned to their exact ſize, hardened, and poliſhed.

The practice of ſome workmen is, to ſolder their collets on the arbors with hard ſolder, but we diſapprove this practice, and recommend ſoft ſolder, particularly if the arbors have been before hardened; it is ſcarcely neceſſary to add, that, if the ends of the collets are opened a little within, the ſolder will there have beds to contain a quantity ſufficient to keep the wheel firm on its arbor. What we have here ſaid will not be equally applicable to the hour or centre wheel, becauſe it is uſually riveted on the end of its pinion, which will require a riveting punch and clamp, on purpoſe to prevent any injury being done to the pinion. Before the wheels are all firmly attached to their arbors, they muſt be tried in the turning-frame, or callipers with a ſtraight edge for that purpoſe, to ſee if they are concentric, and that their planes are perpendicular to their arbors, which conditions the workmen call being "in the round," and being "in the flat;" and, when properly adjuſted in theſe reſpects, they may be finally fixed as above deſcribed, and their arbor-pivots finiſhed. Should a wheel, that has had its teeth rounded in the engine, be at any time found a little eccentric in the trial, before it is fixed on its collet, which will not happen if the central hole be enlarged with a good broach and with due care, the remedy in this caſe would be, to mark the ſide of the wheel which has the longeſt radius, and enlarge the central hole carefully on that ſide moſt, and then to make a new collet for it, after the hole is again made perfectly round, and found to be concentric on an arbor that fits it; but, when the teeth have been rounded by hand, the wheel may have the eccentricity rectified on its own arbor, and be again rounded where the teeth have been touched by the graver, which is the common practice, and which conſtitutes the only or the greateſt recommendation of manual rounding of the teeth.

The files uſed in rounding the ends of the teeth of a wheel are ſmooth, and curved on one ſide, and have each a projecting pivot at the remote end, which a dexterous workman holds againſt one finger of the left hand as a reſt behind the wheel, while the right hand guides the file from one ſide of the tooth to the other, alternately, with a degree of rapidity which ſurpriſes the ſpectator.

We have hitherto ſuppoſed our piece not to be jewelled, nor buſhed with bell-metal, which addition enhances the price, but greatly diminiſhes the friction in the pivot-holes. If the holes are carefully enlarged with a good broach, ſmall pieces of metal holding ruby, agate, or bell-metal, may be made to fit them exactly, the holes in which may be reſpectively equal to the original pivot-holes, and then the good action of the wheel-work will not be altered. The friction in the pivot-holes is greatly diminiſhed too by the application of fine nut-oil; they are, therefore, generally chamfered, or counter-ſunk, at the exterior ſurfaces of the plates, in order that the oil may be retained; but what ſhould be the exact depth of the bearing part of the pivot-hole, is a matter not abſolutely decided.

As the pallet-wheel makes many more revolutions than any other in the movement, it is neceſſary that the metal, of which it is made, ſhould not be very deſtructible, particularly when pallets are uſed which rub againſt its teeth; we therefore recommend a tempered ſteel wheel to be uſed, which ought to be alſo divided and cut with extraordinary care, becauſe any irregularity in the ſhape of the tooth, or diſtance between the teeth, would injure the ſcapement, and produce beſides ſuch irregularity in the motion of the ſeconds-hand, placed on this wheel's arbor, as would offend the eye.

There is no part of a clock which requires greater nicety in the execution than the ſcapement, or part which limits the intenſity and duration of the impulſe given to the pendulum by the maintaining power, and which keeps up the due quantity of motion, that would otherwiſe be gradually diminiſhed to a ſtate of quieſcence, by reaſon of the unavoidable friction at the point of ſuſpenſion, and of the reſiſtance which the air affords to the ſolid parts of the moving-pendulum. It has been ſaid that the breadth of each pallet muſt be ſomewhat leſs than half of a ſpace meaſured from tooth-end to tooth-end of the pallet-wheel; but the quantity of diminution muſt not depend on conjecture; therefore the breadth is left at firſt equal to one half as nearly as can be aſcertained, ſo that the diminution of breadth may be effected by tentative adjuſtment, firſt partially when the wheel has its teeth finiſhed, and when both it and the anchor of the pallets are inſerted on pins urged into the pivot-holes of the frame, or trial-plate; and again more minutely when they are fixed on arbors, and mounted in the frame. To enſure the perfect portion of a circle at the extremities of the anchor, we recommend that it be put on a motion-arbor that juſt fits the central hole, and that it be turned in a frame or lathe, like a wheel, before it is cut; for then it is certain there will be no recoil in the pallet-wheel and ſeconds-hand, when thoſe parts preſs againſt the ends of the teeth, during an excurſion of the pendulum; and, if the inner circles could be turned alſo after the eſcape is nearly adjuſted, it would be deſireable; however, the point of a graver may trace in the turning-frame this inner circle, and then a proper curvilinear file, made and kept on purpoſe, may take off the interior ſuperfluity of metal. In adjuſting the ſlopes and breadth of the pallets, it will be ſerviceable to inſert an index on the pallet's arbor, after it is finiſhed and the pivots turned, and to mark on the frame-plate the quantity of the ſcapement angle, in this inſtance 2° at each ſide of the perpendicular demitted from the pivot-hole, which will be a good guide for the true final adjuſtment of the eſcape. Particular care muſt now be taken that there be as little drop as poſſible, i. e. that, as ſoon as one tooth has completely eſcaped the face of its pallet, the next acting tooth ſhall be cloſe to the back of the following pallet, ſo as not to ſtrike it with a jerk; the place where the firſt contact takes place between the end of the tooth and interior or exterior circle of the pallet, accordingly as it is the leading or following pallet, muſt be very near the commencement of the ſlope, but not upon it, nor yet on the angular point of interſection. Indeed it is extremely difficult to give complete verbal directions for this delicate adjuſtment, which requires long and attentive practice to do perfectly; for frequently, after the pallets are hardened, which they muſt be as much as poſſible, the ſhape of the anchor is found to be altered, and the adjuſtment of the pallets conſequently deranged; to remedy this conſequence, it is uſual to harden only the pallet-parts of the anchor, ſo that, by certain ſtrokes given near its arbor, the pallets may be brought in or ſet out a little to rectify them; but after ſuch rectification it will always be neceſſary to try, in the turning-frame, or at leaſt by a pair of bullet-compaſſes, if the circular parts are again perfectly concentric, without which condition the pallets will not be truly what are called dead-beat.

Hitherto we have conſidered the back pivot-hole of the pallets-arbor as being in the plate of the frame; but it becomes neceſſary to cut away that portion of the back plate where the pivot-hole falls, by reaſon of the crutch, or little rod of ſteel, which muſt be ſcrewed to a collet attached behind the frame to the arbor, to form an L; which contrivance impreſſes the force that the pallets receive from the maintaining power upon the pendulum; the bent end of the crutch is uſually inſerted into a ſlit made in the verge or rod of the pendulum, but, when the bent part is divided and encloſes the pendulum-rod, it is denominated the fork; the crutch is moſt uſually about one ſixth part of the whole length of the pendulum-rod, but there ſeems to be no fixed rule laid down by which its beſt length might and ought to be determined in different caſes, which therefore we think deſerves further conſideration.

But to return to the pivot-hole of the pallet's arbor; this, for the reaſon we have juſt given, is finally placed in a cock at the back of the poſterior plate, which is generally ſo ſhaped as to furniſh alſo a point of ſuſpenſion for the pendulum. The exact placing of the cock, ſo that the arbor pivoted into it ſhall be perfectly at right angles to the ſurface of the plates, is of the greateſt importance, and therefore it ought to be placed and its ſteady pins fixed, before the original pivot-hole, through which it muſt protrude, is cut away in the plate, for in that caſe the protruding end of the arbor, while in its proper poſition after the adjuſtment of the ſcapement, will be like a fixed arbor on which to ſlide the cock, and fix its poſition before the ſteady pins are applied and the ſcrews fitted to their places. It is, however, the practice of ſome workmen to adjuſt the ſcapement, by moving the cock before the ſteady pins are inſerted.

We might have noticed, that, after the anchor of the pallets is ſcrewed to the collet of its arbor, it ſhould be ſuſpended by the pivots of the *verge*, which is the name given to this arbor, to try if the weight of each pallet exactly balance that of the other, which may be effected by diminiſhing the thickneſs of the heavier pallet a little by a fine file before it is finally poliſhed; alſo before the crutch is ſcrewed it ſhould be hung on the verge of the pallets-arbor, after the pallets are balanced and ſuffered to find their place of quieſcence, in order to find its own perpendicular direction, and then it ſhould be fixed in that ſituation; for without this care it will require to be bent ſo as to offend the eye, for the purpoſe of putting the clock into beat, or otherwiſe will require a ſlit in it acroſs the centre, to admit of an eccentric adjuſtment, or ſome ſuch contrivance. When all the adjuſtments of the ſcapement are thus made, the pallet-faces, if not jewelled, and alſo the pivots, muſt be hardened, and finally dreſſed by the uſual ſucceſſive operations of poliſhing.

The precautions we have hitherto dictated, in our directions for the ſucceſſive operations in clock-making, have for their principal object the regular tranſmiſſion of a certain quantity of the maintaining power to the pendulum, in order to preſerve the arc of vibration unaltered, which is one of the two eſſential qualities of the going-pendulum, on which the exact meaſurement of time depends; the other, which is an indiſpenſable quality of the pendulum, where great exactneſs is required, is that by which its length is preſerved unaltered in all the variations of temperature, as the centre of oſcillation regards the centre of ſuſpenſion. Theſe two properties of the pendulum, its conſtant arc and conſtant length, conſtitute the excellence to which all the other parts of the mechaniſm are ſubſervient, and without which no clock will continue invariably to indicate true time at all ſeaſons of the year, however exquiſite the workmanſhip of the movement and other parts. In an ordinary clock, the iron or ſteel rod of the pendulum is liable to conſiderable alternate expanſions and contractions, which render a compenſating contrivance neceſſary for pieces deſtined for aſtronomical purpoſes; and the various intentions to accompliſh this end have been already noticed at p. 309–313.

As we have dwelt ſo long on the mechaniſm of the going-part of a clock, which is the moſt eſſential to be attended to, we need not deſcribe over again here, the offices of the different parts of the ſtriking-mechaniſm, which requires leſs of ſcience, and more of mere mechanical contrivance, than the parts we have hitherto treated of. We ſhall therefore conclude with a few words as to preparing the dial-plate for the enameller; which, though it may ſeem a work of little importance, requires no ſmall care and ſkill in the adjuſtment. The copper, being procured from the flatting-mills in thin ſlips, and of an adequate diameter and thickneſs, is cut to nearly the required ſize with a pair of ſtrong ſciſſars, a circle having been firſt ſtruck with the compaſſes. If in a ſoft ſtate, it is then cleaned by the *pickle*, as it is called, which is either oil of vitriol or aquafortis mixed with water; and, having been bruſhed out with ſand on a flat board, is waſhed and dried for planiſhing; if otherwiſe, it muſt be well annealed before it is thrown into the pickle, where it muſt lie till all the ſcale is enough ſoftened to be removed by the hand-bruſh, ſand, and water.

*Planiſhing* is a very important part of this work; and too much care cannot be exerted in the proceſs, as the neceſſary regularity of ſurface almoſt wholly depends upon it. In large plates the action of the fire has a very conſiderable effect, as it cauſes an expanſion in the metal, which, unleſs properly guarded againſt, cannot but operate to the imperfection, and perhaps total ſpoiling, of the work. In flatting alſo, a ſort of twiſt is not unfrequently given to the copper, during its paſſage through the rollers, that would aſſuredly cauſe the plate to become uneven and out of ſhape, were it not to be removed by planiſhing and repeated annealings. Another effect produced by the fire, is occaſioning the plate to riſe, perhaps irregularly, towards the centre, and this can only be checked by counteracting the action which the heat would otherwiſe generate in the metal by good planiſhing. To keep a large plate entirely flat is impoſſible; or at leaſt no means have as yet been diſcovered through which that aim can be attained. The beſt way, therefore, to provide againſt the irregularities which the fire might cauſe, is to give to the copper, in the courſe of planiſhing, a ſlight and even riſe or curve from the edge to the centre; this can either be effected by the uſe of large braſs dies, or by a machine adapted for the purpoſe.

This machine, which is very little known in the trade, conſiſts of two principal parts; the one a ſolid maſs of iron, with a concave and poliſhed face, imbedded immoveably in a ſtrong oak block, firmly fixed on a foundation of brick-work, and the top edge hooped with a thick iron ring, to prevent ſplitting; the other, an anſwering and weighty maſs of iron with a convex face, ſimilarly poliſhed, and fixed in an upright frame of timber, but ſo contrived as to become moveable by means of ſliding grooves, a rope, a pulley, and a lever, and ſo placed as to fall directly upon the maſs beneath, in a ſimilar way to the monkey of a pile-driving engine. The diameter both of the hammer and the anvil, as the upper and under maſſes of iron may be called, for the ſake of perſpicuity, is about thirteen inches; that ſize being nearly as large as clock-dials are ever made or wanted. The convexity of the hammer is exactly fitted to the concavity of the anvil, and may be deſcribed, perhaps, as forming a portion of a circle fifty feet in diameter; and the centres of both are kept true to each other, and conſequently to the regularity of curve, by means of large ſcrews and nuts, which adjuſt the poſition of the hammer by altering the perpendicularity of the bars of iron that the grooves act upon. The power of this machine ſaves much labour in planiſhing, as well as time; yet as it is inſufficient wholly to prepare the coppers, and as the charge of erecting one would be very conſiderable, it will never, perhaps, come into general uſe.

In planiſhing with this machine, it is neceſſary to be provided with various thin circular pieces of lead, evenly flatted, and adapted in ſize to the diameters of the coppers to be planiſhed. Without theſe the ſtroke given by the hammer would have a very imperfect effect; and the impulſe given by the weight of its fall would alſo be continually weakening the foundation and bed of the anvil. The coppers prepared for planiſhing by this machine are taken ſeparately, (the eyes having been previouſly cut out to a proper ſize by means of an iron punch, a hammer, and a lead block,) and each one is laid upon a lead of a correſpondent diameter, and placed upon the anvil in ſuch a manner that all the centres agree. The hammer, which has been hitherto retained at ſome height by an iron ſtay fixed in one of the timbers, and moving on a pivot, is then let fall three or four times in quick ſucceſſion, it being each time lifted up, to the height of three feet or more, by means of the lever. The hammer is then again faſtened by the ſtay, whilſt the copper is turned over on the lead, after which the operation is repeated; and the copper is then taken off, and another laid down, till the whole are gone through. The weight of the hammer, and the impetus acquired by its deſcent, remove moſt of the unevenneſſes in the coppers, yet cannot entirely remedy them; a ſtrong and unequal ſpring will ſtill be felt, and, the metal being now rendered hard by the action of the hammer, annealing muſt again be reſorted to, and the coppers muſt be pickled and cleaned as before. The machine is then uſed a ſecond time in a ſimilar way; and afterwards a third, a fourth, a fifth, and even a ſixth and ſeventh, time, according to the diameters of the coppers, or to the refractorineſs of the metals, due care being taken properly to anneal and pickle them between every operation.

The coppers will now be found of a regular ſhape, and the ſpring in the metal tolerably uniform; it is eſſential, however, to the perfection of the plate, that the ſpring ſhould be entirely uniform from edge to centre, otherwiſe the plate would warp and cockle in the fire. A kind of intermediate proceſs muſt therefore be carried on between the taking the coppers from the machine, and before repeating the annealings. This is performed by means of a circular braſs die, about a quarter of an inch in thickneſs, and from fifteen to eighteen inches in diameter, ſcrewed firmly down to a ſtrong oaken block, having three ſtout legs, placed triangular-wiſe, and of a ſufficient height to uſe conveniently when the artiſt is in a ſtanding poſture. The die ſhould have the ſame degree of curve as the machine, otherwiſe the effect produced by each would occaſion a ſort of reciprocal counteraction. The coppers, having paſſed through the machine, are placed in ſucceſſion upon the die, and a wooden box-hammer (ſomewhat reſembling that uſed by gold-beaters) with two faces, the one a circle about three inches over, the other cut away on the front edges ſo as to leave only a portion about an inch or an inch and a quarter in breadth remaining in the middle, is then taken, and the copper is both rubbed and ſtruck with it till the metal becomes too hard for any further impreſſion to be made, and requires annealing. The circular end is uſed to ſtrike the copper with, which is done by ſhort, quick beats of the hammer, the artiſt working from centre to edge, and communicating the neceſſary motion and direction to the coppers by means of the fingers of one hand, ſo extended over the work as to give the requiſite command in guiding it; the other end is employed in rubbing the coppers ſtrongly with a backward and forward action, under which they are moved upon the die by the fingers as before. Where the machine is not uſed, the planiſhing muſt then be entirely performed in the way juſt deſcribed, and great care muſt be taken, that in the rubbing, the coppers be not bent, which would occaſion both additional labour, and further annealing. No poſitive direction can be given as to the number of times that the coppers muſt be annealed in the courſe of the planiſhing; as a general rule, it may be ſaid that the larger the ſize, the more frequently muſt the annealings be repeated. For plates of from three to four inches, twice or thrice is commonly enough; from five to eight inches, about four or five times are requiſite; for larger ſizes, the annealings muſt be continued till the ſpring or action in the metal becomes uniform, as already mentioned. This is beſt determined by the regularity with which the copper will flap or jerk into the curve given by planiſhing when turned either ſide uppermoſt upon the die. When the planiſhing is completed, the coppers are cut exactly to the ſizes required; and, having been pickled and cleaned, they are then ready to be enamelled on. After the laſt annealing, it is beſt to planiſh but ſlightly, that the coppers may be left in a ſtate comparative ſoftneſs.

For time-pieces, table-clocks, and ſome others, round plates are commonly uſed, and in theſe caſes it is neceſſary to have moveable braſs dies formed into the curves required. Round plates are thoſe which have a conſiderable riſe in the centre, made by a pretty quick forcing-up of the copper into a ſort of ſhoulder about where the circles of the hours come, and afterwards continuing the riſe more gradually. The bent ſpatula and the ſcratch-bruſh are chiefly employed to ſet the coppers into theſe curves, and, where the riſe is very quick from the edge, the copper is ſometimes turned up as in ſmall dials, that the enamel may be the better retained in its place.

Thus much of the principles of the mechaniſm of clocks. What we have advanced, relative to the action of wheels and pinions upon the pendulum, will ſuffice to convey an idea to any one, who has not previouſly conſidered the ſubject, how admirably well adapted for the purpoſes of a clock-movement this property in mechanics is, by which an increaſe of velocity is always accompanied by a proportionate abatement of force; for by means of it, the maintaining power, however large, may be ſo economically portioned out in minute quantities, ſufficient only to compenſate the loſs of motion which the pendulum or balance ſuſtains at each vibration, that it may be made to laſt for many days, or even weeks, before it is exhauſted by the great number of ſucceſſive minute deductions which are made at periodical intervals; at the ſame time, certain wheels and pinions, by their numbers and due arrangement, divide and ſubdivide, by means of hands and divided circles, the ſexageſimal portions of each hour, denominated minutes, and alſo of each minute by the name of ſeconds. The various offices of communicating motion, of increaſing its velocity as at firſt produced, of diminiſhing the original force of the maintaining power, of dividing, ſubdividing, counting, and indicating, the hours, minutes, and ſeconds, all performed by the ſimple contrivance of a clock-movement, or watch-movement, in conjunction with the regulator, we heſitate not to affirm, when duly conſidered, exhibit one of the moſt ſtriking inſtances of human ingenuity. The experiments of the philoſopher, the calculations of the mathematician, and the perſevering ſkill of the mechanic, have combined to produce ultimately this admirable piece of mechaniſm, of which

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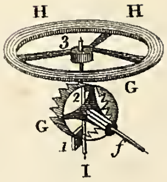

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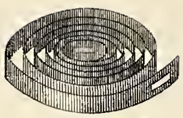

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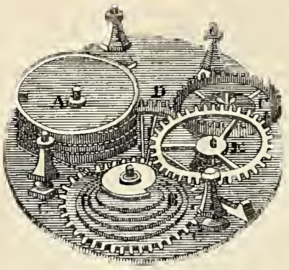

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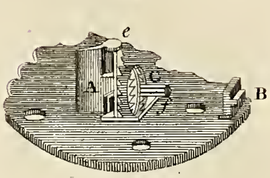

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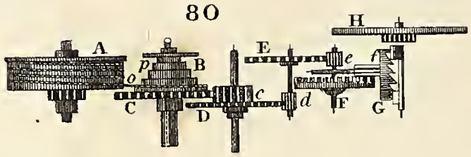

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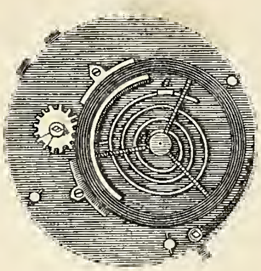

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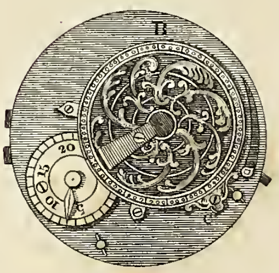

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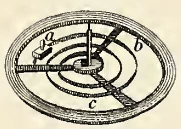

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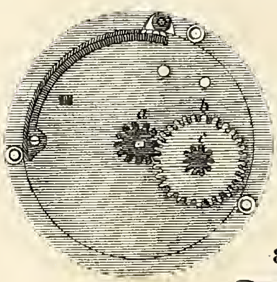

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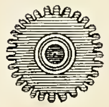

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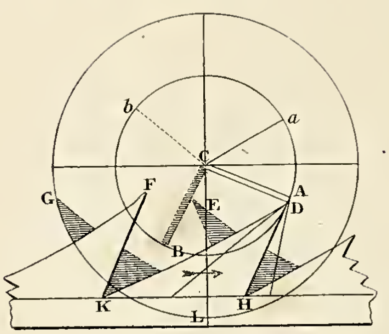

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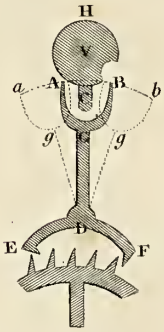

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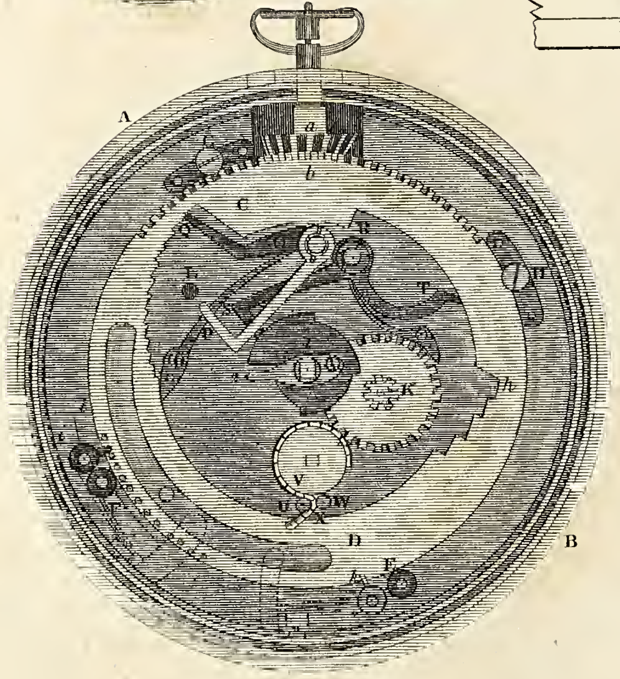

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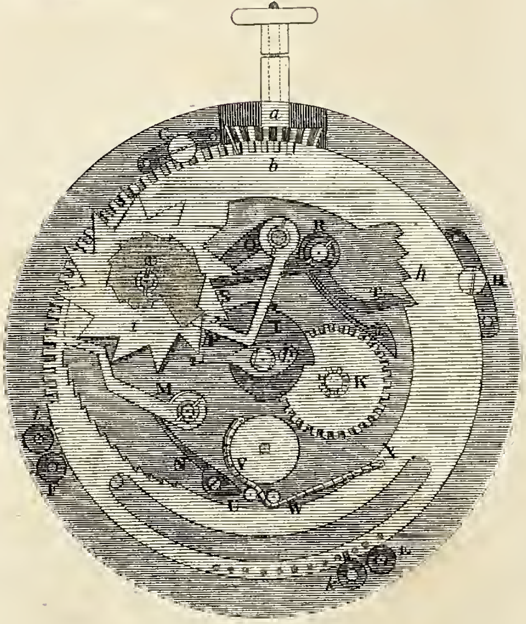

J. Pass sc.

Mechanism of a Watch.

London, Pubd as the Act directs Feby 19. 1810. by J. Wilkes.

which we hardly know which moſt to admire, the ſimplicity of the conſtruction, or the complexity of the various offices conſtantly and moſt correctly performed.

## II. Of WATCHES.

Watches, ſtrictly taken, are all ſuch movements as ſhow the parts of time; as clocks are ſuch as publiſh it, by ſtriking on a bell, &c. But commonly the name *watch* is appropriated to ſuch as are carried in the pocket; and *clock* to the large movements, whether they ſtrike the hour or not.

The invention of ſpring or pocket watches belongs to the 18th century. It is true, we find mention made of a watch preſented to Charles V. in the hiſtory of that prince; but this, in all probability, was no more than a kind of clock to be ſet on a table, ſome reſemblance whereof we have ſtill remaining in the ancient pieces made before the year 1670. There was alſo a ſtory of a watch having been diſcovered in Scotland belonging to king Robert Bruce: but this has turned out altogether falſe. The glory of this very uſeful invention lies between Dr. Hooke and M. Huygens; but to which of them it properly belongs, has been greatly diſputed; the Engliſh aſcribing it to the former, and the French, Dutch, &c. to the latter. Mr. Derham, in his Artificial Clock-maker, ſays roundly, that Dr. Hooke was the inventor; and adds, that he contrived various ways of regulation. One way was with a loadſtone. Another with a tender ſtraight ſpring, one end whereof played backwards and forwards with the balance; ſo that the balance was to the ſpring as the bob to a pendulum, and the ſpring as the rod thereof. A third method was with two balances, of which there were divers ſorts; ſome having a ſpiral ſpring to the balance for a regulator, and others without. But the way that prevailed, and which continues in mode, was with one balance, and one ſpring running round the upper part of the verge thereof; though this has a diſadvantage, which thoſe with two ſprings, &c. were free from; in that a ſudden jerk, or confuſed ſhake, will alter its vibrations, and put it in an unuſual hurry.

The time of theſe inventions was about the year 1658; as appears, among other evidences, from an inſcription on one of the double-balance watches preſented to king Charles II. viz. "Rob. Hooke inven. 1658. T. Tompion fecit, 1675." The invention preſently got into reputation, both at home and abroad; and two of them were ſent for by the dauphin of France. Soon after this, M. Huygen's watch with a ſpiral ſpring got abroad, and made a great noiſe in England, as if the longitude could be found by it. It is certain, however, that his invention was later than the year 1673, when his book *De Horol. Oſcillat.* was publiſhed; wherein he has not one word of this, though he has of ſeveral other contrivances in the ſame way.

One of theſe the lord Brouncker ſent for out of France, where Huygens had got a patent for them. This watch agreed with Dr. Hooke's in the application of the ſpring to the balance; only M. Huygens's had a longer ſpiral-ſpring, and the pulſes and beats were much ſlower. The balance, inſtead of turning quite round, as Dr. Hooke's, turns ſeveral rounds every vibration.

Mr. Derham ſuggeſts, that he has reaſon to doubt M. Huygen's fancy firſt was ſet to work by ſome intelligence he might have of Dr. Hooke's invention from Mr. Oldenburg, or ſome other of his correſpondents in England; and this, notwithſtanding Mr. Oldenburg's attempt to vindicate himſelf in the Philoſophical Tranſactions, appears to be the truth. Huygens invented divers other kinds of watches, ſome of them without any ſtring or chain at all; which he called, particularly, *pendulum-watches.*

Watches, as well as clocks, are compoſed of wheels and pinions, and a regulator to direct the quickneſs or ſlowneſs of the wheels, and of a ſpring which communicates motion to the whole machine. But the regulator and ſpring of a watch are vaſtly inferior to the weight and pendulum of a clock, neither of which can be employed in watches. In place of a pendulum, therefore, we are obliged to uſe a balance to regulate the motion of a watch, as delineated in the Horology Plate XII. fig. 76; and a ſpring, fig. 77, which ſerves in place of a weight, to give motion to the wheels and balance.

The wheels of a watch, like thoſe of a clock, are placed in a frame formed of two plates and four pillars. In the ſame Engraving, fig. 78, repreſents the inſide of a watch, after the plate, fig. 79, is taken off. A is the barrel which contains the ſpring, fig. 77; the chain is rolled about the barrel, with one end of it fixed to the barrel A, fig. 80, and the other to the fuſee B. In figures 78 and 80, the ſame letters denote the ſame parts. Now, when the watch is wound up, the chain which was upon the barrel winds about the fuſee, and by this means the ſpring is ſtretched; for the interior end of the ſpring is fixed by a hook to the immoveable axis about which the barrel revolves; the exterior end of the ſpring is fixed to the inſide of the barrel, which turns upon an axis. It is therefore eaſy to perceive how the ſpring extends itſelf, and how its elaſticity forces the barrel to turn round, and conſequently obliges the chain, which is upon the fuſee, to unfold and turn the fuſee; the motion of the fuſee is communicated to the wheel C, fig. 80; then, by means of the teeth, to the pinion *c*, which carries the wheel D; then to the pinion *d*, which carries the wheel E; then to the pinion *e*, which carries the wheel F; then to the pinion *f*, upon which is the balance-wheel G, whoſe pivot runs in the pieces A, called the *potence*, and B called a *follower*, which are fixed on the plate, at fig. 79. This plate, of which only a part is repreſented, is applied to that of fig. 78, in ſuch a manner that the pivots of the wheels enter into holes made in the plate, at fig. 79. Theſe holes are not viſible in the figure, but they have larger orifices ſcooped out on the back of the plate, in which oil is put to help the motion of the wheels. Thus the impreſſed force of the ſpring is communicated to the wheels; and the pinion *f*, being then connected to the wheel F, obliges it to turn, as ſhown in fig. 80. This wheel acts upon the pallets of the verge 1, 2, in fig. 76, the axis of which carries the balance HH. The pivot I, in the end of the verge, enters into the hole *e*, in the potence A, fig. 79. In this figure the pallets are repreſented; but the balance is on the other ſide of the plate, as may be ſeen in fig. 81. The pivot 3 of the balance enters into a hole in the centre of the cock, BC, fig 82, in which figure alſo the dial of the regulator is ſhown. The balance turns between the cock and the potence *e*, fig. 79, as in a kind of cage. The action of the balance-wheel upon the pallets 1, 2, fig. 76, is the ſame as with regard to the ſame wheel in the clock; i. e. in a watch, the balance-wheel obliges the balance to vibrate backwards and forwards like a pendulum. At each vibration of the balance a pallet allows a tooth of the balance-wheel to eſcape; ſo that the quickneſs of the motion of the wheels is entirely determined by the quickneſs of the vibrations of the balance; and theſe vibrations of the balance and motion of the wheels are produced by the action of the ſpring. But the quickneſs or ſlowneſs of the vibrations of the balance, depend not ſolely upon the action of the main ſpring, but chiefly upon the action of the ſpring *a*, *b*, *c*, called the *balance-ſpring*, fig. 83, ſituated under the balance H, and repreſented in perſpective at fig. 81. The exterior end of the ſpiral is fixed by the pin *a*, fig. 83, by means of a ſtud ſoldered on the upper plate in *a*, as ſeen in fig. 81. The interior end of the ſpiral is fixed by a pin to the centre of the balance at *d*. Hence if the balance is turned upon itſelf, the plates remaining immoveable, the ſpring will extend itſelf, and make the balance perform one revolution. Now, after the ſpiral is thus extended, if the balance be left to itſelf, the elaſticity of the ſpiral will bring back the balance, and in this manner the alternate vibrations of the balance are produced.

In fig. 80, the whole ſeries of wheels above deſcribed, are repreſented in ſuch a manner, that we may eaſily perceive at firſt ſight how the motion is communicated from the barrel to the balance. The ſame letters in fig. 78, denote the ſame parts.

In fig. 84, are repreſented the wheels under the dial-plate, by which the hands are moved. The pinion *a* is adjuſted to the force of the prolonged pivot of the wheel D in fig. 80, and is called a *cannon pinion*. This wheel revolves in an hour. The end of the axis of the pinion *a*, upon which the minute-hand is fixed, is ſquare; the pinion *c*, fig. 84, is fixed upon the wheel *b*, which is carried by the pinion *a*. Fig. 85, is a wheel fixed upon a barrel, into the cavity of which the part above the pinion *a* enters, and upon which it turns freely. This wheel works in the pinion *c*, revolves in 12 hours, and carries along with it the hour-hand.

Such, in brief, is the mechaniſm of a watch; and we need not farther enlarge on the action of the ſeveral parts, that taſk having been performed under the general head Machines with Toothed Wheels, and the ſubdiviſions, Balance, Wheel-work, and Scapement, in this article. From what has been ſaid under the laſt-mentioned ſubdiviſion, it will be readily perceived, that the common recoiling ſcapement of the old clocks ſtill holds its place in the ordinary pocket-watches, and anſwers all the common purpoſes of a watch very well. A well-finiſhed watch, with a recoiling ſcapement, will keep time within a minute in the day. This is enough for the ordinary affairs of life. But ſuch watches are ſubject to great variation in their rate of going by any change in the power of the wheels. This is evident; for, if the watch be held back, or preſſed forward, by the key applied to the fuſee-ſquare, we hear the beating greatly retarded or accelerated. The maintaining power, in the beſt of ſuch watches, is never leſs than one-fifth of the regulating power of the ſpring. For, if we take off the balance-ſpring, and allow the balance to vibrate by the impulſe of the wheels alone, we ſhall find the minute-hand to go forward from 25 to 30 minutes per hour. Suppoſe it 30. Then, ſince the wheels act through equal ſpaces with or without a ſpring, the forces are as the ſquares of the acquired velocities. The velocity in this caſe is double; therefore the accelerating force is quadruple, and the force of the ſpring is three times that of the wheels. If the hand goes forward 25 minutes, the force of the wheels is about one-fifth of that of the ſpring. This great prportion is neceſſary, as already obſerved, that the watch may go as ſoon as unſtopped.

We have but little to ſay on this ſcapement; its principle and manner of action, and its good and bad qualities, being the ſame with thoſe of the ſimilar ſcapement for clocks, upon which we have ſufficiently enlarged. It is evident that, the maintaining power being applied in the moſt direct manner, and during the whole of the vibration, it will have the greateſt poſſible influence to move the balance. A given main-ſpring and train will keep in motion a heavier balance by means of this ſcapement than by any other. But, on the other hand, and for the ſame reaſon, the balance has leſs dominion over the wheel-work, and its vibrations are more affected by any irregularities of the wheel-work. Moreover, the chief action of the wheel being at the very extremities of the vibrations, and being very abrupt, the variations in its force are moſt hurtful to the iſochroniſm of the vibrations.

Although this ſcapement is extremely ſimple, it is ſuſceptible of more degrees of goodneſs or imperfection than almoſt any other, by the variation of the few particulars of its conſtruction. We ſhall therefore briefly deſcribe that conſtruction which long experience has ſanctioned as approaching near to the beſt performance that can be obtained from the common ſcapement. Fig. 86 repreſents it in what are thought its beſt proportions, as it appears when looking ſtraight down on the end of the balance-arbor. C is the centre of the balance and verge. C A and C B are the two pallets; C A being the upper pallet, or the one next to the balance, and C B being the lower one. F and D are two teeth of the balance-wheel, moving from left to right; and E, G, are two teeth on the lower part of the circumference, moving from right to left. The tooth D is repreſented as juſt eſcaped from the point of C A, and the lower tooth E as juſt come in contact with the lower pallet. The ſcapement ſhould not, however, be quite ſo cloſe, becauſe an inequality on the teeth might prevent D from eſcaping at all. For, if E touch the pallet C B before D has quitted C A, all will ſtand ſtill. This fault will be corrected by withdrawing the wheel a little from the verge, or by ſhortening the pallets.

The proportions are as follow. The diſtance between the front of the teeth (that is, of G, F, E, D) and the axis C of the balance, is one-fifth of F A, the diſtance between the points of the teeth. The length, C A, C B, of the pallets, is three-fifths of the ſame diſtance. The pallets make an angle A C B of 95 degrees, and the front D H or F K of the teeth make an angle of 25° with the axis of the crown-wheel. The ſloping ſide of the tooth muſt be of an epicycloidal form, ſuited to the relative motion of the tooth and pallet. From theſe proportions it appears that the pallet A can *throw out*, by the action of the tooth D, till it reaches *a*, 120 degrees from C L, the line of the crown-wheel axis. For it can throw out till the pallet B ſtrikes againſt the front of E, which is inclined 25° to C L; to this add B C A = 95°, and we have L C *a* = 120. In like manner B will throw out as far on the other ſide, or to *b*. From 240°, the ſum of theſe angles, take the angle of the pallets 95°, and there remains 145° for the greateſt vibration which the balance can make without ſtriking the front of the teeth. This extent of vibration ſuppoſes the teeth to terminate in points, and the acting ſurfaces of the pallets to be planes directed to the very axis of the verge. But the points of the teeth muſt be rounded off a little for ſtrength, and to diminiſh friction on the face of the pallets. This diminiſhes the angle of ſcapement very conſiderably, by ſhortening the teeth. Moreover, we muſt by no means allow the point of the pallet to bank or ſtrike on the foreſide of a tooth. This would greatly derange the vibration by the violence and abruptneſs of the check which the wheel would give to the pallet. This circumſtance makes it improper to continue the vibrations much beyond the angle of ſcapement. One-third of a circle, or 12°, is therefore reckoned a very proper vibration for a ſcapement made in theſe proportions. The impulſe of the wheels, or the angle of ſcapement, may be increaſed by making the face of the pallets a little concave, (preſerving the ſame angle at the centre.) The vibration may alſo be widened by puſhing the wheel nearer to the verge. This would alſo diminiſh the recoil. Indeed this may be entirely removed by bringing the front of the wheel up to C, and making the face of the pallet not a radius, but parallel to a radius, and behind it, i. e. by placing the pallet C A ſo that its acting face may be where its back is juſt now. In this caſe, the tooth D would drop on it at the centre, and lie there at reſt, while the balance completes its vibration. But this would make the *banking* (as the ſtroke is called) on the teeth almoſt unavoidable. In ſhort, after varying every circumſtance in every poſſible manner, the beſt makers have ſettled on a ſcapement very nearly ſuch as we have deſcribed. Preciſe rules can ſcarcely be given; becauſe the law, by which the force acting on the pallets varies in its intenſity, deviates ſo widely from the action of the balance-ſpring, eſpecially near the limits of the excurſions.

Of the other ſcapements in occaſional uſe we have ſufficiently ſpoken under that head; but we may obſerve in general, that the execution of a proper ſcapement for watches is a far more delicate and difficult problem than for a clock, on account of the ſmall ſize, which requires much more accurate workmanſhip, becauſe the error of the hundreth part of an inch has as great a proportion to the dimenſions of the regulator as an inch in a common houſe-clock. It is much more difficult on another account. We have no means of accumulating ſuch a *do-*

*minion* (to uſe Mr. Harriſon's expreſſive term) over the wheel-work in the regulator of a watch as in that of a clock. The heavieſt balance that we can employ, without the certainty of ſnapping its pivots by every ſlight jolt, is a mere trifle in compariſon with the pendulum of the moſt ordinary clock. A dozen or twenty grains is the utmoſt weight of the balance, even of a very large pocket-watch. The only way that we can accumulate any notable quantity of regulating power in ſuch a ſmall pittance of matter is by giving it a very great velocity. This we do by accumulating all its weight in the rim, by giving it very wide vibrations, and by making them extremely frequent. The balance-rim of a middling good watch ſhould paſs through at leaſt ten inches in every ſecond. Now, when we reflect on the ſmall momentum of this regulator, the inevitable inequalities of the maintaining-power, the great arch of vibration on which theſe inequalities will operate, and the comparative magnitude even of an almoſt inſenſible friction or clammineſs, it appears almoſt chimerical to expect any thing near to equability in the vibrations, and incredible that a watch can be made which will not vary more than one beat in 86,400. Yet ſuch have been made. They muſt be conſidered as the moſt maſterly exertions of human art.

We have already ſaid, that the free or detached ſcapement, combined with the dead-beat, is the moſt likely of any to meaſure time with accuracy. Mr. Mudge has given a ſcapement of this kind, which he recommends for pocket-watches, and executed entirely to his ſatisfaction in one made for the queen in the year 1772. A dead-beat pendulum-ſcapement is interpoſed between the wheels and the balance. The crutch EDF, fig. 87, has a third arm DG, ſtanding outwards from the meeting of the other two, and of twice their length. This arm terminates in a fork AGB. The verge V has a pallet C, which, when all is at reſt, would ſtand between the points A, B, of the fork. But the wheel, by its action on the pallet E, forces the fork into the poſition B *g b*, the point A of the fork being now where B was before, juſt touching the cylindrical ſurface of the verge. The ſcapement of the crutch EDF is not accurately a dead-beat ſcapement, but has a very ſmall recoil beyond the angle of impulſion. By this circumſtance the branch A (now at B) is made to preſs moſt gently on the cylinder, and keeps the wheel locked, while the balance is going round in the direction BHA. The point A gets moving from A to B by means of a notch in the cylinder, which turns round at the ſame time by the action of the branch AG on the pallet C; but A does not touch the cylinder during this motion, the notch leaving free room for its paſſage. When the balance returns from its excurſion, the pallet C ſtrikes on the branch A, (ſtill at B,) and unlocks the wheel. This now acting on the crutch-pallet F, cauſes the branch B of the fork to follow the pallet C, and give it a ſtrong impulſe in the direction in which it is then moving, cauſing the balance to make a ſemi-vibration in the direction AHB. The fork is now in the ſituation A*ga*, ſimilar to B*gb*, and the wheel is again locked on the crutch-pallet E.

The intelligent reader will admit this to be a very ſteady and effective ſcapement. The lockage of the wheel is procured in a very ingenious manner; and the friction on the cylinder, neceſſary for effecting this, may be made as ſmall as we pleaſe, notwithſtanding a very ſtrong action of the wheel: for the preſſure of the fork on the cylinder depends entirely on the degree of recoil that is formed on the pallets E and F. Preſſure on the cylinder is not indiſpenſably neceſſary, and the *crutch-ſcapement* might be a real dead-beat; but a ſmall recoil, by keeping the fork in contact with the cylinder, gives the moſt perfect ſteadineſs to the motion. The ingenious inventor, a man of approved integrity and judgment, declares that her majeſty's watch was the beſt pocket-watch he had ever ſeen. (Letter to Count Brahl, dated Jan. 3, 1773.) We are not diſpoſed to queſtion its excellency; but Mr. Mudge farther obſerves, "that it requires a delicacy in the execution which very few artiſts are equal to, and fewer ſtill will give themſelves the trouble to arrive at." (Letter to the Count, dated Aug. 9, 1776.)

**Striking Watches** are ſuch as, beſides the proper watch-part, for meaſuring of time, have a clock-part, for ſtriking the hours, &c. Theſe might be called *pocket-clocks.*

**Repeating Watches** are ſuch as, by pulling a ſtring, or puſhing in the pendant, repeat the hour, or quarter, at any time of the day or night. This repetition was the invention of Mr. Barlow, and was firſt put in practice by him in larger movements, or clocks, about the year 1676. The contrivance immediately ſet other artiſts to work, who ſoon found out divers ways of effecting the ſame. But its application to pocket-watches was not known before James II.'s time; when the ingenious inventor above mentioned ſolicited a patent for the ſame. The talk of a patent engaged Mr. Quare to reſume the thoughts of a like contrivance, which he had in view ſome years before: he now effected it; and, being preſſed to endeavour to prevent Mr. Barlow's patent, a watch of each kind was produced before the king and council; upon trial of which, the preference was given to Mr. Quare's. The difference between them was, that Barlow's was made to repeat, by puſhing in pieces on each ſide the caſe; one of which repeated the hour, and the other the quarter; whereas Quare's was made to repeat by a pin that ſtuck out near the pendant; which, being thruſt in, (as now it is done by thruſting in the pendant itſelf,) repeated both the hour and quarter with the ſame thruſt.

Repeating watches are in general very coſtly; the repair of them is alſo expenſive, and out of London not many watch-makers (as they are called) are competent to the taſk. But Mr. Elliot, of Clerkenwell, has lately invented a repeating watch on a new and very ſimple principle, and as cheap as a common watch. It will repeat the hour and the quarter, the hour without the quarter, or the quarter without the hour; the hour firſt, and the quarter afterwards, or the quarter firſt, and the hour afterwards, or the hour and the quarter without intermiſſion, with one hammer only. The inventor can ſell a good repeater upon this principle for the low price of eight guineas; and he adds, "my repeating movements can be added to an old watch for the ſum of three guineas, if it is to be a dumb repeater; for a further addition of three guineas, I can furniſh my repeating work with a bell and new metal caſes."

The method by which this repeater is ſo much ſimplified is by the uſe of a ſingle part, ſo contrived as to perform the operations of ſeveral; this is, a flat ring, or centreleſs wheel, of nearly the ſame diameter as the watch, ſupported in its place, ſo as to admit of circular motion, by four grooved pulleys placed round its external circumference, in the ſame manner as the part in common clocks which denotes the moon's age. This part is put in motion by turning the pendant, whoſe extremity is formed into a ſmall vertical wheel, which works in teeth cut on the external part of the flat ring for almoſt a third of its circumference. The lower part of the ring contains the pins, at right angles to its face, which lift the hammers for ſtriking the hours and quarters; the internal part of the ring contains indentations of regularly-increaſing depths, which, receiving the tails of the levers, whoſe other extremities are preſſed by their ſprings againſt the hour-ſnail and the quarter-ſnail, is by them prevented from moving beyond a certain degree proper for the time; after the pendant is turned, the ring is brought back to its firſt poſition, by a box-ſpring, round which a fine chain is coiled, whoſe extremity is connected with the inner part of the ring. By turning the pendant to the left the hour is ſtruck, and by turning to the right the quarters are repeated; and the returning ſpring juſt mentioned is made to operate in both directions, by its chain paſſing between two little pulleys, which on either ſide convert the direction of the chain to the line of traction of the ſpring.

Hence it is evident this ſingle flat ring performs all the following operations. 1. It receives the motion for ſtriking the hour from the pendant. 2. The ſame for ſtriking the quarters. 3. It carries the pins, or teeth, which lift the hour-hammer. 4. The ſame for the quarter-hammer. 5. It contains the indentations by which the hour-ſnail operates on it by its lever. 6. The ſame by which the quarter-ſnail operates on it. 7. It carries the part that recoils the movement which tells the hour to its firſt poſition. 8. It carries the part, for the ſame purpoſe, for the quarter-movement. 9. It contains a cavity, which moves over a fixed pin, that prevents the pendant from turning it too far. Thus in this ring, the ſame parts, in three inſtances, are made to perform double operations; by which ſimplicity of conſtruction is advanced, apparently to its greateſt extent.

For this very ingenious and uſeful invention, Mr. Elliot was complimented with a preſent of thirty guineas by the Society of Arts: and, though we have pretty clearly explained the principle of it above, we hope to make its mode of action better underſtood by a delineation of the machine. The whole of the repeating work is ſhown at fig. 88 and 89; the reference will be in general to fig. 88; but, as the ſame letters denote the ſame parts in both, whenever the part is not clearly ſeen in that figure, the defect will always be ſupplied by referring to fig. 89. Let then A B, in fig. 88, repreſent the pillar-plate, viz. its upper ſide. C D is a circle of ſteel, moving freely in the ſteel pulleys E F G H. This ſteel wheel is put in motion by means of a ſmall wheel *a*, faſt on the axis, which goes through the pendant, which acts in the teeth on the under ſide of the circle repreſented by the arch *b*. I is the quarter-ſnail. K the minute-wheel. The hour-wheel may eaſily be ſuppoſed, therefore requires no deſcription. L is part of the hour-ſnail, which is not drawn complete, as it would intercept the view of the rack of the ſteel circle at Q. O is the locking-lever. P the end which falls upon the hour-ſnail, to regulate the number of ſtrokes it is to ſtrike; at the ſame time, the end Q of the lever O locks into one or other of the notches in the ſteel circle. The ſtar-wheel, 1, is riveted or ſcrewed to the hour-ſnail, and moved by the ſmall arm, 2, on the canon pinion. M and N are the jumper and ſpring. R is the quarter locking-lever. S the end that falls upon the quarter-ſnail. T the locking end, which locks into the notches at *h*. At X is a pin in the ſteel circle, to which is hooked a chain, and the other end to the barrel V. This chain, when the pendant is put in motion, will unwind from the barrel, and, by acting between the ſteel rollers U W, will work both to the right and left. *i*, *k*, are ſmall pallets, on which are the tails of the hammers acted upon by the pins as per figure, ſo that, at the end of the ſtrokes that have ſtruck, the ſpring in V will draw back the ſteel circle, and the pins will paſs by the hammer-tail, and a ſmall ſpring under *l* will bring it into its proper place.

The method of uſing this repeater is as follows:—Hold the watch in the left hand, and apply the finger and thumb to the pendant; and, if it is required to repeat the hour, turn it to the right till it gives a full ſtop. But, if it is to repeat the quarter, turn the pendant to the left till it gives a full ſtop, as in winding up a common watch. In either caſe, the point P will fall on ſome part of the hour-ſnail; at the ſame time the point Q will ſtop the ſteel circle. The hammer of courſe will give the hour, or the quarters, as the caſe may be.

A Ruſſian peaſant, named Kulibi, has lately made a watch of ſingularly curious workmanſhip. It is of the ſize of an egg. Within it are repreſented the ſepulchre of our Saviour, the ſtone cloſing it, and the guards ſtanding nigh. The watch is a repeater. When the hour ſtrikes, the ſtone is ſuddenly rolled from the mouth of the ſepulchre, the guards fall on their faces, angels appear, the women arrive, and that melody is played which it is uſual to execute in Ruſſia on Eaſter-eve.

## III. Of TIME-KEEPERS.

The method of determining the longitude by time-keepers poſſeſſes ſome advantages beyond any other. In the firſt place, it is attended with very little trouble; and, ſecondly, the longitude can be found oftener by a time-keeper than by any other means. There is not perhaps a more ſtriking proof of this poſition, than in the voyage of Perouſe round the world in the ſhip La Bouſſole. Between the 1ſt of Auguſt 1785, and the 8th of September 1787, this celebrated navigator took only 72 lunar obſervations; but he took 393 obſervations on the longitude by his time-keeper. This is an unequivocal proof of the benefits that navigation derives from this mode of finding the longitude.

Could a clock or watch, therefore, be contrived to go uniformly at all ſeaſons, and in all places and ſituations, ſuch a machine, being regulated, for inſtance, to London or Greenwich time, would always ſhow the time of the day at London or Greenwich, wherever it ſhould be carried to; then, the time of the day at this place being found by obſervation, the difference between theſe two times would give the difference of longitude, according to the proportion of one degree to 4 minutes of time. See the article Astronomy, vol. ii. p. 454.

It is to be regretted, however, that time-keepers are expenſive, and liable to ſtop or go irregularly. Were it not for theſe inconveniences, no other method of finding the longitude need be ſought after. But, in ſpite of all the care which can be beſtowed upon the execution of time-pieces, the vibrations of the balance become leſs after a few months uſe; the main-ſpring gives a little; friction will increaſe in the wheel-work, whether by the wear of the different parts or by the coagulation of the oil: and, in proportion as theſe changes take place, the regulator receives weaker impulſions. We do indeed ſucceed in reducing theſe variations to a ſmall quantity by executing the various parts of the machine with the greateſt nicety; but it cannot be done without great expence, ſince firſt-rate workmen are few in number; neither can any care or expence remedy the evil entirely. But let it be recollected, that we ſhould ſeek for perfection rather in the correctneſs of the *principle* of conſtruction than in the nicety of execution, though the latter is not to be neglected. How near we have approximated to the deſired end, the following detail of ſucceſſive improvements will ſhow.

The firſt perſon who propoſed to aſcertain the relative longitude of any place or ſhip at ſea, by means of an horological machine for indicating the time of the firſt meridian, was, as has been aſſerted, Gemma Friſius, about the year 1530, in a tract, De Principiis Aſtronomiæ et Coſmographiæ. This method was deſcribed and recommended in Carpenter's Geography ſo early as the year 1635; but the ſtate in which horological machines was, at that time, prevented his accompliſhing the deſign. The idea, however, once ſuggeſted, was valuable; and ſtimulated ingenious mechanics, in times ſucceeding, to attempt the accompliſhment of an object of ſuch national importance. The diſcovery of the iſochroniſm of the pendulum turned the minds of ingenious men to the improvement of clocks; and we find that lord Kincardine tried a marine pendulum clock by Dr. Hooke in the year 1662; and that Chriſtian Huygens, the celebrated Dutch mathematician and mechanician, contrived a time-keeper, actuated by a ſpring, and regulated by a pendulum, which was tried at ſea by major Holmes in the year 1664, and ſpoken of by him in favourable terms. The ſcapement was of the crown-wheel kind, which, from its nature, is almoſt conſtantly under the influence of the maintaining-power; but a ſmall weight, connected with the crown-wheel, was raiſed every half-ſecond by the maintaining-power, and gave an impulſe to the pendulum, which, therefore, was not affected by the irregular tranſmiſſion of the maintaining-power through the train of wheel-work; this contrivance was ingenious, and obtained the name of *remontoir*. The pendulum, however, was not only unſteady in its action during the toſſing of a ſhip, but was ſubject to a variation in its length by change of temperature, as well as to a change of weight depending on the parallel of latitude. The balance, which had preceded the pendulum, was therefore again reſorted to as a regulator; and, though it was found incompetent to its office in a detached ſtate, yet, by the aid of a ſlender ſpring to quicken and regulate its vibrations, it has ultimately turned out to be of eminent utility.

It has been conteſted by Huygens and Dr. Hooke, which of theſe two ſkilful mechanicians firſt introduced the ſpring called uſually the *pendulum-ſpring*, from the iſochronal property which it poſſeſſes, like the pendulum, when of a proper ſtrength, ſhape, and length; but, whoever was the inventor, both balance and ſpring ſtill remained ſubject to alterations in their dimenſions by the ſucceſſive changes of heat and cold; for, by the former of theſe temperatures, the ſpring became weaker, and the ſize and conſequent momentum of the balance greater, ſo as to produce a very ſenſible loſs in the daily rate of going of a watch with ſuch a regulator; alſo an acceleration beyond a mean rate was ſoon obſerved to be the conſequence of increaſed cold, which, on the contrary, diminiſhed the dimenſions of the metallic parts, and thereby, at the ſame time, gave additional ſtrength to the ſpring, and likewiſe reduced the ſize and momentum of the balance. About the ſame period Leibnitz attempted to confine the vibrations of the balance with a ſpiral ſpring, to be of equal extent, by means of an additional ſpring to be applied to the balance-wheel, and to be, like Huygens's remontoir, wound up by the maintaining power; but his endeavours, whatever ideas they may have ſuggeſted to Harriſon, Mudge, or Haley, for their auxiliary ſprings, were not crowned with complete ſucceſs.

Hautefeuille alſo, in the year 1674, preſented to the Academy of Sciences at Paris, a balance with a ſtraight ſpring, acting ſomehow inſtead of a ſcapement; but how far it reſembled the ſpring-detent of Arnold we know not, nor do we find that it was adopted in practice. This ſociety, however, thought the ſubject of ſuch importance, that, in 1720, they propoſed the following queſtion to be determined for a public reward: viz. "What is the moſt perfect method of preſerving on the ſea the equable motion of a pendulum, either by the conſtruction of the machine, or by the ſuſpenſion?" A memoir written by Maſſy, a Dutch clock-maker, obtained the prize, but he had not the ſatisfaction of ſeeing his plan executed.

About a year afterwards, Henry Sully, an Engliſh clockmaker, who had ſettled at Paris about eight years previouſly, preſented the ſame academy with a marine timekeeper, made in 1721, and publiſhed a deſcription of it in French, by the title of "Deſcription abrégée d'une Horloge de nouvelle invention pour la juſte meſure du temps en mer." Beſides the above, Sully made a ſecond marine time-keeper, which was tried at ſea in 1726; but the inventor died two years afterwards, a martyr to his horological ſtudies, before he had brought his machines to that ſtate of perfection which their object demanded. His pieces had vertical balances carrying cycloidal metallic pieces, round which a thread, or ſlender wire, was wound at the upper end, while the lower end was attached to a lever with an adjuſtable weight to effect the iſochroniſm of the balance, inſtead of a ſpiral-ſpring; the horizontal pivots of the balance alſo moved on the angular point included between two large rollers, which method of leſſening friction, we believe, was the invention of this author. He alſo made a marine watch with a ſpiral ſpring, into which friction-rollers, like Mudge's, were introduced; and, had he lived longer, chronometry would no doubt have been greatly promoted by his labours.

It was about this period, that jewelling, another eſſential improvement in time-pieces, was introduced, according to Berthoud, by Mr. Fatio, a native of Geneva, who, not meeting with encouragement in France, came over into England, and brought his invention into notice.

The Academy of Sciences at Paris again propoſed a reward for the year 1747; the ſubject was "The beſt method of finding the hour at ſea, whether by day, by twilight, or at night, when the horizon cannot be diſtinguiſhed." The reward was obtained by Daniel Bernouilli's memoir, intitled, "Recherches mechaniques et aſtronomiques," in which was diſplayed much ſcience; but the author's want of ſkill in mechanical operations prevented his labours being attended with complete ſucceſs.

In the mean time, the changes in the length of the pendulum began to be compenſated, firſt by means of quickſilver contained in a tubular rod, by Graham, and ſoon after by the oppoſite expanſions of different metals, by Harriſon, who, ſtimulated by the Britiſh parliamentary reward that had been previouſly offered to the public for marine time-keepers, applied the ſame principle to a watch to effect a ſelf-regulating curb, for limiting the effective length of the ſpiral pendulum-ſpring to correſpond to the ſucceſſive changes of heat and cold, which changes were now known to alter the force of this ſpring, and the momentum of the balance. See p. 309 of this article. From this origin we may date the beginning of all the different kinds of *compenſation-mechaniſm* that have proved permanently uſeful in time-keeping; and if we add to Harriſon's invention of the metallic compenſation, his remontoir, and his addition of a ſecondary ſpring as an equivalent ſubſtitute for the maintaining-power during the time of winding up, which is an eſſential requiſite in producing permanent motion, he may be fairly conſidered as the parent of modern horometry.

The Britiſh parliament had, indeed, before the French academy, offered, ſo early as the year 1714, in the reign of queen Anne, a reward of 10,000l. for any method of determining the longitude within the accuracy of one degree of a great circle, of 15,000l. within the limit of 40 geographical miles, and of 20,000l. within the limit of 30 ſuch miles, or half of a degree, provided ſuch method ſhould extend more than 80 miles from the coaſt; and after this act, two others paſſed in the reign of George II. ſtat. 14 and 26, to promote the ſame purpoſe. But an act paſſed in the preſent reign, in 1774, repealing all the former ones, and offering ſeparate rewards to any perſon who ſhould invent a practical method of determining, within certain circumſcribed limits, the longitude of a ſhip at ſea; for a *time-keeper*, the reward held forth is, 5000l. for determining the longitude to or within one degree, 7500l. for determining the ſame to 40 geographical miles, and 10,000l. for a determination at or within half a degree. This act, notwithſtanding its abridged limits and diminiſhed rewards, has produced ſeveral candidates ſince Harriſon (who received the whole reward of the firſt act) for parliamentary remuneration, of whom Mudge, the two Arnolds, and Earnſhaw, have had their labours crowned with partial ſucceſs.

But, though Harriſon obtained the firſt and moſt ample reward for his inventions, we are not thence to conclude that his pieces excelled all others; they were ſpecimens of great ingenuity, and proofs of unwearied induſtry, which certainly were not overpaid; but the inventor himſelf was candid enough to confeſs that the balance, balance-ſpring, and compenſation-curb, were not contemporaneouſly affected by heat and cold, but that ſmall pieces of metal were ſooner affected than large ones, and alſo pieces in motion before pieces at reſt; whence he was led to conclude, that if the proviſion for heat and cold could properly be in the balance itſelf, as was the caſe with his gridiron-pendulum in clocks, the time-piece might be made much more perfect.

Harriſon's ſuggeſtion of a *compenſation-balance*, in place of a compenſating-curb for the balance-ſpring, found its way into France, and rouſed the attention of the watchmakers

makers of that nation; and, to do them juſtice, we muſt allow that Peter, the eldeſt ſon of Julien le Roy, who was himſelf an eminent watch-maker, had the honour to be the firſt who accompliſhed the ſuggeſted deſideratum, by means of two thermometers, one of mercury, and the other of alcohol, attached to and carried by the balance itſelf, which contrivance effected the compenſation, by bringing a portion of the mercury nearer to, or by removing it farther from, the centre of the balance, according to the different ſtates of the atmoſphere. A chronometer on this conſtruction was preſented by Peter le Roy to the king of France, on the 5th of Auguſt, 1766, for which the prize of the Academy of Sciences was awarded him on the laſt day of the ſame month; he alſo publiſhed an account to accompany the piece, entitled, Mémoire ſur la meilleure manière de meſurer le temps en mer, &c. in which memoir he aſſerts, a circumſtance very worthy of notice, that he made another compenſation-balance entirely of pieces of different metals; viz. of braſs and ſteel riveted together, like Harriſon's compenſation-curb, but bent into two ſeparate ſemicircles in ſuch a way, that each, carrying a metallic weight near its extremity, brought it alternately nearer to, or removed it farther from, the centre of the balance thus formed, agreeably to the variations of the atmoſpheric temperature; and, though the inventor preferred at the time the thermometrical compenſation, yet the metallic one, ſpoken of in the memoir in queſtion, was, no doubt, the archetype of all our preſent compenſation-balances.

It might now have been expected that a time-piece, with a movement aided by friction-rollers, or by jewels in the pivot-holes, and with a compenſation-balance regulated by a ſpiral ſpring, would have performed alike under all circumſtances; but ſtill it was found that, however well the fuſee was ſhaped, and adjuſted to the different intenſities of the main-ſpring, yet ſuch an unequal tranſmiſſion of that power took place, even in the beſt movements, in conſequence of there being alternately favourable and unfavourable poſitions of the acting teeth of the wheels and pinions, and in conſequence of the impediments to free motion occaſioned by the variable denſity of the oil uſed, and by the acceſſion of particles of extraneous matter, that the action of the pallet-wheel upon the pallets then in uſe was found ſufficiently irregular to occaſion an inequality in the impulſes given to the balance, and a conſequent inequality in the magnitude of the arcs of vibration. This inequality in the magnitude of the arcs of vibration would not, indeed, have affected the rate of the going of the chronometer, if all lengths of the regulating-ſpring had been found on trial to be equally iſochronal; but the ſame Peter le Roy diſcovered what Dr. Hooke knew long before, (ſee his Poſtcript to a Deſcription of Helioſcopes, &c.) that there is a *certain length* in each good uniform ſpring *which only is iſochronal*, or, in other words, which has the property of regulating the balance ſo, that all the arcs of vibration, long or ſhort, ſhall be performed in the ſame time.

This diſcovery, or rather re-diſcovery, of Peter le Roy, at a time when horometry had made conſiderable advances towards perfection, was calculated to do away the ſanguine hopes that had been entertained of the good performance of time-pieces on Harriſon's conſtruction, in which the effective length of the regulating-ſpring was conſtantly altering with the variations of temperature; and to this circumſtance principally may be imputed, perhaps, the ſmall number of time-pieces that were manufactured after Harriſon's model, notwithſtanding the large premium which was awarded him. A remedy for the unequal tranſmiſſion of the maintaining-power had been, however, adopted by Harriſon, when he introduced the remontoir to produce equable action at the contrate-wheel of his pieces, a contrivance worthy of his genius, whether the idea was original, or borrowed by him from Huygens; but this was a remedy for only one of the two cauſes of irregularity in the momentum of his balance; it might, and probably did, equalize the maintaining-power nearly, but would not counteract the iſochronal defect produced in the regulating-ſpring by the compenſation-curb, in all the various arcs of vibration which every piece is liable to experience in their different ſtates of foulneſs.

The obſtacles to an equal tranſmiſſion of force in theſe inſtruments, led to the invention of various ſcapements, both on the continent and in England; ſome of which were intended to act iſochronally in concert with the regulating-ſpring, and others were ſo conſtructed as to give the impulſe almoſt inſtantaneouſly, and at the moſt favourable inſtant of the vibration of the balance, ſo that the force derived from the maintaining-power, to perpetuate the vibrations, might derange the natural iſochronal property of the balance, and its regulating ſpring, as little as poſſible.

On conſidering this ſubject, it occurred to the moſt ſcientific artiſts, that the regulating-power of the balance and balance-ſpring, which was found to be too much under the dominion of the maintaining-power with the common ſcapements, would be the leaſt deranged if the impulſe derived from the maintaining-power were momentary, particularly if it were applied at that point of the vibration where the momentum of the balance is a maximum; it alſo occurred, that the momentum of the balance itſelf ought to be as great as practicable, compared with the impulſe given to the pallet-wheel, and likewiſe that a momentum compoſed more of velocity than of weight would be moſt favourable for a balance with ſlender pivots. Theſe, and ſimilar conſiderations, the reſult of much thought and reaſoning, ſuggeſted a great variety of deſigns for new ſcapements, many of which have been brought into practice with an advantage correſponding to the importance of the object. Theſe ſcapements have obtained the appellation of *free or detached,* from the circumſtance of their being detached from the balance during the greateſt part of its vibration. It has been matter of contention among horological writers, who was really the firſt inventor of a detached ſcapement; but it ſeems now to be pretty generally admitted, that Peter le Roy, whom we have mentioned as the inventor of the firſt compenſation-balance, was alſo the inventor of the firſt detached ſcapement.

A method having been deviſed of limiting the quantity of impulſe given to the balance, ſo as to be juſt ſufficient to keep it vibrating when put in motion, but not ſufficient to produce motion from a ſtate of quieſcence, as will be ſeen hereafter, and a ſelf-compenſating mechaniſm having been adapted to the balance itſelf, it may now be fairly inferred, that time-keepers have arrived nearly at their *ne plus ultra* of perfection. We ſhall therefore conclude our narrative of the improvements in horometry, by pointing out briefly ſome of the diſtinguiſhing features of the different conſtructions of our contemporaries. Without entering into any detail of the French time-meaſurers, it may be ſufficient to ſtate generally, that their detached ſcapements have detents, or pieces to ſuſpend the maintaining-power for a certain time, moveable on an arbor with pivots; whereas the Engliſh detents act by means of ſprings without pivots, which conſequently require no oil, and are alſo of a more ſimple conſtruction.

The late Mr. Mudge laboured to effect an equalization in the impulſe given to the balance by remontoirs or ſpiral ſprings, acting ſo conſtantly at each vibration, that the ſcapement of his time-keepers could not properly be called a detached one; though the one introduced into the queen's watch, as deſcribed p. 345, which gives an impulſe, at every vibration, ſufficiently great to produce motion from a ſtate of reſt, may be claſſed among the detached kind.

The late Mr. Arnold took out two patents for his improvements in time-keepers, or *chronometers,* (for by this name he firſt called them,) the one in April 1776, and the other in 1782. The former of theſe patents was for the invention and application of compenſation-bars in the conſtruction of his balance, together with the invention and application of what he calls the *helical*, but which is properly the *cylindrical*, balance-ſpring, the form of which is ſhown on Plate VIII. fig. 48. The ſecond patent was for three different ways of applying the compenſation-bars; for an improvement in the balance-ſpring, particularly in the bending of the laſt coil at the end of it; for his invention and application of the ſpring-detent; and alſo for the cycloidal, or more properly epicycloidal, ſhape of the teeth of the balance-wheel. It has been already ſaid, that Peter le Roy was the firſt who applied a metallic compenſation to the balance itſelf; but it does not neceſſarily follow from thence, that Arnold did not alſo invent the one he adopted. We are perſuaded that a man of Mr. Arnold's known integrity and veracity would not make oath, in taking out a patent, of an invention which he did not at leaſt conſider as his own. At all events, Mr. Arnold muſt be allowed the merit of having introduced the compenſation-balance into general uſe, when Peter le Roy preferred the thermometrical tube.

The late Mr. Brockbank was the firſt perſon who united the two metals by fuſion, which le Roy had united by pins, that muſt have interfered with the regularity of the flexure by different temperatures. Mr. Brockbank was alſo the firſt who uſed the method of turning an expanſion-rim out of a ſolid compound plate, made by covering the ſteel plate in a crucible of fuſed braſs, and of cutting it into portions afterwards, thereby enſuring the uniformity both of figure and weight, which two properties are equally eſſential in any balance, as the name imports; ſo that, if it ſhould be contended that the conſtruction of the compenſation-balance was not invented in this country, at leaſt the practical application of the principle is our own; to which conſideration we may add, that Arnold ſenior invented and introduced the uſe of the ſpring-detent, which *requires no oil.* Mr. Arnold was likewiſe the firſt watch-maker in England who laid much ſtreſs, not only on the ſhape, but alſo on the particular length, of the balance-ſpring in practice, which Dr. Hooke and Peter le Roy had both ſhown was neceſſary to be to attended in order to render the ſpring iſochronal under all arcs of vibration, which is an eſſential object of adjuſtment, and which no doubt influenced his choice of the ſhape of the ſpring; and we are informed that he was ſo far ſucceſsful in his attempt to aſcertain the preciſe point for limiting the beſt practical length of ſome of his balance-ſprings, that, after the example of Peter le Roy, to whoſe contrivances, it muſt be confeſſed, he ſeems to have paid great deference, he ſucceeded in making a movement go accurately without a fuſee, by the mere regulation of an iſochronal ſpring; which is an indubitable proof that the irregularities of the maintaining-power can have but little influence on the rate of a chronometer with an iſochronal balance-ſpring, eſpecially when it has, moreover, a detached ſcapement. Mr. Pennington, an excellent artiſt now living, affirms, that *there are many iſochronal points in every ſpring*; which diſcovery accounts for the different lengths of the various balance-ſprings that are made of the ſame clue.

Emery's balance had weights ſliding on its croſſes, and having their poſitions regulated under different degrees of heat by the variable flexure of compenſating-bars compoſed of two different metals, in the ſhape of an S: but this was one of the varieties invented by Arnold, whoſe workman afterwards went to Emery. The Brockbanks have their chronometers diſtinguiſhed by the poſition of their locking and unlocking ſprings, and alſo by a peculiar method of banking by means of the protruſion of the coils of the balance-ſpring.

Earnſhaw's chronometers differ from Arnold's in the ſhape and poſition of the detent and ſprings; in the ſhape of the balance-wheel, and ſtructure of the balance-ſpring and balance; all which will preſently be explained.

Recordon, ſucceſſor to Emery, at Charing Croſs, has a compenſation-balance perforated at the circumference with various tapped holes, into which the ſcrews of adjuſtment for temperature and poſition may be ſucceſſively removed, according to circumſtances: this mode of adjuſtment is practiſed by Pennington, a workman of extraordinary ingenuity and accuracy, and was, we underſtand, originally his contrivance.

Haley, a watch-maker at the corner of Wigmore-ſtreet, Cavendiſh-ſquare, took out a patent on the 17th of Auguſt, 1796, the particulars of which are given in the ſixth volume of the Repertory of Arts, p. 145. The principle on which the patent was granted, conſiſted chiefly of a ſecond cylindrical ſpring, and ſpring-arbor with pallets, &c. interpoſed between the ſcapement-wheel and the balance, to give an impulſe to the balance at each vibration, inſtead of the impulſe uſually given by the force tranſmitted through the train.

Grimalde, in the Strand, who now makes a conſiderable number of chronometers, ſome of which, we learn, have the teſtimony of naval officers in their favour, profeſſes that he places the cock ſo conveniently, and adjuſts for poſition ſo readily, by a particular contrivance, which does not require the cock to be taken off, that it would, we think, contribute to the ſtock of improvements already known, if he would make his method public.

Mr. Hardy has lately introduced a new mode of banking, by a lever attached to the exterior coil of an helical ſpring, which is thrown out to catch a pin in the balance; and has propoſed a new mode of making the ſpring iſochronal, by making the ſtud moveable on a ſecond ſpring; but experience muſt prove their utility.

We might add a liſt of other ingenious perſons who make chronometers, not in London only, but at Edinburgh and Liverpool, were we aware that there is any material difference in the conſtruction of their mechaniſm or methods of adjuſtment, from thoſe, or ſome of thoſe, which we have noticed. We therefore haſten to a more particular deſcription of the machines themſelves.

*Harriſon's Time-keeper.*—The following particulars, relating to the dimenſions and other properties of this mechaniſm, apply more particularly to the fourth piece made by the inventor, and are extracted chiefly from a pamphlet publiſhed by order of the Commiſſioners of Longitude in 1767; for no acceſs to the machine itſelf, for the purpoſe of making correct drawings, can now be obtained, though it is depoſited in the Royal Obſervatory at Greenwich, under the care of Dr. Maſkelyne, aſtronomer-royal, and is of courſe, having been paid for by the public, public property.—The firſt obſervable diſtinction between Harriſon's train of wheel-work and that of an ordinary watch, is, that the numbers of his wheels and pinions are higher than had been uſual, as will appear from the ſubjoined arrangement, viz.

Firſt or great wheel 96,
Centre pinion acting with it - 21—120 ſecond wheel, which is concave,
Its pinion 18—144 third wheel,
Bal. wheel pinion 12—15 bal. wheel,
2 pallets.

If theſe numbers be examined according to the uſual mode of notation, the value of the train will be

$$\frac{120 \times 144 \times 120 \times 15 \times 2}{18 \times 16 \times 12} = 1800 \text{ vibrations in an hour,}$$

or juſt five vibrations in each ſecond. The firſt or great wheel will revolve in $\frac{96}{21}$ of an hour, or make one revolution, along with the fuſee, in $4\frac{4}{7}$ hours, ſo that $5\frac{1}{4}$ turns or ſpirals on the fuſee will maintain a motion of 24 hours, $6\frac{1}{4}$ will actuate the works $28\frac{4}{7}$, and $6\frac{9}{16}$ juſt 30 hours. The balance-wheel does not differ eſſentially from that in a common watch, but peculiar care is neceſſary in ſhaping the pallets.

The bad effect produced in ordinary watches by an irregular tranſmiſſion of the maintaining-power through the train, is here guarded againſt by the introduction of a ſlender ſpring, or remontoir, which is wound up eight times every minute by the maintaining-power, or main-ſpring, and which actuates the contrate and balance wheels, and conſequently impels the pallets with a conſtant impulſe, independently of the maintaining-power, the latter being employed for no other purpoſe but for winding up the former, as before ſpecified. This ſlender ſpring, which is ten inches long, though it weighs only 3½ grains, is coiled in a ſpring-barrel, apparently concentric with the contrate-wheel, and has its outer end attached to a hook in the barrel, with its inner end attached to another hook on the contrate-wheel. In order to make this delicate ſpring anſwer its purpoſe perpetually, two wheels, and as many pinions, in addition to the foregoing train, called the fourth and fifth wheel, and fourth and fifth pinion, are introduced in connection with a fly; as is likewiſe a detent with five arms, reſembling a ſtar, turning on the pivots of a common arbor. The numbers of theſe wheels and pinions appear to be as follow: of the fourth wheel 112, which ſtands concentrically over the contrate-wheel and ſpring-barrel, of its pinion 14, of the fifth wheel 104, and of its pinion 12; and it is to the arbor of this laſt pinion, we preſume, that the fly is attached, though it does not appear evident either from the drawings or deſcription. The mode of applying the three effective arms of the detent bears ſome reſemblance to the action of the detents in the ſtriking-part of a clock, in which the count-wheel is uſed inſtead of a ſnail, and where the locking and unlocking are alternately effected at meaſured intervals of time. The detached ſcapements, however, have now rendered this complex mechaniſm ſuperfluous; and indeed it is manifeſt, that the propoſed object, of having a completely detached power to act alike at all times on the pallets, is not thus perfectly effected; for the locking and unlocking eight times in every minute, to be produced by the ſlender ſpring in queſtion, muſt be ſuppoſed to interfere in a certain degree with its regularity of action on the pallets; and, if it ſhould be contended, that the eight deductions from the force of the ſpring are regular and periodical in every minute, and that therefore they produce an equable effect, yet the ſame argument may be uſed in favour of a well-made train, in which the irregularities in the tranſmiſſion of force from the main-ſpring may likewiſe be periodical, the wheels and pinions not being compoſed of prime numbers.

But it was not enough for Harriſon, that nearly an equable force was applied to maintain the motion of the balance, while the balance itſelf and alſo the balance-ſpring were ſubject to alterations in their dimenſions by changes of temperature; he well knew that the ſpiral ſpring uſed in watches had more power when contracted, and leſs when elongated, than a mean power, and alſo that an enlarged balance has a greater momentum than a diminiſhed one, and *vice verſâ*; the mode alſo of effecting an adjuſtment to counteract the conſequent loſs or gain in the rate of going, was well known, not only to him, but to all watch-makers, and mechanically applied with ſucceſs, as at the preſent day, by a moveable ſtud, (called the *regulator*,) to limit the effective length of the ſpring; but this adjuſtment was not a *ſelf-acting* one; an index was required to be moved by a manual operation, which index was connected with the moveable ſtud, and pointed out the quantity of the adjuſtment; it remained for Harriſon to deviſe a mode of action, entirely dependent on the ſtate of the atmoſphere at any moment, which of itſelf would produce the requiſite adjuſtment; this he did, as we have already ſaid, by riveting together a ſlip of braſs and a ſlip of ſteel, which two metals are of unequal expanſibilities, to the remote end of which compound bar he attached his clip to hold the exterior thread of his ſpring, after the outer end of it had paſſed through, and been pinned to, a ſtud of braſs attached to the upper plate of the frame; the conſequence proved, what none but a real genius would have foreſeen, that the braſs elongating and contracting alternately in oppoſite temperatures more than the ſteel, produced a curvature in the compound piece, the concave ſide of which was always occupied by the metal leaſt elongated, that is, by the ſteel in hot, and by the braſs in cold, weather; hence the compound piece, which carried the ſtud backwards and forwards, he called a *kirb*, a Lincolnſhire word for *curb*, which contrivance is deſtined to curb or command the effective length of the regulating ſpring. The only material objection that experience has pointed out againſt this ſelf-compenſating mechaniſm, is, as we have before obſerved, that ſmall pieces of metal and pieces in motion do not alter their temperature at the ſame time with large pieces and pieces not in motion; nor yet ſteel ſo ſoon as braſs, even in ſimilar circumſtances; which conſideration conſtitutes an objection to the uſe of the thermometrical curb; an objection firſt raiſed by Harriſon himſelf, when it was greatly his intereſt to have ſuppreſſed ſuch a ſuggeſtion, as he was a candidate for the parliamentary reward.

Harriſon had beſides remarked, that in an ordinary watch the power which the main-ſpring has over the balance, through the medium of the train, compared with the power that the regulating ſpring has over the ſame, is as *one* to *three* generally; this power from the main-ſpring, he obſerved, being ſufficient to put the watch in motion from a ſtate of quieſcence, muſt be too imperious for the balance, ſmall and light as it was, to control it; accordingly he propoſed, reaſoning thus *à priori*, to give an additional momentum to his balance, compared with his maintaining-power; but momentum was to be attained in three different ways, namely, by additional weight given to a balance of the uſual diameter, by enlarging the diameter without increaſing the weight, or laſtly, by increaſing both in a certain degree: the firſt mode was objectionable on account of the friction likely to be produced on the balance-pivots by a heavy balance; the ſecond was alſo objectionable on account of the reſiſtance of the air it was likely to experience; and therefore he fixed upon the laſt mode of gaining momentum, by partly enlarging the diameter, and partly increaſing the weight, of the balance in uſe; by which means he conſtructed a balance over which the force from the maintaining-power of the remontoir has not more than *one-eightieth* part of the dominion that the balance-ſpring has. Hence in the time-keeper there is not force enough in the maintaining-power to excite motion from a quieſcent ſtate, though there is power enough to overcome all the obſtacles to continued motion, and to keep the piece going, when put in motion. In this he ſeems to have been followed by Mudge, whoſe time-keeper does not ſtrike off of itſelf..

The balance of the time-keeper before us is deſcribed to be of more than three times the weight of that of a large ordinary watch, and of three times its diameter; for, according to the notes taken by Dr. Maſkelyne at the time of its examination, its diameter was 2¼ inches, and that of the plate $3\frac{8}{10}$; hence a point in its circumference will paſs through 24 inches, or about four times the ſpace of an ordinary watch, in each ſecond, as Harriſon calculates from the arc of its vibration; an advantage which has not been loſt ſight of by ſome of the modern makers of chronometers; and it may be conſidered as an axiom in chronometry, "that the perfection of a balance, conſidered ſimply as a regulator, independently of its compenſation mechaniſm, conſiſts in its having the greateſt poſſible quantum of momentum with the leaſt force from the train, and ſmalleſt quantity of friction and reſiſtance from the air."

The fuſee has 6¼ turns; the pivot-holes are all buſhed with rubies containing pieces of diamond at the bottom of each; and the pallets are of diamond. The fly at the fifth pinion is uſed to regulate the velocity with which the ſpring at the contrate-wheel is wound up every eighth part of a minute by the main-ſpring when unlocked. The dial-work is $\frac{112}{28} \times \frac{96}{32} = 12$, and the ſeconds are concentric by means of a wheel of 104 attached to the contrate-wheel driving another of the ſame number round an outer cannon in the centre.

The firſt time-keeper which Harriſon made was in 1726, which Dr. Hutton aſſerts did not err a ſecond in a month for ten years together; but the firſt time that one was publicly tried, was in a voyage to Liſbon in 1736; being placed in a box, hung in gimbols, it fully anſwered his expectation, and corrected the dead reckoning about a degree and a half; in conſequence of which, according to Dr. Mackay, the board of longitude granted him a gratuity, and deſired him to proſecute his labours.

In 1739 he finiſhed a ſecond piece more perfect than the firſt; and in 1749 according to Dr. Mackay, (but according to Dr. Hutton in 1758,) a third, which was pronounced more ſimple in its conſtruction than either of the former. But his labours did not ſtop here; in 1761, his fourth piece, of which we have given a deſcription, was produced for trial; and Mr. William Harriſon, the ſon, offered to take charge of it, in a voyage to and from Jamaica, which was accordingly performed in this and the following years. Mr. Robertſon, maſter of the academy at Portſmouth, was fixed upon to take the rate of this piece, which he did, and reported that, on the 6th of November, 1761, at noon, it was $3^{s}$ ſlow after having loſt $24^{s}$ in nine days on mean ſolar time. The Deptford, in which ſhip the voyage was made, left Portſmouth on the 18th of the ſame month, and arrived at Madeira on the 9th of December following, when it was found that the reckoning was corrected by the time of the piece about a degree and a half. In the run from Madeira to Jamaica the reckoning was corrected 3°; and at the ſeveral iſlands, where the ſhip touched, the known longitudes agreed very nearly with thoſe given by the time-keeper. Jan. 19, 1762, the ſhip arrived at Jamaica; the time of mean noon was obſerved, by equal altitudes, at Port Royal, on the 26th of the ſame month, which, according to the piece, was $4^{h}\ 59^{m}\ 7^{s}\cdot 5$; but the original error on the 6th of November, 81 days 5 hours before, was $3^{s}$ ſlow, this quantity, therefore, was to be applied as a correction, together with the accumulation of the daily error of $\frac{24}{9}$ in $81^{d}\ 5^{h}$, viz. $3^{m}\ 36^{s}\cdot 5$; this ſum of $3^{m}\ 39^{s}\cdot 3$ added to the time indicated, which, it has been ſaid, was $4^{h}\ 59^{m}\ 7^{s}\cdot 5$, make $5^{h}\ 2^{m}\ 47^{s}$ for the difference of longitude between Portſmouth and Port Royal; which determination was only $4^{s}$ of time leſs than the determination at Kingſton of the ſame, from the tranſit of Mercury over the ſun's diſc. This ſmall error in time correſponds to leſs than one nautical mile in the parallel of Jamaica.

The Merlin, on-board of which the piece was now put, ſet ſail from Jamaica on the 28th of January, 1762, and experienced ſuch a violent ſtorm in the paſſage, as obliged young Harriſon to remove his piece into an expoſed ſituation; however, the ſhip arrived at Portſmouth on the 26th of March, and on the 2d of April the time of mean noon was found, from equal altitudes, to be $11^{h}\ 51^{m}\ 31^{s}\cdot 5$, to which its former error of $3^{s}$, together with the accumulation of the daily error, viz. $\frac{24^{s} \times 147^{d}}{9} = 6^{m}\ 32s$, being added, make the time of mean noon by the time-keeper $11^{h}\ 58^{m}\ 6^{s}\cdot 5$. From this report it appears, that from Nov. 6th, 1761, to April 2d, 1762, though the piece had experienced many violent agitations at ſea, and had been expoſed to great changes of temperature, the whole error amounted to only $1^{m}\ 53^{s}\cdot 5$, or $28\frac{1}{3}'$, of longitude on the equator, which quantity (one ſecond leſs than Dr. Hutton has ſtated) is not quite 18 nautical miles in the parallel of Portſmouth.

Though various objections were made to this trial, principally ariſing from the obſervations by which the longitude of Portſmouth and Jamaica had been aſcertained, yet Harriſon, we are informed, obtained a reward upon it from parliament of 5000l. and was ordered to make a ſecond trial to Barbadoes. But, previouſly to the ſecond trial to the Weſt Indies, the board of longitude, on the 17th of Auguſt, 1762, wiſhed to place Harriſon's piece in the hands of the aſtronomer royal, at that time Mr. Bliſs, for trial at the Obſervatory, which wiſh was not complied with, by reaſon of ſome alteration to be made. The ſame wiſh was repeated by the board at their ſitting on the 4th of Auguſt of the year 1763, which was again not complied by the junior Harriſon. However, on being deſired to ſend the rate of going of his time-keeper, ſealed up, to the ſecretary of the admiralty, previouſly to his ſailing, he conſented to this requeſt, and propoſed to abide by the *ſealed rate* on the trial to Barbadoes, which had been propoſed. Accordingly, after having compared the time-piece with Mr. Short's regulator, in Surrey-ſtreet, London, which had its error newly aſcertained by an excellent tranſit-inſtrument, Mr. Harriſon junior went on-board the Tartar on the 13th of February, 1764, and proceeded to Portſmouth, where he again compared it with an aſtronomical clock in Mr. James Bradley's temporary obſervatory. It may not be foreign to our purpoſe to mention here, that the obſervatory juſt ſpoken of was fitted for the expreſs purpoſe of obſerving the eclipſes of Jupiter's ſatellites, as well as of keeping the clock in juſt time, in order that, to avoid future objections, the obſervations to be made by Meſſrs. Maſkelyne and Green, at Barbadoes, on the ſame ſatellites, particularly the firſt, when compared with Bradley's, might aſcertain the comparative longitudes of theſe two places, which was accordingly determined to be $3^{h}\ 54^{m}\ 20^{s}$.

Before leaving Portſmouth, which took place on the 28th of March, 1764, Mr. Harriſon took the rate of his time-keeper by equal altitudes, employed between the 29th of February and the 26th of March; and on April the 18th found, from comparing his obſervations of the ſun at 4 P. M. at the ſhip with the corrected time given by it, that the ſhip was at that inſtant only 43 miles eaſtward of Porto Santo, in conſequence of which determination, ſir John Lindſay, the maſter, ſteered accordingly, and ſaw the iſland in queſtion before him at one o'clock the next morning, agreeably to expectation. On the 13th of May, the veſſel arrived at Barbadoes, and on the four following days its error was aſcertained by Meſſrs. Maſkelyne and Green by equal altitudes of the ſun, and alſo by a compariſon with the aſtronomical clock at the obſervatory near Bridgetown; and it was found that the amount of the daily deviations from mean-time was only $43^{s}$ in exceſs, or $10\frac{3}{4}'$ of a degree of longitude. Mr. Harriſon ſet out on his return from Barbadoes in the New Elizabeth on the 4th of June; and, arriving at Surrey ſtairs on the Thames on July the 18th, found, from a compariſon with Mr. Short's clock, the error of which had been aſcertained on the very day, that the whole gain in the 156 days was only $54^{s}$, allowing the *ſealed rate*, of one ſecond gain per day, as a correction; and it has been obſerved, that, if the allowances had been moreover made for the ſtate of the thermometer, as ſtated in the declaration, the piece would have been found to have been $15^{s}$ only at variance with mean time, and this in the oppoſite extreme.

Soon after this very ſatisfactory trial, a committee of ſeven ſcientific gentlemen and mechanicians were appointed by the board of longitude for examining the principles of Mr. Harriſon's time-keeper, whoſe report was as follows: viz. "That Mr. Harriſon has taken his time-keeper to pieces, in preſence of us, and explained the principles and conſtruction thereof, and every thing relative thereto, to our entire ſatisfaction; and that he alſo did, to our ſatiſfaction, anſwer every queſtion propoſed by us, or any of us, relative thereto; and that we have compared the drawings of the ſame with the parts, and do find that they perfectly correſpond." The committee were the Rev. N. Maſkelyne, Rev. John Mitchell, Rev. William Ludlam, Mr. John Bird, Mr. Thomas Mudge, Mr. Larcum Kendal, and Mr. William Matthews. Mr. Harriſon had then another 5000l. ordered him, with a promiſe that the reſidue of the whole parliamentary reward; which, by the act of queen Anne, was 20,000l. ſhould be given him when a proper perſon could be found to execute his plan with equal ſucceſs. Mr. Larcum Kendal, one of the committee, undertook the taſk, and finiſhed a time-piece on the ſame conſtruction, or at leaſt on the ſame principles, which was approved by Mr. Wales, in his voyage in company with captain Cook in the years 1772, 1773, &c. and which Dr. Hutton ſays performed even better than Harriſon's, allowing for an acceleration in its rate. In conſequence of this ſucceſs, the parliament, to which an appeal was made, ordered the reſidue of the propoſed reward to be paid; in addition to which, the gratuities of the Board of Longitude, of the Eaſt-India company, and of others, contributed to augment the whole ſum to about 24,000l.

*Mudge's Time-keeper.*—In the Deſcription of the Time-keeper, publiſhed in 1799, by Mr. Thomas Mudge, jun. there are nine plates, eight of which are taken up in exhibiting the different plans and ſections of the various parts ſeen in different points of view; they were drawn by Mr. Pennington, the original workman employed by the two Mudges, father and ſon; but, inſtead of copying any of the plates, we have judged it ſufficient to give a drawing and full explanation of the ſcapement from Nicholſon's Phil. Journal. It is not neceſſary to give a particular account of the calliper of Mudge's time-keeper, as it does not differ in any material particular from that of chronometers by other makers; nor is there any thing worthy of particular notice in the fuſee, different from that of an ordinary watch, except that there is the auxiliary ſpring, making with it a *going-fuſee* of the ordinary conſtruction. The barrel however, which contains the main-ſpring, is very ſimilar to Harriſon's, and differs from ordinary barrels. When the ſpring requires to be ſet up or down, it is done by turning the ſpring-barrel and ratchet, together with the contained ſpring, while the click is raiſed from the teeth of the ratchet, the arbor of the chain-barrel then being ſtationary, or revolving no otherwiſe than according to the ſlow motion which the train regulates. The chain is wound round the fuſee in a direction which actuates the wheels of the train in a backward manner, compared with the motion of an ordinary train, which direction of motion requires an additional wheel in the dial-work; for a ſmall wheel of 45, fixed to the arbor of the contrate-wheel, drives another of the ſame number of teeth in a proper direction for indicating ſeconds, on a ſeparate graduated circle, at a diſtance from the centre of the face; nor is the ſecond, uſually called the *centre-wheel*, placed in the centre of the hour and minute circles, (as is common in watches,) though oppoſite the centre of the face; but its prolonged pivot bears a minute-wheel of 52, driving a ſimilar detached minute-wheel, and alſo an attached pinion of 8 driving an hour-wheel of 96, both which driven wheels have cannons to carry their reſpective hands round two concentric circles, placed at the other ſide of the centre of the dial. This method of placing the hands allows the contrate and centre wheels to have ſmall pivots.

The numbers of the movement publiſhed by Mudge are as follow: viz. The great wheel has 100 teeth, the pinion acting with it 20, the centre-wheel or ſecond-wheel 120, the next pinion 16, the third wheel 120, the pinion driven by it 15, the contrate-wheel 120, the pinion driven by it 12, balance-wheel 15, pallets 2; whence it ſeems that the fuſee revolves in $\frac{100}{20}$ or 5 hours, and the contrate-wheel in $\frac{120}{16} \times \frac{120}{15} = \frac{60}{1}$, or 60 times in the hour, and the value of the train is, according to our method of eſtimating Harriſon's train, $\frac{120 \times 120 \times 120 \times 15 \times 2}{16 \times 15 \times 12}$ $= 18000$ vibrations in an hour, or five in a ſecond. With this movement, a fuſee with $7\frac{4}{5}$ turns or ſpirals in the groove actuates the piece thirty-ſix hours. But there is a face laid down in Mudge's book for a continuance of eight days, the circles for the hours and minutes in which are at oppoſite ſides of the prolonged pivot of the centre-wheel arbor, and the hour-circle counts up to 24, which is certainly more convenient, for aſtronomical calculations, than one with only 12 hours. The numbers of this movement are as follow: viz. Great wheel 108, pinion on the centre-wheel 12, centre-wheel 128, pinion following 12, ſecond wheel of the train, or third of the whole movement, 120, pinion driven by it on the next arbor 12, contrate-wheel 120, pinion following on the balance-wheel arbor 12, crown-wheel 15, pallets 2; ſo that the value of the train is $\frac{128 \times 120 \times 120 \times 15 \times 2}{12 \times 12 \times 12} = 32000$, on a ſuppoſition that the centre-wheel revolves in an hour; but we find from the dial-work, which has what is called *borrowed minutes*, that this wheel revolves in $\frac{112}{63}$ of an hour or in 1·7 hours, therefore $\frac{63}{112}$ of $32000 = 18000$ is the true train by the wheels and pinions before us; the hour-hand revolves in $\frac{135}{10}$ of $1^{h}\cdot 7 = 24^{h}$; and the fuſee revolves in $\frac{112}{63} \times \frac{108}{12}$ of an hour, which is $= 16$ hours; therefore a fuſee with juſt 12 turns will continue to go eight days, as was intended.

The Horology Plate XIII. fig. 90, exhibits the ſcapement of this machine; in which the balance is perfectly detached from the train of wheels, except during the extremely ſhort interval of ſtriking out the parts which ſerve the purpoſe of detents. ONEBQ is the circumference of the balance, vibrating by the action of a ſpiral-ſpring, as uſual, on its axis, CA, DH, paſſing through the centre C; the axis is bent into a crank, AXYD, to make room for the other work. LM, ZW, are two rods fixed to the crank at the points L and Z, parallel to XY. *cdefrs* are fixed parts of the machine. TR is an axis concentric with that of the balance, and carrying an arm GO nearly at right angles to it, and a ſmall auxiliary ſpring *u*, which is wound up whenever the arm GO is moved in the direction O*h*. *p* is a curved pallet fixed to the axis TR, which receives the tooth of the balance-wheel near the axis. This tooth, proceeding along the curved ſurface, by the force of the main-ſpring turns the axis and its arm GO, and winds up the ſpring *u*. A ſmall projection at the extremity of the curved ſurface of the pallet *p* prevents the further progreſs of the tooth, when the arm OG has been turned through an arc O*h*, of about 27°; and conſequently the ſpring *u* has been wound up through the ſame angle or arc, OG*h* = 27°. FS is another axis exactly ſimilar to TR. It carries its arm IO, and ſpring *v*, and the tooth of the balance-wheel *m* winds up the ſpring *v*, by acting on the pallet *q*, and is detained by a projection, after having carried it through an angle of 27°, exactly as in the former caſe. The arcs paſſed through by the arms GO and IO, and marked in the figure, are alſo denoted by the ſame letters on the rim of the balance.

The effect of this ſcapement may be thus explained: let the balance be in the quieſcent ſtate, the main-ſpring being unwound, and the branch or crank in the poſition repreſented in the figure. If the quieſcent points of the auxiliary ſprings coincide with that of the balance-ſpring, the arm GO will juſt touch the rod LM, and in like manner the arm IO will juſt touch the rod WZ; the two arms GO and IO in this poſition are parallel to the line CO above. This poſition of the balance and auxiliary ſprings remains as long as the main-ſpring of the machine continues unwound; but, whenever the action of the main-ſpring ſets the balance-wheel in motion, a tooth thereof, meeting with one or other of the pallets *p* or *q*, will wind up one of the auxiliary ſprings; ſuppoſe it ſhould be the ſpring *u*. The arm GO, being carried into the poſition G*h*, by the force of the balance-wheel acting on the pallet *p*, remains in that poſition as long as the tooth of the balance-wheel continues locked by the projection at the extremity of the pallet *p*; and the balance itſelf, not being at all affected by the motion of the arm GO, nor by the winding-up of the ſpring *u*, remains in its quieſcent poſition; conſequently no vibration can take place, except by the aſſiſtance of ſome external force

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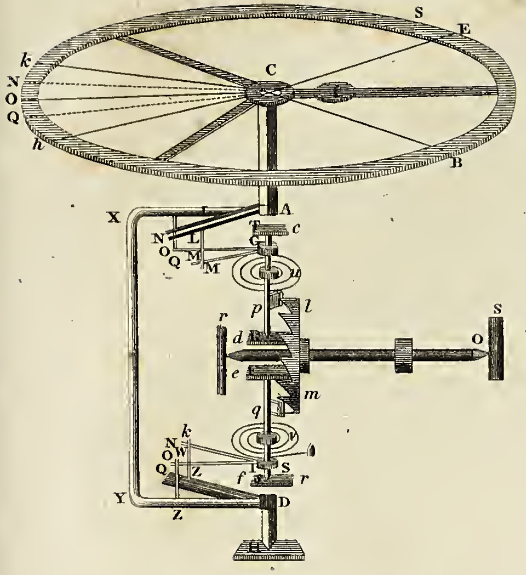

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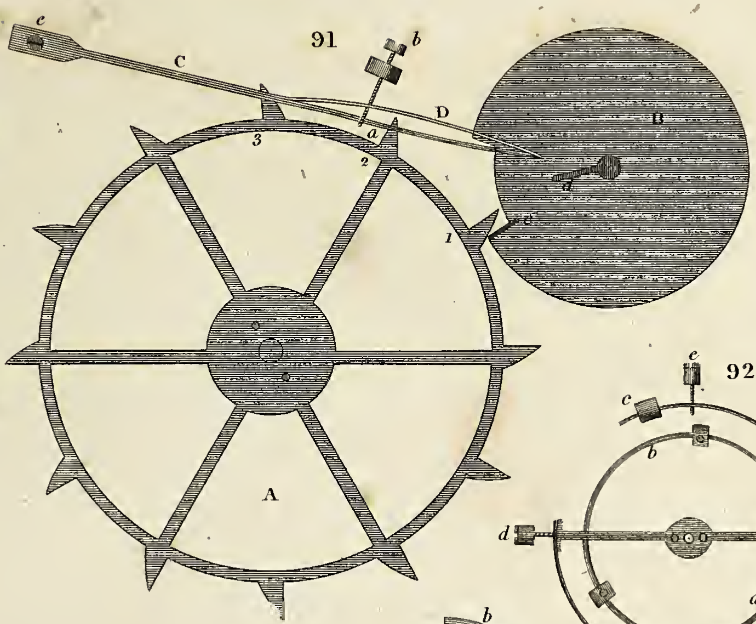

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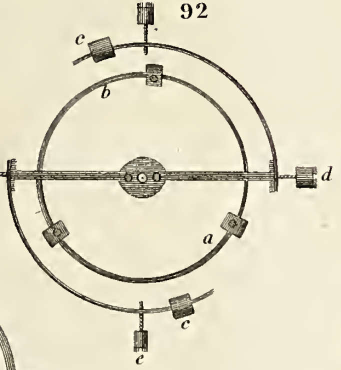

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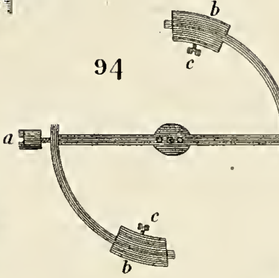

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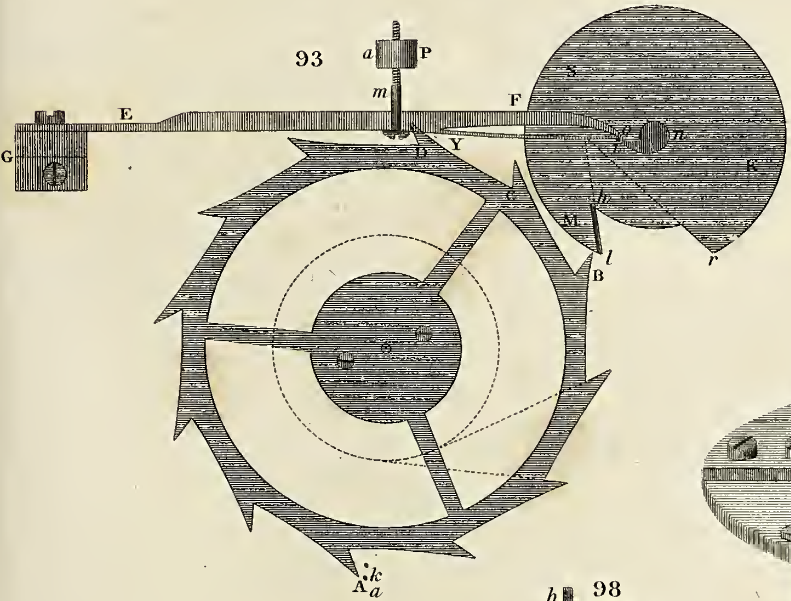

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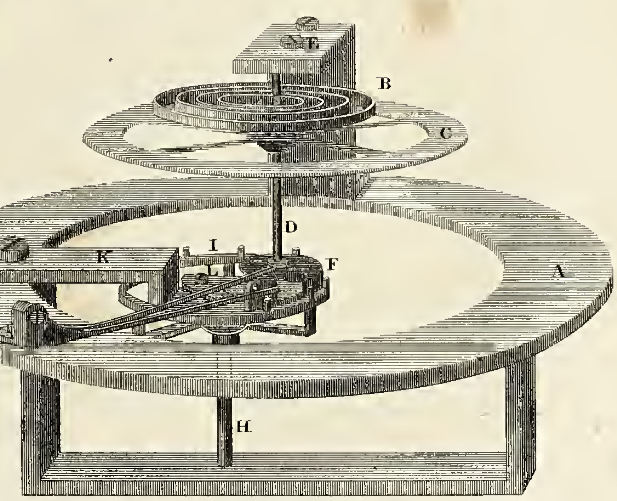

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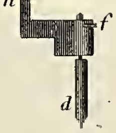

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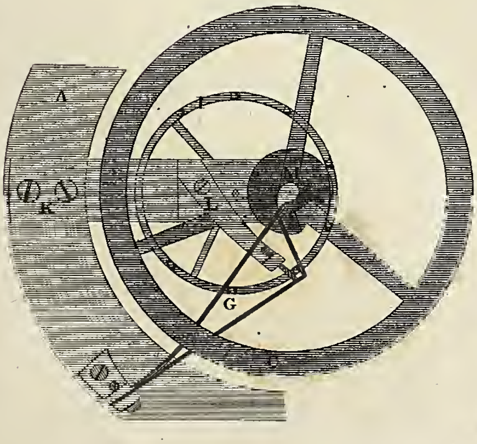

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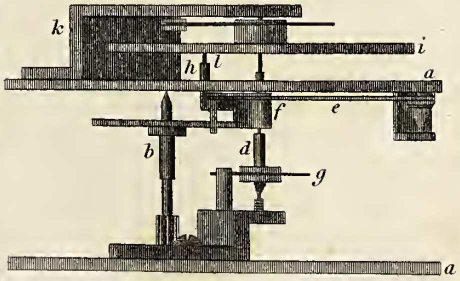

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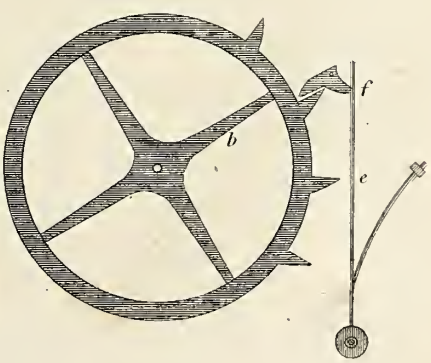


*Mechanism of a Timekeeper*

J. Pass sculp

London; Pub.d as the Act directs, Jan 24 1810, by J. Wilkes.

to ſet the balance in motion. Suppoſe an impulſe to be given ſufficient to carry it through the ſemi-arc $OB$, which is about 135° in Mr. Mudge's conſtruction. The balance, during this motion, carries with it the crank $AXYD$, and the affixed rods $LM$, $ZW$. When the balance has deſcribed an angle of about 27° = the angle $OCh$, or $OGh$, the rod $LM$ meets with the arm $GH$, and by turning the axis $TR$, and the pallet $p$, in the direction of the arc $Oh$, releaſes the tooth of the balance-wheel from the projection at the extremity of the pallet $p$; the balance-wheel immediately revolves, and, the lower tooth meeting with the pallet $q$, winds up the auxiliary ſpring $v$, and carries the arm $IO$ with a circular motion through the angle $OIk$, about 27°, in which poſition the arm $IO$ remains as long as the tooth of the balance-wheel is locked by the pallet $q$. While the ſpring $v$ is winding up through the arc $Ok$, the balance deſcribes the remaining part of the ſemi-arc $hB$, and during this motion the rod $LM$ carries round the arm $Gh$, cauſing it to deſcribe an angle $hCB$, or $hGB$, which is meaſured by the arc $hB = 108°$. When the balance has arrived at the extremity of the ſemi-arc $OB = 135°$, the auxiliary ſpring $u$ will have been wound up through the ſame angle of 130°, that is to ſay, 27° by the force of the main-ſpring acting on the pallet $p$, and 108° by the balance itſelf, carrying along with it the arm $GO$, or $Gh$, while it deſcribes the arc $hB$. The balance therefore returns through the arc $BO$, by the joint action of the balance-ſpring and the auxiliary ſpring $u$; the acceleration of both ſprings ceaſing the inſtant the balance arrives at the quieſcent point $O$. When the balance has proceeded in its vibration about 27° beyond the point $O$, to the poſition $Ck$, the rod $ZW$ meets with the arm $Ik$, and by carrying it forward releaſes the tooth of the balance-wheel from the pallet $q$. The balance-wheel accordingly revolves, and the upper tooth meeting with the pallet $p$ winds up the auxiliary ſpring $u$ as before. The balance with the crank, proceeding to deſcribe the remaining ſemi-arc $kE$, winds up the ſpring $v$ through the further angle $kCE = 108°$, and returns through the ſemi-arc $EO$, by the joint action of the balance-ſpring and the auxiliary ſpring $v$, both of which ceaſe to accelerate the balance the inſtant it has arrived at $O$.

It may be remarked, in this curious ſcapement, that the motion of the balance in its ſemi-vibration from the point of quieſcence is oppoſed through an arc of no more than 108, but is accelerated in its return through the whole arc of 135°, and that the difference is what maintains the vibrations; and moreover, that, the force from the wheel being exerted to wind up each auxiliary ſpring during the time it is totally diſengaged from the balance, this laſt organ cannot be affected by its irregularities, except ſo far they may render it more difficult to diſengage the rim of the pallet from the tooth. The balance deſcribes an arc of about 8° during this diſengagement.

Count Bruhl, in his pamphlet On the Inveſtigation of Aſtronomical Circles, after deſcribing Mudge's ſcapement, proceeds thus: "By what has been ſaid, it is evident, that whatever inequality there may be in the power derived from the main-ſpring, (provided it be ſufficient to wind up thoſe little pallet-ſprings,) it can never interfere with the regularity of the balance's motion but at the inſtant of unlocking the pallets, which is ſo inſtantaneous an operation, and the reſiſtance ſo exceedingly ſmall, that it cannot poſſibly amount to any ſenſible error. The removal of this great obſtacle was certainly never ſo effectually done by any other contrivance, and deſerves the higheſt commendation, as a probable means to perfect a portable machine that will meaſure time correctly. But this is not the only, nor indeed the principal, advantage which this time-keeper will poſſeſs over any other; for, as it is impoſſible to reduce friction to ſo ſmall a quantity as not to affect the motion of a balance, the conſequence of which is, that it deſcribes ſometimes greater and ſometimes ſmaller arcs, it became neceſſary to think of ſome method by which the balance might be brought to deſcribe thoſe different arcs in the ſame time. If a balance could be made to vibrate without friction or reſiſtance from the medium in which it moves, the mere expanding and contracting of the pendulum-ſpring would probably produce the ſo-much wiſhed-for effect, as its force is ſuppoſed to be proportional to the arcs deſcribed; but, as there is no machine void of friction, and as, from that cauſe, the velocity of every balance decreaſes more rapidly than the ſpaces gone through decreaſe, this inequality could only be removed by a force acting on the balance, which, aſſuming different ratios in its different ſtages, could counterbalance that inequality. This very material and important remedy, Mr. Mudge has effected by the conſtruction of his ſcapement; for, his pallet-ſprings having a force capable of being increaſed almoſt at pleaſure at the commencement of every vibration, the proportion in their different degrees of tenſion may be altered till it anſwers the intended purpoſe. This ſhows how effectually Mr. Mudge's ſcapement removes the two greateſt difficulties that have hitherto baffled the attempts of every other artiſt, namely, the inequalities of the power derived from the main-ſpring, and the irregularities ariſing from friction, and the variable reſiſtance of the medium in which the balance moves."

We have endeavoured to give ſuch a repreſentation of the mechaniſm of ſcapement, together with the balance, &c. in one figure, as might exhibit to view all the parts of action. A few words more will ſuffice. There are ſix ſprings employed in this time-keeper; the main-ſpring, the ſpring of the going-fuſee, the regulating or balance-ſpring, the ſpring of compenſation, and the two auxiliary ſprings, $u$, $v$, on the two pallet-arbors. Theſe laſt, which count Bruhl calls *pallet-ſprings*, from their ſituation, are denominated *auxiliary-ſprings*, becauſe they *aid* the two other ſprings in the reſpective returning parts of each vibration; and in this point of view may be conſidered alſo as *regulating ſprings*; but, being only $\frac{1}{20}$th of the ſtrength of each of the others, are too weak of themſelves to perform this office without the addition of the other more powerful ones, one of which has its effective length conſtantly, though very ſlowly, changing by the ſucceſſive changes of atmoſpheric temperature, which is the reaſon why it has been called the *compenſation-ſpring*. The acting portions of the pallets are of flint, agate, ruby, or ſapphire.

It is of the utmoſt importance that all the four ſprings of the balance ſhould be at their reſpective points of quieſcence when the balance is at reſt, otherwiſe the law of their forces, which is aſſumed to be directly as their tenſions, will not be the ſame in all, and ſome may be accelerating while others are retarding, whereas they ought all, like one ſpring, to accelerate and retard the balance conjointly in every part of the vibration, unleſs, indeed, the large ſprings are found not to be iſochronal, and the ſmall ones have their points of quieſcence ſo placed as to effect a compenſation, which Mr. Atwood, in his ingenious paper of Feb. 27, 1794, in the Philoſophical Tranſactions, has ſhown to be a feaſible adjuſtment. For inſtance, if the point of quieſcence of each of the auxiliary ſprings, or even of one of them, be placed ſomewhere in the firſt ſemi-arc of vibration of the balance, the acceleration effected thereby will be leſs in this than the retardation will be in the following ſemi-arc; in conſequence of which the time-keeper will go ſlower; but, if the point of quieſcence of the auxiliary ſpring be in the latter ſemi-arc of vibration, the contrary will be the caſe, that is, the time-keeper will accelerate its rate. Nay, if the quantity of deviation from the exact point of quieſcence be only one degree of a circle, the ſame author has calculated, that, where the balance is of one inch radius, and of a correſponding given weight, the daily gain or loſs will be about $19\frac{1}{2}^{s}$, and the quantity increaſes with the diminution of the arc of vibration; ſo that, if the arc of vibration were to become 60°, in one caſe the daily loſs would be $44{\cdot}33^{s}$, and in the other the daily gain would be $43{\cdot}6^{s}$; which conſideration ſhows the imperious neceſſity of having the points of quieſcence of all the ſprings exactly adjuſted; and alſo that the pins in the pallet-arbors be ſteadily fixed; for an alteration in their poſitions is in fact an alteration in the quieſcent points of the auxiliary ſprings.

"If we were to reaſon from theory," ſays the judicious writer of the article *Chronometer* in Rees's Cyclopædia, "we ſhould be diſpoſed, from the conſideration we have given this mechaniſm, to ſay, that the principle upon which it is conſtructed is excellent, inaſmuch as the impulſes given to the balance, and the oppoſitions made to it during its vibrations, are in proportion to the diſtance from the point of reſt at all times, agreeably to the laws of gravity in a pendulum; the diſcontinuance of the retarding force for a ſpace of 27° in each excurſion deranges as little as may be the ſcale of varying forces by which the regulation is effected; whereas in the other detached ſcapements, where the impulſe from the train is momentary, ſuch impulſe, to be powerful enough to maintain the continual motion of the balance, may be ſuppoſed to partake of the nature of a jerk, and to derange the regularity of the ſcale of forces according to which the balance-ſpring ought naturally to act; however, in practice it has not been proved that this conſtruction exceeds ſome of the more ſimple ones."

It is ſaid by the younger Mr. Mudge, that his father conceived the idea of making a time-keeper, and had organized his notions reſpecting its conſtruction, ſo early as Auguſt 1778, before he knew the conſtruction of Harriſon's; which ſeems probable, from various obſervations made in his "Thoughts on the Means of improving Watches," publiſhed in 1763, and written ſome time before; but, were we diſpoſed to judge alone from a compariſon of the principles of his and Harriſon's time-keepers, we ſhould at leaſt ſay, that there is a remarkable reſemblance, almoſt too great for accidental coincidence; the principle of the compenſation-mechaniſm is preciſely the ſame, and the auxiliary ſprings, though greatly different in their mode of acting, the one being before and the other behind the balance-wheel, the one wound up eight times in a minute, and the other once at each vibration, yet the object is the ſame in both, namely, to give a regularly-modified impulſe to the balance, which balance again has a great momentum in both conſtructions, in conſequence of its enlarged dimenſions.

Though Mr. Mudge had made and approved his firſt time-keeper previouſly to Harriſon's having obtained his laſt 10,000l. the complement of his rewards, which ſum was granted by parliament in 1774, yet he was unfortunate enough to omit making application for the trial of his time-keeper till the new act had paſſed, which limited the whole reward to 10,000l. or one half of that propoſed by the act of queen Anne, and alſo rendered the limits of trial more circumſcribed; the latter of which circumſtances rendered the attainment of even a portion of the diminiſhed reward more difficult than the attainment of the whole great reward which Harriſon was fortunate enough to obtain by his indefatigable perſeverance. The act of queen Anne required for Harriſon's trial a voyage of only *ſix weeks*, at the end of which, if his time-keeper was found to have kept time within four minutes of error, or one degree of longitude, he might claim a portion of the reward thereon; but the time ſpecified in the act of 1774 was *ſix months*, during which the error was not to exceed four minutes, for the ſmalleſt portion of the reward.

In the four trials made of the time-keepers of Mr. Mudge by Dr. Maſkelyne, from the year 1776 to 1790, it appeared from the doctor's reports to the board of longitude, that none of the time-keepers had kept time within the limits preſcribed by the act of Geo. III. On the 1ſt of March, 1777, however, the aſtronomer royal reported to the board, that the firſt watch made by Mr. Mudge had gained only $1^{m}\ 19^{s}$ in 109 days; in conſequence of which, it was reſolved, that a letter be written to the navy-board to pay Mr. Mudge 500l. to enable him to finiſh two more watches on a ſimilar conſtruction, which was deemed preferable to any other that had been previouſly tried. Mr. Mudge was alſo appointed watch-maker to the king, with an allowance of 130l. a-year, which was afterwards continued to his ſon, of whom we are now to ſpeak; for Mr. Mudge himſelf, though he lived till the year 1794, never applied for any further reward; he completed the other two time-keepers, according to his promiſe: he never made but three, though he had retired from general buſineſs in the year 1772 on purpoſe to purſue this invention, and make it as complete as poſſible.

Here therefore we might cloſe the hiſtory of this time-keeper, as far as concerns the inventor of it. But on the 11th of June, 1791, a memorial was preſented to the board of longitude in the *name* of Mr. Mudge, ("at a time when age and infirmity had ſo debilitated his mind as to render him incapable of determining for himſelf,") by his ſon, T. Mudge, jun. The memorial was unſucceſsful, and an appeal was made to the houſe of commons. Since the publication of the Narrative, by Mr. Thomas Mudge, jun. it is well known what difficulties were encountered from the oppoſition which the board of longitude raiſed againſt this appeal. To inquire into and aſcertain the comparative merits of Mr. Mudge's time-keeper, however, a committee was appointed by the houſe, in conſequence of the appeal, conſiſting of the following members: viz. Mr. Pitt, Mr. Fox, Mr. Ryder, Mr. Bragge, ſir Gilbert Elliot, Mr. Gregor, ſir George Shuckburgh, and Mr. Windham; of whom ſir George Shuckburgh was conſidered as the friend of the board of longitude, and was therefore candidly propoſed by Mr. Windham to witneſs all the meaſures about to be taken. The committee very properly directed their attention, in the firſt inſtance, to two material objects: firſt, to appoint a ſub-committee of ſcientific gentlemen, and men of practical ſkill in mechanics, to examine and report their opinion of the principles upon which the conſtruction was founded; and ſecondly, to aſcertain by a compariſon with other chronometers the accuracy which Mr. Mudge's time-keeper had given proof of in its actual meaſurement of time. The ſub-committee, after due examination, made the ſubjoined report to the ſelect committee, viz. "We whoſe names are underwritten, to whom it hath been referred, by a ſelect committee of the honourable houſe of commons, to receive confidentially from Mr. Mudge a communication of the principles of his time-keeper, and to report thereon, being aſſembled at the houſe of his excellency count Bruhl, in Dover-ſtreet, on Tueſday the 14th of May, 1793, did cauſe a time-keeper, which was produced to us as one of the two made by Mr. Mudge, and, ſubmitted to trial at the royal obſervatory at Greenwich, for twelve months, from June 1789 to June 1790, to be taken to pieces in our preſence, by Mr. Matthew Dutton; and, having carefully examined the parts of the ſame, we find *a contrivance in it for deſtroying the inequalities of the maintaining-power derived from the main-ſpring*, which, as far as we know and are informed, is altogether *new*; and having conſidered the ſame, and put many queſtions concerning it to Mr. Mudge jun. and Mr. Matthew Dutton, we are of opinion, that the ſaid contrivance is well calculated for producing the deſired effect, and that a diſcloſure of it may conduce to conſiderable improvements in the art of making time-keepers. We moreover declare that we find great ſkill and ability diſplayed in every part of the workmanſhip, as well as much ingenuity in this particular invention. At the ſame time it is our opinion, and we think it our duty to declare it ſo to be, that no judgment can be formed of the exactneſs of any time-keeper by a theoretical reaſoning upon the principles of its conſtruction, with ſuch certainty as with ſafety to be relied upon, except it be confirmed by experiments of the actual performance of the machine."

Notwithſtanding this report, and the teſtimonies produced by Mr. Mudge in favour of his three time-keepers, one made in 1774, and the other two in 1777, from regiſters kept by Dr. Maſkelyne, Dr. Hornſby, count Bruhl, Dr. (now Baron) Zach of Saxe Gotha, and Mr. Dutton, who had been partner with Mr. Mudge, yet the committee, at a loſs for an unerring rule by which to aſcertain at all times an exact rate to be depended upon in future trials, declared it as their opinion that ſome of Mr. Arnold's chronometers, particularly No. 36 and No. 68, "had gone with a degree of accuracy greater than could be ſhown on any correſponding trial of Mr. Mudge's." But in another part of the report of the ſelect committee, which is too long to be copied at full length, it is ſaid, alluding to the foregoing report of the ſub-committee that "in virtue of this report, and of ſuch other evidence as the inquiry has furniſhed, your committee have no difficulty in declaring, that they conſider the improvement in queſtion ſufficiently aſcertained, and as likely to conduce to advantages ſufficiently important to attract the notice of parliament;" then, after the attention of parliament had been directed to the circumſtances of a life ſpent in hope of benefiting the public more than of enriching the individual, the report concludes with theſe words: viz. "For theſe conſiderations, joined to thoſe above ſet forth, your committee think themſelves authorized to recommend the petitioner to the attention of the houſe, conceiving that the circumſtances attending his caſe give him a ſtrong plea to favour; and that the invention of which he is the author contains an important improvement in the art of conſtructing time-keepers, ſuch as the houſe might well wiſh to ſecure to the public, as well as to reward the perſon by whom it was produced." Accordingly, in the ſame year 1793, the houſe of commons, after the examination of various witneſſes, notwithſtanding the oppoſition of the board of longitude, granted to Mr. Mudge, in addition to the 500l. juſt mentioned, the further ſum of 2500l. under the act of 1774.

Mr. Mudge, jun. previouſly to his father's death, eſtabliſhed a manufactory for theſe time-keepers, and employed Meſſrs. Howells, Pennington, Pendleton, and Colman, to make them for him; ſome few of which performed in a way that merited the approbation of certain naval officers of great reſpectability, particularly lord Keith Elphinſtone and lord Hugh Seymour; but the difficulty of making the adjuſtments ſo accurately as Mr. Mudge ſen. had done, and the high price put upon them, about 150 guineas each, induced the admiralty to decline giving any other than occaſional orders for his majeſty's navy; the chronometers of Arnold and Earnſhaw, which were deemed equally good by the board of longitude, being ſold at an inferior price; though Kendal's price for making a time-keeper after Harriſon's model was 400l.

We decline accompanying Mr. Mudge through his complaints againſt his opponents, particularly againſt Dr. Maſkelyne, whom he has accuſed of being too partial to his own darling child, the *lunar method*, to do juſtice to any method purely mechanical for anſwering the ſame important purpoſe; a ſerious complaint this, which is corroborated by an aſſertion, that Meſſrs. Harriſon and Arnold made ſimilar complaints; but, in juſtification of the aſtronomer royal, we will conclude our account of Mudge's time-keeper with the concluding paſſages of the doctor's Anſwer to the Narrative: "The uſefulneſs of the board of longitude is too well known to the public, and acknowledged by all but a diſappointed artiſt, to require my pointing out inſtances in which they have materially ſerved the public and done honour to the nation. Doubtleſs they deſerve commendation in another reſpect, for having been careful concerning the diſtribution of the public money. They might indeed have been properly cenſured, if they had given it away to a perſon not legally entitled to it by the act of parliament, or by a partial preference of the leſs deſerving perſon to the more deſerving ones."

*Arnold's Chronometer.*—It would be ſuperfluous to give an account of ſuch parts as are common in all modern time-keepers; we therefore propoſe to omit the drawings of the movement and other portions of the mechaniſm contained within the frame of both Mr. Arnold's and Mr. Earnſhaw's chronometers, and beg leave to refer thoſe readers who wiſh to ſee all the individual portions of each of theſe two, to a pamphlet lately publiſhed by the commiſſioners of longitude, in which are contained three plates of each author, with deſcriptions, and the queſtions put by the board of longitude relative to each conſtruction, with the anſwers. This pamphlet is entitled, "Explanations of Time-keepers conſtructed by Mr. Thomas Earnſhaw, and the late Mr. John Arnold," 1806. The movements are made with pinions of 8 or 10, according as they are intended for pocket or box chronometers. It may be neceſſary to mention, that Mr. Arnold's box chronometers have very ſtrong main-ſprings, requiring a deeper barrel than is neceſſary for the length of the frame-pillars; on which account there is a cap fixed on the plane of the upper plate, to receive the lower pivot of the barrel-arbor, and to hold the click and click-ſpring of the ſtrong ratchet, as placed on the ſquare of this projecting arbor; but there is no occaſion for ſuch addition in the pocket-chronometer. The ſcapement-wheel A, ſhown at fig. 91, is Mr. Arnold's on an enlarged ſcale, and is placed near the lower end of its arbor, within the frame, ſo as to have only a ſmall portion of it ſeen by an eye placed over the cock, when the piece has its natural poſition reverſed; this wheel is what is called a *ſunk* one; that is, it has its teeth, like thoſe of a cylinder-ſcapement-wheel in this reſpect, projecting from the plane of the wheel. The ſhape alſo of the teeth of the wheel before us differs from that of Mr. Earnſhaw's in another reſpect; the triangular acting part of each tooth, which is raiſed from the plane of the wheel, is bounded by two ſtraight lines and a curve; the curved portion, which acts with the jewelled face of the large pallet B, and which Mr. Arnold, jun. in his deſcription calls a *cycloidal curve*, is deſcribed as being generated by the revolution of a ſmall circular piece of metal with a tracing-pin in its circumference, while it rolls on the circumference of a larger metallic circle, as a baſe; and is, therefore, properly ſpeaking, *epicycloidal*, a cycloid being generated by a circle rolling on a ſtraight line: the proportions of the generating circle, and its baſe are ſtated to be as the diameter of the large pallet to that of the ſcapement-wheel.

"The ſize of the pallet depends upon the number of teeth in the ſcapement-wheel, (ſays Mr. Arnold, in his Deſcription of his father's ſcapement.) The radius of the pallet ſhould be equal to the diſtance between any two teeth of the wheel, and then their relative motions will be equal. If the wheel has twelve teeth, the radius of the pallet will be thirty degrees, meaſured on the circumference of the wheel, and its diameter ſixty degrees (nearly) meaſured in the ſame manner, which will make it half the ſize of the wheel. If it has thirteen teeth, the pallet will, in diameter, meaſure fifty-five degrees and a half; if fourteen teeth, fifty-one degrees and a half; and if fifteen teeth, which is the number generally applied to pocket time-keepers, it will be forty-eight degrees. The marine (or box) time-keeper is made to beat half-ſeconds, the balance making 240 vibrations both ways in a minute; for if the balance-wheel has 15 teeth, the fourth wheel 80 teeth, and the balance-pinion 10 teeth, there will be 120 beats, or half-ſeconds, in one minute. It is alſo made with the ſcapement-wheel of 12 teeth, the balance-pinion having 7, and the fourth wheel 70, (counting from the great wheel;) conſequently there will be 120 beats or half-ſeconds in one minute, as before. It has been already remarked, that the pallet for 12 teeth muſt be half the diameter of the wheel, and for 15 teeth five-twelfths, or fifty degrees. The pocket time-keepers, that they may not be diſturbed by motion, have what is called a quicker train, the ſeconds-hand making 150 beats upon the dial, or five beats in two ſeconds. The ſcapement-wheel has 15 teeth, the balance-pinion 8 teeth, and the fourth wheel 80; conſequently there will be 150 beats in one minute, the pallet being 50 degrees in diameter, meaſured upon the circumference of the balance-wheel. No mention has been made of the numbers of the teeth in the other wheels and pinions, as they are of little or no importance, and may be varied conſiderably."

Mr. Arnold has given four poſitions of his ſcapement-wheel in the third plate of his deſcription delivered to the board of longitude; his firſt figure ſhows the wheel locked, and the balance returning in a detached ſtate from its ſecond excurſion; the ſecond ſhows the ſituation of the three pallets at the inſtant of unlocking; the third, which is our fig. 91, ſhows the ſituation of the different parts when the impulſe is half given, the jewelled face of the large pallet being in the line that joins the centres of the ſcapement-wheel and pallet; and Mr. Arnold's fourth figure exhibits the parts at the moment when the impulſe ceaſes to be given by the acting tooth of the wheel. The ſcapement-wheel of Mr. Arnold's marine or box chronometer, ſhown at A, is made of braſs, and has 12 teeth, with their triangular ends projecting upwards, or rather downwards when the face is up, from the plane of the wheel; B is the large impelling pallet of ſteel, at firſt made circular, but having its notch terminated by two ſtraight lines pointing to its arbor, in one of which its jewel *c* is fixed; C is the locking-ſpring, ſcrewed at its remote end to the under ſurface of the upper plate, and playing in a notch, or ſtraight groove, made in the plane of the plate to receive it; its weakeſt part is about C, or between C and the fixing-ſcrew *e*, about which point it may be ſaid to turn as on a centre; but, having no pivot, it requires no oil; about the middle of this ſpring, C, is a ſecond weaker ſpring, D, attached to it; the end of this ſlender ſpring, which is called the *unlocking-ſpring*, comes nearer towards the centre of the large pallet than the ſame end of the ſpring C. The ſaid two ſprings, thus attached together, have a great reſemblance, as they are ſeen in the figure, to a metallic pen in a pocket-caſe of inſtruments, when one of the nibs is longer than the other; nearly at one third of the ſpring C, from this interior end, and on the ſide next to the wheel at *a*, is the locking-pallet, the acting portion of which is a jewel; this jewelled pallet reſts againſt the heel of the tooth, or neareſt angular point towards the centre of the wheel, and in the act of unlocking is driven *inwards*, to allow the projecting portion to move *behind* it, when the wheel is unlocked; but, leſt the locking-ſpring ſhould yield to the preſſure of the wheel when locked at any time, a ſcrew *b*, tapped into a ſtud in the upper plate oppoſite the pallet *a*, bears againſt the exterior ſide of the locking-ſpring, to prevent its falling back beyond a certain limit. In the drawing, the pallet appears to be a continuation of the ſcrew through the ſpring, on account of being placed over, or very nearly over, it; the centre of motion of the unlocking-ſpring, D, is near the ſcrew we have juſt deſcribed, from which it is free, by being narrower than the locking-ſpring C, and conſequently alſo weaker, when equally thin; the unlocking-ſpring, D, therefore, is at liberty to move back towards the ſcrew-head without affecting the poſition of the locking-ſpring C; but when, by an impulſe received, it moves in a contrary direction, it muſt neceſſarily take the locking-ſpring along with it, and conſequently the pallet *a*, attached to this locking-ſpring alſo. The lifting or unlocking pallet, in Mr. Arnold's conſtruction, is a ſtraight piece of ſteel, *d*, carrying a jewel, which in one vibration follows the face of the large pallet a very little, and in the other precedes it as much; if two lines were drawn along the acting faces of theſe two pallets, which are fixed by friction on the verge of the balance, the angle contained would be very ſmall in the figures given by Mr. Arnold, in conſequence of his locking on the ſecond tooth; but we have not exact data whereby to calculate it, as will be ſeen more particularly in our account of Mr. Earnſhaw's chronometer, which follows, becauſe we are not informed by Mr. Arnold where the unlocking pallet reſts when the regulating-ſpring of his balance remains quieſcent. Unlike all others that we have ſeen, Mr. Arnold's locking-ſpring receives an impulſe *inwards*, to ſtrike the locking-pallet from the tooth of its wheel; we pretend not to aſſert, from theory, that this kind of action is either more or leſs favourable to the ſcapement than when the locking-pallet is driven *outwards*; in either caſe, if the face of the tooth is ſuch that the ſcapement-wheel has no recoil during the diſengagement, the total reſiſtance will be nearly ſimilar; for, though that part of the tooth which is neareſt the arbor of the wheel preſſes on the pallet more than the extreme points would do of the *ſame wheel* under the ſame circumſtances, in conſequence of which the preſſure is here greater near the termination of the impulſe given to the locking-pallet than at its beginning, yet we do not conceive this to be any diſadvantage, becauſe the locking-pallet may thus be ſuppoſed to be unlocked gradually, rather than by a ſudden jerk, which muſt be partly the caſe when the preſſure of the wheel's tooth againſt the pallet is a maximum at the commencement of the impulſe that detaches the locking-pallet.

We have already ſaid, that, in our fig. 91, the wheel is at the middle point of its arc of action, conſequently, the lifting-pallet *d* has let go the contiguous end of the unlocking-ſpring D, and the pallet *a* has returned to the ſcrew-point, to be ready to receive the next following tooth 3; the direction of motion being ſuch, that the teeth, 1, 2, 3, &c. follow one another in ſucceſſion. To put the chronometer into true beat, the pallet *d* muſt be in the middle of the arc of ſcapement, which we ſuppoſe to be nearly in the poſition of our figure, when the balance-ſpring is quieſcent. Any further notice here on the mode of acting in this ſcapement, we think unneceſſary.

Fig. 92 exhibits Mr. Arnold's balance. The circular bar of metal *a b*, carrying three weights of adjuſtment for poſition, within the expanſion-pieces *c*, *d*, we underſtand, were added to the original balance by Mr. Arnold, jun. but the generality of his chronometers have not had ſuch addition, being capable of the neceſſary adjuſtment without. The expanſion-rims, which are about the third portion of a circle each, were originally ſoldered together by an intermediate mixture, and bent into the requiſite ſhape by a pair of pliers ſhaped on purpoſe to give the deſired curve regularly; and, in ſome of the beſt time-keepers Mr. Arnold informs us himſelf, that he ſtill continues this practice, which is greatly reprobated by Mr. Earnſhaw. We will not undertake to decide the practical queſtion, which, in theory, we ſhould have leſs difficulty to decide; the regularity of weight and ſhape enſured by turning in the lathe, which was at firſt the ſenior Brockbank's practice, and is ſince that of Mr. Earnſhaw, who formerly worked under him, ſeems to promiſe fairly for anſwering the purpoſe beſt, particularly when two metals only are united by fuſion; but, it is contended by Mr. Arnold, that the true figure given in the lathe no longer remains when the ring is cut into portions, ſuch as halves or thirds; for he ſays, the ſeparate parts aſſume, by their elaſticity, an inſtantaneous alteration in their figure, generally becoming portions of a circle of ſmaller radius than that of the original ring, and the ſeparate portions do not always undergo a change exactly ſimilar, owing to circumſtances which cannot be eaſily detected. Mr. Pennington, who is allowed to be inferior to none of his contemporaries in practical ſkill, prefers Mr. Arnold's method. The ſcrews, *d*, *d*, are for *rate*; the cylindrical pieces, *c*, *c*, tapped for the ſcrews at the ends of the expanſion pieces, and having little holes at their exterior ends for a fork ſcrew-driver, are for the adjuſtment for *temperature*; and the two additional ſcrews, *e*, *e*, are for the adjuſtments for *poſition*, particularly when the interior ring *a b* is not introduced; theſe laſt ſcrews, *e*, *e*, when uſed for poſition, will alter the momentum of the balance, and conſequently the rate of going, if one of the two is not juſt as much ſcrewed in as the other is ſcrewed out, when the rate is previouſly adjuſted.

Mr. Arnold uſes a cylindrical ſpring with his balance, and is very particular in aſcertaining the exact effective length that ſhall produce the ſame rate, whether the arc of vibration be long or ſhort; the trial of this adjuſtment is made by uſing the main-ſpring greatly relaxed, or let down by its ratchet, and again when it is ſet high, or has its intenſity increaſed; which alteration is equivalent to an addition or ſubtraction of weight in the maintaining-power of a clock in order to increaſe or diminiſh the arc of vibration in a pendulum. When the chronometer is new, or clean if uſed ſome time, the ſemi-arc of vibration varies according to circumſtances from 180° to 230°, making in the whole vibration from a circle to 460°; but, when the oil grows thick, or when dirt has obtained admiſſion into the upper part of the train, the arc will ſometimes be reduced to 240°; ſo that, if the long and ſhort arcs were not performed in the ſame time preciſely, an alteration would take place in the rate, which might be conſiderable enough to do away all dependence on an accurate meaſurement of time. The balance-ſpring is uſually made by Mr. Arnold of ſteel-wire hardened and tempered, though, he ſays, that wire hard-rolled, or wire made of gold with a mixture of from one eighth to one quarter of copper, will do; but the two latter are leſs permanently elaſtic, and the hard-rolled wire will ſometimes require to be tapered at that end which is next the balance-ſtud: the beſt length of a balance-ſpring, which is longer in box than in pocket chronometers, lies between 5 and 20 inches to become iſochronal; but Mr. Arnold does not ſeem to apprehend that there are various intermediate lengths, as Mr. Pennington aſſerts, which are equally iſochronal. In the box-chronometer, which has a heavier balance than the pocket one, and a ſlower train, the weight is taken from the ſupporting pivot of the verge, by an ingenious application of the cylindrical regulating-ſpring, thus: when the ſpring is wound round a cylinder, to be blued, the coils are put contiguous, which ſhape would be afterwards preſerved, from the elaſtic temper then given to it, if no force were to ſeparate them; but, when one end of the ſpring is attached to the verge-collet, and the other to the ſtud, theſe oppoſite ends are forcibly removed from each other to ſuch a diſtance, that the coils are ſeparated from contact, and the effort, exerted to bring them again into contact by their elaſticity, lifts nearly the whole weight of the balance. Formerly there was a contrivance of banking in Mr. Arnold's chronometers, but the banking-pin or lever, rubbing between two coils of the ſpring, was found to be injurious, and was therefore laid aſide; and we do not learn that any other banking has been ſubſtituted. Mr. Arnold lays great ſtreſs on his ſtud being placed ſo as to fix the end of his balance-ſpring at half the diſtance between the centre and circumference of the coils, ſo that the laſt coil, at each end, is made ſo much ſmaller than the reſt, as prevents any protruſion of the large coils, and preſerves the cylindrical ſhape apparently unaltered by the action.

We underſtand, that neither of the two Arnolds ever placed a chronometer for trial at the royal obſervatory, for the expreſs purpoſe of applying for parliamentary remuneration; but we have ſeen, under our account of Mr. Mudge's time-keeper, that Nos. 36 and 68 were tried againſt his, and pronounced to be ſuperior, both with reſpect to their accurate going, and alſo in regard to the ſimplicity and practicability of their conſtruction; ſo that 1322l. were given to Mr. Arnold, ſen. by the board of longitude at different times by way of encouragement, and 1678l. its completement to 3000l. were given in December 1805 to Mr. Arnold, jun. being at the ſame time that 2500l. were given to Mr. Earnſhaw, in addition to the 500l. which he had previouſly received. When the queſtion was difficult to decide, whether Mr. Arnold's or Mr. Earnſhaw's chronometers were moſt worthy of public reward, the board of longitude very properly rewarded the labours of both theſe makers equally. But ſir Joſeph Banks, whoſe oppoſition to Mudge's applications is well known, and who ſeems a greater enemy to time-keepers than Dr. Maſkelyne, entered a proteſt againſt the reſolution of the board, to which Dr. Maſkelyne replied in a private pamphlet.

*Earnſhaw's Chronometer.*—For the ſame reaſon that we have not given the movement and parts of the chronometer contained in the frame of Mr. Arnold, we think it not neceſſary particularly to deſcribe all the parts of Mr. Earnſhaw's that are common to the other modern chronometers. The peculiarities of the conſtruction are confined to the balance, the balance-ſpring, the ſcapement-wheel, and the acting parts of the ſcapement. To theſe parts, therefore, we propoſe to confine our account. Mr. Earnſhaw ſays, that his train is 18000 vibrations of the balance in an hour, which, we have ſeen, has always been the train of the other chronometer-makers, particularly for the pocket ones; his box pieces have 13 teeth each in the ſcapement-wheel, and his pocket ones 15. We are not told what pinions are uſed in the movements; nor is it ſaid, in Mr. Earnſhaw's account delivered to the board of longitude, that this is a conſideration of any moment. Fig. 93 is a copy of Mr. Earnſhaw's firſt figure of his third plate, which was taken from his model laid before the board of longitude on June 7th 1804, at the ſame time that Mr. Arnold's model was produced; the balance and cocks, being not neceſſary for explaining the mode of action, are in our figure omitted. Mr. Earnſhaw has given ſo minute an account of his ſcapement accompanying the model, that we cannot deſcribe it better than by copying his own words, which are nearly theſe: viz.

"The ſmall wheel MSK is called the large pallet; it is a cylindrical piece of ſteel, having a notch or piece cut out of it at *lhr*; againſt the ſide of this notch is a ſquare flat piece of ruby, or any hard ſtone, *hl*, ground and poliſhed very ſmooth, and fixed faſt into the pallet. The cylinder is ſo placed, with reſpect to the balance-wheel, that it may not be more than juſt clear of two adjoining teeth. EF is a long thin ſpring, which is made faſt at one end, by being pinned into a ſtud, G, and made to bear gently againſt the head of an adjuſting ſcrew, *m*; the other end is bent a little into the form of a hook; to this ſpring there is fixed another very ſlender ſpring at Y, which projects to a ſmall diſtance beyond it. This ſmall ſpring lies on the ſide of the thick ſpring neareſt to the balance-wheel. The adjuſting ſcrew, *m*, takes into a ſmall braſs cock, at P*a*, which is ſcrewed faſt to the upper plate by a ſtrong ſcrew. Upon the ſpring EF there is fixed a ſemi-cylindrical pin, which ſtands up perpendicular upon it, and of a ſufficient length to fall between the teeth of the balance-wheel ABCD. This pin is called the locking-pallet, and is placed on the oppoſite ſide of the ſpring repreſented to view. Through the centre of the cylindrical pallet MSK, a ſtrong ſteel axis paſſes, called the verge; the pallet is made faſt to this axis, which alſo paſſes through the centre of the balance, and is made faſt to it; it has two fine pivots at its extremities, upon which it turns very freely, between two firm ſupporting pieces of braſs, ſcrewed firmly, and made as permanent as poſſible, by ſteady pins, to the principal plate. A little above the cylindrical pallet MSK is fixed a ſmall cylindrical piece of ſteel, *in*, having a ſmall part projecting out at *i*, through which the verge alſo paſſes; this is called the lifting-pallet, (and is from $\frac{1}{3}$ to $\frac{1}{2}$ the diameter of the large pallet;) it fixes upon the verge like a collar, and is made faſt by a twiſt, ſo as to be ſet in any poſition with reſpect to the large pallet MSK. The end EG of the long ſpring EF being made very ſlender, if a ſmall force be applied at the point *o* to preſs that end out from the wheel ABCD, it eaſily yields in that direction, turning, as it were, upon a centre at G; it is alſo made to ſlide in a groove made in this ſtud, in ſuch a manner that the end *o* may be placed at any required diſtance from the centre of the verge.

"Having deſcribed the ſeveral parts as they appear in the figure, we next come to their connection or ſituation with reſpect to each other. Let the long ſpring EF be ſuppoſed to be ſo placed, that the end of the ſlender ſpring Y*i* may project a little way over the point of the lifting-pallet *in*, but not ſo cloſe but that the point of the pallet may paſs by the hooked end of the ſpring EF without touching it; the head of the adjuſting-ſcrew *m* is alſo ſuppoſed to bear gently on the inner ſide of the ſaid ſpring EF, or that neareſt to the wheel, and at the ſame time the locking-pallet is ſo placed, that one of the teeth, D, of the balance-wheel may juſt take hold of it. This pallet is not viſible in its proper place in the figure, being covered from ſight by the ſcrew *m*, and part of the ſpring EF; its poſition is therefore repreſented by the dot *k*, on the oppoſite ſide of the wheel, having the tooth A juſt bearing up againſt it. From the above deſcription of the ſeveral parts of the ſcapement, and their connection with each other, it will be eaſy to ſee the mode of its action, which is as follows:

“ A force being ſuppoſed to be applied to the balance-wheel, ſo as to cauſe it to move round in the direction of the letters ABCD, one of the teeth, as D, will come againſt the locking-pallet (as repreſented at A, and the locking-pallet by *k*). The wheel is then ſaid to be locked, being prevented from moving forward by this pin. Let the balance be now ſuppoſed to reſt in its quieſcent poſition, and it will have the ſituation repreſented in the figure; the lifting-point *i* of the pallet *in* will be juſt clear of the projecting end of the ſlender ſpring, the face *hl* of the large pallet MSK will fall a little below the point of the tooth B, and the balance, having its ſpiral or helical (meaning cylindrical) ſpring applied to it, remains perfectly at reſt in this poſition. Now, as the balance and the two pallets MSK and *in*, are fixed faſt to the verge, it is plain they muſt all move together; let, therefore, the balance be carried a little way round in the direction of the letters MSK; by this motion the end *i* of the lifting-pallet *in* will be brought to preſs up againſt the projecting end of the ſlender ſpring, and as this ſpring is fixed on the ſide of the ſpring EF, neareſt to the balance-wheel, the point *i* will preſs the two ſprings together out from the balance-wheel; then, as only the point of the tooth D (ſee its poſition at *k*) touches the locking-pallet, when the ſpring EF was at reſt againſt the head of the ſcrew *m*, it will, by the ſpring being preſſed out from the tooth, have ſlipt off (for the locking-pallet, which was before ſuppoſed at *k*, will now be at *a*, clear of the tooth A of the balance-wheel); the wheel being now at liberty will move round by the force ſuppoſed to be applied to it; but as the point *i* of the lifting-pallet moves on and preſſes out the ſpring, the point *l* of the large pallet approaches towards the point of the tooth B of the balance-wheel, ſo that, when the ſpring EF is ſufficiently puſhed out to unlock the wheel, the point *l* of the large pallet will be got to *d*, and in this poſition the point of the tooth B of the balance-wheel will fall upon it, at the ſame time the point of the tooth D has juſt dropped off from the locking-pallet *m*; the force of the wheel being by this means applied to the top of the pallet *hl*, gives an increaſed momentum to the balance, and aſſiſts it in its motion in the ſame direction, and by the continued motion of the large pallet in the direction MSK; the point of the tooth B, which keeps preſſing and urging it forward, moves up towards the bottom of the face of the pallet towards *h*, until the plain flat ſurfaces of the tooth and pallet come into contact; by this time the end, *o*, of the ſlender ſpring has dropt off from the point, *i*, of the lifting-pallet, and the two ſprings have returned again into their quieſcent poſition; the ſpring EF gently bearing againſt the head of the adjuſting ſcrew *m*, and the locking-pallet in a poſition to receive the next tooth C, of the balance-wheel. When the two ſurfaces of the tooth and pallet are thus in contact, the greateſt force of the wheel is exerted upon the pallet, and of courſe upon the balance moving with it. The tooth ſtill preſſing againſt the face of the pallet, and the pallet moving in the direction MSK, it at laſt drops off, leaving the balance at perfect liberty to move on in the ſame direction in which it was going. Juſt as the point of the tooth B, which has been preſſing the large pallet round, is ready to leave it, the next tooth, C, of the wheel is almoſt in contact with the locking-pallet *m*, ſo that the inſtant the tooth B drops off, the wheel is again locked, and the action of that tooth upon the balance is finiſhed. As the balance moves with the greateſt freedom upon its pivots, the force of the tooth has given it a conſiderable velocity, ſo that the balance ſtill keeps moving on in the ſame direction, after the preſſure of the tooth is removed by ſlipping off from the pallet, until the force of the pendulum-ſpring (which is not repreſented in the figure), being continually increaſed by being wound up, overcomes the momentum of the balance, which for an inſtant of time is then ſtationary, but immediately returns by the action of the pendulum-ſpring, which exerts a conſiderable force upon it in unwinding itſelf. As the balance returns, the point *i* of the lifting-pallet *in* paſſes by the ends of two ſprings, EF, Y*o*, and, in paſſing by, puſhes the projecting end, *o*, of the ſlender ſpring in towards the balance-wheel, until it has paſſed it; after this, the projecting end *o* again returns, and applies itſelf cloſe to the hooked end of the ſpring EF, as before. The ſpring Y*o* is made ſo ſlender, that it gives but little reſiſtance to the balance, during the time the point *i* of the lifting-pallet is paſſing it, and of courſe cauſes but little (if any) decreaſe in its momentum. During the time the point *i* of the lifting-pallet is paſſing in the ſmall ſpring Y*o*, the long ſpring EF remains ſteadily bearing againſt the head of the adjuſting-ſcrew *m*, as the hooked end at *o* juſt lets the end of the lifting-pallet paſs by without touching it. As the ſpring has now been continually acting upon the balance, from the extremity of its vibration in the direction MSK, it has given it the greateſt velocity, when the point *i* of the lifting pallet is paſſing the end *o* of the ſlender ſpring; for at this inſtant the ſpring, which was wound up by the contrary direction of the balance, is now unwound again, or in the ſame ſtate as it was in its quieſcent poſition at firſt, and of courſe has no effect upon the balance at all in either direction; but the balance, having now all the velocity it would acquire from the unwinding of the ſpring, goes on in the direction SMK, until the force of this ſpring again ſtops it and brings it back again, moving in the ſame direction as at firſt, with a conſiderable velocity. By this return of the balance, the point *i* of the lifting-pallet comes up again to the projecting end *o* of the ſlender ſpring, puſhes back the long ſpring EF, and unlocks the wheel; and another tooth falling upon the face of the pallet *hl* gives freſh energy to the balance; and thus the action is carried on as before.”

In this quotation we have given the original letters of reference; but, as the balance and cocks are left out in our figure, the direction of the balance has been indicated by the letters referring to the large pallet, which, being placed on the ſame verge, has the ſame motion. We have added two dotted lines in the large pallet, to ſhow that the direction of the lines, bounding the notch in the circumference, is towards a point in the radius of it equally diſtant from its centre and circumference; alſo we have added two ſimilar dotted lines from two ſeparate teeth, to ſhow that the undercutting or ſloping of the interior ſide of the tooth is likewiſe directed to a point equally diſtant from the centre and circumference of the wheel. The locking-ſpring points directly to the balance-arbor, but is laid in ſuch a way as not to be an exact tangent to a radial line drawn from the centre of the wheel to the locking-pallet, the angle formed at the pallet being ſomewhat leſs than a right angle, in order, as Mr. Earnſhaw ſays, “ that the wheel may have a tendency to draw the ſpring into it,” for ſafe locking.

On counting the teeth in Mr. Earnſhaw's ſcapement-wheel, which we have copied, we were ſurpriſed to find only 12 teeth in it, particularly as we are informed, in his deſcription, that his numbers are 13 and 15 reſpectively; we can only account for this circumſtance by ſuppoſing that the draftſman miſtook the number; which we here notice, leſt the reader ſhould ſuppoſe the fault to lie in our figure excluſively.

Fig. 94 repreſents Mr. Earnſhaw's balance, which, like Mr. Arnold's, has only two compenſation-pieces, and thoſe much ſhorter than his, being little more than a quadrant each: *a a* are the ſcrews of adjuſtment for rate, ſcrewed in to make the chronometer go faſter, and out to make it go ſlower. The ſliding-pieces *b b* have each a circular groove turned in a lathe or turning-frame, deep enough to form a bed for the expanſion-bars, in order that the interior ſide ſcrews *c c* may preſs againſt the edges of the expanſion-pieces, and retain the ſliding-pieces in any given ſituation. The pivots, Mr. E. ſays, ſhould be conical, except very near the ends, which ſhould be cylindrical; and ſhould run in a "jewel-hole as ſhallow as poſſible, ſo as not to endanger cutting the pivot; and the part of action of the hole ſhould be made quick back, with only a very ſhallow chamfer behind to retain the oil." The ſliding pieces *b b* are the weights of adjuſtment for temperature; in making theſe weights, a braſs ring is firſt made in the lathe, and is then cut through into fourteen equal parts in a clock-engine, by an operation ſimilar to that of cutting a wheel into fourteen teeth, ſo that each piece is the fourteenth part of a circle, after deducting the thickneſs of the cutter, which is not mentioned. One of the weights, in a box-chronometer, is about twenty grains generally. The expanſion-rims are turned out into a ring from a circular compound plate, which is made by fuſing the braſs in a crucible, containing the ſteel circle, held in a horizontal poſition during the time of fuſion. The conſtruction is very ſimple; but, as it appears to us, if the adjuſtments for poſition were made by means of the ſcrews for rate and weights for temperature only, one adjuſtment would derange another, and that for poſition would be very difficult to make nicely, as there is no tangent-ſcrew, or other contrivance, to move the weights *b b* by gradual ſlow motions. As though to get rid of this objection, which was too obvious to be overlooked, Mr. E. conceives that the cauſes of a difference in the rate in different poſitions, are large balance-pivots in part, but principally the badneſs of the balance-ſpring; his words reſpecting the latter cauſe, are theſe: "Much difficulty has fallen to the lot of watch-makers in the endeavour to make time-keepers go nearly the ſame in the different poſitions: I have had my ſhare of this, but it is now over; by far the greateſt part of this difficulty ariſes from the balance-ſpring not being properly made. But, if the ſpring is made as I ſhall deſcribe hereafter, you have only to make the balance of equal weight, and it will go within a few ſeconds per day in all poſitions alike; and, if it vibrates not more than one circle and a quarter, by applying a *ſmall matter of weight* to that part of the balance which is downward, when in the poſition that it loſes moſt, (it) will correct it with great accuracy."

The board of longitude, not knowing what this "ſmall matter of weight" implied, nor how it is to be attached to the balance, were induced to put the following queſtion, viz. "When the weight is wanted to adjuſt the watch in the poſitions of III and IX, by what means do you obtain that weight, in the manner your balance appears to be made? If you know any thing more that is material concerning the making time-keepers go nearly the ſame in different poſitions, communicate it."—*Anſ.* "To adjuſt the watch in the poſitions of III and IX, (ſays Mr. E.) I fix on to one of the compenſation-weights that is downwards, when in that poſition that it loſes moſt, a ſmall piece of braſs, not larger in diameter than a common pin-head, and nearly as thin as foolſcap paper. I fix it on with a very ſmall particle of *bees-wax*, not larger than the common dot of an *i*: that is, if the watch is gaining on mean time. But, if the watch is loſing, I then take out the balance, and, with a drill, drill out a ſmall matter from that compenſation-weight that is uppermoſt when in the poſition that the watch loſes moſt; this I have found to correct it without ſo many ſcrews and fans as I have ſeen in ſome time-keepers."—Sticking on braſs with bees-wax in a time-keeper is certainly a very curious proceeding!

The rule for adjuſting the balance for temperature is this: "Put the watch into about 85 or 90 degrees of heat by the common thermometer, and mark down exactly how much it gains or loſes in 12 hours; then put it into as ſevere a cold as you can get, for 12 hours; and, if it gains one minute more in 12 hours in cold than in heat, move the compenſation-weights farther from the arm of the balance about ⅛ of an inch; but, if it gains one minute more in 12 hours in heat than in cold, move the weights ⅛ of an inch nearer to the arm of the balance, and ſo on in the like proportion, trying it again and again, till you find the watch go the ſame in whatever change of heat and cold you put it." Of courſe this adjuſtment precedes the adjuſtment for poſition, ſo that moſt probably the poſition, whatever it is, during theſe trials, is always the ſame, a circumſtance not ſpecified. The total vibration at firſt is confined to a circle and a quarter, which quantity, it is ſaid, will produce the moſt ſteady performance; but we are not informed what the banking is that limits the greateſt vibration, nor indeed whether there is any banking at all, which we have been informed there is not in general.

Mr. Earnſhaw's greateſt difficulty in the progreſs of his labours ſeems to have been to find out what he calls the *inviſible properties* of the balance-ſpring, and to render it, not exactly iſochronical, but nearly ſo, that its deviation from iſochroniſm may compenſate for a *relaxation* in the ſpring, real or imaginary, ariſing from conſtant uſe, which is *ſuppoſed* to affect the permanency of the rate. After complaining bitterly of much diſappointment in his firſt labours, our author ſays, "I found, in the courſe of reaſoning on bodies, that watch-ſprings *relax* and *tire* like the human frame, when kept conſtantly in motion; and this may be proved by the following experiment: Let a watch, that has been going a few months, go down, let it be down for a week or two, or more, then ſet it going, and if it be a good time-keeper, ſo as not to be affected by the weather, it will go ſome ſeconds per day faſter than it did when it was let down, but it will again loſe its quickneſs in a gradual manner, gaining leſs and leſs, till it comes to its former rate. Therefore, finding that iſochronal ſprings would not do, and likewiſe having made ſprings of ſuch ſhape as would render long and ſhort vibrations equal in time, (which) conſtantly loſe (loſt) the longer the watch went; I then made them of ſuch ſhape as to gain in the ſhort vibrations about five or ſix ſeconds per day more than the long ones; this quantity could only be found by long experience; and the way I proved this, was to try the rate of the watch with the balance vibrating about ⅓ of a circle; I then try its rate when vibrating a circle and a quarter; and, if the ſhort vibrations go ſlower than the long ones, that watch will loſe on its rate, and if they are equal, it will likewiſe loſe, but that only from *relaxation*; and, if it gains in the ſhort vibrations more than five or ſix ſeconds in 24 hours, it will in the long run gain on its rate; but, if not more than that quantity, and if the time-keeper is perfect in heat and cold, and every other part, the above properties will render it deſerving of the name of a perfect time-keeper. This is a principal cauſe of my time-keepers excelling all others; and this is the principal cauſe of ſome of my time-keepers going better than others; the ſprings of them being made to accord more exactly to the above proportions; and this is the cauſe which has enabled me to foretel what my time-keepers would do, which Dr. Maſkelyne, Mr. Croſley, and others, can teſtify. The above effect is produced as follows: I find the common *relaxation* of balance-ſprings to be about five or ſix ſeconds per day on their rates in the courſe of a year; therefore, if the ſhort vibrations are made, by the ſhape of the ſpring, to go about that quantity faſter than the long ones, and as the ſpring relaxes in going by time, ſo the watch accumulates in dirt, (dirt accumulates in the watch more properly,) and thickening of the oil (takes place), which ſhortens the vibrations, the ſhort ones then being quicker compenſated (compenſates), for the relaxation of the balance-ſpring." See Mr. Earnſhaw's Explanation, pages 8 and 9.

Theſe ſprings that have the inviſible properties deſcribed "are made of ſoft ſteel, rolled hard, and not hardened and tempered with heat and cold, that proceſs not being at all neceſſary." Their length varies in box-chronometers from 12 to 20 inches, and in pocket ones from 5 to 7, like Mr. Arnold's, and the ſhape is cylindrical, with the two extreme coils each about half the diameter of the other coils, agreeably to the ſpecification in one of Mr. Arnold's patents. The thickneſs of the ſteel in the expanſion-pieces of the balance is about $\frac{8}{1000}$ of an inch, and that of the braſs twice, or nearly three times, as thick; the diameter of the balance without the weights and ſcrews $1\frac{1}{8}$, and with them $1\frac{3}{8}$, of an inch; the total weight of it, with weights and ſcrews, 3dwts. 10gr. The main-ſpring barrel is $1\frac{3}{16}$ inch, and the depth $\frac{1}{2}$ inch, and the ſpring in it has from $4\frac{1}{2}$ to 5 turns. The weight of each of the two balance-ſcrews is from 5 to 6 grains; and the figure which the expanſion-pieces aſſume when cut from the original compound ring is ſuffered to remain unaltered, on a ſuppoſition that bending by any mechanical means would injure the regularity of their obedience to the changes of temperature; the locking and unlocking ſprings are made as weak at the bending parts as is practicable to afford the neceſſary reſiſtance, as a detent, to the ſcapement-wheel; they are brought to ſhape by filing, then ſmoothed with a piece of ſteel and oil-ſtone powder, and laſtly hardened and tempered. The pallets, which are of ſteel, have each a jewel ſet in them, and thoſe on the verge of the balance are twiſted round and ſet to their ſituations reſpectively by the friction of their central holes.

Mr. Earnſhaw has particularized ſix advantages which his ſcapement has over Mr. Arnold's, in p. 12 of his Explanations; but, as the reader will probably think we have detained him too long upon this one chronometer, we refer him to the original information, in reading which, he will now be able to form an opinion for himſelf as to the real exiſtence of thoſe advantages; indeed, when all reaſoning on the ſubject is at an end, that particular conſtruction of a chronometer will no doubt ultimately prevail in practice, which ſhall be found to perform the beſt, and at the ſmalleſt expence.

*Brockbank's Chronometer.*—The Meſſrs. Brockbank, ſen. and jun. have produced chronometers, or time-keepers, which have performed with a degree of accuracy equal to that of any other maker, though they never applied for any parliamentary renumeration; the original firm of the houſe was John and Miles Brockbank, the former of whom died, and the latter quitted buſineſs, and is ſucceeded by his nephews, John and William Brockbank.

We need ſay but little of ſuch parts as are common in an ordinary watch, which may be ſeen more particularly in Plate XII. The ſpring-barrel contains a well-tempered main-ſpring, ſtronger than the ſpring of an ordinary watch, becauſe the ſcapement is a detached one, requiring the momentary impulſe given to it to be pretty ſtrong; there is nothing particular in the conſtruction of this barrel, except its ſize, which is proportioned to the ſpring it contains; one of which, for a large box-chronometer, has been found equal to ſupport a weight of 11lbs. or upwards; the chain is alſo of the uſual conſtruction, except that it is ſtronger than is neceſſary in a common watch. The fuſee is grooved in ſuch a way, after being made of the ſhape of the fruſtum of a paraboloid, that the decreaſe of the acting radius is always inverſely proportional to the intenſity of the main-ſpring; by which admirable contrivance the effective power of this ſpring is at all times very nearly alike; the adjuſtment of the varying levers, or points of action, of the fuſee, is made very conveniently, by a long lever with a moveable weight, like a ſteelyard, being inſerted on the ſquare of the fuſee-arbor made for the key. The number of turns of the fuſee depends on the number of hours it is intended to be actuated by the ſpring at one winding up, and this number again depends on the ratio between the great wheel and the centre-pinion, as has been mentioned in our deſcriptions of Harriſon's and Mudge's time-keepers. The angular point of the cap, at the ſmaller end of the fuſee, is to catch the ſhoulder of the guard, when the chain has filled all the turns of the ſpiral groove; otherwiſe the chain would wind back again a little way, and the power of the main-ſpring would become too great, or perhaps the ſpring might even break by being overſtrained. Concentric with the fuſee at the large end, contiguous to the pillar-plate, are the great wheel, two ratchets, and a ſecondary ſpring to keep the chronometer going while it is wound up; this idea, and alſo the mechaniſm proper for effecting ſuch purpoſe, originated, as we have ſeen, with James Harriſon; but the preſent application of his principle is much more ſimple than his was, inaſmuch as the ſpring is ſo conſtructed as not to require a barrel or box to contain it.

In the pocket-chronometers, the great wheel, which is moveable round the fuſee-arbor in one direction only, like that of a common watch, has 60 teeth: the centre-wheel arbor carries a pinion of 12 leaves, revolving in an hour; this arbor is ſtronger than any other arbor in the train above, not only becauſe more power is impreſſed on its pinion than on any other pinion higher in the train, but alſo becauſe the minute-hand is borne by it, and alſo motion given to the hour-hand from it; the centre wheel fixed on this arbor has 64 teeth, which impel the pinion of eight leaves on the ſecond arbor; the ſecond wheel of 60 teeth is faſt alſo to this arbor, and impels the third pinion of eight leaves faſt on the third arbor, which is the arbor for the ſeconds-hand, which hand moves in a circle of 60 out of the centre of the face, therefore cannot be miſtaken for the minute-hand, which is a matter of ſome importance in a chronometer. On this arbor of the ſeconds-hand, a contrate wheel is uſually placed in a common watch, for the ſole purpoſe of altering the direction of motion, that the balance or crown wheel may have an horizontal arbor; but here the caſe is different; the balance-wheel, or more properly ſpeaking the ſcapement-wheel, has a vertical arbor like the reſt of the train; the third wheel therefore is here like the reſt in poſition, and has 80 teeth driving its pinion of eight on the fourth arbor, which alſo carries the ſcapement-wheel with 15 teeth. From this account of the movement, we now know that the fuſee revolves in $\frac{60}{12}$ of an hour, or in five hours, and alſo that, as there are $6\frac{1}{4}$ turns in it, the whole period of continued motion, at one winding up, will be 32 hours; alſo by our former method of eſtimating the value of a train exemplified in Harriſon's and Mudge's trains; we know that $\frac{64 \times 60 \times 80 \times 15 \times 2}{8 \times 8 \times 8} = \frac{921600}{512} = 18000$ are the number of vibrations in an hour, or five in a ſecond; but, as there are only half as many audible beats as vibrations in this detached ſcapement in a ſecond, this circumſtance would induce any perſon, not previouſly acquainted with it, to conclude that the train is a lower or ſlower one than is uſed in an ordinary watch, though the reverſe, in point of fact, is the truth. In ſome of the beſt box-chronometers, the pinions are 10, and the train = 14400, owing to the large ſize of the balance.

The balance is a circle at firſt turned in a lathe out of ſolid compound plate of ſteel and braſs, a circular plate of ſteel of the required diameter being covered with braſs by immerſion in a crucible of this metal, melted previouſly by heat, after which it is divided into three equal portions, which will, by theſe operations, be of ſimilar dimenſions and weight when nicely divided; this method of uniting the metals, and of forming the balance in a lathe, was the invention of Mr. J. Brockbank, ſen. At the outer end of each of the three radial bars, which are of ſteel, are three ſcrews of adjuſtment for time, and alſo for poſition. When the chronometer gains conſiderably, each of theſe three ſcrews is ſcrewed back or outwards, to increaſe the momentum of the balance by enlarging its effective dimenſions; but the quantity of adjuſtment muſt be preciſely the ſame in each of the three ſcrews, ſuppoſing the balance previouſly in equilibrio in all poſitions. On the contrary, when there is a conſiderable loſs in the rate, the three ſcrews muſt be alike ſcrewed in a certain quantity, depending on the quantity of the daily error, which a little practice only will determine; but when one of the three ſcrews is ſcrewed in for poſition, each of the other two muſt be ſcrewed half the ſame quantity out, and *vice verſâ*, the taps being the ſame in all. The convex ſide of the rim of the balance is braſs, and the concave ſide ſteel; the ſuperior expanſibility of the former, therefore, will occaſion the remote ends of each of the three expanſion-pieces, forming the circle, to approach the centre of the balance in high temperatures, by reaſon of thoſe ends being at liberty, and the oppoſite ends being fixed to the radial bars; but in cold weather the contrary will be the caſe; the braſs, being more liable to contract with cold, as well as more liable to elongate with heat, than ſteel, exerts a natural effort, in low temperatures, to ſtraighten the expanſion-bar, and therefore makes the remote end, in each of the three, recede from the centre of the balance; again, the ſame heat that makes the remote end of each expanſion-piece approach the centre of the balance, makes, at the ſame time, the radial levers elongate, and conſequently removes the fixed end of the ſame expanſion-pieces from the centre a certain quantity; and *the compenſation* conſiſts in a due balance of the two oppoſite and contemporary motions of the oppoſite ends of each of the three expanſion-bars. It is found from experience, that the momentum of the balance is beſt preſerved in an equable ſtate by loading each expanſion-piece with a metallic weight of ſimilar dimenſions, and ſo contrived that they may ſlide along the expanſion-pieces, by adjuſtment, till the exact point is found ſuch in each, that the equipoiſe of the whole is not deſtroyed, and yet that the momentum will remain the ſame in the oppoſite extremes of temperature, as well as at a medium. In the balance there is alſo a pin ſcrewed into the remote end of each expanſion-piece, exactly oppoſite to as many projecting pieces of metal borne by the radial arms; which additions might appear to have ſomething to do with the compenſation, but they are only precautionary contrivances, called *guard-pieces*, to prevent the bending of the expanſion-rims too much inward or outward by any jerk or other accidental cauſe.

Mr. J. Brockbank, ſen. having obſerved that the coils of his ſpring enlarge their diameters, particularly near the upper end, when wound up by one entire revolution of the balance, ingeniouſly hit upon the idea of making this protruſion of the coils of his ſpring ſubſervient to the purpoſe of limiting the extent of the vibration of his balance, or of conſtituting the contrivance called the *detached banking*. In an ordinary watch a pin is put into the rim of the balance, which projects ſufficiently to prevent its paſſing two little ſtuds, placed at equal diſtances from the point of quieſcence of the ſaid pin, which ſtuds, therefore, limit the quantity of the whole arc of vibration: this quantity, conſequently, when two ſtuds are uſed, muſt neceſſarily be leſs than a circle, even if the common ſcapement would admit of ſuch a long vibration; and, if one ſtud only were placed juſt a ſemicircle each way from the pin's quieſcent point, the limit would then be an exact circle, after deducting the thickneſs of the ſtud; but in a chronometer one entire vibration generally exceeds a circle, when the piece is clean; a circumſtance which conſtitutes one of its excellencies, by augmenting its momentum; hence the contrivance wanted was to allow the balance to vibrate more than an entire circle, and then to ſtop it at a given part of the ſecond revolution: to effect this purpoſe, the late Mr. J. Brockbank invented the mechaniſm we have mentioned, and which, we underſtand, anſwers the intended purpoſe very well.

Our notices of this chronometer muſt be very brief, as we do not know that any drawings of the ſcapement have been publiſhed. The order of the adjuſtments is this: firſt the adjuſtment for temperature is made in heat of from 90° to 120° of Fahrenheit, and alſo in as great a degree of cold as can be obtained; ſecondly, the chronometer is cleaned anew, and has freſh oil put in; thirdly the adjuſtment for rate and poſitions is made; and, laſtly, the rate is taken. There are, beſides the three pallet-faces of ſapphire, eight jewelled holes in the beſt chronometers; viz. two at the balance-verge pivots in the cock and potence, two at the pivots of the ſcapement-wheel, and two for each of the two next wheel pivots, called the fourth and third wheels of the movement, beginning with the great wheel as firſt, but the third and ſecond of the train, if we count from the centre or hour wheel. The pivots are tapering, in the form of a cone, and bear on their ends in action, which ſhape gives ſtrength, without adding to the friction.

Some years ago Mr. Edward Troughton contrived a jambol or gimbol for preſerving the horizontal poſition of a pocket-chronometer at ſea, which is loaded with a weight, turning on the point of a pin, like the card of a compaſs, and continues to be made by Meſſrs. Brockbank and Co. with conſiderable advantage to the going of the chronometer. The teſtimonies, both public and private, of the accuracy of ſome of Meſſrs. Brockbanks' chronometers in meaſuring time, are ſufficiently numerous to eſtabliſh their credit. Several letters from naval officers, and rates, were delivered to the board of longitude during the time of Mr. Earnſhaw's application for remuneration, which cannot be copied without an order from the board, otherwiſe it would have been in our power to have laid ſome of them before the public. Governor Hunter, in his publication, has given a teſtimony ſo extraordinary, that we cannot, in juſtice, with-hold it; he has aſſerted, that, from the time of his ſetting out from Port Jackſon in New Holland, on a twelve months voyage round a great part of the globe, in the courſe of which he remained ſome time at the Cape of Good Hope, to the time of his return to the ſame port, a time-keeper or chronometer by the Brockbanks was found to have gone ſo well, that the error, at the end of the voyage, did not exceed *one ſecond* of time. This, however, will be conſidered rather as an extraordinary coincidence of the ſtate of the watch at the beginning and end of the voyage, than as a proof that its accuracy was thus great at all the intermediate parts of the voyage. Mr. Gavin Lowe, of Iſlington, has a pocket-chronometer, the rate of which was given to ſir Joſeph Banks to be laid before the board of longitude, which, we have heard, exceeds in accuracy the rate of any other pocket-chronometer that has been made, inaſmuch as that the rate in it is not ſenſibly affected by cleaning in the courſe of many years wear.

After being appriſed of theſe and other teſtimonies, it was natural to inquire why the Brockbanks never applied to parliament for a public trial of any of their chronometers, with a view of obtaining the premium under the act of Geo. III. but we underſtand, that, after having been refuſed a private trial at the royal obſervatory, and finding that much trouble was likely to attend the application to the board and ſubſequent public trials, the idea at one time entertained was given up.

*Watkins's Time-keeper.*—Thirty guineas were voted in the year 1804, by the Society of Arts, to Mr. J. Watkins, of Giltſpur-ſtreet, Weſt Smithfield, for an improvement in time-keepers; from whom the following communications were received. The explanations are not very lucid, but we have no other means of letting the reader into Mr. Watkins's ideas.

"The good performance of time-keepers for aſcertaining the longitude, (he obſerves,) entirely depends on the regular and uniform vibrations of the balance, which likewiſe depends on two particular parts of the machine, viz. that which is called the ſcapement, or the parts immediately connected with the balance to give it motion; and a proper compenſation-part to regulate itſelf in different climates; which two are the only parts now worth attention; for, although it muſt be acknowledged, that time-keepers have of late been brought to very great perfection, yet I think it muſt be admitted, that they are ſuſceptible of ſtill greater improvement; and, conſidering the amazing ſervice they have rendered to navigation, every poſſible encouragement ought to be given to render them ſtill more ſerviceable.

“The ſcapement is compoſed of two diſtinct parts of action. Firſt, that which the wheel locks, or reſts upon, while the balance is in motion; and, ſecondly, that which gives the impulſe to the balance after it is unlocked; and thoſe that are made with the leaſt friction are undoubtedly the beſt. The contrivance of locking the wheel on a ſpring, if properly made, is I think as perfect as human invention can produce; but the mode of giving motion to the balance I by no means think is ſo; for, when you compare the manner in which the balance of a watch is kept in motion with the pendulum of a clock, you muſt give the preference to the latter. The former, moving on oppoſite centres, as ſoon as they come in contact, oppoſe each other, till they come into a ſtraight line, and in leaving each other occaſion conſiderable friction up the ſide of the tooth, which action, not according with the motion of the balance, greatly retards its progreſs.

“The manner in which the pendulum of a clock is kept in motion is very different; for, as ſoon as the wheel is unlocked, it receives the impulſe from what is called a crutch, which, being ſuſpended on the ſame parallel of ſuſpenſion, deſcribes exactly the ſame circle, and conſequently there cannot be the ſmalleſt friction whatever. After many and various trials which I have made to produce the ſame principle in watches as is in clocks, I found I could not give the impulſe from its own centre without introducing other pieces which would counteract the good effect derived therefrom; nevertheleſs I was determined to approach as near to it as poſſible, and to employ no more parts to produce the effect, than are uſed in thoſe of the common conſtruction. In order to do this, I made a horizontal contrate-wheel, and cut teeth on the uppermoſt rim of it; I introduced a piece of braſs inſide it, juſt free of its bottom, on which I placed, half-way between the extremities and the centre of the wheel, the axis of the balance, on which I put a round piece of ſteel with a notch in it, called the *impulſe-pallet*, and nearly half the ſize of the wheel's diameter. After the wheel is unlocked in the uſual way, with a ſpring, the pallet receives a tooth on the point of the notch, which forces it round in a circular direction nearly correſponding with its own; conſequently, there cannot be ſo much friction, as the teeth do not take above half the uſual depth into the impulſe-pallet, in which caſe jewelling will be quite unneceſſary; the machines muſt laſt longer, and, as good performance depends on the uniform motion of the balance, there is not the ſmalleſt doubt but, if juſtice is done in executing the other parts of this ſcapement, and a proper compenſation for heat and cold, they will perform more accurately than any that have been hitherto invented; but, in caſe any doubt ſhould ariſe on my plan of placing the impulſe-pallet in the midway between the extremities of the wheel and its centre, I beg leave to offer this ſingle propoſition, the propriety of which will not admit of the ſmalleſt doubt, viz. If it be perfection to give motion to a body acting on pivots from its own centre; the nearer you approach to that centre, the leſs friction there will be.”

Fig. 95 is a perſpective view of Mr. Watkins's ſcapement. A, the circular frame of the machinery. B, the balance-ſpring. C, the balance. D, the axis, or verge. E, the cock in which the upper pivot of the axis runs. F, the impelling-pallet, on the axis of which is a ſmall unlocking-pallet. G, the detent and unlocking-ſpring. H, the axis of the ſcape-wheel, ſupported by a cock below it. I, the ſcape-wheel. K, the cock which ſupports the lower axis of the balance and ſcape-wheel. L, the ſcrew for adjuſting the locking of the wheel. Fig. 96 is a bird's-eye view of the ſame, wherein A is part of the circular frame of the machinery. C, the balance. M, the ſmall unlocking-pallet, above the impelling-pallet (F, fig. 95.) G, the detent and unlocking-ſpring. I, the ſcape-wheel. K, the cock which ſupports the axis of the balance and ſcape-wheel. L, the ſcrew and ſmall cock for adjuſting the locking of the wheel.

*Mendham's Improvement of Mudge.*—The ſilver medal of the Society of Arts was voted in 1805 to Mr. Mendham of Counter-ſtreet, Borough, for this improvement, of which the following is his deſcription. Fig. 97 repreſents the ſcapement without the reſt of the train; *a a* are the two plates of the frame between which the train runs; *b*, is the laſt or balance-wheel of it, with teeth nearly ſimilar to that of the balance-wheel of an eight-day clock, moving with the flat face of the tooth forward againſt the pallet *c* of an upright ſpindle *d*; *e* is a locking-ſpring nearly ſimilar to a detached one, having no extra ſpring to paſs to and fro with. Above the pallet *c*, is a very ſmall one, *f*, which is for the purpoſe of unlocking the wheel, which is better ſhown in fig. 98; at the lower part of the ſpindle *d*, is a hair-ſpring *g*, ſo pinned as to bear the pallet *f* againſt the locking-ſpring with ſufficient power, ſo that of its own accord it frees the wheel, and lays the pin *h*, which comes through the plate, gently up to the ſtop, conſequently the tooth falls upon the pallet *c*, but ſo cloſe home to the centre of the ſpindle, that it has no power to paſs it of its own accord; the pin *h* is fixed to the top extremity of the pallet *c*, and riſes perpendicularly through the plate *a* ſome way above the ſurface. The balance *i* is fixed on the centre of its ſpindle, principally on account of equalizing the weight, beſides which it is the moſt convenient to be ſo; it is ſupported between the plate *a* and the cock *k*, preciſely over the ſpindle *d*; conſequently the action of each is in the ſame arch, and the connection is between the pin *h* of the pallet and the pin *l* of the balance, (a pin fixed in the balance at the ſame diſtance from its centre as the pin *h* is from the centre of the ſpindle *d*, and ſufficiently long to touch the pin *h* ſideways;) there is therefore no friction whatever between them.

Having mentioned the different parts of the ſcapement, I ſhall proceed to explain its action. The immediate courſe of vibration is from the ſpring *g*; the balance-ſpring is ſo placed that the pin *l* of the balance ſtands near the pin *h* of the pallet; it is to be remembered that the tooth of the wheel reſts on the pallet during the vibration of the balance, ſo that, when the balance is put in motion, the pin *l* comes in contact with the pin *h*, which ſtands perpendicularly and carries it back; as ſoon as moved, the tooth of the wheel gives it an extra aſſiſtance of about one-fifth of a circle, paſſes, and lays the next tooth on the lock; on the return of the balance, the ſpring *g* applies all its power in urging the balance forward till it comes to the ſtop; the balance then maintains its motion, and, the ſmall pallet *f* having unlocked the wheel, the tooth falls again on the great pallet *c*, and waits the return of the balance. The balance carrying the piece *h* back, forms a moſt admirable banking without any extra apparatus, which is generally done by ſome kind of ſtop on the hair-ſpring, which muſt have an irregular effect. The farther the pin is carried back, the ſtronger the ſpring operates againſt it; and, from the extent where the piece may be forced back to, there is play for near two whole circles of vibration, without any poſſibility of upſetting. The balance of the model vibrates about a circle and one third, with extraordinary freedom, through a train of four wheels and a large heavy balance, with only the power of a ſtout watch-ſpring. I therefore think the power neceſſary to carry a train with this ſcapement, may be conſiderably leſs than any other of a detached nature. Fig. 98 repreſents the axis *d* ſhown ſeparately, in order that the arm and pin *h*, and little pallet *f*, may be ſeen more diſtinctly. Fig. 99 is the balance-wheel *b*, and a few of its teeth, juſt to ſhow the method of locking and unlocking. *e* is the locking-ſpring, and *f* the pallet, as in fig. 97.

Inſtead of paſſing our own judgment upon this ſcapement, we ſhall inſert that of Mr. Ramſay, of Iſlington, who attended the committee in the Adelphi when it was examined. "Having attended the committee upon Mr. Mendham's ſcapement, I think it a juſtice due to the man of genius, to give my opinion farther upon it. As the principles of Mr. Mendham's ſcapement, and that of Mr. Mudge's, which obtained a bounty from government, are much the ſame, I ſhall compare the one with the other. The impulſe given to the balance without friction, is exactly the ſame as Mudge's. The remontoir is bent up by the maintaining-power in a ſimilar way to that of Mudge's; but, from the form of the pallet, which is a plain ſurface, it is not ſo perfect. Mudge's, from the form of the pallet, bends the remontoir always to the ſame place, the other is bent higher or lower according to the force of the maintaining-power; but, by forming the pallet like Mudge's it would render them alike in that reſpect. The only other objection is the ſpring-detent that detains the wheel when it drops from the pallet of the remontoir; it is the ſame as that of a detached ſcapement, conſequently expoſed to the whole force of the maintaining-power. To compenſate for theſe objections, the arc of vibration is not limited like Mudge's, which is of great importance; and, having only one remontoir, it is more ſimple. It is, therefore, ſuperior to Mudge's in having only one remontoir; and, being unlimited in the arc of vibration, it is ſuperior to the detached ſcapement in giving the impulſe without friction."

*Matthew's Improvement of Mudge.*—In April 1808, Mr. Daniel Dering Matthew obtained a patent for improvements in the conſtruction of watches and chronometers. Mr. Matthew's ſpecification contains the deſcription of a ſcapement intended to be a ſimplification of the one invented by Mudge; the axis of the balance is in the form of a crank, to admit its centre of motion to be in the ſame line with that of the pallets, which are furniſhed with re-acting ſprings; each pallet is raiſed in ſucceſſion a certain diſtance, by the teeth of the balance-wheel, where it is retained by a catch projecting from it, till the crank of the balance ſtrikes it; this raiſes the catch, and lets the tooth paſs that ſuſtained the pallet, which then is preſſed towards the wheel by its ſpring, a diſtance equal to the height of the teeth, and re-acts on the balance during its fall; this impulſe reſtores to the balance its loſs of momentum, and it moves on in the ſame direction till it ſtrikes the oppoſite pallet, furniſhed in all reſpects as the one deſcribed, whoſe catch it then diſengages, and is in return impelled by it in the contrary direction, in the ſame manner as it was by the other pallet; and it thus vibrates alternately between the two pallets as long as the balance-wheel goes round.

So far the conſtruction of Mr. Matthew's ſcapement follows that of Mr. Mudge; the only operation of the train is to raiſe or bend the pallet-ſprings for both; each has two pallets and two pallet-ſprings, and the balance is kept in motion by their action alone; and the catch of each pallet forms part of the pallet. The circumſtances in which Mr. Matthew's ſcapement differs from Mr. Mudge's, are, in the pallets moving in the plane of the balance-wheel inſtead of at right angles to it; in their much greater length; in their having ſprings of but one curve, ſhaped like the letter U, inſtead of ſpiral-ſprings, and in thoſe ſprings acting on them either by joints, or ſo as to cauſe ſome friction; and in the balance-wheel being formed of two wheels faſtened together ſo that the teeth of one fall exactly between thoſe of the other.

In Mr. Mudge's ſcapement, the balance acts on an arm, projecting from the ſame axle as the pallet, by a pin from the crank that ſtrikes it at about the ſame diſtance from the centre as the catch on the pallet that ſtops the balance-wheel; by which means the percuſſion that detaches the catch is communicated to it in the ſame degree of force with which it is given on the arm. In Mr. Matthew's ſcapement, the crank itſelf ſtrikes the arm of the pallet at about one-third of the diſtance between the centre of motion and the catch that connects it with the balance-wheel; the balance therefore requires more than three times the force to detach the catch that is neceſſary in Mudge's plan, and is re-acted on by the arm of the pallet, in its return, for only one third of the diſtance which the pallet is raiſed by the teeth of the balance-wheel. The pallet in Mr. Mudge's ſcapement, from the manner in which it is conſtructed, re-acts on the balance for almoſt the fourth of its revolution; in Mr. Matthew's, the pallet is an inclined plane, and is only raiſed the height of the teeth, and could at moſt re-act on the balance the ſame diſtance; but, for the cauſe above ſtated, it only re-acts for a third of that diſtance, or a ſpace equal to a third of the length of the teeth of the balance-wheel.

Each of the ſprings of Mr. Matthew's pallets is ſupported near its extremity by a ſtud, beyond which a regulating ſcrew, paſſing through it, makes it ſtronger or weaker as it is more or leſs turned; the ſtud is made of braſs, and the ſcrew of ſteel; therefore the greater expanſion of the ſtud will in ſome meaſure counteract the alterations of the ſprings by heat and cold. A ſmall catch moving on a fine ſpring is placed ſo as to fall on the arm or level of each pallet, near where the crank ſtrikes it; this catch lets it go back only juſt to the extent of the teeth of the balance-wheel, ſo that the detent cannot be freed till it is removed; for this purpoſe a ſmall projection riſes from the face of the catch, againſt which the back of the crank preſſes, in its way to the arm of the pallet, and raiſes up the catch, before it ſtrikes the latter.

Upon this ſcapement the editor of the Athenæum has the following remarks: "The form is certainly more ſimple than Mudge's, and would be more eaſily executed; but, as to preventing friction, we ſee no improvement whatſoever; the great length of the arms of Mr. Matthew's pallets are very objectionable, and would make the action between them and the balance very different from that in Mr. Mudge's time-pieces; indeed a percuſſion operating beneath a long elaſtic lever will tend in ſome degree to bend the lever inſtead of raiſing it, which is an additional reaſon againſt its uſe here. We object to the joints propoſed between the ſprings and the levers of the pallets, both on account of their complication and the ſhake to which they muſt be liable on every change of motion. The ſmall locking-catches prevent the detent being diſengaged by any violent external force before the crank comes forward to releaſe it; but we ſhould imagine that the force of the pallet-ſprings would be ſufficient to prevent any power from diſengaging the detent that was not great enough to deſtroy the work. While we object to ſome of Mr. Matthew's alterations of Mr. Mudge's ſcapement, we think at the ſame time he could eaſily alter his plan ſo as to obviate them. The pallets moving in the ſame plane as the balance-wheel is certainly an improvement; the defects of the joints which unite the ſprings to the pallets could be eaſily remedied, by adopting another form of ſpring. The moſt ſerious objection to Mr. Mudge's time-pieces ariſes from their complication; we therefore adviſe Mr. Matthew to ſtill farther ſimplify his; and to try the effect of a ſingle pallet and ſpring, with the ſmall alterations which will be neceſſary to perfect the work in this form.

"Mr. Mudge's invention of working the balance by an intermediate ſpring between it and the train, which frees it from every irregularity of the train, has been improperly called a *remontoir*, which confounds it with the invention known by that name, applied between the main-ſpring and the train, and merely intended to equalize the irregular force of the main-ſpring. It has alſo been improperly called a *detached ſcapement*, which confounds it with the free ſcapement, ſuppoſed to be firſt contrived by Le Roy, in which the balance is left entirely to the vibrations cauſed by its own ſpring, except during the ſhort interval neceſſary to maintain its movement when it receives an impulſe from the balance-wheel. A ſcapement on the plan hinted to Mr. Matthew, would be both a free ſcapement, and have the advantage of Mudge's contrivance for cutting off all irregularities of the train. Such a ſcapement has been attempted by ſeveral, among whom may be mentioned Mr. Haley and Mr. De la Fons; but none of this kind as yet have been ſufficiently free from complication to entitle them in this reſpect to any ſuperiority over Mudge's plan."

At the end of the ſpecification, Mr. Matthew mentions, as a farther improvement to chronometers, the uſe of platina for ſtopping the holes and other purpoſes inſtead of uſing hard braſs and jewelling. This idea is certainly good; indeed it would be a great improvement to ſubſtitute platina for braſs in the whole of the internal work of time-pieces, as it would prevent the injurious effects from the oil growing thick by chemical action on the metal. The price of it could be no ſerious objection, and it can be forged almoſt as eaſily as ſteel; balances for watches have already been made of it, and ſeveral artiſts now know how to manage it very well.

*Barraud's Time-keeper.*—We muſt not omit to mention a longitude time-keeper made by an ingenious artiſt now living, Mr. Paul Philip Barraud, of Cornhill, which for accuracy of performance ſeems to be inferior to none of thoſe we have mentioned. It was taken to the Eaſt Indies by lord Keith in 1795, with ſome of Mudge's time-keepers and others. It is thus handſomely ſpoken of by Mr. Mudge, jun. "A time-keeper made by Mr. Barraud was begun to be tried on the 7th of June 1795, and continued to be obſerved till the 28th of Auguſt following. The performance of this machine appears to have been, during that time, very excellent, the extreme difference of its daily rate with reſpect to No. 2, (Mr. M.'s time-keeper,) in the 72 days, being only 6″; and, where the conformity is ſo great, the intelligent reader will be aware, that the errors are as likely to have been in the ſtandard as in the time-keeper tried by it."

We might have added to our article an account of different chronometers by French makers; but, as a chronometer differs from an ordinary watch principally in the *compenſation-balance* and *ſcapement*, their properties and peculiarities of conſtruction deſcribed under theſe two heads will be amply ſufficient, after what we have here ſaid on the ſubject.

*Directions for the Uſe of Longitude Time-keepers.*—The two moſt eſſential requiſites in uſing a time-keeper, are, firſt to be able to aſcertain its mean daily rate of going, and to apply it to the time indicated at any place and inſtant afterwards; and, ſecondly, to be able to determine by obſervations on ſome of the heavenly bodies the exact hour, minute, and ſecond, at the ſaid place and inſtant of obſervation, becauſe the difference between the corrected time indicated by the watch, as the time at the firſt meridian, and the equated time obtained by calculation from the obſervations, will be the exact difference of longitude, in time, between the place of obſervation and the firſt meridian to the time of which the chronometer is ſuppoſed to have been previouſly put.

Though the rate of a time-keeper, as aſcertained from a ſucceſſion of tranſits of a heavenly body be moſt to be depended upon, yet it will not always happen, particularly in a changeable climate, that a ſufficient number of obſervations can be obtained within the limited time allowed for fixing a rate; it will, therefore, be very convenient to compare the going of the time-keeper with that of either a ſolar or ſidereal clock, that has a compenſation-pendulum and good ſcapement, and to aſcertain in the mean time the rate of the clock itſelf by occaſional obſervations of the ſun or ſtar, it being generally allowed that *a good clock is more ſteady in its rate than any chronometer* which has yet been made, provided its adjuſtments be perfect. It may be adviſeable to try the time-keeper, in the firſt place, in different poſitions, by ſhort compariſons of 12 hours each with the clock; and, if any conſiderable change of rate takes place during ſuch ſhort compariſons, it muſt neceſſarily be put into gimbols, or otherwiſe be ſent back again to the maker for new adjuſtment for the different poſitions.

*For a Solar Clock.*—Place the chronometer in the poſition it is likely to preſerve in a voyage, and put its hands with thoſe of the clock, and have a ſheet of paper ruled into as many columns as the compariſon will require; for a ſolar clock ſeven columns will anſwer the purpoſe, but for a ſidereal clock there will be more required. Put titles to the different columns, and, after an interval of each 24 hours, make the requiſite compariſons, and enter them as they ſtand in the ſubjoined example, reſerving columns four and five to be filled up afterwards; then, after as many days' compariſon as the time will allow, complete the calculations in theſe two reſerved columns thus; take a mean of the obſerved differences between the time of the clock and mean time determined occaſionally by a tranſit-inſtrument, which will be the clock's mean daily rate, particularly if the obſervations are taken after equal intervals; then add or ſubtract, as the caſe may be, the clock's daily rate to or from the reſpective numbers in column three, and fill up column four with the ſum or differences, or both, if the caſe ſhould ſo be; in the next place, take the differences between each couple of the ſucceeding lines of column four, and fill up therewith column five, annexing — or +, as the difference may be; laſtly, take the difference between the plus and minus amounts, or the ſum if there is but one kind, and divide it by the number of days elapſed on trial, and the quotient will be the daily error, — or +, which error is denominated the *rate*.

Example. Let it be required to aſſign a rate to a chronometer from the compariſons made in the columns 1, 2, and 3, of the annexed table.

| Days of Trial. | Clock after mean Time. | Chronom diff. from Clock in 24 h. | Do. from mean Time in 24 h. | Daily Rate of Chron. | Mean State of hermometer. | Mean State of Barometer. |
|---|---|---|---|---|---|---|
| | s | s | s | | ° | |
| 1 | —6·5 | + 8·5 | +2·2 | | 54 | 29·8 |
| 2 | | + 8·8 | +2·5 | +0·3 | 55 | 30·0 |
| 3 | | + 9·4 | +3·1 | +0·6 | 57 | 30·2 |
| 4 | | + 7·5 | +1·2 | —1·9 | 56 | 30·4 |
| 5 | | + 9·0 | +2·7 | +1·5 | 53 | 29·6 |
| 6 | | +10·4 | +4·1 | +1·4 | 53 | 29·4 |
| 7 | | +10·5 | +4·2 | +0·1 | 54 | 29·6 |
| 8 | —8·0 | +11·3 | +5·0 | +0·8 | 55 | 29·7 |
| 9 | | +11·5 | +5·2 | +0·2 | 54 | 29·8 |
| 10 | | +10·4 | +4·1 | —1·1 | 56 | 30·0 |
| 11 | | +10·0 | +3·7 | —0·4 | 57 | 30·4 |
| 12 | | + 8·4 | +2·1 | —1·6 | 58 | 30·4 |
| 13 | | + 7·6 | +1·3 | —0·8 | 57 | 30·6 |
| 14 | | + 7·4 | +1·1 | —0·2 | 56 | 30·5 |
| 15 | —4·5 | + 7·2 | +0·9 | —0·2 | 57 | 30·4 |

Rate of clock $\left.\begin{matrix}\underline{3|19^{0}}\\ -6^{s}\cdot3\end{matrix}\right\}$ on an average of 15 days.

—6·2 Total loſs.
+4·9 Total gains.
—1·3 Diff. in 15 days,

Then $\frac{-1^{s}\cdot3}{15} = 0^{s}\cdot087$ minus is the daily rate of the chronometer taken from a compariſon with the clock for 15 ſucceſſive days, which rate muſt be added to the time ſhown by the chronometer on any ſucceeding day, after it has been multiplied by the number of days elapſed ſince the laſt day of the compariſon. This rate might ſuffice for a ſhort voyage, immediately undertaken, if the chronometer had been tried and approved previouſly; but, if not previouſly approved on a voyage, it ought to have a longer trial.

*For a Sidereal Clock.*—When the clock ſhows ſidereal time, and the chronometer ſolar, their difference in $24^{h}$ of ſolar time ought to be $3^{m}\ 55^{s}{\cdot}91$ of ſolar time, but in $24^{h}$ of ſidereal time, $3^{m}\ 56^{s}{\cdot}55$, provided the machines performed with perfect truth; one or other of theſe two ſtandard numbers, therefore, muſt be uſed as the meaſure of the daily error, accordingly as the interval is a ſolar or a ſidereal day. In making the compariſons previouſly to the calculations being entered upon, it is not neceſſary to have more than five columns; one for the day of the month, a ſecond for time per watch, a third for the time per clock, a fourth for the barometer, and a fifth for the thermometer; which form being ſo ſimple requires no fac ſimile. But the calculations, grounded on the data in the ſaid five columns, require many more columns, for which we ſhall not give any previous directions, but inſert Dr. Maſkelyne's two methods of arrangement, extracted from "The Original Obſervations of the Going of Mr. Harriſon's Watch from Day to Day," as publiſhed by the board of longitude; which methods will be better underſtood from the forms of his tables, and explanations, than from any verbal rules of ours, which muſt neceſſarily be complex.

Example. Let it be required, from the data contained in columns 1, 2, and 3, of the ſubjoined Tables, to determine the rate of Mr. Harriſon's time-keeper, taken on an average of the 11 days trial contained in the Table.

*Firſt Method.*—Calculations of the Going of Mr. Harriſon's Watch from Day to Day.

| | Interval of Compariſons. | Watch loſes of Clock. | Watch loſes of Clock in $24^{h}$ of Watch. | Clock varies from ſidereal Time per Day. | Watch loſes of ſidereal Time of $24^{h}$ of Watch. | Watch gets on mean Time per Day. | Mean ſtate of Thermometer. | Mean ſtate of Barometer. |
|---|---|---|---|---|---|---|---|---|
| 1766. | h. m. | m. s. | m. s. | s. | m. s. | s. | Deg. | Inch. |
| May 6 to 7 | 23 30 | 3 33 | 3 37·53 | +1·34 | 3 38·9 | 17·6 | 54 | 29·9 |
| 7 8 | 24 4 | 3 37 | 3 35·4 | +1·22 | 3 37·6 | 18·9 | 57 | 29·7 |
| 8 9 | 23 52 | 3 34 | 3 37·2 | +1·17 | 3 36·4 | 20·1 | 55 | 29·5 |
| 9 10 | 24 4 | 3 36 | 3 35·4 | +1·13 | 3 36·5 | 20·0 | 54 | 29·3 |
| 10 11 | 23 57 | 3 36 | 3 36·4 | +1·16 | 3 37·6 | 18·9 | 49 | 29·5 |
| 11 12 | 24 1 | 3 36 | 3 35·9 | +1·12 | 3 37·0 | 19·5 | 50 | 29·6 |
| 12 13 | 24 9 | 3 37 | 3 35·6 | +1·05 | 3 36·6 | 19·9 | 51 | 29·6 |
| 13 14 | 23 49 | 3 33 | 3 34·76 | +1·02 | 3 35·8 | 20·7 | 52 | 29·8 |
| 14 15 | 24 8 | 3 37 | 3 35·79 | +1·02 | 3 36·8 | 19·7 | 52 | 30·1 |
| 15 16 | 24 2 | 3 36 | 3 35·70 | +0·80 | 3 36·5 | 20·0 | 54 | 30·2 |
| 16 17 | 24 9 | 3 38 | 3 36·64 | +0·58 | 3 37·2 | 19·3 | 56 | 30·1 |
| | | | | | | 11)209·56 | | |
| | | | | | | 19·509 | | |

By a mean of 11 days' compariſons, from May 6th to May 17th, the watch being in a horizontal poſition with the face upwards, gets at the rate of $19^{s}{\cdot}509$ per day upon mean time.

*Explanation.* The firſt column ſhows the days of the month; the ſecond, the interval of time, according to the watch, between the atteſted compariſons of the watch each day with the tranſit clock; the third column contains the quantity of minutes and ſeconds which the watch loſes of the clock in the ſaid interval; the fourth column ſhows how much the watch ſhould loſe of the clock in 24 hours of the watch, according to the proportion expreſſed in the ſecond and third columns; the fifth column gives the daily gaining or loſing of the tranſit clock with reſpect to ſidereal time, as deduced from the obſerved tranſits of the fixed ſtars over the meridian, the ſign + being ſet down in caſe of the clock's loſing, and — in the caſe of its getting. This correction, applied to the numbers of the fourth column, produces the ſixth column, or the loſing of the watch from day to day; with reſpect to ſidereal time, in 24 hours of the watch. The ſeventh column gives the daily gaining of the watch upon mean time, and is found by taking the difference of the preceding column and $3^{m}\ 56^{s}{\cdot}5$ ſidereal time, gaining ſo much upon mean ſolar time in 24 hours of mean time; or rather more exactly, in 24 hours of the watch, which generally correſponds to leſs than 24 hours of mean time by near 20 ſeconds. The eighth column contains the mean ſtate of the thermometer for the day; and the ninth and laſt column ſhows the mean ſtate of the barometer. The watch was kept in a horizontal poſition, face upwards.

*Second Method.*—Compariſons of Mr. Harriſon's Watch with Mean Time.

| | Obſerved Tranſit of Sun per Clock. | Time per Clock at compariſon with Watch. | Apparent Time. | Equation of Time. | Mean Time. | Time per Watch at compariſon with Clock. | Watch faſt for mean Time. |
|---|---|---|---|---|---|---|---|
| 1766. | h. m. s. | h. m. s. | h. m. s. | m. s. | h. m. s. | h. m. s. | m. s. |
| ♂ May 6 | 2 53 30·27 | 3 39 1 | 0 45 23·60 | 3 39·8 | 0 41 43·8 | 0 42 0 | 0 16·2 |
| ☿ 7 | 2 57 20·50 | 3 12 34 | 0 15 11·10 | 3 45·0 | 0 11 26·1 | 0 12 0 | 0 33·9 |
| ☽ 12 | 3 16 43·71 | 3 28 33 | 0 11 47·38 | 3 59·32 | 0 7 48·0 | 0 10 0 | 2 12·0 |
| ♃ 15 | 3 28 28·77 | 3 45 20 | 0 16 48·47 | 4 1·10 | 0 12 47·4 | 0 16 0 | 3 12·6 |
| ♄ 17 | 3 36 21·83 | 4 3 34 | 0 27 7·68 | 3 59·47 | 0 23 8·2 | 0 27 0 | 3 51·8 |

If we include here both the 6th and 17th, there will be 12 days in this calculation, during which the watch gained in the whole $3^{m}\ 51^{s}{\cdot}8$ or $231^{s}{\cdot}8$, therefore $\frac{231{\cdot}8}{12} = 19^{s}{\cdot}32$ is the rate on this mode of compariſon, which agrees very well with the preceding one calculated on the ſame period.

*Explanation.* According to the arrangement in this laſt Table, the firſt column contains the day of the month; the ſecond, the obſerved tranſit of the ſun's centre over the meridian, according to the time of the tranſit clock; the third column ſhows the time by the clock, when compared with Mr. Harriſon's watch; the fourth, the apparent time at the ſame compariſon; the fifth, the equation of time, which, applied to the numbers in the preceding column, gives the mean time contained in the ſixth column; the ſeventh column gives the time ſhown by Mr. Harriſon's watch, when compared with the clock; laſtly, the eighth column ſhows how much the watch is too faſt, for mean time each day. Original Obſervations, p. xxvii–xxix.

The general problems for finding the errors and rate of a time-keeper, by equal altitudes of the ſun, or of a fixed ſtar, have been given under the article Astronomy, vol. ii. p. 454, to which we ſhall add only the two following.

1. *To find the Error of a Time-keeper by equal Altitudes of the Sun,* the ſhip being under way.—Let ſeveral ſets of equal

equal altitudes be obſerved in the morning and afternoon, and from thence find the corrected time of noon, as directed under the article Astronomy, vol. ii. p. 455; alſo, let the ſun's azimuth be obſerved, by which, the variation of the compaſs being applied, the true azimuth at the time of obſervation will be obtained.

Now, to the conſtant logarithm 9·2219 add the proportional log. of the interval of time between the equal altitudes, the hours and minutes being conſidered as minutes and ſeconds; the prop. log. of the hourly rate of ſailing, the log. co-ſine of the ſhip's latitude, the log. ſecant of the courſe, and the log. tangent of the ſun's azimuth; the ſum, rejecting tens in the index, will be the prop. log. of the correction anſwering to the change of latitude; and to the ſum of the firſt four logs. add the log. co-ſecant of the courſe; the ſum, rejecting tens in the index, will be the prop. log. of the change of longitude. The firſt correction is to be added to, or ſubtracted from, the time of noon before found, accordingly as the ſhip's latitude is increaſing or diminiſhing; and the ſecond correction is additive or ſubtractive, accordingly as the ſhip's courſe has been in the eaſtern or weſtern hemiſphere. The reſult thus deduced will be the time per watch of apparent noon, under the meridian of the firſt place of obſervation.

If the two laſt corrections be applied with a contrary ſign, the time of apparent noon, under the meridian of the ſecond place of obſervation, will be obtained. The firſt correction vaniſhes, if the courſe made good between the obſervations is either due eaſt or weſt; and the ſecond, if the ſhip ſails on a meridian.

Example. Auguſt 7th, 1804, equal altitudes of the ſun's lower limb were obſerved, whereof the means were $9^h\,14^m\,52^s$ A.M. and $2^h\,48^m\,18^s$ P.M. reſpectively, the corrected azimuth of the ſun from the ſouth was 69¾°, the ſhip's courſe during the elapſed time S.W. by W. at the rate of 8·6 knots per hour, and the ſhip's latitude and longitude at noon were 39° 18′ N. and 31° 24′ W. reſpectively. Required the error of the watch for apparent noon, under the meridian of the place where the firſt ſet of obſervations was made?

| | | | |
|---|---|---|---|
| Conſtant logarithm | 9·2219 | | |
| Int. of time = $5^h\,33^m$ or $5^m\,33^s$ p. log. | = 1·5110 | | |
| Hourly rate of ſailing $8^h\,6^m$ or $8^m\,36^s$ p. log. | = 1·3208 | | |
| Latitude 39° 18′, co-ſine - - | 9·8886 | | |
| | 1·9423 | - - | 1·9423 |
| Courſe 3 points, ſecant - | 0·0801 | co-ſecant - | 0·2553 |
| Azimuth 69° 45′, tangent | 0·4331 | ſec. cor. $1^m\,9^s$ P.L. | 2·1976 |
| Firſt correction $0^m\,38^s$ p. log. | 2·4555 | | |

| | | h | m | s |
|---|---|---|---|---|
| Mean of the morning ſet - - | | 9 | 14 | 52 |
| ——— afternoon ſet - - | | 2 | 48 | 18 |
| Uncorrect time of noon - - | | 12 | 1 | 35 |
| Equation of equal altitudes | + | | | 7 |
| Equation of latitude - | — | | | 38 |
| Equation of longitude - | — | | 1 | 9 |
| Time per watch of apparent noon under meridian of firſt place of obſervation - | | 11 | 59 | 55 |
| Watch ſlow for apparent time | | | | 5 |
| Equation of time - - | | | 5 | 23 |
| Watch ſlow for mean time - | | | 5 | 28 |

The problem may otherwiſe be performed, by eſtimating how many minutes the ſun is higher or lower, in conſequence of the change of latitude in the elapſed time, at the inſtant it will attain the correſponding altitude in the afternoon, and ſetting the index of the quadrant accordingly. This quantity may be found with ſufficient accuracy from a traverſe-table.

2. *To find the Longitude at Sea by a Time-keeper.*—Obſerve the altitude of the ſun's limb, either in the morning or evening, when it is at leaſt three points of the compaſs from the meridian, and note the time when it was obſerved by the time-keeper. Multiply the daily rate of the watch by the number of days which have elapſed ſince that on which the laſt obſervation was made for finding it, and add the product to the time ſhown by the watch when the ſun's altitude was obſerved, if the watch be loſing, but ſubtract it from that time if the watch be gaining. To the ſum, or remainder, add what the watch was too ſlow, or ſubtract from it what the watch was too faſt, for mean time at the place where its rate was found, on the day when the laſt obſervation was made for finding it, and the reſult will be the mean time at the place when the ſun's altitude was obſerved. To this time add the longitude of the place in time, where the rate of the watch was found, if it be weſt; or ſubtract the longitude in time from it, if it be eaſt, and the ſum or remainder will be the mean time at Greenwich. To this time find the ſun's declination, (Astronomy, vol. ii. p. 431,) and correct the obſerved altitude of the ſun's limb for the dip of the horizon, refraction, parallax, and ſemi-diameter, with which, the latitude of the ſhip, and the ſun's declination, find the mean time at the ſhip. Then take the difference between the mean time at the ſhip and the mean time at Greenwich; and it will be the longitude of the ſhip in time; eaſt if the time at the ſhip be greater than the time at Greenwich, but weſt if it be leſs.

Example. After having found the rate of a chronometer to be gaining $1^s{\cdot}67$, and that it was too faſt for mean time at Barbadoes, on the 31ſt of December, 1793, by $4^h\,1^m\,49^s{\cdot}7$, let us ſuppoſe that on the 4th of February, 1794, in the afternoon, latitude 44° 26′ N. the following obſervations were taken: What was the longitude of the ſhip; the height of the obſerver's eye above the ſurface of the ſea being 21 feet?

| Times by the Watch. | Alt. of the ☉'s L. L. |
|---|---|
| $5^h\,2^m\,51^s$ | 9° 17′ 15″ |
| 3 44 | 9 8 45 |
| 4 40 | 8 59 30 |
| 5 49 | 8 50 00 |
| 4)17 4 | 36 15 30 |
| 5 4 16 | 9 3 52 |
| 4 2 48 | + 6 15 |
| 1 1 28 | 9 10 7 |
| 3 58 45 | - |
| 5 0 13 | - |

| | |
|---|---|
| Chr. too faſt, Dec. 31, 1793, | $4^h\,1^m\,49^s{\cdot}7$ |
| Gain to Feb. 4, 1794, = $1^s{\cdot}67 \times 35^d$ - - | + 58·5 |
| Time-keep. too faſt, Feb. 4, | 4 2 48·2 |
| Sun's ſemi-diameter - - | 16′ 16″ |
| Sun's horizontal parallax - | 9 |
| | 16 25 |
| Dip of the horizon 4′ 22″<br>Refraction - - 5 48 | 10 10. |
| Correction of the ſun's alt. | 6 15 |
| True altitude. | |
| Longitude of Barbadoes W. | |
| Mean time at Greenwich | |

| | |
|---|---|
| Sun's declination for noon at Greenwich | 16° 3′ 24″ S. |
| Correction for Time at Greenwich - - | — 3 31 |
| Sun's correct declination - - - | 15 59 53 S. |

| | | | | |
|---|---|---|---|---|
| | 90° 00′ | | | |
| Ship's latitude | 44 26 | N. ſecant - - | | 10·14626 |
| Co-latitude | 45 34 | | | |
| Sun's declin. | 16 00 | S. ſecant - - | | 10·01715 |
| Merid. altitude | 29 34 | N.S. 49344 | 33413 log. | 4·52393 |
| Sun's obſ. alt. | 9 10 | N.S. 15931 | | |
| Apparent time at the ſhip | $3^h\,56^m\,29^s$ | | Log. riſing | 4·68734 |
| Equation of time add | 14 26 | | | |
| Mean time at the ſhip | 4 10 55 | | | |
| Mean time at Greenwich | 5 0 13 | | | |
| Longitude in time | 0 49 18 = 12° 19′ ½ W. | | | |

In practice it will be found very convenient to have a Table conſtructed, ſhowing the error of the chronometer at the noon of every day for ſeveral weeks, or during the eſtimated time of the run to a place where its error and rate can be again ſettled. To this Table a column ſhould be added, containing its hourly rate continued up to 24 hours.

Thus, ſuppoſing the daily rate of a chronometer, deduced from a ſeries of obſervations, was — $4^s{\cdot}72$, and its error for mean time, May 9, 1802, at noon was $3^m\ 58^s{\cdot}6$ ſlow; then we ſhall have the ſubjoined Table; viz.

| Error of Chronometer at Mean Noon. | | | | | Hourly Rate. | | |
|---|---|---|---|---|---|---|---|
| ♂ | May | 9 | Error | = $3^m\ 58^s{\cdot}6$ | 1 | hour | = $0^s{\cdot}2$ |
| ☿ | — | 10 | — | = 4 3·3 | 2 | — | = 0·4 |
| ♃ | — | 11 | — | = 4 8·0 | 3 | — | = 0·6 |
| ♀ | — | 12 | — | = 4 12·8 | 4 | — | = 0·8 |
| ♄ | — | 13 | — | = 4 17·5 | 5 | — | = 1·0 |
| ☉ | — | 14 | — | = 4 22·2 | 6 | — | = 1·2 |
| ☽ | — | 15 | — | = 4 26·9 | 7 | — | = 1·4 |
| ♂ | — | 16 | — | = 4 31·6 | 8 | — | = 1·6 |
| ☿ | — | 17 | — | = 4 36·4 | 9 | — | = 1·8 |
| ♃ | — | 18 | — | = 4 41·1 | 10 | — | = 2·0 |
| ♀ | — | 19 | — | = 4 45·8 | 11 | — | = 2·2 |
| ♄ | — | 20 | — | = 4 50·5 | 12 | — | = 2·4 |

In all calculations, where the time is aſcertained from an obſervation of the ſun's or of a ſtar's altitude taken at a diſtance from the meridian, the accuracy of the reſult will entirely depend on the accuracy of the obſervation which furniſhed the data; it is, therefore, of the utmoſt importance, that the heavenly body ſhould be in a ſituation, or azimuth line, in which its change of altitude is the greateſt poſſible in a given time; this preciſe ſituation in the diurnal or nocturnal arc of any body, depends partly on the latitude of the place of obſervation, and partly on the object's declination; but, in all the heavenly objects, the ſituation alluded to, is when they are in the prime vertical; i. e. when they are either due eaſt or due weſt of the obſerver; therefore, the nearer the obſerved object is to the prime vertical, provided it be not too near the horizon, ſo as to be too much affected by refraction, the more likely will the determined time be to be accurate. Dr. Mackay, in Table XXV. of his Theory and Practice of finding the Longitude, p. 56, vol. ii. has given us "the altitude to be obſerved, in order to aſcertain the apparent time with the greateſt accuracy;" which Table is very convenient for determining very nearly when any heavenly object is due eaſt or weſt. And Joſeph de Mendoza Rios, eſq. has given not only the requiſite altitudes, but alſo the correſponding diſtances from noon in time in a parallel column, with the ſame arguments and mode of arrangement, in Table XXVIII. of his valuable and very cheap volume. This volume contains a complete collection of Tables for navigation and nautical aſtronomy, that no navigator ſhould be without. Indeed the commiſſioners of the board of longitude, and the court of directors of the Eaſt-India company, with a liberality characteriſtic of the Engliſh nation, have enabled the author (who as liberally gives up his right to the benefits of his labours) to give, for we can hardly ſay ſell, to the world the work in queſtion for one-third of its real value, as an encouragement to nautical ſcience.

From what we have ſhown of the preſent highly-improved ſtate of machines for meaſuring time, we are juſtified in concluding with the following quotation from M. de Lalande: "Harriſon made marine watches which do not vary a minute in five months' navigation. Le Roy and Berthoud have made ſimilar ones in France; and now it is actually poſſible to make a tour of the terraqueous globe without entertaining the leaſt doubt as to the longitude. To know what the hour is on-board a veſſel, there is not even need of calculation; the Horary Tables that Mad. de Lalande has publiſhed, give the hour to a ſecond in all countries of the globe. Clocks have been brought to ſuch a degree of perfection, as not to vary a ſecond per day in the courſe of a year; I have even one which has been forty years at the ſame ſecond. Encouraged by the perfection of the inſtruments, aſtronomers have acquired ſo conſtant and familiar a uſe of them, that they can divide a ſecond of time into ten parts without erring one-tenth." Conſiderations on Aſtronomy by Lalande, 1803.

For the benefit of thoſe who deſire fuller information upon every point which relates to clock and watch-making, we ſhall ſubjoin an extenſive chronological catalogue of the chief writings relating to it, both in theory and practice.

Carmen de Aſtronomico Horologio Argentoratenſi, ſcriptum a M. Nicodemo Friſchlino Balingenſi, Academiæ Tubingenſis Profeſſore. A. D. 1575.

Deſcriptio brevis et ſuccincta Horologii rariſſimi æque ac pretioſiſſimi, ab ingenioſiſſimo mechanico Jo. Davide Lieberkühn conſtructi. 1576.

Conradi Daſypodii Heron Mechanicus. Ejuſdem Horologii aſtronomici, &c. 1580.

Brevis Deſcriptio artificioſi novi et aſtronomici Automati Horologii, cujus ſimile ante hac non exſtitit; Jacobi Cunonis. 1581.

Traité de Géométrie et d'Horologiographie pratique, par Jean Bullant. 1602.

Horologium aſtronomicum Upſalienſe, cujus artificioſiſſima ſtructura, analyſis, et uſus, &c. Laurent. Fornelio. 1630.

Jo. Sarazini Horographum Catholicum ſeu Univerſale, quo omnia Horologia Sciotherica deſcribuntur. 1630.

Le nouveau Sciatère pour fabriquer d'Horloges. 1633.

Athanaſi Kircheri Ars magnis Lucis et Umbræ. 1646.

Johannis Baptiſta Trotta Novum Horologium Nocturnam e Stellis. 1651.

Chriſtiani Hugenii a Zulichem Conſt. F. Horologium. 1658. It was in this elegant little piece that Huygens firſt treated of the regulation of time by the pendulum; and on this he entered more at large in his celebrated work, Horologium oſcillatorium.

A Narrative concerning the Succeſs of Pendulum-Watches at Sea for finding the Longitude, by Major Holmes. Phil. Tranſ. No. 1. 1665.

Antonio Tempera l'Horologio giuſto utiliſſimo a naviganti. 1668.

Chr. Hugenii Zulechemii Conſt. F. Horologium oſcillatorium, ſive de Motu Pendulorum ad Horologia aptato demonſtrationes geometricæ. Paris, 1673.

I. S. Horological Dialogues, in three parts; ſhowing the nature, uſe, and right managing, of clocks and watches: with an Appendix, containing Mr. Oughtred's method for calculating of numbers. 1675.

Very exact Portable Watches, by Mr. Huygens. Phil. Tranſ. No. 112. A. D. 1675.

M. Leibnitz on his Portable Watches. Phil. Tranſ. No. 113. A. D. 1675.

Compendium Horologico-ſciotericum et Geometricum. Chr. Zuicker. 1675.

Factum de M. l'Abbé de Hautefeuille touchant les Pendules de Poche, contre Mr. Huyghens. 1675.

M. Campani de Alimenis Horologium ſolo naturæ motu atque ingenio, &c. 1677.

Traité d'Horologiographie du Père de la Magdeleine. 1680.

D. I. I. Becheri, de nova Temporis Dimetiendi Ratione, et accurata Horologiorum Conſtructione, Theoria et Experientia. Lond. 1680.

Horologia Scioterica Prælibata ad delineandum ſcioterican Declinationis Solaris quantum indies eſt perceptibilis, per N. Hanbury. Lond. 1683.

Horologium Horologiorum deſcriptum et explicatum, ab Joanne Bartholo. Fichelli. Venit. 1685.

Henrici Coetſii Arnhemienſis Horologiographia plana, ſeu Methodus in Superficiebus Planis omnia Horologiorum Genera deſcribenda Methodus. Lugd. Batav. 1689.

Horological Diſquiſitions. A work very neceſſary for all that would underſtand the true way of rightly managing clocks and watches. By John Smidt, C.M. 1694.

The Artificial Clock-maker, a treatiſe of watch and clock-work, by W. D. [W. Derham.] 1696. This uſeful little work has gone through many editions. It was tranſlated into the German language in 1708, and into the French in 1731.

Remarques ſur la Conſtruction des Horloges à Pendule, par M. de la Hire. Mem. R. Acad. 1700, p. 161.

De la Figure des Fuſées des Horloges à Reſſort, par M. Varignon. Mem. R. Acad. 1702, p. 122.

The Invention of making Clocks to keep Time with the Sun's apparent Motion aſſerted by W. J. Williamſon. Phil. Tranſ. No. 363.

Regle artificielle du Tems pour apprendre la Diviſion naturelle et artificielle du Tems, et connôitre toutes ſortes d'Horloges et de Montres, et la manière de s'en ſervir adroitement; par H. S. de Londres. Vienne, 1714. This curious work, the author Henry Sully, went through various editions in different languages.

Conſtruction d'un Horloge qui marque le Tems vrai avec le moyen. Par M. de la Hire. Mem. R. Acad. 1717.

Horologiographie pratique, ou la manière de faire des Horloges à Poids, et les Montres; par le religieux Auguſtin P. B. à Rouen. 1719.

Deſcription d'une grande et marvelleuſe Horloge portative en Pendule, la plus admirable et ſuprenante que aye jamais parû au monde: digne de l'admiration des beaux eſprits; étant l'unique au monde de ſon eſpèce; nouvelle parachevée par l'inventeur, T. Paſtre, ci-devant marchand fabriquant en bas de ſoye et laine, à la ville de Nimes en Languedoc. 1721.

Conſtruction nouvelle de trois Montres portatives, d'un nouveau Balancier en forme de Croix, qui fait les Oſcillations des Pendules très-petites, &c. par M. de Hautefeuille. 1722.

Deſcription d'une Horloge d'une nouvelle Invention pour la juſte Meſure du Tems ſur Mer; par Sully. 1726.

A Contrivance to avoid the Irregularities in a Clock's Motion, occaſioned by the Action of Heat and Cold on the Pendulum-rod, by George Graham, watch-maker, F.R.S. Phil. Tranſ. No. 392. A. D. 1726.

Traité général des Horloges; par le Père Jaques-Alexandre. 1734.

Moyens de conſtruire un Pendule qui ne peut s'alonger par la Chaleur ni ſe racourcir par le Froid; par M. Caſſini. Mem. R. Acad. 1741.

Traité de l'Horlogerie mechanique et pratique, approuvé par l'Académie Royal des Sciences; par M. Thiout l'ainé. 1741.

[Much alſo on the ſubjects of pendulums, ſcapements, &c. may be ſeen in the account of Machines et Inventions approuvées par l'Acad. Roy. des Sciences. vol. i. to v.]

Joh. George Hartmanns Klein-Uhrmachers zu Jena nöthiger Unterricht von Verbeſſerung der Sackuhren, durch den waagerechten Stand, Berechnung, Auſarbeitung, Beurtheilung, Gebrauch, Stellung, Kennzeichen, und Probirung, derſelben. 1752.

Traité d'Horlogerie, par J. A. le Paute. 1755.

Diſcours ſur l'Horlogerie, et Expoſition d'une nouvelle Méchanique de Pendule, approuvée par l'Académie Roy. Par le ſieur Mazurier. 1756.

Jul. Le Roy Anweiſung dei Einfachen ſowohl als Repetiruhren wohl einzurichten und zu gebrauchen. Dreſden, 1759.

L'art de Conduire et de Régler les Pendules et les Montres, &c. par Ferdinand Berthoud. 1759.

Molitor's Anweiſung, wie Geh-, Schlag-, Repetir-, und Sackuhren richtig berechnet, probirt und traktirt werden. Frankfurt, 1762.

Eſſai ſur l'Horlogerie, par Fer. Berthoud. 1763.

Elements of Clock and Watch Work, by Alexander Cumming. 1766.

An Account of the Going of Mr. Harriſon's Watch at the Royal Obſervatory from May 5th, 1766, to March 4th, 1797. Together with the Original Obſervations and Calculations of the ſame. By the Rev. Nevil Maſkelyne, Aſtronomer Royal, &c. 1767.

Principles of Mr. Harriſon's Time-keeper, with Plates of the ſame, publiſhed by Order of the Commiſſioners of Longitude. 1767.

Remarks on a Pamphlet lately publiſhed by the Rev. Mr. Maſkelyne, by Mr. Harriſon. 1768.

A Deſcription concerning ſuch Mechaniſm as will afford a nice or true Menſuration of Time, by John Harriſon. 1775.

Eſſay de la Montre marine de M. le Roy. Mem. Roy. Acad. 1767.

Relation du Voyage de M. Caſſini, fils, fait par Ordre du Roi, pour examiner les Montres marines de M. le Roy l'ainé. Mem. Roy Acad. 1769.

Suite du Précis ſur les Montres marines, avec un Supplément au Mémoire ſur la meilleure Manière de meſurer le Tems au Mer; par M. le Roy. Leyd. 1776.

Recherches ſur le vrai Moyen de perfectionner les Pendules à Secondes, deſtinés à indiquer les Equations journalières du Soleil, &c. par Ridereau. 1770.

On the Going of Mr. Arnold's Pocket Chronometer made on a new Conſtruction; by Dr. N. Maſkelyne. 1770.

Deſcription nouvelle de la Cathédrale de Straſbourg, et de ſa fameuſe Tour, par Joſeph Schweighaeuſer. 1770.

D'une Montre particulière, nommée Almanach en Montre, ou Montre à la Jablonowſky; par Paſſament. 1770.

Steph. Ramouſki Experimenta circa Longitudinem Penduli ſimplicis minuta, ſecunda, Kolae et Archangelopoli oſcillantis. Nov. Com. Acad. Petrop. 1771.

Traité des Horloges marines, par M. Ferdinand Berthoud. 1773, 1792, and 1797.

Eclairciſſemens ſur l'Invention, la Théorie, la Conſtruction, et les Epreuves, des nouvelles Machines propoſées en France pour la Détermination des Longitudes en Mer par le Meſure du Tems, par M. Ferd. Berthoud. 1773.

Introduction to the mechanical Part of Clock and Watch Work, by Thomas Hatton. Lond. 1773. Now very ſcarce.

Leonh. Euler, de Oſcillationibus minimis Penduli quotcunque ponduſculis onuſti. Nov. Com. Acad. Petrop. 1775.

Leonh. Euler, de Motu oſcillatorio binarum lancium ex Libra ſuſpenſarum. Nov. Com. Ac. Petrop. 1775.

Dan. Bernoulli Commentatio phyſico-mechanica, &c. Nov. Com. Acad. Petrop. 1775.

Reflexions ſur l'Echappement, par M. de la Grange. Mem. Acad. Berlin. 1777.

Dan. Bernoulli Specimen Philoſophicum de Compenſationibus Horologicis et veriori Menſuria Temporis. Act. Acad. Imp. Petrop. 1777.

Lettre de M. Magellan à M. le Chevalier de Bory, de l'Académie Royale des Sciences, rélativement à la Montre marine de M. Mudge. Inſerted in Rozier's Obſervations ſur la Phyſique, &c. tom. xi. 1778.

Abraham Gotthelf Käſtner, über die Aenderung des Ganges der Pendeluhren un Sommer und Winter. Gottingen, 1778.

Various papers relative to the contrivances in watch-work, by François Arlaud, François Callet, &c. in the Mémoires de la Société établie à Genève pour l'Encouragement des Arts et de l'Agriculture, tom. i. ii. &c. 1778.

Leonhard Euler de Motu oſcillatorio Pendulorum ex Filo tenſo dependentium. Act. Acad. Imp. Petrop. 1779 and 1786.

Deſcription d'une Machine pour refendre pluſieurs Roues d'Horlogerie en même temps, inventée par M. Pingeron, capitaine de l'artillerie, &c. 1780.

Balancier de Pendule à Secondes d'une nouvelle Conſtruction, par Grenier. Rouen, 1780.

L'Art de faire les Reſſorts de Montres, ſuivi de la Manière de faire les Petits Reſſorts de Répétitions et des Reſſorts Spiraux; par W. Blakey. Amſt. 1780.

A Letter from Mr. Chriſtian Mayer, Aſtronomer to the Elector Palatine, to Mr. N. N. on the Going of a new Pendulum Clock, made by Mr. John Arnold, and ſet up in the Elector's Obſervatory at Manheim. (Tranſlated from the German.) London, 1781.

Der neue Engliſche Uhrmacher, oder vollſtändige Anweiſung alle Geh-, Schlag-, und Repetiruhren richtig zu berechnen und gehörig zuſammenzuſetzen, nebſt der Beſchreibung einer Univerſal-Sonnenuhr, mit nöthigen Kupfern, &c. 1781.

Extrait d'une Lettre de M. L. H. Magellan, ſur la Préférence des Grands Arcs de Vibration pour le Régularité des Pendules Aſtronomiques, avec la Deſcription d'un Echappement libre, pour des petites Pendules à Demi-ſecondes, qui battent des Secondes entières. Inſerted in tom. xx. of Rozier's Obſervations 1782.

Nic. Fuſs Determinatio Motuum Penduli compoſiti bifili ex primis mechanicæ principiis petita. Nov. Act. Petrop. tom. i. 1783.

Three Regiſters of a Pocket Chronometer, by Count Brühl. 1785.

Mémoire ſur l'Horlogerie; contenant une Nouvelle Conſtruction des Montres ſimples et à repetition à Roues de rencontre, approuvées par l'Acad. Roy. des Sciences. Par Heſſen. 1785.

Der Selbſtlehrende Uhrmacher, oder genugthuende anweiſung, alle ſchlag-, geh-, repetir-, und ſonnen-uhren richtig zu berechnen, nebſt allen vortheilen, auf die neueſte und einfachſte art ſie zu verfertigen ohne einen weitern mündlichen nnterricht nöthig zu haben. Von einem Freunde der Künſte. 1786.

Deſcription of the two-part Chime-Clock invented by Robert Sampſon. Tranſactions of the Society for the Encouragement of Arts, &c. for 1786, vol. iv. [Deſcriptions of many other ingenious inventions of Engliſh artiſts may likewiſe be found in the different volumes of the Tranſactions of this reſpectable and uſeful Society.]

An Account and Deſcriptions of three Pendulums invented and conſtructed by John Croſthwaite. Tranſ. Roy. Iriſh. Acad. 1788.

Horlogerie Pratique, à l'Uſage des Apprentifs et des Amateurs, par M. Viontaux; Toulouſe, 1788.

Tratado general y matematico de la Reloxeria, &c. Em. de Cercella é Icoaga. Madrid, 1789.

Sopra la Teoria de Pendoli e ſulla Legge della Forza centripeta proporzionale alla ſemplice diſtanza del centro e ſulla ſua Applicazione alla Dottrina de' Pendoli; Gregória Fontana. Pavia, 1789.

Whitehurſt's Verſuch durch Zeitmeſſung unveränderliche maſſe zu erhalten; uberſetzt von J. H. Wiedmann. Nurnberg, 1790.

Diſſertation ſur l'Horlogerie, par Fr. Huet. 1791.

Tratado methodico de la Reloxeria ſimple; Chaboſt. Madrid, 1791.

Der Uhrmacher, &c. by J. G. Geiſsler. 1793–1799.

Account of a new Pendulum, by Geo. Fordyce, M. D. F. R. S. Phil. Tranſ. 1794.

Inveſtigations, founded on the Theory of Motion, for determining the Times of Vibrations of Watch-balances, by Geo. Atwood, F.R.S. Phil. Tranſ. 1794.

Beytrag zur Zeitmeſs-kunſt, ſur Freunde und liebhaber von Uhrwerken aller Art. Friedrich Auguſt Schmidt. Leipzig, 1797.

Verſuch einer Geſchichte der entſtlehung und Fortſchritte der theoretiſche-praktiſchen Uhrmacherkunſt. Joh. Heinr. Mortitz Poppe. Gottingen, 1797.

Theoretiſch-praktiſches Worterbuch der Uhrmakerkunſt, &c. by the ſame. Leipzig, 1800, 1801.

Parr's Treatiſe on Pocket-Watches. 1804. An unfiniſhed work.

Principes genéraux de l'exacte Meſure du Temps par les Horloges. Par Urbain Jurgenſen, horloger. Copenhagen, 1805.

The article Watch-work in the Supplement to the Encyclopædia Britannica, different parts of Nicholſon's Philoſophical Journal, and Tilloch's Philoſophical Magazine, and the articles Chronometer and Clock in Rees's New Cyclopædia; contain much uſeful information on the ſubjects of pendulums, ſcapements, &c.

HOROM'ETER, *ſ.* [from *ωρα*, Gr. an hour, and *μετρον*, a meaſure.] An inſtrument to meaſure the hours, an inſtrument to meaſure time by hours.

HOROM'ETRY, *ſ.* [*horometrie*, Fr. *ωρα*, and *μετρεω*, Gr. to meaſure.]. The art of meaſuring hours.—It is no eaſy wonder how the *horometry* of antiquity diſcovered not this artifice. *Brown.*

HOR'ONAIM, a city of the Moabites. *Iſa.* xv. 5. *Jer.* xlviii. 33, 34.

HOR'ONITE, *ſ.* An inhabitant of Horonaim.

HOROP'TER, *ſ.* in optics, a right line drawn through the point of concourſe parallel to that which joins the centre of the eye; the line that bounds diſtinct viſion.

HOROS'COPAL, *adj.* Belonging to the horoſcope.

HOR'OSCOPE, *ſ.* [*horoſcope*, Fr. *ωροσκοπος*, Gr.] The configuration of the planets at the hour of birth. See the article Astrology, vol. ii. p. 309.

Him born beneath a boding *horoſcope*,
His ſire, the blear-ey'd Vulcan of a ſhop,
From Mars his forge ſent to Minerva's ſchool. *Dryden.*

The Greek names this the *horoſcope*;
This governs life, and this marks out our parts,
Our humours, manners, qualities, and arts. *Creech.*

HOROSCOP'IST, *ſ.* One who is ſkilled in horoſcopes. *Scott.*

HOROU'CE, a town of Poland, in the palatinate of Braclaw: fifty-two miles ſouth-eaſt of Braclaw.

HORP (Le), a town of France, in the department of the Mayenne, and chief place of a canton, in the diſtrict of Vilaine: two leagues and a half north-weſt of Vilaine.

HOR'REBOW (Peter), a Daniſh aſtronomer, born of humble parents at Lægſted in Jutland. He firſt ſtudied at Aalburg; after which he applied to philoſophy, mathematics, and theology, at Copenhagen. In 1714 he was appointed profeſſor of mathematics; and in 1725 he took the degree of M. D. and was elected a member of the Daniſh Academy of Sciences. He died in 1764, at the great age of eighty-five. Horrebow firſt remarked the aberration of the fixed ſtars; the theory of which was afterwards improved by Dr. Bradley. His principal works are, 1. *Miſcellaneæ Paradoxorum Philoſophicorum Decades X. Hafn.* 1704, 4to. 2. *Prodromus Geometriæ enucleatæ ex Theoria Triangulorum Retangulorum, &c.* 1713, 4to. 3. *Copernicus Triumphans, ſive de Parallaxi Orbis Annui, &c.* 1721, 8vo. 4. *Artium Aſtronomiæ, ſive Elementa Aſtronomiæ ex Obſervationibus,* 1732, 8vo. 5. *Elementa Matheſeos, &c.* 1732, *auct.* 1737, 8vo. 6. *Clavis Aſtronomiæ, ſive Aſtronomiæ Pars Phyſica,* 1735, *auct.* 1740, 4to. 7. *Opera Mathematico-phyſica,* 1740–1742, vol. iii. 4to. *cum fig.*

HORREN'DOUS, *adj.* [Lat.] Horrible, dreaded. *Scott.*

HOR'RENT, *adj.* [*horrens*, Lat. *Horrentia pilis agmina.*] Pointed outwards; briſtled with points; a word perhaps introduced by Milton:

Him a globe
Of fiery ſeraphim incircled round
With bright emblazonry and *horrent* arms. *Milton.*

HOR'RIBLE, *adj.* [*horrible*, Fr. *horribilis*, Lat.] Dreadful; terrible; ſhocking; hideous; enormous.—Eternal happineſs and eternal miſery, meeting with a perſuaſion that the ſoul is immortal, are, of all other, the firſt the moſt deſirable, and the latter the moſt *horrible*, to human apprehenſion. *South.*

A dungeon *horrible* on all ſides round,
As one great furnace flamed. *Milton.*

HOR'RIBLENESS, *ſ.* Dreadfulneſs; hideouſneſs; terribleneſs; fearfulneſs.

HOR'RIBLY, *adv.* Dreadfully; hideouſly:

What hideous noiſe was that?
*Horribly* loud! *Milton.*

Dreadful to a degree.—The contagion of theſe ill precedents, both in civility and virtue, *horribly* infects children. *Locke.*

HOR'RID, *adj.* [*horridus*, Lat.] Hideous; dreadful; ſhocking:

Horror on them fell,
And *horrid* ſympathy. *Milton.*

Shocking; offenſive; unpleaſing:

Already I your tears ſurvey,
Already hear the *horrid* things they ſay. *Pope.*

Rough; rugged:

*Horrid* with fern, and intricate with thorn,
Few paths of human feet, or tracks of beaſts, were worn. *Dryden.*

HORRID'ITY, *ſ.* Horribleneſs.

HOR'RIDLY, *adv.* Dreadfully; ſhockingly.

HOR'RIDNESS, *ſ.* [from *horrid.*] Hideouſneſs; enormity.—A bloody deſigner ſuborns his inſtrument to take away ſuch a man's life, and the confeſſor repreſents the *horridneſs* of the fact, and brings him to repentance. *Hammond.*

HORRIF'EROUS, *adj.* [*horror*, Lat. dread, and *fero*, to bring.] Bringing horror; producing horror.

HORRIF'IC, *adj.* [*horrificus*, Lat.] Cauſing horror:

His jaws *horrific*, arm'd with three-fold fate,
Here dwells the direful ſhark. *Thomſon.*

HORRIPILA'TION, *ſ.* [from *horreo*, Lat. to briſtle, and *pilus*, hair.] The riſing of the hair on any ſudden fright. *Bailey.*

HORRIS'ONOUS, *adj.* [*horriſonus*, Lat.] Sounding dreadfully.

HOR'ROR, *ſ.* [*horror*, Lat. *horreur*, Fr.] Terror mixed with deteſtation; a paſſion compounded of fear and hate, both ſtrong:

Doubtleſs all ſouls have a ſurviving thought,
Therefore of death we think with quiet mind;
But, if we think of being turn'd to naught,
A trembling *horror* in our ſouls we find. *Davies.*

Dreadful thoughts:

I have ſupt full with *horrors:*
Direneſs, familiar to my ſlaught'rous thoughts,
Cannot once ſtart me. *Shakeſpeare.*

Gloom; drearineſs:

Her gloomy preſence ſaddens all the ſcene,
Shades ev'ry flow'r, and darkens ev'ry green;
Deepens the murmurs of the falling floods,
And breathes a browner *horror* on the woods. *Pope.*

[In medicine.] Such a ſhuddering or quivering as precedes an ague-fit; a ſenſe of ſhuddering or ſhrinking. *Quincy.*—All objects of the ſenſes, which are very offenſive, do cauſe the ſpirits to retire; and, upon their flight, the parts are in ſome degree deſtitute, and ſo there is induced in them a trepidation and *horror*. *Bacon.*

HOR'ROX (Jeremiah), an eminent Engliſh aſtronomer, born at Toxteth, near Liverpool, about the year 1619. He was ſent very young to Emanuel college, Cambridge, where he ſpent a conſiderable time in academical ſtudies. About the year 1633, he began to apply himſelf to the ſtudy of aſtronomy; in which he was making a very great and early proficiency, when he was ſuddenly cut off by death in 1640–1, at the age of only twenty-two. Not many days before, he had finiſhed his *Venus in Sole viſa*; his obſervations on which were made at Hool, near Liverpool. This treatiſe was publiſhed at Dantzic, in 1662, by Hevelius, together with his own *Mercurius in Sole viſus*, and illuſtrated with that aſtronomer's annotations. Mr. Horrox's other papers which are ſtill extant, were digeſted and publiſhed by Dr. Wallis, in 1673, under the title of *Opera Poſthuma*, &c. 4to. There are two things which will long ſerve to perpetuate the memory of this ingenious young man One is, that he was the firſt who ever predicted or ſaw the paſſage of Venus over the ſun's diſk; and though he was not appriſed of the grand uſe that was to be made of it, in diſcovering the parallax and diſtance of the ſun and planets, yet he made from it many uſeful obſervations, corrections, and improvements, in the theory of the motions of the planet Venus. The other memorable circumſtance is, his new theory of lunar motions, which Newton himſelf made the ground-work of all his aſtronomy relative to the moon; always ſpeaking of Mr. Horrox as a genius of the firſt rank.

HOR'SA, a famous Saxon commander, brother to Hengiſt, ſo called from the figure of a horſe which he and his brother had upon their coats of arms.

HORSE, *ſ.* [hoꞃꞅ, Sax.] The moſt uſeful, elegant, and noble, of all quadrupeds; of which *mare* is the female. The word is often uſed in the plural ſenſe, but with a ſingular termination; for horſes, horſemen, or cavalry.—The armies were appointed, conſiſting of twenty-five thouſand *horſe* and foot, for the repulſing of the enemy at their landing. *Bacon's War with Spain.*

Th' Arcadian *horſe*
With ill-ſucceſs engage the Latin force. *Dryden*

Something on which any thing is ſupported: as, a *horſe* to dry clothes on. A wooden machine which ſoldiers ride by way of puniſhment. It is ſometimes called a timber mare. In a ſhip, a rope made faſt to one of the foremaſt ſhrouds, having a dead man's eye at its end, through which the pendant of the ſprit-ſail ſheet is reeved.

*To* HORSE, *v. a.* To mount upon a horſe; to furniſh with a horſe.—After a great fight there came to the camp of Gonſalvo, the great captain, proudly *horſed* and armed. *Bacon.*—To carry on the back.—That treat of the diſcomfiting of keepers, *horſing* the deer on his own back, and making off with equal reſolution and ſucceſs. *Butler.*—To ſit aſtride any thing:

Stalls, bulks, windows,
Are ſmother'd, leads are fill'd, and ridges *hors'd*,
With variable complexions; all agreeing
In earneſtneſs to ſee him. *Shakeſpeare.*

To cover a mare.—If you let him out to *horſe* more mares than your own, you muſt feed him well. *Mortimer.*

For the Natural Hiſtory of the Horſe, with its varieties, and different ſpecies, ſee the article EQUUS, vol. vi. p. 885–890; and for the Anatomy of the Horſe, and the Pathology, or Diſeaſes incident to Horſes in general, and methods of cure, ſee the article FARRIERY, vol. vii. p. 223–263, with the ſet of anatomical Diſſections correſpondent thereto.

Mr. Aſtley, in his "Syſtem of Equeſtrian Education," has given us the following juſt and genuine character of the horſe: "This generous and ſerviceable creature poſſeſſes the courage of the lion, the fleetneſs of the deer, the ſtrength of the ox, and the docility of the ſpaniel; by his aid, men become more acquainted with each other; he not only bears us through foreign climes, but likewiſe labours in the culture of our ſoil; draws our burdens and ourſelves; carries us for our amuſement and our exerciſe; and, both in the ſports of the field and on the turf, exerts himſelf with an emulation, that evinces how eagerly ambitious he is to pleaſe and to gratify the deſires of his maſter. He is both our ſlave and our guardian; he gives profit to the poor, and pleaſure to the rich; in our health he forwards our concerns, and in our ſickneſs lends his willing aſſiſtance for our recovery. This fine, this ſpirited, animal, participates with man the toils of the campaign, and the glory of conqueſt; penetrating and undaunted as his maſter, he views dangers, and braves them; accuſtomed to the din of arms, he regards it with enthuſiaſm, ſeeks it with ardour, and ſeems to vie with his maſter in his animated efforts to meet the foe with intrepidity, and to conquer every thing that oppoſes itſelf to his matchleſs courage."

On ſuch an animal, it is impoſſible for mankind to beſtow too much patient care and attention, inſtead of treating him, as we too often ſee, with ſhameful cruelty and neglect. Among the poliſhed nations of antiquity, both in Europe and Aſia, this valuable creature was regarded as a portion of their riches, and proviſion was made for him ſuitable to his nature and wants. And at the preſent day, even among the hordes of Tartary, the Moors of Barbary, the predatory clans of Arabia, and in various ſavage diſtricts, where neither religion nor morality are employed to awaken feelings of humanity, the utmoſt regard and tenderneſs is ſhown to their horſes; which, when uſed, are always fed and provided for, before their owners beſtow a thought upon their own meals.

The Greeks and Romans ſet a high value upon their horſes, which were eſtimated generally in proportion to their beautiful ſymmetry and unbroken ſpirit. Of this Alexander gave a ſufficient proof in the example of his famous horſe Bucephalus. See the article ALEXANDER, vol. i. p. 267. But of all the nations of antiquity, Egypt is the firſt upon record as being celebrated for its noble breed of horſes; and even in our time, the beys and mamalukes of Egypt are allowed to poſſeſs ſome of the fineſt and moſt valuable horſes in the world. See the article EGYPT, vol. vi. p. 330, 380. It was from Egypt that the kings of Iſrael were firſt ſupplied with horſes; and, though Moſes (Deut. xvii. 16) forbad the people from multiplying horſes, yet it was not in diſparagement of theſe uſeful animals; but to prevent the Iſraelites from making the barter of horſes a pretence for returning into the land of their former bondage and ſlavery. Hence horſes continued to be very rare in Judæa till towards the time of king Solomon. Before his reign we find no horſemen mentioned in the armies of Iſrael. David, having won a great battle againſt Hadadezer king of Shobah, (2 Sam. viii. 4, 5,) took 1700 horſes, and lamed all belonging to the chariots of war, reſerving only one hundred chariots. The judges and princes of Iſrael uſed generally to ride on mules or aſſes. After David's time, horſes became more common in the country of the Hebrews. Solomon is the firſt king of Judah who had a great number of horſes, and he kept them rather for pomp than for war; for we do not read that he made any military expeditions. He had, ſays the Scripture, 1 Kings iv. 26, 40,000 ſtalls of horſes for his chariots, and 12,000 horſemen diſtributed in his fortified places, 1 Kings x. 26. He had his horſes from Egypt, ver. 28, 29; and there was not a ſet which did not coſt him more than 600 ſhekels, which make of our money about 90l.

We are told, in the Second Book of Kings, xxiii. 17, that Joſiah took away the horſes which the kings of Judah his predeceſſors had conſecrated to the Sun. Bryant has ſhown that the Sun was worſhipped over all the eaſt, and that the horſe, the ſwifteſt of tame animals, was conſecrated to this deity, who was repreſented as riding in a chariot drawn by the ſwifteſt horſes, and performing every day his journey from eaſt to weſt, to communicate his light to mankind. This ſymbol of the Sun drawn by horſes, is correctly ſhown in the Engraving of the Indian zodiac, at fig. 1, p. 163, of this volume. We may believe that the horſes which Joſiah removed out of the court of the temple, were appointed for the like purpoſes. The rabbins inform us, that theſe horſes were every morning put to the chariots dedicated to the Sun; and that the king, or ſome of his officers, got up and rode to meet the Sun in its riſing, as far as from the eaſtern gate of the temple to the ſuburbs of Jeruſalem.

The nations of antiquity moſt renowned for their horſes and chariots of war, were the Aſſyrians, Parthians, Babylonians, Meſopotamians, Numidians, Perſians, Tartarians, Arabians, Greeks, Romans, &c. But the Indian kings, and princes of Hindooſtan, conſidered horſes only in a ſecondary point of view, preferring trains of huge elephants for the operations of war, as well as for the parade and ſumptuouſneſs of ſtate. See the article HINDOOSTAN, p. 10, 15, 29, 30, 44, &c.

The horſe, in thoſe early ages, was managed with great dexterity, though ridden without ſaddle or ſtirrups. Their harneſs was made of the ſkins of wild beaſts, and ſometimes of ſtrongly-woven cloth. The invention of the ſaddle is attributed to the Perſians; whence they became famous for ſaddle-horſes. Till then, the rider ſat on the bare back of the horſe, or perhaps on a covering made of cloth, or leather, or the ſkin of a wild animal. Theſe coverings, however, were thought an indulgence; and it was deemed more manly and heroic to ride without them. Varro boaſts of having rode without a covering on his horſe; and Xenophon reproaches the Perſians, becauſe they placed more clothes on the backs of their horſes than on their beds, and gave themſelves more concern to ſit eaſily than to ride ſkilfully. On this account ſuch coverings were for a long time not uſed in war; and the old Germans, who conſidered them as diſgraceful, deſpiſed the Roman cavalry becauſe they employed them. The invention of the ſtirrup is of much later date than that of the ſaddle. It is ſuppoſed to have taken place in the reign of the emperor Mauritius, towards the cloſe of the ſixth century. The Roman diſcipline required that expert riders ſhould vault on horſeback, without any aſſiſtance; and, to accuſtom them to this agility there were wooden horſes in the Campus Martius, on which practitioners were obliged to learn to mount and diſmount both on the right and left ſide, at firſt unarmed, and afterwards with arms in their hands. But people of rank and fortune kept riding-ſervants, who carried portable ſtools, which were placed cloſe to the horſe for the purpoſe of mounting; and this gave riſe to the degrading practice of making conquered princes ſtoop down, that the victor might more eaſily get on horſeback, by ſtepping upon their back as upon a ſtool. In this ignominious manner was the emperor Valerian treated by Sapor king of Perſia. In ſome countries, however, horſes were ſo docile as to be inſtructed to kneel down until the rider was mounted; a practice which ſtill obtains among the predatory Arabs. And it is in the mountainous parts of Arabia that we meet with horſes of the firſt and higheſt qualifications; uniting courage and ſtrength with beautiful ſymmetry; and the gift of ſpeed with unrivalled continuance or durability; inſomuch that it is ſaid they will travel from eighty to a hundred miles a-day for ſeveral days together. From ſuch parent-ſtock racers and hunters ſhould if poſſible be bred. See the article EQUUS, vol. vi. p. 886.

In our own country, the breed of horſes is of much higher antiquity than may be generally imagined; ſince we are informed by Julius Cæſar, that on his firſt invaſion of the iſland, the Britons had always great numbers of them, well trained to warlike exerciſes. The ſpecies we may preſume to have been ſuch, of all ſizes, as we are likely to find in any fruitful northern region, where it has not been improved by a croſs with the blood of the ſouth-country horſes; that is to ſay, rough-coated, round-made, ſturdy, with coarſe ſpongy bones, and ſinews unendowed with the requiſite elaſticity. The firſt period of any marked attention to the amendment of our breed, may be dated from the reigns of Henry VII. and VIII. but the regulations then made, and the means employed, were but little calculated to advance the intended purpoſe. We learn from Blundeville, that, in the reign of queen Elizabeth, the generality of Engliſh horſes were better adapted to the draft than to any other purpoſe; but with ſome exceptions, which exhibited ſtrong proofs of initient improvement, one of which is, an inſtance of a horſe travelling fourſcore miles within the day on an emergent occaſion; yet ſtill horſes were ſo deficient in number, that, on the Spaniſh invaſion, the queen found the utmoſt difficulty in mounting two or three thouſand cavalry.

In the reign of James I. racing became a popular diverſion. In order to promote emulation among the breeders, and with the judicious view of perfecting a breed of horſes fit for the road, the chace, or the war, an additional encouragement was given to horſe-racing, by the inſtitution of royal or king's plates; and by an enlightened policy, free exportation was allowed, as the readieſt method of obtaining ſtallions of a higher breed. From that period, to the middle of the eighteenth century, the ſyſtem of renovation, from a croſs with different foreign ſtocks, has been occaſionally adopted, particularly by Arabian and Barbary ſtallions with well-faſhioned mares; the conſequence of which has been, a decided ſuperiority over the parent-ſtock, from whatever country; and an improved breed of our own, of all denominations, of ſuperior ſpeed, power, and utility.

The horſes of this country, in conſequence of theſe improvements in the art of breeding, have long ſince arrived at the higheſt point of perfection of which they can be capable, in the admired qualities of ſpeed and ſtrength; for we have no reaſon to believe that the ſpeed, ſtrength, and continuance, of Childers and Eclipſe as gallopers; of Archer, and one or two others, as trotters; or the powers of certain draft-horſes, which have drawn ſuch immenſe weights, and repeated ſo many dead pulls; can or will ever be excelled. It ſeems not to be within the compaſs of thoſe powers of action which nature has beſtowed upon the horſe, to gallop a mile in leſs time than a minute; or to trot the ſame diſtance in leſs than three minutes, bating a few ſeconds. But animals, capable of ſuch extraordinary feats, to be found perhaps no where elſe upon the face of the habitable globe, have nevertheleſs been rare even in England; in ſhort, this ſeems to be the *ne plus ultra*, to which the perfections of the horſe can poſſibly be brought.

## OF BREEDING.

In the technical phraſeology appropriated to this ſubject, a *bred* horſe is underſtood to be deſcended in full pedigree from the pure Arabian, or oriental blood; and the degrees of its commixture with the common breed of this country, are ſignified by the terms, *three-parts bred*, *half-bred*, or having a *ſhow of blood*. The characteriſtic ſigns of blood, are fineneſs of ſkin and hair, ſymmetry, and regularity of proportions; length; flatneſs, and depth, particularly in the ſhoulder and girting-place; ſwell of the muſcles, and ſhow of ſubſtance in the fore-arms and thighs; leanneſs and ſymmetry of the head, large and bright eyes, paſterns ſomewhat longer, and more inclining than common to deer-like hoofs. Of theſe a horſe will generally partake in proportion to his degree of blood; and it has of late years been found, that by infuſing certain degrees of oriental blood into the ſturdy mares of our northern counties, the moſt valuable improvements have been made in draft-horſes. From theſe well-known facts, it might be a conſideration worthy the notice of thoſe noble and judicious perſons who are engaged in breeding race-horſes, whether it might not be an acquiſition of great private emolument, as well as of national advantage, to import, at any expence, freſh ſtallions into this country from the pureſt ſtock in Arabia. The Arabs pretend to have pedigrees of their pure mountain-breed, for a ſeries of upwards of two thouſand years paſt; but whether theſe records accord with truth, or not, is of little moment, ſince the experience of both ancient and modern times has proved them to be of ſuperior form and qualification to all other horſes in the world. In very remote ages, as well as at the preſent time, the breed of the Arabian horſes was ſought for and diſperſed over almoſt all Aſia, and part of Africa; and at length ſome few individuals found their way into this country; to which we are indebted not only for our beſt racing blood, but for that great ſuperiority in horſes which we ſo eminently poſſeſs over all the nations of Europe. But to make the number and variety of our horſes ſtill more extenſive, it might prove a valuable acquiſition to import Arabian *mares*; the produce of which, croſſed with the beſt Engliſh ſtallions, and invigorated by our hardy climate, might yield a breed of the firſt utility, and of the higheſt degree of general excellence.

Niebuhr, in his Travels through Arabia, gives the following account of their horſes: "Of all their domeſtic animals, it is well known that the Arabians put the greateſt value on their horſes. Of theſe they have two great branches, the *Kadiſchi*, whoſe deſcent is unknown, and the *Kochlani*, of whom a written genealogy has been kept for upwards of two thouſand years. The *Kadiſchi* are in no better eſtimation than our European horſes, and are uſually employed in bearing burthens, and in ordinary labour; but the *Kochlani* are reſerved for riding ſolely. They are highly eſteemed, and conſequently very dear. They are ſaid to derive their orgin from king Solomon's ſtuds. However this may be, they are fit to bear the greateſt fatigues, and can paſs whole days without food. They are alſo ſaid to manifeſt uncommon courage againſt an enemy. It is even aſſerted, that when a horſe of this breed finds himſelf wounded, and unable to bear his rider much longer, he retires from the fray, and conveys him to a place of ſecurity. If the rider falls upon the ground, his horſe remains beſide him, and neighs till aſſiſtance is brought.

"The *Kochlani* are bred chiefly by the Bedouins ſettled between Baſra, Merdin, and Syria, in which countries the nobility never chooſe to ride horſes of any other breed. The whole race is divided into ſeveral families, each of which has its proper name: That of *Dsjulfa* ſeems to be the moſt numerous. Some of theſe families of horſes have a higher reputation than others, on account of their more ancient and uncontaminated nobility. The Arabians, indeed, have no tables of their genealogy; yet they are ſure of the legitimacy of the progeny; for a mare of this race is never covered unleſs in the preſence of witneſſes, who muſt be Arabians. There has never been known an inſtance of falſe teſtimony being given in reſpect to the deſcent of a horſe. Every Arabian is perſuaded that himſelf and his whole family would be ruined, if he ſhould prevaricate in giving his oath in an affair of ſuch conſequence.

"A Chriſtian, having a Kochlani mare whom he wiſhes to have covered by a ſtallion of the ſame race, is obliged to employ an Arabian witneſs, who muſt watch the mare twenty days, to be ſure that ſhe has been defiled by the embraces of no common horſe. During all this time, ſhe muſt not ſee either horſe or aſs, even at a diſtance. When the mare produces her foal, the ſame Arabian muſt be preſent; and, within the firſt ſeven days, a certificate of the legitimate birth of the foal is made. If there happens to be a croſſing of the two breeds, the foal, whether the ſire or the dam be Kochlani, is always eſteemed only as a Kadiſchi.

"The Arabians make no ſcruple of ſelling their Kochlani ſtallions like other horſes; but they are unwilling to part with their mares. When not in a condition to ſupport them, they diſpoſe of them to others, on the terms of having a ſhare in the foals, or of being at liberty to recover them, after a certain time. An Engliſh merchant was offered at Bengal twice the purchaſe money he had given for one of theſe horſes; but he ſent him to England, where he hoped that he would draw four times the original price."

The horſe next in eſtimation to the Arabian, is the mountain Barb. This approximation ariſes from ſimilarity of climate, aided by the ſtrict attention to pedigree which is invariably obſerved by all the breeders in Barbary. The mountain Barb is leſs than the Arabian, very deep cheſted, beautifully ſleek and ſilky, but rather of an aſinine appearance about the head. If genuine, he gets ſtout and fleet runners, of true bottom.

With an adequate number of mares, and only a few ſtallions, whether Arabs or Barbs, nothing further would be requiſite to inſure ſucceſs, than to transfer the ſcience of breeding from ignorant and brutiſh hands, to more humane and intelligent perſons. There are, indeed, many diſcouraging circumſtances attendant on the beſt-concerted breeding-plan, excluſive of the great capital required to carry it into effect; and it is a buſineſs which requires unceaſing attention, or it is ſure to fail, particularly when entruſted almoſt wholly to ignorant grooms. Yet theſe depreſſing circumſtances will have little weight, when ſet againſt the advantages of raiſing capital ſtock, which, for a long ſeries of years, muſt command an adequate price. And if we take into conſideration the univerſal deſtruction of horſes throughout the whole continent, occaſioned by the preſent moſt cruel and diſaſtrous war, (1809,) in Germany and Spain, and that they muſt be, in part at leaſt, recruited from this country, it may be very fairly inferred, that at no former period was the proſpect of breeding ſo inviting as at the preſent moment.

That conſiderable fortunes have been produced to the owners by ſuch high-bred horſes, will readily occur to the reflecting mind. Eleven thouſand guineas was the ſum offered at Newmarket, by earl Groſvenor, for Eclipſe; and afterwards, in London, another offer of ſix thouſand, was made for the half ſhare of him, both of which were refuſed by O'Kelly; whoſe demand for the purchaſe of his horſe was, twenty thouſand pounds down, a well-ſecured annuity of five hundred for his own life, and three brood-mares to be annually covered by him. Matchem earned his owner more than twenty thouſand guineas; and both Herod and Highflyer produced very large annual incomes to their reſpective owners.

It is, however, lamentable to reflect, with what unaccountable thoughtleſſneſs or diſregard theſe generous and noble creatures are, at ſome ſeaſons of the year, when their ſervices are leaſt wanted, turned over entirely to the management of drunken and careleſs grooms. The famous ſtallion, king Herod, was ſo ſhamefully neglected, as to be ſuffered to lie in his own dung until it baked upon him; and he at laſt died of an inflammation in the ſheath ariſing from his filth! Oſmer complained of the too general neglect of the feet of ſtallions and brood mares in his time; and it was ſo with Eclipſe, which celebrated horſe had ſcarcely a foot to ſtand upon for ſome years before his death. Another ſtallion of prime note was ſo exhauſted by the avarice of its maſter, that he made a premature exit from the ſervice, dying in great agonies from exceſſive covering. The folly on both ſides is here ſufficiently obvious; but that of the owner of the mare is certainly moſt to be marvelled at; for who could expect any ſucceſs from ſuffering her to be preſented to a horſe already exhauſted by having obliged half a dozen, or perhaps half a ſcore, females the ſame day!

This branch of the ſubject being of conſequence, and frequently involving the preſervation of conſiderable property, it may be requiſite to notice the proper management of the covering-ſtallion. In the winter, he ought to be expoſed to the bracing properties of the air, in a warm paddock, where he may command ſhelter at his pleaſure; this will alſo preſerve his legs and feet. It is an erroneous doctrine never to phyſic ſtallions, the conſequence of which is often premature blindneſs. A ſtallion ought to be prepared early in the ſpring for the covering ſeaſon, by two or three cooling doſes of the neutral ſalts. Mild purgatives diſembarraſs the animal ſprings, and promote their utmoſt elaſticity; they attenuate the blood, which every ſtate of luxury has the invariable effect to inſpiſſate, far beyond the criterion of health and vigour. The feet ſhould be conſtantly cleaned and waſhed, and care taken to preſerve the proper ſhape of the hoof, by preventing a too great increaſe of the toe. The ſalutary exerciſe of good grooming is at no time to be neglected; and the ſtallion ought to be regularly *led* abroad, to imbibe the exhilarating and invigorating influence of a varied atmoſphere, and on no pretence to be kept ſucceſſive days breathing the noiſome effluvia of the ſtable. In caſe of debility from over-exertion, maſhes of boiled rice, decoction of rice infuſed in his drink, or ſmall quantities of ground rice mixed in the feeds, will be found beneficial. Preternatural heat, coſtiveneſs, inertia, or ſluggiſhneſs of the blood, will be beſt remedied by warm pollard maſhes, and ſalined water; nor will gentle evacuants, in ſuch caſes, detract from, but rather add to, the conſtitutional vigour of the ſtallion, by relieving nature from the debilitating load of obſtruction.

A mare intended for the important purpoſes of breeding, whether for whole-blood, half-blood, or draft-horſes, ſhould be choſen of ſufficient bone and ſize, well-faſhioned, free from vice or humour, and poſſeſſing as nearly as poſſible her ſhare at leaſt of thoſe perfections which we hope to ſee realized in the offspring. It is a very miſtaken notion for men to ſuppoſe, that any cheap, broken-down, ill-ſhaped, or greaſy-heeled, jade, will anſwer their expectations in a breeding-ſpeculation. The folly and abſurdity of this practice is daily before our eyes, without extirpating the evil; becauſe the ignorant and thoughtleſs imagine, when they purchaſe a mare, that, ſhould they be deceived in her, they have ſtill this advantage, "that they can have her covered, and turned out." Thus one folly begets many; and bad horſes are multiplied upon the public, without the ſmalleſt advantage to the breeder.

When the ſtallion is choſen, and the brood-mares ſelected, the ſtud ſhould be placed in a dry ſoil, and in a ſuitable paſture, proportioned to the number of mares and ſtallions intended to be uſed. This ſpot ſhould be divided into ſeveral parts, incloſed with rails or ditches well fenced; in the part where the paſture is the richeſt, the mares in foal, and thoſe with colts by their ſides, are to be kept. Thoſe which are not impregnated, or have not yet been covered, are to be ſeparated and kept with the fillies in another cloſe, where the paſture is leſs rich, that they may not grow too fat, which would obſtruct the progreſs of generation. The young ſtone-colts and geldings are to be kept in the drieſt part of the fields, and where the ground is moſt unequal; that by running over the uneven ſurface they may acquire a freedom in the motion of their legs and ſhoulders. This cloſe, where the ſtone-colts are kept, muſt be very carefully ſeparated from the others, leſt the young horſes break their bounds, and enervate themſelves with the mares. If the tract be ſufficiently large to allow of dividing each of theſe cloſes into two parts, for putting oxen and horſes into them alternately, the paſture will laſt much longer than if continually eaten by horſes; the ox improving the fertility, whereas the horſe leſſens it. In each of theſe cloſes ſhould be a pond; ſtanding water being better than running, which often gripes them; and, if there are any trees in the ground, they ſhould be left ſtanding, their ſhade being very agreeable to the horſes in the hot ſummer months, and much more conducive to health than their ſheds or ſtalls, where a free circulation of the air is impeded. In theſe paſtures the whole ſtud ſhould feed during the ſummer; but in the winter the mares ſhould be kept in the ſtable and fed with hay. The colts alſo muſt be houſed, and never ſuffered to lie abroad in winter, except in very fine weather. Stallions that ſtand in the ſtable ſhould be fed more with clean wheat ſtraw than hay; and moderately exerciſed till covering-time, which generally laſts from the beginning of April to the end of June. But during this ſeaſon they ſhould be plentifully fed with the beſt of corn. Before the ſtallion is brought to the mare, he ſhould be dreſſed, as that will greatly increaſe his ardour. However able a good ſtallion may be for covering every day during the three months, it is much better to let him be led to a mare only every other day; his produce will be better, and he himſelf leſs exhauſted. With regard to brood-mares, the heat uſually comes on in nine days after their delivery; and on that very day they ſhould be led to the ſtallion to be covered; and, nine days after, by the ſame experiment, it may be known whether they are ſtill in heat. If they are, they muſt be covered a ſecond time; and thus ſucceſſively every ninth day, while their heat continues: for, when they are impregnated, their deſire in a few days ceaſes entirely.

When the mares are pregnant, they muſt be ſeparated from thoſe that are not, leſt they receive any hurt by kicking or otherwiſe. They uſually go eleven months and ſome days; and foal ſtanding, whereas moſt other quadrupeds lie down. Thoſe that cannot foal without great difficulty, muſt be aſſiſted. The general cuſtom is, to lead the mare to be covered, as noticed above, juſt nine days after her foaling, that no time may be loſt; but it is certain, that the mare having, by this means, both her preſent and future foal to nouriſh, her ability is divided, and ſhe cannot ſupply both ſo largely as ſhe might one only. It would therefore be better, in order to have excellent horſes, to let the mares be covered only every other year: they would laſt the longer, and bring foals more certainly: for, in common ſtuds, it is ſo far from being true that all mares which have been covered bring colts every year, that it is conſidered as a fortunate circumſtance, if half, or at moſt two-thirds, of them turn out pregnant. They uſually breed till they are fourteen or fifteen years old; and the moſt vigorous till they are eighteen. Stallions, when well managed, will cover till the age of twenty, and even beyond; but it muſt be obſerved, that ſuch horſes as are ſooneſt made ſtallions are alſo the ſooneſt incapable of generation; thus, if horſes are uſed as ſtallions as ſoon as they are four years old, they are incapable of generation before they are ſixteen.

After the colts have fallen, they may be ſuffered to run with the mares till about Michaelmas, ſooner or later, according as the cold weather ſets in; then they ſhould be weaned; though many prefer weaning them after Martinmas, or about the middle of November. Some able judges, however, are of opinion, that the reaſon why moſt foals advance ſo ſlowly, and are not capable of hard ſervice till they are ſix or ſeven years old, is becauſe they have not ſucked long enough; whereas, if they had ſucked the whole winter through, they would be as good at four or five years old as they are now at eight. This affords an additional argument for not allowing the mares to be covered more than once in two years. It is however pretty certain, that in a ſtate of nature the mare breeds regularly every year.

In order to rear and ſecure the moſt valuable ſtock, either for domeſtic uſe or ſale, it is neceſſary to give the colts corn immediately from weaning, and during every winter. It is alſo of the utmoſt conſequence that they ſhould have good ſhelter from cold, wet, and ſtorms, in hovels or out-houſes, moderately littered down. Low keep and damp lying produce a poor and watery blood, and are by no means favourable to the growth of that plumpneſs of the muſcular fibre, which ſo materially conduces to ſubſtance, ſtrength, and ſymmetry. A quarter-peck of ground oats per day, with good hay, or even plenty of good oat-ſtraw, is excellent keep the firſt winter for a foal. The only ſubſtitute for corn is fine pollard or carrots; of the latter, a yearling will eat a peck per day, ſliced thin. Foals are often griped by the milk, either on account of its being heated by the mare's labouring, or its quality being affected by ſour and bad herbage. Warm maſhes of fine pollard and bran are in this caſe uſeful. If neceſſary, a ſmall quantity of ſulphur, magneſia, and honey, may be added. Sucklers are alſo occaſionally liable to be hide-bound, dull, and inapt for motion. They will be ſometimes coſtive, then looſe, the excrement ſcouring from them in ſmall quantities. This ariſes on moſt occaſions from the imperfect digeſtion of bad milk. Balls of fine rhubarb and magneſia, equal quantities, made up with honey and the ſifted meal of oats, are the proper remedy, and muſt be uſed as neceſſity requires, until the colt be weaned. From two to four tea-ſpoons full make a doſe, and care ought to be taken that the ball be not too large.

When the colts have completed their ſecond year, it is adviſeable to *gentle* them, by accuſtoming them to be led about in a halter, occaſionally tied up in the ſtall, and their ears ſaluted with the pleaſing ſound of the ſieve, in duſting them a little hard corn. By this method they will readily become tractable and tame; and, in caſe of accident or diſeaſe, the labour of the farrier in affording them relief will become much more eaſy and effectual. Thus they ſhould go on till the completion of their third year, which is the proper time to take them in hand.

## OF BREAKING.

The breaking of colts may be likened to the early education of man. The taſk is evidently of the higheſt conſideration, and demands adequate ability; but it is too often committed to thoſe who imagine that nothing can be effected without brutality, and that the art of breaking conſiſts in little elſe than a copious exerciſe of the whip. Such perſons ſhould not be ſuffered within the purlieus of a breeding-ſtud; nor indeed within the ſtables of any gentleman who values his cattle. "To bend the twig while it is young," and, "to bring up the child in the way it ſhould go,"—are maxims which apply as forcibly to the education of colts as to that of the human ſpecies; and a judicious reſort to gentle chaſtiſement when deſerved, and to encouragement and reward when merited, are the only legitimate rules to be adopted on ſuch occaſions.

The firſt object is to ſubject the colt to the breaker's tackle. This conſiſts of a head-ſtall of ſtrong leather, and a caveſſon, (from the Italian *cavazana*, a head-ſtrain.) Its uſe is to reſtrain or keep down the head, while the neck is kept in an arched poſition by the reins. A ſaddle is then put upon him, and he is led about by a long rein, till the whole of the apparatus becomes familiar and agreeable to him. The ſkilful breaker is now to teach him the firſt and moſt important leſſon of his whole education, that of "*mouthing the bit*," and *pulling* at it; for if he is not taught to preſs upon the bit, and made familiar with its action, it is impoſſible he ſhould ever be guided by it, or acquire a ſafe and ſteady mouth. Moſt horſes ſoon become fond of the bit, which is known by their champing and playing with it; and, when the colt gradually finds his neck ſtronger than his rider's arms, he will pull with the greater oppoſition, thinking to foil or overcome the force exerted againſt him. This therefore is the favourable time to teach him that ſuppleneſs of the neck, and pliancy of action, on which his future merits will depend.

Theſe firſt and early leſſons are uſually and very properly taught with the large cannon-bit, having an iron ring at each end, to which the reins or the caveſſon are attached. But, after this, the colt muſt be accuſtomed to the ſnaffle. Of all the bits, this is the beſt adapted for the mouths of horſes: it ſuits all, and accommodates itſelf to all; and either finds them good, or very ſpeedily makes them ſo; and the mouth once made, will be always faithful to the hand, let it act with what agent it will. This bit can at once ſubject the horſe to great reſtraint, or indulge it in eaſe and freedom: it can place the head exactly as the breaker likes to have it, and work and bend the neck and ſhoulders to what degree he pleaſes. He can raiſe the head, by holding up his hand; by lowering it, it can be brought down; and, if he chooſes to fix and confine it to a certain degree, he muſt uſe for this, as well as for the purpoſe of *bending*, *double reins*; that is, two on each ſide, the ends of which muſt be faſtened in a ſtaple near the pommel of the ſaddle, or to the girths, higher or lower, as the mouth, proportions of the horſe, and his manner of going, require; and, if properly meaſured and adjuſted, they will form and command the colt ſo effectually, as, in a great degree, to palliate many imperfections of the mouth, and many faults in the mould and figure.

The reins thus faſtened, or even one only, for the ſake of working one jaw and one ſide, will operate more or leſs as the branches of a bit; and the ſnaffle will almoſt be a bit, a bridon, a caveſſon, and martingal, in one. When the breaker would bend the colt, he muſt pull the rein on that ſide to which he is going, and lengthen that of the oppoſite, that they may not counteract each other. Nothing will ſtimulate a dull mouth, and bring it to life and feeling, ſo ſoon as this. If the mouth be hard and callous, the iron ſhould be ſo twiſted as to have a ſort of edge, which will ſearch the lips, and, when they will permit, the bars alſo; and if gently moved, or drawn from ſide to ſide, will keep the mouth freſh and cool. If the twiſted or rough ſnaffle be thought too harſh, and the hand not ſkilful enough to moderate its effects, a ſmooth ſnaffle may be uſed; or, if a bit of linen be wrapt round the twiſted ſnaffle, it will make it eaſy and ſmooth; and the mouth, once made fine and delicate, will be true to its feelings, will obey the ſnaffle, and follow the hand with as much exactneſs and preciſion as the bit knows to demand, but with more freedom and boldneſs than it ever can allow. See the article BIT, vol. iii. p. 71.

Much ſeverity of diſcipline, and uſeleſs parade, has for a long time degraded the profeſſion of the horſe-breaker. To do away theſe evils, and at the ſame time to afford every gentleman an opportunity of having his colts broken by any intelligent and truſty groom of his own, the ingenious Mr. Hughes, the celebrated Equeſtrian of the Royal Circus, has publiſhed the following new and eaſy rules for the moſt judicious method of breaking colts.

When the colt has been mouthed, and made familiar and tractable by kind and gentle uſage, put on the head-ſtall and caveſſon, with a pair of long reins; but ſo looſe and eaſy over his noſe, that it may neither abate his courage, nor impair his ſenſibility of feeling. Then in the gentleſt manner put a riding-ſaddle on his back, with an upright ſhort pommel, ſo that the hand may not be impeded from its due and proper exerciſe. The bolſters of it ſhould be broader in the top to incloſe the thigh, and yet to bear ſo ſloping that the knee be not pinched, nor the thigh with-held from the true reſting-place. The ſeat of the ſaddle ſhould be of a reaſonable length and largeneſs, the bolſters behind bearing forward, to incloſe and ſupport the thigh, to the bolſters in the forepart, the ſtrapper of which muſt be broad and ſtrong, and ſo muſt be the girth and buckles, which ſhould be croſs-girded, ſo that the ſaddle may reſt firm upon the colt's back; which will render the ſeat eaſy, ſure, and certain. Let the off ſtirrup be almoſt half a hole ſhorter than the near. But, as the colt is completely ignorant of what his maſter intends for him to do, let an old horſe be ſaddled, and rode before him. At the ſame time let the breaker uſe him with all poſſible gentleneſs, ſtroking and ſoothing him by kind words, and patting his neck. The reins muſt be of an equal length, and you muſt hold them with eaſe, neither too tight nor too looſe, in your left hand.

Being mounted, ſit quietly for a while, leſt the colt ſhould be diſturbed at any ſudden motion. When you are ſettled in the ſaddle, obſerve that your noſe be directly in a line with the horſe's foretop, between his ears, with your legs ſtraight down, neither thruſting down the toe, nor lifting up the heel, but with your foot ſo evenly in the ſtirrup as if you ſtood on the ground. Let the ſtirrup-leathers be rather ſhort than long, winding your toes ſomewhat nearer to the horſe's ſide than the heel, holding the reins parallel with his creſt, even with the point of the withers, and juſt above the mane. Let your thighs and knees be cloſe to the ſaddle, and your feet reſting on the ſtirrups in the due place. Let your body be erect and ſtraight, and your ridge-bone anſwering to that of the horſe; ſo that a kind of mechanical correſpondence may appear between your body and that of the horſe: thus the rider ſits with eaſe and ſecurity, and acquires a full command over the colt he is about to break; and now he is to be taught his paces.

In regulating his powers of progreſſion, endeavour that the feet be put forward in an even and rectilinear direction; and the farther the fore-legs are advanced, the greater will be the proſpect of ſpeed, the hind-quarters being thrown forward in due proportion. The feet ſhould be lifted up a middling diſtance from the ground, ſo that the knee may appear handſomely bent in all his action. If he be defective in bending his knees, let him be exerciſed daily in rough and ſtony roads. Horſes which lift their feet too high, become ſubject to the ſpeedy cut, and will be rough goers. In the other extreme are the colts called *daiſey-cutters*, namely, ſuch as ſkim along the ſurface with a ſtraight knee, and ſcarcely clear the ground; ſuch colts ſhould be broke with blinds, which will ſoon inure them naturally to lift up their feet.

The WALK ſhould be long and ſtriding, not ſhort and ſhuffling. All colts are improved conſiderably in their walk, by keeping them long and frequently to it, patting them on the quarter with the ſwitch, and obliging them to walk fairly out, without ſhuffling; putting them back whenever they deviate from the true pace. Six miles in one hour is the utmoſt that has ever been performed by any horſe in the walking-way.

The TROT ſhould be performed with a quick and ſtraight-forward motion, and a bended knee. The colt which points out his fore-legs, and goes with his knee ſtraight, will never, without great care in the breaker, become a good trotter. The utmoſt ſpeed of an Engliſh trotter is a mile in about two minutes fifty-ſeven ſeconds. Sixteen miles in one hour has been trotted ſufficiently often, and with high weights; eighteen has been upon the trotting-cards.

The CANTER is an abbreviation of the gallop. The fore-legs ſhould be put ſomewhat farther forward than in the trot, the knees handſomely bent, the horſe reclining ſufficiently upon his haunches. If he bend his neck gracefully, rein well, and put forth his legs and feet in an even and elegant manner, there is no pace in which a horſe appears with more grace and beauty. It is the true ladies' pace. The colt is brought into a canter by preſſing the right-hand curb-rein, and at the ſame time lightly and frequently touching his left ſide with the heel. When perfect, he will take the pace eaſily, and without heſitation, on perceiving the accuſtomed hint; and, in the ſame manner, will inſtantly ſtop, and ſink into his walk, without difficulty or danger. Yet this excellent and moſt pleaſant pace of the horſe, from our general defective ſyſtem of breaking, is rarely attended to. Every colt, intended for the road or field, ought to be taught as handſome a canter, whilſt in tackle, as his form will admit. The canter has been ſuppoſed incompatible with faſt trotting, or at leaſt an impediment to it, which is a vulgar error; the extent of the ſtroke, and degree of bending the knee, being nearly equal in both paces. Nor does the cuſtom of cantering at all add to the danger of a trotter's flying out of his pace; for this is the conſequence of unſkilful riding; and, in that caſe, he goes into a gallop, not a canter. Occaſional cantering is moreover a great relief to faſt trotters, which are ever more ſhaken and hurt than any other deſcription of horſes. The canter is a pace to which all bred hacks ought to be accuſtomed, as they have ſeldom much expedition in their trot, and are the leaſt liable to be ſhaken by the hard road in a canter.

It is unneceſſary to ſay more of the GALLOP, than that it is the fleet and rapid pace with which Nature has endued this noble animal, for the purpoſe of eluding its enemies; and of ſporting and exerciſing its gambols, amidſt herds of its own ſpecies, when at large, and in the full enjoyment of the bleſſings of liberty.

For regulating theſe paces with ſkill and preciſion, a large ring muſt be paced out in ſome contiguous ſpot. Ground newly ploughed, with a deep mould, is the moſt proper for treading out the ring. Let the old leading-horſe enter betwixt two furrows, ſo far as the rider may have ſpace and mould enough. Let the young horſe follow cloſe to him, becauſe, having the old horſe for his guide and example, he will be induced to go the more willingly. Then let the old horſe, the colt following at his heels, paſs on the right hand, athwart the furrows, and tread out twice together a round ring, containing in circuit about thirty paces; and, being come a ſecond time to the place where he began, let him tread out the like ring on the left hand, and, when he has gone twice about, let him begin again on the left hand, and ſo continue till he has gone four times ſucceſſively about the left ring, and the right ſix times. This done, let him go gently out of the furrow where he began, about thirty or forty paces, and there ſtand ſtill, keeping his head and body right on the path. A ſkilful perſon ſhould attend to obſerve, and make remarks on, his performance and action. When this exerciſe is accompliſhed, let him walk gently back to the place from whence he ſet out. There let the rider alight, and make much of the colt, by cheering him with his voice, patting his neck, and giving him with his hand a little graſs, hay, or bread, to procure his confidence, and act upon him as a reward. Let a horſe go thus before and after him, for two days.

Having proceeded thus far with your colt, let him begin to lead and pace the ring himſelf, in the ſame gentle manner, for the ſpace of ten days, all the while keeping a temperate, ſteady, and ſecure, hand upon the reins. See now that he carries his forehead juſt as rams do when they prepare to fight; whereby he will learn not only to rein well, but bear his head ſteady and light. And when he knows how to perform what is required of him, and is cheriſhed for performing his duty, he will always be ready to do it freely.

While he is himſelf pacing the ring, the breaker muſt not carry an over-hard hand; but ſo temperately, that the feeling may be always freſh; otherwiſe, by pulling him too violently, you will gall his noſe; to avoid which, he will ſet his head and neck awry; whereas, if he ſtands in the furrow with his neck in a line with his body, the rider moves him gently forwards, and in that very motion turns him on the right hand, by drawing very ſoftly the right rein with his right hand lower under the pommel of the ſaddle, whereto if he yield, (as he certainly will having trod the ſame before,) let the rider immediately encourage him, without either drawing or ſlackening the rein.

After pacing the ring with a good and ſteady walk, it follows, that the colt muſt be taught to trot the ring. He muſt begin with a ſlow gentle trot, in the ſame manner as he was at firſt taught to pace it; that is, increaſe his ring-turns by two and two every day, till he make ten turns for the left ring, and twelve for the right, which will augment his ſwiftneſs: but of this he ſhould be reſtrained till he becomes more perfect, and then he will do it with all the grace and eaſe imaginable; for thus to bring to perfection, is the very quinteſſence of the art. While he is learning the trot, he muſt not be rode with a wand, or wear a ſnaffle, till he is perfect in that action, and ſtops and turns well on both hands. He muſt by no means be ſuffered to gallop, till he can advance *truly* in his trot. With this view, make it your particular care, when you begin to trot the ring, to move him, at firſt, with all the mildneſs and gentleneſs you can deviſe, and let every action be done upon a reſtrained, temperate, and firm, hand, with a gentle ſtay and a true rein; that is, that his noſe be juſt under his forehead, neither jutting out nor drawn in, but in the middle way between both, which is the natural placing and ſetting of his head. This will give him a pleaſant mouth, when he comes to wear the bit, in which the chief excellence of breaking conſiſts; becauſe this gives eaſe, grace, and decorum, to all his actions. This may be eaſily accompliſhed, if the horſe be of a perfect ſhape and good ſpirit. But if he makes reſiſtance, is vicious, or not diſpoſed to obey, then trot him ſwiftly, ſpeaking with a quick voice, adding the whip and ſpur; for the time of his learning to trot is the fitteſt opportunity to make him forget his toys, and ſubmit with alacrity to every command.

The breaker is next to teach him to ſtop, at any moment deſired. For this purpoſe, let him trot the colt right out in the middle furrow betwixt the rings, till he comes to the place of ſtop. There he is to make a pretty long ſtay; obſerving, the while, to keep his body right in the path; but if his body, or any part of it, ſtand acroſs it, do not correct him in a paſſion, but let an attendant put him right in the path again, by thruſting in that part that ſtandeth out, or cauſe the colt to go further in the ſame path, and ſtop him, holding the rein ſtraighter on that ſide to which he forces his head; after that, pull the other rein, which will force him to go right on. If he obeys your hand, be ſure to cheriſh him. After this you ſhould make a practice of ſtopping on any rough or uneven ground.

One chief and principal object of the breaker ſhould be, that the firſt bit he puts in the horſe's mouth be eaſy and pleaſant, and by no means to give him any diſguſt, but that the gentleneſs of it may direct all his movements with eaſe and facility, by the mere motion or turn of the hand. If, therefore, your horſe carries his head well on preſſing it with the bridle, you ſhould preſently eaſe the bridle-hand, and make much of him, for ſo readily ſhowing his obedience; and, whenever he does his duty readily and cheerfully, he ought never to be vexed, but ſoothed and encouraged, which will ſecure his gratitude.

The breaker, having perfected his horſe in the foregoing actions and motions, ſhould ſtay him on the bit, temperately, with an even hand, proportionably to the reſiſtance he makes, without giving him any other liberty, but to ſtrike him gently with his ſwitch on the bowing of his neck, provoking him with a little touch of the ſpur on the ſide to which he moſt writhes his buttock; to the end he may move properly. But, if he willingly draws in one of his fore-feet, make much of him, and then ſtay a while, and by degrees he will underſtand your intent and meaning. If you want him to go back, he will do it lightly with both his fore legs, if he is touched on the neck with the ſwitch or whip, and hears the word *back* ſpoke aloud to him; at the hearing of which, and drawing of the bridle, he will go back, to the rider's deſire. And, whenever he deviates from the right and true way, treat him exactly with puniſhment or reward as above directed, both when he is furious and when quiet.

Let the breaker carefully remark, whenever the horſe puts himſelf in any diſorder, to ſtop him, and make him go backward, as before directed; for by this means he will be brought into right order again; then make much of him, and inſtantly move him forward. In the ſame manner he muſt be uſed in pacing the ring; firſt, gently upon the walk, on the trot, and the gallop; which the breaker muſt be careful to ſee preciſely done, otherwiſe the horſe will gape, thruſt his tongue over the bit to defend himſelf, or ſhoot out his head ſuddenly, pluck it in diſdainfully, or ſhake it, to free himſelf from the preſſure of an intemperate hand.

The breaker ſhould likewiſe be attentive to the true manner of drawing the bridle. When he is mounted on the ſaddle, let him draw the reins equally. If the horſe refuſes to obey the bit, let the bit be ſlackened, and the rider hold the reins in his left hand, under the pommel of the ſaddle, as near the withers as poſſible; and which he muſt not remove, till he feels the horſe ſtay upon the bit; and hold him there without further drawing, till he perceives his head ſtand in the true form. But, if he does not, then let him yield his left hand a little; and, when he has ſtood for ſome time, let him bring his left hand to its former place again, where the horſe made his firſt ſtay upon the bit; then let him draw the reins with his right hand ſomewhat more through his left, as before, but ſo gently as ſcarcely to be perceived, (for ſo ſhould all the motions of the hand be in breaking;) then keep it ſtaid and firm a pretty while, and, if he yield, though ever ſo little, ſtill let him keep his hand at one ſtay, without either ſlackening or drawing it. By this gentle means the colt will feel the eaſe he has got by yielding to it; immediately after which you ſhould careſs and make much of him. But if, after all, he bear not light upon the bit, let the breaker ſtrike him gently upon his knees, to make him go back, whereby he will bring in his head, and then the bit will move, and his hand find eaſe. But, at the ſame inſtant, let him be very careful to keep his hand ſo firm and ſteady, that he neither ſlacken nor draw it, to the end the horſe may feel and be ſenſible of the eaſe of his own motion of yielding, which he will not willingly loſe, it being delightful to his nature; ſince it gives him pleaſure to ſtir and champ the bit in his mouth. When the rider perceives he has conquered his refractory humour, by obſerving the ſame courſe of practice, he may preſerve what he had gained, and ſtill further improve him.

Let not the breaker permit other perſons to ride the colt while under his care, nor till he is perfect in thoſe leſſons he has been teaching him; leſt he be confounded by the diverſity of teachers, and their different manner of treatment. When the horſe is brought to a juſt ſtay and poſition of his head, and an aſſurance of the bit, the owner's care ſhould be to maintain him therein.

Be very careful, when you firſt trot your horſe, to keep a true ſeat and firm hand, ſo that he loſe not the excellent grace and form before preſcribed. But forbear to gallop him before he is quite perfect in his long trot; out of that trot put him into a ſwift gallop in the large ring, even to the ſtop; but in doing this, be cautious that you do not haſtily draw your hand to you, but by a little ſtay of your body, back and hand together, oblige him to retreat a ſtep or two; there ſtay him, and permit him not to go forward; at the ſame inſtant make much of him; and then place your hand and body in their former poſition. Let the breaker frequently walk the colt over ſome deep fallow as faſt as he can for half an hour, but ſuffer him not to trot; let him keep his hand in a firm and temperate ſtay, as before; and if he obſerve his head to be in due place, his carriage light and pleaſant upon the bit, he may be aſſured he has gained the perfection of the hand, and the true uſe of it, for the breaking in and teaching his young horſe. Upon the whole, if he be of a perfect ſhape, his head will be always in the due place, and fall naturally on the bit.

The difference between an expert and an ignorant breaker, may be diſcovered by the actions of a well-trained horſe. Such a horſe appears with all the advantages that an animal of his order is capable of acquiring, and ſhows himſelf, as well as the expert rider, with a noble grace and dignity, and raviſhes the judicious ſpectator with delight and wonder. All theſe perfections may be eaſily attained by good diſcipline, diſcreet management, and allowing *time*, with moderation and temper, which common breakers have little regard to; they in general are quite careleſs whether the colt is in or out of condition, and ride him with ſuch extremity of whip and ſpur, that, if he does not drop down under his burthen, he is at leaſt rendered incapable of performing any of his leſſons for a long while to come.

Having perfected your horſe, as well to trot ſwiftly, as to ſtop, and to go back; the next degree he takes, muſt be rightly and fearleſsly to advance; which is done by teaching him to lift up his fore-feet juſt and even together, like a goat, ſomewhat above the ground, and to let them fall juſt and even, twice or thrice ſucceſſively. If he does this truly and accurately, it will enable him to make a juſt and perfect lunge, and a ready and true turn. The proper method to attain this is, to trot him gently forty or fifty feet in ſome plain way, then give him a ſtop, which he will perform exactly, becauſe he has learnt it already. Let the rider always keep a ſteady and pleaſant hand on the bridle, then inſtantly with a mild voice ſay, *up*, *up*, ſtriking him at the ſame moment on the ſhoulder, and alſo preſſing his ſides with both calves of his legs together, but ſpur him not if he will by any means advance without it. And you need not fear, but with little labour and patient teaching he will attempt to do it twice or thrice together; if he do, let his rider at that inſtant make much of him; after which, let him pauſe a little, and take breath. Then trot him again in the ſame manner the like diſtance of ground, and, as before, uſe him to riſe gently again. But, if he ſhould not mend every time, he muſt ſtill be ſolicited till he do. And, when he will thus advance readily on plain ground, let him be taught gently on the ſide of a hill, to bring him to ſtop perfectly, and run ſliding upon his buttocks or his hind legs, which is very handſome and graceful, as well as compriſing ſafety, either upon a ſoft trot or upon a ſoft gallop. If intended for a hunter, he ſhould now be led to the leaping-bar, which will complete his education.

## OF THE MANEGE, OR BREAKING FOR THE ARMY.

The art of breaking horſes by the rules of the *manège*, was formerly of very high conſideration among the potentates of Europe. Louis XIII. king of France, was at a vaſt expence in erecting riding-ſchools and equeſtrian academies for this purpoſe; and he boaſted, certainly with truth, that he commanded the moſt orderly and beſt-diſciplined cavalry in the world. But his exertions ſoon gave a ſtimulus of a ſimilar kind to the nations he had to contend with; and the ſtates of Germany, with the emperor at their head, in a ſhort time conteſted the palm for a ſuperiority in well-trained horſes. Pruſſia, in time, appeared in this reſpect to ſurpaſs its neighbours; and the utility of the manege was even celebrated in peaceful Italy, and was encouraged in England with great avidity by Charles I. and his immediate ſucceſſors upon the throne.

The maſters of this art divided their diſcipline into the *grand manège*, and the *petit manège*. The object of the grand manege, was to faſhion horſes for the trappings of ſtate, to give them what is called the *grand pas*, and to ſet them upon their haunches like the Pegaſus of the poets, ready to fly away at the ſignal of their maſter. Thus we ſee, in the prints and paintings of thoſe days, that every great perſonage who is repreſented on horſeback, ſits with his horſe thrown upon his haunches, with his fore-feet ſuſpended in the air; or elſe with one foot on the ground, while the other is excerciſing the grand pas. The chief of theſe motions were diſtinguiſhed by the following technical terms: the *terra àt erra*, the *volt*, the *demi-volt*, *corvet*, *capriole*, *croupade*, *balotade*, and the ſtep and leap; which laſt is a motion compounded of three airs, namely, the *terra à terra*, the *corvet*, and the leap, by which the motion is finiſhed. In the *demi-volt*, the horſe raiſes his fore-legs higher than in a *terra à terra*. In the *corvet*, he raiſes all four legs at once, by which he moves forward by a ſort of jump, ſomewhat like the hopping of a crow. In the *croupade*, he leaps with his hind feet drawn under his croup, as if truſſed up under his belly. In the *capriole*, he riſes in the air with all his four feet, like the jumping of a goat, advances in his leap about two feet forward, and, in putting down his fore-feet, he yerks or ſtrikes out his heels with great violence. In the *balotade*, he makes a ſomewhat ſimilar kicking-leap; but on coming down, inſtead of yerking out with all his force, he only throws up his hind feet juſt enough to diſcover his ſhoes. In the *terra à terra*, he performs a number of leaps very cloſe to the ground, raiſing indeed his fore-feet rather higher, but not ſo high as in the corvet; but his hind legs move only juſt above the ground, and are kept all the while in a truſſed form, that, on finiſhing the air, he might be inſtantly ſet upon his haunches, with his fore-feet raiſed, ſo as to proceed on the corvet, if commanded ſo to do. The ſimple *volt*, is no more than a horſe prancing ſideways round a circle; but the poor animal is ſometimes made to perform the ſame ſteps or treads in an oval, equilateral, triangular, or ſtraight-forward, direction, according to the whim or caprice of the breaker. When a horſe is perfect in all theſe motions, he is ſtyled, "a full-dreſſed horſe." But theſe ſlow and fanciful modes of artificial progreſſion have long grown out of uſe with ſagacious princes, and have given place to the more active and vigorous exertions of the horſe, in the way Nature deſigned, with the rapidity of men born to be conquerors, and not the ſlaves of parade and ſhow.

The *petit manège*, was the drilling or training, by which the army riding-maſters fitted the horſe for military ſervice in the ranks. The chief objects of it were to ſet him upon his haunches while the commander-in-chief or any great perſonage paſſed by; and to make him rein well, to give him a cadenced pace, to teach him to rein back, or retreat, to move ſideways, to ſtand fire, and to leap.—In our days, this buſineſs forms a part of *military tactics*.

### OF RIDING, OR THE ART OF HORSEMANSHIP.

Feats of horſemanſhip, ſuch as are exhibited to the admiring multitude by the celebrated equeſtrians Aſtley and Hughes, are by no means of modern date or invention. Theſe bold manœuvres, performed on the backs of horſes in full-ſpeed, appear to have come originally from the Eaſt. At any rate, (ſays profeſſor Beckmann,) thoſe equeſtrian youths, who, in the thirteenth century, ſurpriſed the Byzantine court with their feats of horſemanſhip, and who from thence travelled all over Europe, came firſt from Egypt. They could ſtand on the horſe in full gallop without any ſaddle; mount and diſmount while on full ſpeed in the chaſe, and tumble on the backs of ſeveral horſes in full ſpeed together, while going abreaſt.—What more is achieved in the preſent day? But this ſpecies of horſemanſhip is not the inquiry of the preſent pages; our object is to ſhow the preciſion with which gentlemen and ladies are to maintain their ſeats well on horſeback, and the rules by which they may acquire the art of riding with pleaſure, eaſe, and elegance. Theſe rules having been laid down in a clear and judicious manner by Mr. Hughes of the Royal Circus, we cannot do better than to give them in his words.

If a rider would mount a horſe ſafely and properly, he is not to ſtand near the croup or hinder part of the horſe, with the bridle at a great length in his right hand; for ſo, you are liable to be kicked before you are mounted, or the horſe may go on, and play ſome gambol or trick, before you can ſhorten the rein to prevent him. If you would mount with eaſe and ſecurity, ſtand rather before the ſtirrup than behind it. Then with your left hand, take the bridle ſhort, and the mane together, help yourſelf into the ſtirrup with your right, ſo that in mounting your toe do not touch the horſe. Your foot being in the ſtirrup, raiſe yourſelf, till you face the ſide of the horſe, and look directly acroſs the ſaddle. Then with your right hand lay hold of the hinder part of the ſaddle, and with your left lift yourſelf into it. Thus having a ſure hold with both hands, you may either diſmount ſafely, or throw your leg over, and ſeat yourſelf, without danger of diſturbing your horſe. On getting off the horſe's back, hold the bridle and mane in the ſame manner as when you mounted; hold the pommel of the ſaddle with your right hand, to raiſe yourſelf; bring your right leg over the horſe's back, let your right hand hold the hind part of the ſaddle, and ſtand a moment on your ſtirrup, juſt as when you mounted.

You muſt always hold the bridle at a proper length. Let your poſition on the ſaddle be ſquare, and the purchaſe of your bridle ſuch as not to pull your ſhoulder. Let your body be in ſuch an even poſture, as if you held a rein in each hand. Graſp the reins with your hand, putting your little finger between them. Your hand muſt be perpendicular, the thumb uppermoſt, upon the bridle. Your wriſt ſhould bend a little outward, and in pulling the bridle, lift your hand toward your breaſt. Hold your bridle in your hand at ſuch a length, that, if the horſe ſtumble, you can raiſe his head, and ſupport it with your arms, by throwing your body backwards. If you give the rein too much length, the riſing of the horſe may occaſion your falling backwards. If you ride with a curb, hook it on yourſelf: for, however quiet your horſe may be, ſhould the curb hurt him, he may endanger his rider's neck. When you fix the curb, turn the chain to the right, and the links will eaſily unfold. Let the chain be put on ſo looſe as not to preſs upon his jaw, till the reins are drawn ſomewhat tight.

If the horſe be gentle in temper, and has been taught to ſtand ſtill when mounted, a groom to hold him is uſeleſs; however, ſuffer him not to finger the reins, but only to meddle with that part of the headſtall which comes down the horſe's cheek. The management of the reins belongs only to the rider; and to hold a horſe by the curb when he is to ſtand ſtill, is very wrong, becauſe it puts him to needleſs pain. As ſoon as the rider is mounted, let him ſit quietly a few ſeconds, leſt any ſudden motion ſhould diſorder or diſturb him, till the rider is well ſettled in the ſaddle, with his noſe directly oppoſite to the horſe's fore-top, betwixt his ears, his legs hanging ſtraight down, neither thruſting forward the toe, nor lifting up the heel, but with the ball of his foot flat in the ſtirrup, as if he ſtood upon the ground, the ſtirrup-leather rather ſhort than long, winding his toes ſomewhat nearer to the horſe's ſide than the heel, holding the reins even with his creſt, and with the point of the withers, a little above the mane, with his thighs and knees cloſe to the ſaddle; ſitting with his body erect, his ridge-bone anſwering to the ridge-bone of the horſe; ſo that the horſe and rider may ever ſeem as one body in all motions.

The diſpoſition of the legs and thighs being eſſential to the keeping a graceful ſeat, it may be proper to deſcribe their uſe ſomewhat diſtinctly. To ſit on that part of the horſe, which, as he ſprings, is the centre of motion, is to have a *good ſeat*; and from which, it naturally follows, a weight could not eaſily be ſhaken. The true ſeat is certainly in that part of the ſaddle into which the body naturally falls in caſe you had no ſtirrups; and this you can no otherwiſe preſerve, than by a juſt poiſe of the body. Many riders however hold the miſtaken opinion, that it may be done by the graſp of the thighs and knees. We may form a judgment of the true ſeat by pointing out the two extremes of a bad one: and the firſt of theſe extremes is, when a rider places himſelf ſo far back on the ſaddle, that his weight preſſes hard on the horſe's loins; the other, when he throws his body ſo forward, that it hangs over the pommel of the ſaddle. Nevertheleſs a good ſeat cannot be obtained unleſs the ſaddle fits well; and perhaps it is not very eaſy to preſcribe a certain rule in this caſe. However this may ſerve as a direction, that your ſaddle ſhould preſs as near as poſſible on that part already deſcribed, as the point of union between the man and horſe, yet ſo that the motion of the horſe's ſhoulders be not obſtructed. The middle or loweſt part of it, is your proper ſeat. Sit erect, unconſtrained, or as free as in your ordinary ſitting. The true horſeman is always known by the eaſe of his action.

When you are troubled with a horſe that is vicious, which ſtops ſhort, or by riſing or kicking endeavours to throw you off, you muſt not bend your body forward, as is commonly practiſed; becauſe that motion throws you from your fork or twiſt, and caſts you out of your ſeat; but the right way to keep your ſeat, or to recover it when loſt, is, to advance the lower part of your body forward, and bend back your ſhoulders and upper part. So alſo in *flying* or *ſtanding* leaps, a horſeman's beſt ſecurity is, the bending back of the body. The riſing of the horſe does not affect the rider's ſeat; he is chiefly to guard againſt the laſh of the animal's hind legs, which is beſt done by inclining the body backward. Obſerve farther, that your legs and thighs are not to be ſtiffened, and as it were braced up, but your loins ſhould be lax and pliable, and perfectly at eaſe. By ſitting thus, every rough motion of the horſe will be eluded; but the uſual method of fixing the knees only ſerves, in great ſhocks, to aſſiſt the violence of the fall. To ſave yourſelf in this caſe, you muſt yield a little to the horſe's motion; by which means you will recover your ſeat, when an unſkilful horſeman would be diſmounted.

If you find your thighs are thrown upwards, open your knees, whereby your fork will come lower on the horſe. Let the hollow or inner part of the thighs graſp the ſaddle, yet ſo as to keep your body in a right poiſe. This will be a means to keep your ſpurs from the horſe's ſides, and to bring your toes in properly. Let your heels hang ſtraight down, for, while your heels are in this poſition, there is no danger of your falling. This will ſecure the ſeat on a full trot, or even on a ſwift gallop. You muſt fix on the length of your ſtirrups by your ſeat. If a more preciſe exactneſs is required, let the length of your ſtirrups (of a hunting-ſaddle) be ſo proportioned, that when you ſtand on them, there be the breadth of four fingers between the ſaddle and your body.

If a gentleman has not ſufficiently acquired the art of riding, let him procure it by riding in a large circle without ſtirrups. Let him keep his face directed to the outward part of the circle, yet ſo as to have a view only of the ear, or ſide of the horſe's head, which is on the outward part of the circle, and keep his ſhoulder on the other ſide very forward. This will teach him to balance his body, and maintain his ſeat without the help of ſtirrups; and perhaps may prevent a fall, if he ſhould happen at any time to loſe them, by being ſhaken out of his ſeat.

There is a particular connection between the ſeat and the ſaddle, ſo that the firſt depends very much on the latter; wherefore by ſome a high-pommelled ſaddle is thought dangerous; but the contrary extreme ſo far prevails, that the pommel riſes ſcarcely higher than the middle of the ſaddle. The ſaddle ſhould be fitted to reſt as near the back-bone of the horſe as poſſible, without hurting him, for the cloſer you ſit to his back, the ſafer you ride. From hence it is evident, that the pommel muſt riſe enough to preſerve the withers from being preſſed; ſo that, if a horſe ſhould happen to have his withers higher than common, a higher pommel is neceſſary. To avoid this, it has been propoſed to make the ſaddle in a ſtraighter line, that is, the whole length of it, from the withers to the crupper, almoſt even. But this would be attended with the ſame inconvenience; and you would ſtill be ſeated too high above the horſe's back, without a proper ſeat on the ſaddle. From the button at the ſide of the pommel, to the back part of the ſaddle, there ſhould be no ridge; and for the eaſe of your thighs, that line ſhould be a little concave. Every ſaddle ſhould be *perfectly* adapted to the ſhape of the horſe.

When you are diſpoſed to put your horſe in motion, raiſe his head, and ſlightly touch him with your whip; or elſe, preſs his ſides with the calves of your legs, and ſtill cloſer, if he does not mend his pace, till the ſpur juſt touches him; after which, if he has any ſprit, he will move with the leaſt preſſure of the leg. When you ſpur him, let it not be by a kick; but, if you want to puſh him on briſkly, keep your heels cloſe to his ſides; and, when you find him compliable, ſpare him.

If your horſe becomes unruly, take the reins ſeparately, one in each hand; put your arms forward, and hold him ſhort; but pull not hard with your arms low; for, by lowering his head, he has the more liberty to throw out his heels; but, if you raiſe his head as high as you can, this will prevent him from riſing before or behind; nor, while his head is in this poſition, can he make either of theſe motions.

The rider, who deſires his horſe to make a ſtately appearance, muſt keep his head high, which will oblige him to raiſe his neck and creſt; and play a little with the rein, which will move the bit in his mouth, and prevent him from preſſing on it. There is no danger in raiſing his head too high; he will be too apt to bring it down of his own accord, and fatigue your arms with its weight, whenever he abates of his mettle. At ſuch times as you feel him heavier than ordinary, ſtop him, and make him go back a few paces. Thus his hanging on the bridle will be cured by ſlow, but ſure, degrees. Many perſons are pleaſed with a round neck, and a head drawn in toward the cheſt; but theſe are not a horſe's beauties. When a horſe bridles in his head, provided he carries it aloft, with his neck arching upwards, he is in his proper attitude; but, when he bends his neck downwards, his figure is diſagreeable, his ſight and toes are too near together, he hangs on his bridle, nor will he obey command. It is an undoubted ſign that a horſe is ſure-footed, if he preſſes lightly on his bridle, and you can eaſily guide him. If, on the other hand, he hangs down his head, and weighs you down on his neck, with your arms bearing on his ſhoulders, he will be always liable to ſtumble. If your horſe hangs thus heavy on the bit, tie him for an hour or two, once a-day, with his tail to the manger, and by a rein on each poſt of the ſtall, tied to each ring of the ſnaffle, let his head be lifted as high as you can, and let him remain in that poſture, which will ſoon effect a cure.

Horſe-keepers and grooms agree, that the head ſhould yield to the reins, and the neck form an arch; but they take no care to make it arch upwards. They ſay, that attempting to raiſe a horſe's head makes him puſh out his noſe, that his head is too high already; but they forget that it is not the diſtance from his noſe, but from the top of his head to the ground, which ſhould be the criterion of the height or lowneſs of his head. The neck is raiſed, and the head brought in, by the lifting up of the head; for, even while the bridle is in a ſtraight line from the hand to the bit, it is eaſy to draw in, or thruſt out, the horſe's noſe, juſt as the neck is raiſed or depreſſed. Horſe-dealers commonly uſe a contrary practice, and break their colts with their heads caveſſoned very low, their necks ſtiff, without allowing them the leaſt freedom or ſuppleneſs. When the breaker has finiſhed his operations, and taken off their capariſons, they are mounted for the road, when enjoying more food and reſt, and having not been properly broke, they frequently plunge, which renders it neceſſary to break them a ſecond time. And, as few gentlemen know how to manage their horſes, they are committed to the care of their grooms, from whom, it is highly probable, they will learn many bad habits. Thus, by a wrong management at firſt, the owner is often deprived of the pleaſure and ſervice he expected from his horſe's good qualities and beauty.

Allowing, however, that your horſe carries his head, or his noſe, too high, yet by moving his ſhoulders lightly, and going ſafely, he makes you ſome amends. Obſerve attentively the cauſe of this fault. The necks of ſome horſes are ſet ſo low on their ſhoulder, that they can have no other motion, but to bend firſt down, and then upwards, like a ſtag's. Some have their necks too ſhort. A head ſet on ſuch a neck has not the liberty to bend inwards, ſo as to form an arch, becauſe the neck-bones are too ſhort to be flexible; and yet the number of vertebræ in the long and ſhort necked horſes is the ſame. In ſome, again, you will find the jaw ſo thick, that it adheres to the neck, whereby it becomes impoſſible for the head to bend. In others, the under line from the jaw to the breaſt is ſo very ſhort, that the neck has not room to riſe. Although theſe faults are not to be entirely rectified, ſtill ſomething may be gained by a nice hand with a proper ſnaffle; but no uſe muſt be made of a curb, martingale, or other compulſive method; for none of theſe will force a horſe to carry his head or neck in any poſition which nature has made uneaſy to him.

A rider ſhould never correct his horſe but when gentle means and cheriſhing will not prevail; which every horſe of a good temper will yield to, if he be made ſenſible, what, how, and when, to do that which is required of him. But, if it ſhould happen that correction becomes neceſſary, correct him moderately *at the inſtant he errs.* The contrary practice, however, we are too often witneſſes to, when we behold the common horſe-breakers and ignorant riders to miniſter the moſt violent corrections, when the beholder cannot ſo much as ſee a cauſe, nor the corrector himſelf give a reaſon, for his inhuman ſeverity. Hence it is evident, that when a horſe has been taught, and yet deviates from his diſcipline, he ſhould be puniſhed at the very inſtant he commits the error; *but never correct him for ignorance.*

It is obſerved that dealers are conſtantly *pulling* at their horſes, laying their ſpurs to their ſides, and continually checking them, not by way of correction for any fault or error they have committed, but to make them bound and champ the bit, while the rage they are in is boaſted of as an inſtance of their ſpirit. The manner of their riding with their arms ſpread, and low on the ſhoulders of the horſe, makes them ſtretch their necks, and gives a better appearance to their forehands. By this means they alſo cover a thick jaw, which, otherwiſe, would not yield to the bit; and likewiſe hide the ewe-neck. Theſe however are not the arts of horſemanſhip, but of deception.

Whipping of horſes becauſe they ſtart, ſerves only to increaſe the fault. How is it poſſible he ſhould know that it is intended as a puniſhment? There are few horſes but would paſs quietly by an object they were beginning to fly from, if their riders would throw the reins on their necks, inſtead of ſnatching the bridle ſhort in the hand. When a horſe ſtarts at any thing on one ſide of him, moſt riders will turn him out of the road, and force him up to the thing he ſtarts at. If this does not overcome his fear, and make him readily comply in paſſing the object, he makes a great circle out of the road; inſtead of which he ſhould be taught to keep ſtraight forward, and not regard ſide-objects at all. When he ſtarts at any thing on the left, hold his head high, and keep it ſtraight forward in the road, pulling it away from the thing he ſtarts at, at the ſame time preſſing your leg cloſe to his flank. He will then go ſtraight forward on the road; and, if you turn his head a little more, his croup may be forced up to the object that frightened him. Never quarrel with your horſe if you can help it. If he is apt to ſtart, occaſions enough will offer to teach him obedience. If the thing lies directly in his way which he ſtarts at, force him to paſs it; but do not quarrel with him for trifles, if he is not accuſtomed to ſtarting.

It is too general an opinion, that it is neceſſary to force a horſe to go up inſtantly to the thing he is afraid of, and, how unwilling and reſtive ſoever he may be, he ſhall not be ſuffered to prevail againſt his rider; but this is carrying the matter a little too far. A horſe that has not been uſed to the ſound of a drum, diſcovers his fear when he hears it. The beſt method to conquer this fear is to beat a drum near him when he is feeding. By a frequent repetition of this noiſe, it becomes familiar to him, nay, is pleaſant, and he takes it as a forerunner of his meat; whereas, had he been whipped or ſpurred up to it, it is very probable he would have ſtarted at it ever after. May it not be as reaſonable to ſuppoſe, that a horſe may be as ſucceſsfully cured of ſtarting at other things by gentle uſage; and that his fear would be more eaſily conquered, by permitting him to go a little from, and avoid, an object, which at firſt ſight terrifies him, till by a frequent ſight of it it is familarized to him, and he is convinced that it will do him no harm? This ſeems a much better way than to puniſh him, fall in a paſſion, and at laſt perhaps be obliged to ſubmit to his will. And, ſhould he ever meet with the ſame or a ſimilar object again, you will ſurely encounter the ſame difficulties.

People in general think that a horſe ſtands in fear of nothing ſo much as his rider; but this is not true. Since the horſe's eye is ſuppoſed to be endued with great magnifying powers, may it not happen that he is terrified with the dread of inſtant deſtruction? of being overwhelmed, or drowned, or of falling down ſome horrible precipice? If ſo, can we be ſurpriſed that the ſight of a tilted waggon, with the ends of the tilt ſhivering in the wind, ſhould make him ſhudder, and unwilling to paſs it? May he not apprehend, that what ſeems to hang over his head, will fall upon him? To convince him, therefore, that there is room for him to paſs, obſerve this rule: turn his head a little from the waggon, and preſs your leg hard againſt that ſide which is the fartheſt from the carriage.

Is it not reaſonable to imagine, that, if a horſe is forced towards a carriage which he has ſtarted at, he will think he is obliged to run againſt it? Can it be imagined, that by the rider's ſpurring him on with his face directly towards it, he ſhould underſtand it to be a ſign to paſs it? We all know how apprehenſive a horſe is of the approach of the leaſt danger to his face and eyes, inſomuch that he throws back his head from the hand that offers to touch him in that part, though it be only to careſs and make much of him. Nor can he be compelled by any means (if he can avoid it) to go face to face even to another horſe. Neither the clapping a horſe's neck to encourage him, nor the whipping him for ſtarting, will produce any good effect. All that need be done in this caſe is, to make him ſenſible by ſome tone or expreſſion of your voice, to which he has been accuſtomed, that you diſlike his action. For you may depend upon it, that, if a horſe once foils his rider, he will always prove ſtubborn and diſobedient; and therefore the gentleſt methods will be found to be the beſt.

But, though it is not judicious to drive a horſe up to the carriage he ſtarts at, yet if you ſhould meet with one at a narrow part of the road, which you think will frighten him, after you have made him ſenſible he is to paſs, do not flinch from your purpoſe, but reſolutely puſh him on; eſpecially if part of the carriage is already paſſed by; for, if he has been uſed to back and turn round when frightened, you may aſſure yourſelf he will not do it if he perceives your hand ſlacken, or feels not your legs preſſing him; and this at a point of time, when both you and the horſe are in the greateſt danger, that is, when the wheels of the carriage may take him as he turns. Be ſure at this time not to check him by touching the reins of the curb.

If a horſe cannot perform any thing readily, never put on a curb to compel him to it. A ſnaffle will give you power enough over his head to turn him any way; but, as a curb acts only in a ſtraight line, you can only uſe it in the ſame direction. By a curb you may turn a horſe out of one track into another, but it is becauſe he takes it only as a *ſignal*. If you put on his curb when he is to draw a chaiſe, in which he is obliged to take a larger compaſs in turning, the neceſſity of which he does not apprehend, you will probably find him *reſtive*; but uſe the ſnaffle only, or faſten the rein to that part of the bit which does not curb him, and you will find him pliable to your pull, and he will be ſoon ſenſible of the duty required of him.

In taking a journey, you are not to regard the fine carriage of your horſe, ſo much as the encouragement you ought to give him, and to employ all your thoughts how to keep him in high ſpirits. That both yourſelf and horſe may proceed with the greateſt eaſe and pleaſure, keep his head raiſed; but, if you find he flags, you may ſuffer him to bear a little more on the bit than you would do in an airing. If your horſe falls lame, is tender-footed, or tired, you will ſoon be ſenſible of it by his hanging on the bridle, which is the natural conſequence of his ailment. Your chief reliance, therefore, for the performance of his journey with ſpeed and alacrity, will depend on his mouth, which you will find in good order as long as his ſtrength laſts; and likewiſe on the goodneſs of his feet; which, that they may be always in good order, watch your farrier very narrowly.

Many gentlemen, though otherwiſe well ſkilled in horſemanſhip, have formed an idea, that they have no command of a horſe but by his bridle; and that the only uſe of the ſpur is to make him go forward; but a little experience and obſervation will convince them, that a further uſe may be made of theſe implements, and to the beſt advantage. If he is touched with your left ſpur, and at the ſame time he is not permitted to go on, he takes it as a ſign to move ſideways to the right. Your right ſpur may be applied in the ſame manner, which will produce the like effect on the left. After this, he will obey a touch of your leg, without uſing the ſpur, which he ſtill retains a remembrance of. Thus, when a horſe ſtands in a ſtall, if you pat him with your hand, he moves his croup to the other ſide. And you will find, by a continued practice, that his croup is as much guided by the leg as his head is by the bridle; and he will never diſobey the leg, unleſs he happens to be in a refractory humour. Thus you will acquire an eaſy command over him; by a touch of your leg he will move ſideways, and if you clap both legs to him he will go ſtraight forwards; nay, though he ſtands ſtill, if he perceives your legs near him, he will be on the watch, and, by the ſlighteſt pull of the bridle upwards, will raiſe his head, and give the ſpectators a very advantageous view of his forehand.

The beſt proficients in the *manège* aſſert, that it is on the proper uſe of the rider's legs, and the guidance of the croup, that all the *airs*, as they are called, are taught. It is by theſe documents the trooper is inſtructed to make the paſſage, or ſide-motion, to cloſe or open the files, and to practiſe all the military evolutions. By this diſcipline, too, we may ſave a horſe that is apt to fall or ſtumble. If he feels your legs preſſing on his flanks, and his head raiſed by the bridle, he will go lighter on his fore legs, by which he will be aided and ſupported, which will prevent his ſtumbling; and, if he actually falls, it will help him to regain his footing, if he is not precipitated beyond a poſſibility of recovery. Hence this aſſiſtance given to the horſe by the rider's hand and legs, is called *aids*; for to hold up the weight of a dull horſe, by the ſtrength of your arms, is as impoſſible as to hawl him back when thrown off a precipice. A horſe is more or leſs ſupported by the hands and legs of the rider, in every action which is required of him. When you perceive his ſudden motion to one ſide, claſp your leg cloſe on the ſame ſide, and his ſpring is inſtantly ſtopped. And if you preſs him with both legs, he will keep the direction you give him, and will not fly back from any trifling object he ſees. By the ſame means, in going down a hill, you will keep his haunches under him; relieve his uneaſineſs on the ſide of a bank; direct him in avoiding the wheel of a carriage, and to approach gracefully to the door of a coach, or range by the ſide of another horſeman.

In countries where men have not the advantage of an enlightened education, as in England, they know how to communicate to the horſe they ride all their deſires and commands without either whip or ſpur, or even a touch of the bridle. Mr. Jackſon, in his Journey over Land from Bombay, informs us, that in Armenia, he was an eye-witneſs to feats of horſemanſhip by the natives, which ſurpriſed him. They could pick up whatever they wiſhed from the ground, without quitting their horſes; and had a method of avoiding any obſtacle which preſented itſelf on one ſide, by hanging down on the other, and thus expoſing only one foot, though ſtill going in full gallop. He ſaw ſeveral horſemen on beautiful white Arabians, who appeared to make but little uſe of the bridle, the horſe being principally governed by the motions of the rider's body. If he lean either to the right or left, the horſe will immediately turn to that ſide; and, if the motion be made quick, he goes inſtantly into a gallop. If the rider lean forward, the horſe takes his courſe *ſtraight* on; and when he raiſes his body upright, or inclining backwards, the horſe, though in full ſpeed, will ſtop in a moment, without any check from the bridle. Why ſhould not horſes be made equally docile in this country?

## To MOUNT a LADY.

When a LADY is firſt inſtructed to ride, great care ſhould be taken to fortify her mind againſt every idea of fear; to convince her that there is no danger to be apprehended from ſo noble and generous an animal; and that exerciſe on horſeback is the ſureſt means of ſecuring health, vivacity, and a fine complexion. When about to mount, let a perſon ſtand before the head of her horſe, holding with each hand the upper part of the cheek of the bridle. Then ſhe muſt lay her right hand on the near ſide of the pommel, and her left hand on the left ſhoulder of an attendant, who muſt place both his hands together, the fingers and thumbs being interwoven with each other. This being done, let the lady put her left foot firm in his hands; and, giving a gentle ſpring, ſhe will be vaulted into her ſaddle in a moment. When ſhe is thus ſeated, let her reſt the ball of her left foot firm in the ſtirrup; and, to prevent accidents, ſhe ſhould wear Italian ſhoes with very long quarters, and the heel of the ſhoe coming forward to the middle of the foot. Ladies ſhoes made in the common faſhion are dangerous, becauſe the foot reſts in the hollow between the toes and the heel. Remember that the pommel of the ſaddle ſhould be made very low, that the lady's knee may not be thrown too high; and the ſtirrup ſhould hang low; both which circumſtances will help to give her a graceful appearance, and add to thoſe charms which nature has beſtowed on her. When ſhe is thus ſeated, let her take her whip in her right hand, near the head, with her thumb upon it, and the four fingers under it, holding it obliquely, ſo that the ſmall end of it may be ſome inches above the middle of the horſe's hind leg. The arm that ſupports the whip is always to hang with a kind of negligent eaſe; nothing looks more awkward than a lady holding the whip with her arm crooked at the elbow. She ſhould hold her bridle moderately tight, with her little finger under the rein, and the other three fingers paſſing between the rein, on the top of which her thumb muſt be placed. Being thus ſafely and ſecurely mounted, let her walk her horſe gently off, and put him into his other paces at her pleaſure.

The pommel of a lady's ſaddle ſhould always be made with a turn-again ſcrew, to take off in caſe the rain, wind, or ſun, becomes troubleſome; for then ſhe may ride on the contrary ſide of the horſe; which is the method now purſued by all the beſt horſewomen in England. When a lady has been uſed to riding, the more negligently ſhe ſits, the more graceful ſhe generally appears; perhaps no attitude of a fine woman can upon the whole be more captivating, than when riding with grace and elegance upon a handſome well-faſhioned horſe.

In the eaſtern countries, women ride in the ſame manner as the men, and have a kind of pantaloon dreſſes adapted for the purpoſe. In England, queen Elizabeth ſeems to have been the firſt who ſet the ladies the more modeſt faſhion of riding ſideways. Conſiderable oppoſition was at firſt made to it, as inconvenient and dangerous; but practice, in time, brought it into general uſe, particularly when ladies found they could ride a-hunting, take flying leaps, and gallop over croſs-roads and ploughed grounds, without meeting with more accidents than the men; beſides, it was not only allowed to be more decorous, but in many reſpects more congenial to the eaſe and comfort of a female rider. The preſent faſhion of ladies' riſing in the ſtirrup for the long trot, is a very modern acquiſition. Nothing can impart to woman a more ſtriking air of fire and daſh, than this boldeſt of all the paces, particularly when ſhe has truly learnt to adapt her movements to the ſtroke of the horſe's foot.

## Of the RACER.

From what has been ſtated under the head of BREEDING, it will be eaſy to conceive that the race-horſe is the moſt valuable of all his congeners; not only on account of his ſpeed and beauty, but becauſe from him we derive the blood and mettle, the ſuperior faſhion and make, the innate ſtrength and durability, which more or leſs diſtinguiſh all the ſubordinate breeds of Engliſh horſes.

A true racing pedigree ought to prove, under the hand of the breeder, that the horſe has deſcended from anceſtors of genuine racing blood, without the intervention of a ſingle baſe croſs. If the pedigree be long, it is common to take it for granted that there is blood ſufficient, although there be no mare mentioned which has proved her blood by her having actually raced; but uſually all the horſes are reputed racers, or brothers of ſuch. The greater number of mares which have raced, contained in a pedigree, the ſurer and more valuable it muſt be, particularly if the laſt-mentioned be ſpecified as a reputed racer, from an Arabian or Barb. A pedigree of one ſingle deſcent is held ſufficient, when the ſire and dam are named as reputed and tried racers; otherwiſe a ſhort pedigree of three or four deſcents would not conſtitute a horſe thorough-bred; but it might ſerve for a hunter.

Although the general characteriſtic of thorough-blood is ſpeed, yet the final teſt is not ſpeed, but *continuance*, ſince many common or half-bred horſes have been known to poſſeſs racing-ſpeed, but no inſtance has ever occurred of its continuance in thoſe, beyond perhaps half a mile; the powers of continuance increaſe in proportion to the quantity of blood: thus, three-part bred horſes will preſevere longer than half-bred, and thoſe got by bred horſes out of three-part bred mares, will ſometimes equal the real racers. Although amongſt horſes equally well-bred, ſuperior external conformation will generally prevail in the race, yet racing can in no ſort be ſaid abſolutely to depend on good ſhape; it depends entirely on blood; for example, take the worſt-ſhaped true-bred horſe you can find, and the beſt-ſhaped common horſe; let the latter have a fine coat, looſe thropple, high and declined ſhoulder, length, ſpeed, in fine, all the admired points of the racer, let them run four miles, and the bred-horſe, although out-footed at firſt, ſhall always win the race. This principle is ſo univerſal, that perhaps it would be altogether impracticable to find a thorough-bred horſe in England ſufficiently bad to be beaten four miles by the ſpeedieſt and beſt common-bred hack. But on this ſubject ſee the arguments adduced under the article FARRIERY, vol. vii. p. 235.

The uſual trial of ſpeed in Engliſh racing, is the diſtance of a ſingle mile; of continuance, ſtoutneſs, or bottom, four miles. It has been aſſerted with confidence, that Flying Childers ran a mile over Newmarket in the ſpace of a minute; a velocity ſo immenſe, that it turns one's ideas to ſpeed in the abſtract, or ubiquity. It has however been really performed in a few ſeconds over a minute; an inſtance of which, within our own time, is that of Firetail and Pumpkin.

The diſtance of four miles was run by Childers, in 1721, carrying nine ſtone two pounds, in the ſpace of ſix minutes forty-eight ſeconds. This wonderful animal leaped ten yards with his rider upon level ground; and is ſuppoſed to have covered, at every ſtride, a ſpace of twenty-five feet, which is more than forty-nine feet in a ſecond. Bay Malton ran four miles over York, in 1763, in ſeven minutes forty-three ſeconds and a half. Eclipſe ran the ſame diſtance over York, in eight minutes, with twelve ſtone. In general, a horſe which will run four miles in eight minutes, with eight ſtone ſeven pounds, will certainly win plates.

The ſpeed and continuance of race-horſes muſt neceſſarily be affected and governed, in certain degrees, by the weight which they have to carry; and, reaſoning upon that poſition, it will be eaſily conceived, that if two horſes be equally matched in point of ſpeed and ſtrength, and put to their utmoſt exertion for a conſiderable diſtance, the horſe which carries the leaſt weight, by even only a ſingle pound, muſt infallibly have the advantage of going more ſwift, and laſting longer, than his antagoniſt. The ſwifter the race, and the longer it is continued, the more in proportion will the horſe be affected by the weight he carries. It is ſaid, that in running four miles, ſeven pounds make the difference of a diſtance, or two hundred and forty yards, between horſes of equal goodneſs. This affair of weight is regulated with ſcientific preciſion upon the turf, and forms a prime conſideration in all ſporting tranſactions. The weights carried by race-horſes vary from the maximum twelve ſtone, fourteen pounds to the ſtone, to a feather, which means a boy of the lighteſt weight to be found. It would appear, that hot, eager, and ſpeedy, horſes, are fitteſt for a ſhort race, and that ſuch are uſually beaten by horſes with leſs ſpeed, but ſtouter, at the diſtance of four miles, or, as it is called, *over the courſe.*

The race-horſe is much ſtronger than the cart or common horſe, weight for weight, his ſubſtance being of a much finer, cloſer, and more ſolid, contexture. The bones of the two ſpecies have been very aptly compared to ſteel and iron; the ſinews of the racer are ſtronger and more capable of extenſion than thoſe of the other, in proportion as a rope of ſilk is endowed with more ſtrength and elaſticity than a hempen one of the ſame bulk or weight. Since it hath been ſhown that a horſe does not race from the excellence of his external form merely, the grand principle of blood may be ſaid rather to ſubſiſt in the flexibility of his ſinews; and we may compare the ſkin of the racer to ſilk, his bone to ſteel, and his fibrous ſyſtem to ſolid but ductile gold. See the article FARRIERY, vol. vii. p. 235.

The TRAINING of race-horſes is, at preſent, a much more ſimple and rational proceſs than in former days, and is certainly making a gradual approach to perfection. It was the faſhion of old, to ſtuff horſes under preparation for the courſe with many different kinds of baked bread, to load them with an immenſe burden of clothes, to force them to breathe a ſuffocating heat within doors, and greatly to overdo them with ſevere exerciſe. Breads are now baniſhed the running-ſtables, where the heavieſt oats, and the hardieſt and ſweeteſt hay, are found to anſwer in the fulleſt manner every purpoſe of nutrition.

The uſual length of the exerciſe-gallop, is from a mile to a mile and a quarter; of the ſweat, from four to five miles. The method of SWEATING a race-horſe, is to load him with a double or triple quantity of clothes, and to run him four or five miles upon the turf, keeping him in general to a long ſteady gallop, or his rate, but making occaſional burſts of ſpeed, which have the effect of accelerating the diſcharge of perſpirable matter. After this operation, the horſe is taken within doors, and gradually uncovered, whilſt the ſweat is ſcraped from all parts of his body with an edged wooden inſtrument; when, being rubbed perfectly dry, his accuſtomed clothing is replaced. Sweating is performed in the morning, earlier or later, according to the judgment of the groom.

The following is the general management of the race-horſe. His winter is uſually ſpent in the paddock and open ſtable, enjoying himſelf at his eaſe, until the period of phyſic arrives, which muſt be ſo fixed, that there be at leaſt an interval of two months between the laſt doſe and the firſt race; this interval is of courſe ſpent in due exerciſe. And here it may be ſuggeſted, that no race-horſe can perform, to the full extent of his natural powers, without the aid of purgatives. The ſpring and ſummer are uſually paſſed in exerciſe and racing, the horſe perhaps travelling to a number of different courſes round the country.

A remarkable quality in ſome race-horſes, is, that which is ſtyled in the language of the turf, *running to the whip*; it means anſwering every ſtroke of the whip with an additional exertion, as long as nature laſts. Horſes of this kind are termed "honeſt," and "ſtout;" but the terms are often confounded; for many a horſe is *honeſt*, without being endowed with thoſe conſtitutional powers neceſſary to produce *ſtoutneſs*, or continuance; and many which poſſeſs thoſe in the ampleſt meaſure, which they occaſionally evince, are yet never to be depended upon if whipped. It is dangerous to offend theſe laſt with the immoderate uſe either of the whip or ſpur, ſince we often ſee a winning horſe ſtopped inſtantly by a foul cut under his flanks; and we have known horſes, honeſt and ſtout as the courſe was long, yet with ſuch indignant ſtomachs, and ſuch critical ſkill in their own powers, that, being convinced in a race of the impoſſibility of ſucceſs, if abuſed with the whip, they would inſtantly ſhorten their ſtroke; but if encouraged with a pull, the uſe of which every jockey knows, would, although beaten, ſtrain every nerve to the laſt extremity. Thus attentive obſervation has ſhown the fallacy of ſevere whipping even in the gift of the race; while encouragement by lifting the bridle, and the movement of the legs, often impels a horſe to put forth his utmoſt ſtrength, and come in winner, when leaſt expected.

It is with pleaſure we remark that the general treatment of race-horſes is now mild and conſiderate, and well befitting that ſuperiority which racing-grooms challenge over all others. This profeſſional humanity has even pervaded the circle of the repoſitory, where in the ſtall, and in the ſhow, a bred horſe is treated with diſtinguiſhed mildneſs; unleſs unfortunately he be worn-down and low-priced, in which caſe, according to univerſal analogy, being poor, he is allowed to poſſeſs no rights.

It is univerſally known, that, by the cuſtom of England, all diſputes relative to the affairs of racing may be referred to the opinion of the Jockey Club; a ſociety compoſed of men of exalted rank and high character, whoſe deciſions have ever been honourably diſtinguiſhed for their equity, and whoſe ſcrupulous regard to their reputation, as a public body, has never been impeached.

### Of the HUNTER, and HACK.

The beſt inſtructions we can offer for the choice of a hunter, whether full-bred, half-bred, or three parts-bred, are thoſe given in the recent work of Mr. J. Lawrence. The HEAD ſhould be void of fleſh, and for length and ſize appear to hold fair proportion with the ſize of his body; his eye full, and ſomewhat prominent; eye-lids thin and dry; ears thin, narrow, erect, of middling length, and not far diſtant from each other; forehead flat, not too large or ſquare, and running nearly in a ſtraight line to the muzzle, which ſhould be ſmall and fine; noſtrils capacious; lips thin; mouth of ſufficient depth, and tongue not too large; the jaw-bones wide at top, where they join the neck; the head not abruptly affixed to the extremity of the neck, but with a moderate curvature, and tapering of the latter.

The NECK muſt be of moderate, not of too great a length, nor too thick and groſs on the upper part, nor too large and deep, but riſing from the withers or forehand, and afterwards declining and tapering at the extremity, by which it forms ſomewhat of an arch; underneath, the neck ſhould be ſtraight from the cheſt, and by no means convex, or bellying out.

The SHOULDERS ſhould be capacious, and of large extent, ſo as to appear the moſt conſpicuous part of the body, but without being loaded with fleſh; they ſhould reach fairly to the top of the withers, which muſt be well raiſed; the cheſt ſhould be ſufficiently full, but neither narrow nor pinched.

The BODY muſt be deep and ſubſtantial; back a plane of good width, handſomely rounded; back-bone ſtraight, or with a trifling inclination, and not too ſhort; loins wide, and the muſcles of the reins, or fillets, full, and ſwelling on each ſide the back-bone; the ſpace ſufficient between the ribs and hip-bones, yet ſo as to be well ribbed up, the bones themſelves round, and the buttocks deep and oval; the rump level with, or not too much elevated above, the height of the withers; the croup muſt have reaſonable ſpace, and not ſink too ſuddenly, in which caſe the tail would be ſet on too low, which ought to be nearly on a line with the back.

The HIND-QUARTERS ſhould ſpread to a wider extent than the fore-parts, and the hind-feet ſtand farther aſunder than thoſe before; the thighs ſhould be ſtraight, large, muſcular, and of conſiderable length; the hock wide and clean, the ſhank not too long, but flat, and of ſufficient ſubſtance, its ſinew large and diſtinct, the fetlocks long; the hocks ſhould form an angle of ſuch extent as to place the feet immediately under the flanks. The fore-arms, like the thighs, ſhould be large, muſcular, and of good length, the elbows not turning outwards; the knees large and lean; the ſhank, or cannon-bone, flat, ſtrong, and not too long; the tendon large; the fore-arm and ſhank ſhould form nearly a ſtraight line; fetlock-joints large and clean; paſterns inclining to a certain degree, not too long, but large in proportion to their length; the coronary rings not thick, or ſwelled, but clean, dry, and hairy; the feet neither too high nor too flat, and of a ſize to form a ſufficient baſe for the weight they have to ſuſtain; hoofs of colour dark and ſhining; without ſeams or wrinkles, tough and ſtrong; foot internally concave, ſole hard, but not ſhrunk, heels wide, and of middling height; frog not too large or fleſhy, but tough and ſound; the feet, of equal ſize, ſhould ſtand exactly parallel, ſo that the front or toe incline neither inward nor outward; the fore-feet ſhould ſtand perpendicular to the cheſt, not too much under it, and they ſhould be leſs wide apart than the fore-arms; the legs ſhould not be loaded with hair.

A true high-bred horſe, of the racing kind, when very ſtrong, and full of bone, is by far the beſt calculated for making a capital hunter. The only diſadvantage of blood-horſes for the field, is often their too great delicacy, rendering them ſuſceptible of injury from wet and cold. But ſtill there muſt be a ſufficient portion of blood, or no horſe will make a hunter.

Which then is the moſt proper breed for a hunter? or rather, ſince blood is abſolutely neceſſary, how much ought he to have? Many able breeders are of opinion, that he ought either to be three-parts bred, as much as to ſay, one got by a racer out of a half-bred mare, or *vice verſâ*; or one which is produced from a good-ſhaped hunting-ſtock on both ſides, both ſire and dam having a due ſhare of blood. In theſe mediums we may ſecure ſufficient delicacy, ſymmetry, ſpeed, and continuance; without any of the diſadvantages attendant upon *full*-blood. The produce of three-parts bred mares and race-horſes, which might be called ſeven-eighths bred, have too generally the diſadvantages of the latter, without the benefit of their peculiar qualifications.

Mettleſome horſes are generally ſpeedy and ſafe goers, pleaſant to ride, the beſt flying-leapers, and their legs ſtand clean in the ſtable. With judicious management they will endure to the very laſt hour of the chaſe, and in careful hands will beat all other horſes in the field. But ſuch hunters are ever to be treated in a kind and encouraging manner, and never ſuffered to exhauſt themſelves by being put early in the day to the extent of their ſpeed or ſpirit. They ſhould be reſtrained with temper, and encouraged with kindneſs. It is inconceivable to thoſe who have not made the trial, to what a degree of perfection the faculties of ſuch a horſe may be brought, by rational and conciliating uſage. In a very ſhort time, the ſound of his maſter's voice is at once loved, feared, and obeyed. Inſtead of a reluctant ſlave, you have an humble and faithful friend, a willing ſharer in your toils, and in your pleaſures; even an agreeable companion, who, although he cannot converſe, underſtands you well; who takes every hint, every indication, from your hand or voice, in an inſtant; and plainly ſhows a pride and pleaſure in obedience, whether it be to conſtrain himſelf for your eaſe, or exert the whole of his powers, even till he drops under you! While ſuch advantages are practicable by the eaſy and pleaſing offices of humanity, who would take the pains to be a tyrant?

As for the ſize of a hunter, perhaps ſixteen hands ought to be the extreme for the heavieſt weight. Fifteen hands, to fifteen hands and a half, are the favourite ſizes. It is obvious, that in the field low horſes can never clear their leaps ſo well, or carry a man ſo gallantly over the country, as thoſe of a commanding ſize.

The beſt recommendation of a HACK, is the valuable gift of trotting with *ſpeed* and *ſafety*; a qualification which is extended but to few horſes of any deſcription. An idea, however, prevails, that trotting-horſes are naturally ſtumblers, or are at leaſt dangerous to ride. It is totally unfounded. They are, perhaps, from their mode of going, among the ſafeſt; nor is there any peculiar danger in the moſt rapid trot, provided your hack be well put together, and ſound. The notion has ariſen from the miſerably battered ſtate of too many horſes of this deſcription.

The favourite ſize for a hack, is from fourteen hands and a half to fifteen and a half; and he ſhould be completely formed, well ribbed up, ſhort-jointed, deep-cheſted, and thoroughly ſound in the feet. If a young trotter be obtained, it will be perceived, in an inſtant, whether he has a natural bent of ſpeed; but if not, granting he be thorough-ſhaped, and can trot a mile in four minutes handſomely, he may improve, and become capital for a long-diſtance. In training a young trotter, take a long time, keep him almoſt always within himſelf, never trot him with a ſlack rein, or ſuffer him to hitch, lead with one leg, or to get into a confuſed run between trot and gallop; but accuſtom him to pull well and ſteadily at the bit. Always oblige him to finiſh his trot in a walk, never in a canter or gallop; in which latter caſe cauſe him to turn round, as is the cuſtom in a trotting-match. No horſe is fit to trot any conſiderable diſtance until riſing ſix years old; but it is remarkable that trotters, unlike gallopers, do not loſe their ſpeed from old age, many having been known to trot as faſt at twenty, and even near thirty, years of age, as they did in their prime; a ſolid recompence, ſurely, for the extraordinary care which theſe horſes demand. They ſhould have the beſt grooming, and the conſtant uſe of a looſe ſtable.

To be able to perform ſixteen miles in one hour, a horſe muſt have ſpeed enough to trot a mile in conſiderably leſs than three minutes and a quarter. If he be full of meat, and in work, from a fortnight to a month's training is ſufficient; and that by no means in the ſevere way which it is uſually practiſed by jockeys, who ſometimes contrive to win their match, and loſe their nag. Four miles trotting in the morning, through the laſt of which *you muſt go along*, and good walking-exerciſe in the afternoon, is fully ſufficient. This ought to be preceded by a gentle doſe or two of phyſic. Trotters ſhould always be ridden with a double-reined bridle, moderately curbed.

The faſteſt trotter ever known in England was called Archer, from the name of the perſon who brought him to London; and, from his having been bred in Norfolk, it is probable he was of the ſtock of Old Shields. He was a bay gelding, full fifteen hands high, and maſter of fifteen ſtone; being the property of Marſden, the dealer, who alſo poſſeſſed an old one-eyed black gelding, which was timed by the ſtop-watch for two miles, the laſt of which he performed conſiderably under three minutes. Archer performed ſixteen miles in fifty-four minutes and a half, carrying eleven ſtone. The exceſſive ſhaking which he ſuffered from the hardneſs of the road, brought a fever upon him, which, with the aid of ſuppreſſed perſpiration, and improper treatment, ſoon killed him.

As Archer was the ſpeedieſt, the well-known brown mare, which died the property of Mr. Biſhop, proved herſelf the ſtouteſt, that is to ſay, the moſt laſting, trotter in the world. This mare was full fifteen hands and a half high, with bone ſufficient to carry twenty ſtone; ſhowed ſome blood, with a mixture of the cart-breed, ſuch as we frequently ſee in farmers' hacks. Her neck was ſhort, forehand well elevated, ſhoulder deep; but not very oblique; nor was ſhe proportionally deep in the girth. She was a daſhing goer; but was never able to trot the mile in three minutes.

In 1783 ſhe trotted over the Epſom road ſixteen miles in fifty-eight minutes and a half, carrying twelve ſtone. This was ſaid to be the firſt time that ſixteen miles in one hour, *with twelve ſtone*, had ever been trotted. In October 1791, being then eighteen years old, ſhe trotted on the Rumford road, ſixteen miles in fifty-eight minutes ſome odd ſeconds, with twelve ſtone, beating Mr. Green's horſe, for fifty guineas. It was probably within her powers to have trotted thirty miles in two hours; which diſtance was actually trotted in two hours and ten minutes by Ogden's cheſnut mare.

A grey mare, called the lockſmith's mare, trotted ſeventy-two miles in ſix hours.

In 1793, Crocket's grey mare trotted one hundred miles in twelve hours, and had twenty minutes to ſpare.

A five-year-old, ſon of Young Pretender, trotted, in 1792, in Lincolnſhire, ſixteen miles in fifty-nine minutes, carrying *fifteen ſtone*.

In April 1792, the yellow bay gelding, called Spider, and the old cheſnut gelding, then near thirty years of age, above-mentioned, trotted thirty-two miles in two hours, between Stilton and Cambridge; weight nearly ten ſtone. Spider trotted the firſt twenty-four miles in a hour and a half, bating a minute and a half; and the old cheſnut horſe the remainder. It was ſaid, that they could have performed thirty-four miles within the given time.

## OF DRAUGHT HORSES.

An erroneous idea has long prevailed concerning draught or cart-horſes; that, provided they are large and heavy, all further conſiderations are needleſs. On the contrary, it is both theoretically and practically true, that great powers for draught muſt depend materially upon juſt proportion; and that four thorough-ſhaped horſes will draw with facility a weight which would puzzle five ordinary ones, although of equal, or even ſuperior, ſize: a truth which every perſon ought to reflect upon, who has a conſiderable number of thoſe animals to maintain.

A capital cart-horſe ſhould not be more than ſixteen hands high, with a briſk ſparkling eye, a well-ſhaped head, and ſhort pricked ears, full cheſt and ſhoulder, but ſomewhat forelow; that is to ſay, having his rump rather higher than his forehand; ſufficient general length, but by no means leggy; large and ſwelling fillets, and flat bones; he ſhould ſtand wide on all fours, but wideſt behind; bend his knees well, and have a briſk lively walk. Many perſons object to *length* in a cart-horſe; however nothing is more true, than that, in the account of juſt proportion, length muſt not be forgotten; and that not only length, but a certain degree of room and freedom of ſhape, is abſolutely neceſſary to enable the horſe to make thoſe reſolute pulls, and active ſprings, which contribute more than mere bulk to the tranſlation of a dead maſs of weight. Above all, be careful to avoid chooſing the looſe, leggy, and weak-loined; ſuch are the worſt poſſible ſhapes of draught-horſes.

The breeds of cart-horſes now moſt in repute, are the CLEVELAND BAYS, the SUFFOLK PUNCHES, thoſe of CLYDESDALE in Scotland, and the HEAVY BLACKS of our midland counties.

The Cleveland bays, are a breed of horſes that have derived much advantage from having been croſſed with ſtallions which inherited ſome ſhare of high blood. They are principally diſtinguiſhed by their bright bay colour; their form is good; their ſize large; and their activity, ſtrength, and hardineſs, ſuperior to moſt other of the draught kind. With full-blood ſtallions, this variety is ſaid to afford excellent hacks and road-horſes; and, with half-bred ſtallions, excellent coach-horſes. They move quick, are very alert, and capable of great exertion. This valuable ſort of horſes is produced in different parts of the counties of York, Durham, and Northumberland.

The Suffolk punches are a very uſeful ſort of horſes for the purpoſe of the farmer. They are diſtinguiſhed by the colour, which is moſtly yellowiſh or ſorrel; by having a white blaze in the face; by the head being rather large; ears wide; muzzle coarſe; fore-end low; back long, but ſtraight; ſides flat; ſhoulders too far forward; hind quarters rather high about the hips; legs round, and ſhort in the paſterns; deep-bellied; full in the flank, but not large in ſize. This on the whole, though but an ordinary ſort of horſe in regard to form, is found highly uſeful in draught, eſpecially for the plough and cart. Theſe horſes are extremely hardy, and capable of performing more labour than moſt other ſorts. They are chiefly bred in the diſtrict of High Suffolk.

The Clydeſdale horſes have alſo a high character, and are ſaid to anſwer better than any other breed for the buſineſs of agriculture in hilly diſtricts. They are diſtinguiſhed by their colour, which is moſtly grey or brown; neck longer than in the Suffolk kind; head better formed; eyes more ſprightly and animated; body lighter and better formed; legs clean and ſinewy; ſtep firm but nimble;

ſize from fifteen to ſixteen hands and a half high. This is a ſtrong, hardy, and active, ſort of horſes, which is ſaid to have been produced by croſſing the Scotch mares with Flanders ſtallions. They are remarkably true and reſolute in the draught. This ſort of horſes is chiefly predominant in the diſtrict which bears their name in Scotland.

The heavy black horſes are a ſort that may be employed with advantage for many purpoſes of heavy draught; but they are not in general ſo well adapted to the buſineſs of the farmer. This kind is diſtinguiſhed by the colour, being conſtantly black; by being coarſe in their form, and ſeldom well-proportioned; ſlow in their motion; with rough fleſhy legs; ſize generally larger than either of the preceding kinds. This breed of horſes prevails in the midland diſtricts, in Leiceſterſhire, Derbyſhire, Lincolnſhire, &c. where the mares are chiefly employed in the fens, fed on plenty of coarſe ſour graſs, covered by large heavy ſtallions of the ſame breed, their offſpring being diſpoſed of according to their ſizes; the largeſt for dray-horſes, the next for draught in waggons or other teams, and the ſmalleſt for the purpoſes of the artillery.

It is evident from the nature of theſe different ſorts, that for the purpoſes of farm-labour horſes ſhould be chiefly ſelected from the Cleveland, the Suffolk, and the Clydeſdale, kinds: the firſt affording ſuch as are adapted to great exertion and diſpatch; the improved ſort of the Suffolk kind being well ſuited to field-work where much perſeverance is required, ſince they can be conſtantly employed in this ſpecies of labour without inconvenience. And the laſt ſort, from the great muſcular exertion that can be occaſionally employed, as well as from their being true in the draught, are particularly ſuited to hilly farms. With reſpect to economy in keep, and the expence in procuring, the two laſt ſorts are probably to be preferred, as they are both very hardy, and can in general be obtained at eaſier prices. From the great advantage that has lately been found in employing, even for the purpoſes of draught, in the more heavy ſorts of carriages, ſuch horſes as have a little of the true racing blood in them, the uſe of the heavy breeds is becoming every day leſs frequent and neceſſary.

## OF WILD HORSES.

Under the article Equus, vol. vi. p. 886, we have ſpoken pretty fully on the natural ſagacity and economy of wild horſes, and of the countries where they are found; to which entertaining narrative we ſhall now add the account lately publiſhed by D. Felix Azara, of the wild horſes which abound in Spaniſh America. He ſtates that theſe horſes were originally carried from Spain by the firſt conquerors, and are of the Andaluſian breed. They chiefly frequent the ſouthern part of the River de la Plata, as far as Rio Negro, the country of the Patagonians, &c. The wild horſes of all theſe countries live in numerous herds, ſome of which, it is ſaid, conſiſt of ten thouſand. As ſoon as they perceive domeſtic horſes in the fields, they run towards them on a full gallop, paſs through the middle of them, or near them, careſs them, and invite them with a kind of grave or prolonged neighing. The domeſtic horſes are ſoon ſeduced, unite themſelves to the independent herd, and depart along with them. It happens not unfrequently that travellers are ſtopped on the road by the effect of this deſertion. To prevent it, they halt as ſoon as they perceive theſe wanderers, watch their own horſes, and endeavour to frighten away the others. In ſuch caſes the wild horſes follow a certain kind of tactics; ſome are detached before, and the reſt advance in a cloſe column, which nothing can interrupt. If they are ſo alarmed as to be obliged to retire, they change their direction, but without ſuffering themſelves to be diſperſed: ſometimes they make a great number of turns around thoſe which they wiſh to ſeduce, in order to frighten them; at other times they retire after making one turn. Theſe manœuvres are not employed during the night, for the wild horſes then make no attempts. The author is ignorant whether any thing of the ſame kind takes place between one herd of wild horſes and another for the purpoſe of recruiting their number. He aſſerts that Buffon is miſtaken in ſaying that theſe wild horſes have more ſtrength and fleetneſs than the domeſtic horſes of the country, and that they do not differ from the latter either in height or ſhape: but he indeed obſerves, that no compariſon can be made between the independent and domeſtic ſtate of theſe animals, as in that country both ſtates are almoſt ſimilar.

Thoſe who poſſeſs *eſtancias*, or paſtures for keeping domeſtic horſes, place in them a certain number of mares, which are never broke or mounted. They remain during their whole lives in a ſtate of perfect liberty; and for every thirty or forty mares there is a ſtallion, which enjoys the ſame independence. They are counted once or twice a-week, in order that they may not ſtray from the habitation. But too little care is employed in the choice of the ſtallions; and this, in all probability, is one of the principal cauſes why theſe horſes, though left at full liberty, are neither ſo beautiful nor ſo good as thoſe of Andaluſia, from which they are deſcended. The induſtry of man improves the breed of thoſe animals which he appropriates to his own uſe, and, by bringing their ſhape and organs to perfection, indemnifies them for that liberty of which he deprives them. Each ſtallion takes poſſeſſion of a ſmall troop of mares, which he keeps collected by preſſing them with his cheſt, and by biting them if they do not obey with ſufficient docility: the mares, on the other hand, remain attached to their ſultans. If two ſtallions fight, the mares do not abandon the conquered for the conqueror, unleſs the former has ſhown among them a deficiency of vigour.

The fillies remain with their mothers. When it is time to break the colts they are cut, for no perſon mounts a horſe until that operation has been performed. After caſtration, a halter is put upon the animal intended to be broke; he is tied to a ſtake; a ſaddle is placed upon his back, and well girded, but without crupper or breaſt-leather, and a thong is tied round his under-lip, to which is faſtened, on each ſide, a rein, in order to govern him. The horſeman then mounts with large ſpurs, and rides out into the fields. At firſt the young horſe capers and jumps until he is quite fatigued; after which he is brought back to the ſtake. This exerciſe is repeated ſeveral times in the courſe of the ſame day, and is renewed after the interval of ſeveral days until the courſer capers no more. He is then employed as a broken horſe, but with a halter only; a bridle is not put upon him till a year after, at which time he quits the name of *rodomont* to aſſume that of horſe.

As ſoon as the horſes are cut, they are ſeparated from the mares, and put among the animals of the horſe ſpecies uſed for ſervice, which receive no other ſhelter or food than what they find in the fields. They are accuſtomed to live in one canton, which they never quit. Each unites himſelf to a companion, and with ſuch intimacy, that inſtances have been known of ſome of them, after running away, having returned more than ſixty leagues to rejoin their old friend. Theſe friends know each other by their neighing, their ſmell, and the noiſe of their pace.

When the proprietors are deſirous to prevent a numerous troop of domeſtic horſes from ſeparating, they place among them a young mare with a ſmall bell, and which is then called the godmother. They all follow her, and they all know and ſeek for each other as members of the ſame ſociety. The ſame effect may be produced by attaching the bell to one of the horſes of the troop.

When the inhabitants have need of horſes, a man on horſeback, bearing a lance, proceeds towards a troop of theſe animals, and drives them into an incloſure formed of palliſades. A horſeman then enters it, and, when he is within reach, entangles the horſe which he wiſhes to catch with a kind of rope; for, though theſe horſes are fit to be mounted, and ſaid to be docile, they will not ſuffer themſelves to be touched with the hand.

From what has been ſaid, it may be readily ſeen, that there is really very little difference between the habits of theſe wild horſes and of thoſe which live in a ſtate of domeſticity. It needs excite no wonder, therefore, that there ſhould be very little in regard to their form, ſize, and qualities.

When the inhabitants wiſh to convert ſome of theſe wild horſes into domeſtic ones, people mounted on horſeback proceed towards a troop of the former; and when they approach them, they throw ſome of the ropes already mentioned around their legs, ſo that, being prevented from running, they have time to ſecure them. They are then tied to a ſtake, or a tree, not by the four legs, as ſome have ſaid, but with a ſimple halter made of leather. They are left two or three days without food or drink, are afterwards cut, and are then broke in the ſame manner as the domeſtic horſes. The horſe behaves then as if he had never been wild; but it is not true that they loſe all deſire of recovering their liberty. They readily unite with a troop of wild horſes; and how can it be otherwiſe, ſince thoſe even which have been reared in a ſtate of domeſticity have no repugnance to join them?

The proprietors of the paſtures deſtined for thoſe horſes which have been tamed, endeavour not only to frighten away the wild horſes, but even to exterminate them. With that view they beat the woods in queſt of them, drive them, if poſſible, into ravines, and kill them by means of lances. The Pampas eat their fleſh, and particularly that of the fillies, colts, and mares; but they ſometimes kill a very fat ſtallion to make a fire with his greaſe and bones, as in the country of Pampa wood is extremely ſcarce.

The Spaniſh author often contradicts Buffon, not only in regard to local obſervations, which is not aſtoniſhing, but alſo in regard to general ideas, ſuch as the influence of climate, &c. D. Felix Azara refutes the aſſertion of the French naturaliſt, who aſcribes more ſtrength and fleetneſs to the wild than to the domeſtic horſes of theſe countries. He even aſſerts, that he has not been correct in ſaying that each wandering troop ſubmit, by common conſent, to a chief, which ſerves as a guide; which regulates and directs their movements; forms them in the order of battle, by files, companies, ſquadrons, &c. The truth, according to the author, is, that each ſtallion appropriates to himſelf as many mares as he can, which he takes care of, and keeps collected; that he combats any other ſtallion which attempts to deprive him of them; and that each wandering troop conſiſts, therefore, of a number of ſmall diſtinct bodies, which ſometimes unite into one.

In the great number of wild troops which the author ſaw, he never obſerved any other prevailing colours than bay, dark brown, and jet black. If it ſometimes happens that a pied or dirty grey-coloured individual is ſeen, or one of any other colour, it may with certainty be concluded that it is a domeſtic horſe which has deſerted. According to the author, there are ninety bay for one dark brown horſe; and black horſes are ſo uncommon, that one of them is ſcarcely ſeen in two thouſand. He thence infers, that theſe three colours, bay, dark brown, and jet black, are a primitive mark, which diſtinguiſhes, at leaſt in part, the horſes which recover their liberty; that the firſt horſe and mare which exiſted had one of theſe three colours, and moſt probably the bay, ſince it appears that, among the wild horſes, the black is becoming extinct, and that this will be the caſe alſo with the brown; that, taking the colour as an index, we might ſay, that the beſt breed of horſes is the bay, then the brown, and next the black; all the other colours being inferior, as they are the reſult of more diſtant degradations from the primitive horſe, which muſt have been the moſt perfect. Experience ſeems, in ſome meaſure, to confirm theſe conjectures; for, except in a few caſes, which are of little conſequence, the bays are the moſt eſteemed, and the browns hold the next rank. He obſerves, that in France a prejudice is entertained againſt the laſt-mentioned colour, which he thinks unreaſonable, and which in his opinion ſeems to ſhow that the French, in this reſpect, have not ſo much diſcernment as the Spaniards. Theſe obſervations, and the inferences which the author draws from them, ſeem to weaken the confidence which might be placed in what has been ſaid by Buffon, on the authority of Herodotus, Leo Africanus, and Marco Polo, of wild white horſes ſaid to have exiſted in Arabia and Numidia. We know how ſuſpicious the teſtimony of the ancients is in regard to natural hiſtory, and that the authority of Buffon himſelf has little weight when he gives teſtimonies inſtead of obſerved facts.

With reſpect to the LONGEVITY of horſes, it is a ſubject that has never yet been ſatisfactorily aſcertained, and on which naturaliſts are moſtly ſilent or doubtful. It has been generally ſaid, that horſes will live to twenty-five or thirty years; but it is well known, that, with moderate work and mild treatment, they will live many years longer. Francis Marſh, eſq. of Droxford in Hampſhire, had a horſe of the ſaddle kind which lived to the great age of fifty years, and died in February 1807, in conſequence, as was ſuppoſed, of the very ſevere froſt of that winter. The ſame gentleman had a mare, which lived to complete the fortieth year of her age, and died in 1792. Theſe events were within the cognizance of the writer of the preſent article; and it might tend greatly to the elucidation of the ſubject, were ſimilar obſervations to be made and recorded by thoſe who have more favourable opportunities, either by holding veterinary occupations, or by ſpending their lives in a regular and judicious attendance upon horſes.

## LAWS RELATING TO HORSES.

By ſtat. 11 Hen. VII. c. 13, horſes were not to be conveyed out of the realm, without the king's licence, on pain of forfeiture of the value. Perſons having lands of inheritance in parks, &c. were ordered to keep two mares apt to bear foals thirteen hands high, for the increaſe of the breed of horſes, on pain of 40s. for every month they are wanting; and not ſuffer them to be leaped by ſtone-horſes under fourteen hands, on a penalty, by ſtat. 27 Hen. VIII. c. 6. And for the preſervation of a ſtrong breed of horſes, ſtone-horſes above two years old are directed to be fifteen hands high, or they ſhall not be allowed to run in foreſts or commons, where mares are kept, upon pain of forfeiture; and ſcabbed or infected horſes ſhall not be put into common fields, under the penalty of 10s. by ſtat. 32 Hen. VIII. c. 13; ſtill in force.

Stealing of any horſe, gelding, or mare, is felony without benefit of clergy; but acceſſaries to this offence are not excluded clergy. If any horſe that is ſtolen be not ſold according to the directions of the ſtat. 2 and 3 Phil. and Mary, c. 7, the owner may take and ſeize the horſe wherever he finds him; or have action of detinue, &c. To prevent horſes from being ſtolen and ſold in private places, this ſtat. 2 and 3 Phil. and Mary, c. 7, provides, that all owners of fairs and markets ſhall appoint toll-takers or book-keepers, who are to enter the names of buyers and ſellers of horſes. And to alter or change the property, the horſes muſt be rid or ſtand in the open fair one hour; and all the parties to the contract *muſt be preſent* with the horſe. And by ſtat. 31 Eliz. c. 12, ſellers of horſes are to procure vouchers of the ſale to them; and the names of the buyer, ſeller, and voucher, and price of the horſe, are to be entered in the toll-taker's book, and a note thereof delivered to the buyer; and if any perſon ſhall ſell a horſe without being known to the book-keeper, or bringing a voucher; or if any one ſhall vouch without knowing the ſeller; or the book-keeper ſhall make an entry without knowing either; in theſe caſes the ſale is void, and a forfeiture is incurred of 5l. And the ſaid ſtatute provides, that a horſe ſtolen, though ſold according to the direction of the act, may be redeemed and taken by the owner within ſix months, repaying the buyer what he ſhall ſwear he gave for the ſame. And by ſtat. 22 and 23 Car. II. c. 7, any perſon maliciouſly killing or deſtroying any horſes in the night, ſhall be guilty of felony, puniſhable by tranſportation for ſeven years. Maliciouſly hurting or wounding horſes in the night, to forfeit treble damages to the owner.

Horſe-ſtealing having got to a great pitch, and many of thoſe uſeful animals having been ſtolen, merely for the purpoſe of ſelling them as dogs'-meat, and for their hides, the following ſtatute was made to put a ſtop to this iniquitous traffic: By ſtat. 26 Geo. III. c. 71, no perſon ſhall keep any place for ſlaughtering any horſe or other cattle, not killed for butchers'-meat, without taking out a licence at the general quarter-ſeſſions, to be granted upon a certificate of the miniſter and churchwardens that the perſon applying is proper to be truſted with the carrying on ſuch buſineſs. Such licence to be ſigned by the juſtices at ſeſſions, and a copy entered in a book to be kept for that purpoſe by the clerk of the peace; and all perſons ſo licenſed ſhall cauſe to be painted over their gates, their name and the words "Licenſed for ſlaughtering horſes purſuant to an act paſſed in the 26th year of his majeſty king George III."

Every occupier of ſuch licenſed ſlaughter-houſe ſhall, ſix hours previous to the ſlaughtering any live horſe, or to the flaying any horſe brought dead to the ſlaughtering-houſe, give notice in writing to the after-mentioned inſpector, who is to take an exact account of the height, age, colour, and particular marks, of every horſe, &c. and keep the ſame in a book. And no ſuch horſe ſhall be ſlaughtered or flayed but between the hours of eight in the morning and four in the evening, from October to March, both incluſive, and between ſix in the morning and eight in the evening from April to September, both incluſive. Every perſon ſo licenſed ſhall, at the time any horſe, &c. ſhall be brought, make an entry in a book of the name and abode, and profeſſion, of the owner, and alſo of the perſon who ſhall bring the ſame to be ſlaughtered or flayed, and the reaſon why the ſame is ſo brought; which book ſhall at all times be open for the examination of the inſpector, and produced before any juſtice, when required.

The pariſhioners in veſtry ſhall annually or oftener appoint one or more perſons to be inſpectors of ſuch ſlaughtering-houſe: and in caſe ſuch inſpector ſhall, upon examination of any horſe, &c. intended to be ſlaughtered, believe that ſuch horſe is free from diſeaſe, and in a ſound and ſerviceable ſtate, or that the ſame has been ſtolen, he ſhall prohibit the ſlaughtering ſuch horſe, &c. for not exceeding eight days; and in the mean time ſhall cauſe an advertiſement to be inſerted in ſome public newſpaper twice, or oftener, (unleſs the owner of ſuch horſe ſhall ſooner claim the ſame,) at the expence of the occupier of ſuch ſlaughtering-houſe; who, on refuſal to pay the ſame, ſhall forfeit double the amount, to be raiſed by diſtreſs. Every inſpector may at all times in the day or night, but if in the night then in the preſence of a conſtable, enter into and inſpect any place kept for ſlaughtering horſes by licenſed perſons, and take an account of the horſes, &c. therein.

In caſe any perſon offering to ſale or bringing any horſe, &c. to be ſlaughtered or flayed, ſhall refuſe to give an account of himſelf, or of the means the ſame came into his poſſeſſion, or if there be reaſon to ſuſpect that ſuch horſe is ſtolen; ſuch perſon ſhall be carried before a juſtice of peace, who ſhall commit him for not more than ſix days to be further examined; and, if ſuch juſtice ſhall be ſatisfied that ſuch horſe is ſtolen, the perſon bringing the ſame is to be committed to gaol to be dealt with according to law. And any perſon keeping ſuch ſlaughtering-houſe tranſgreſſing the rules before laid down by the act, ſhall be guilty of felony, and puniſhed by fine and impriſonment, and ſuch corporal puniſhment by whipping, or ſhall be tranſported for not more than ſeven years, as the court ſhall direct.

Any ſuch perſon deſtroying, or defacing with lime, or burying, the hide or ſkin of any horſe, or being guilty of any offence againſt this act for which no puniſhment or penalty is provided, ſhall be adjudged guilty of a miſdemeanor, and puniſhed by fine and impriſonment, and ſuch corporal puniſhment by whipping, as the court ſhall direct. Making falſe entries ſubjects the party to a forfeiture not exceeding 20l. nor leſs than 10l. to be levied by diſtreſs, half to the informer and half to the poor; and in caſe the offender ſhall not have effects to the amount of the penalty, he may be committed to hard labour in the houſe of correction for not more than three months, nor leſs than one. The book of the inſpector ſhall be produced at every general quarter-ſeſſions.

If any perſon ſhall occaſionally lend any barn or place for ſlaughtering any horſe, &c. without taking out ſuch licence, he ſhall forfeit not more than 20l. nor leſs than 10l. half to the informer and half to the poor; or be committed to gaol for not more than three months nor leſs than one, unleſs the penalty is ſooner paid. This act does not extend to curriers, &c. nor to farriers, nor perſons killing horſes to feed their own dogs. But if any currier, tanner, &c. ſhall, under colour of their trades, knowingly kill any ſound horſe, or boil the fleſh thereof to ſell, ſuch tradeſman becomes an offender under this act, and ſhall forfeit not more than 20l. nor leſs than 10l.

## PRESENT DUTY ON HORSES, (1810.)

I. *Duties payable for all Horſes, Mares, and Geldings, kept and uſed by any perſon or perſons for the purpoſe of Riding, or drawing any Carriage chargeable with duty.*

| Number. | Duty for each. | | | Number. | Duty for each. | | |
|---|---|---|---|---|---|---|---|
| | £. | s. | d. | | £. | s. | d. |
| For 1 ſuch horſe, &c. | 2 | 13 | 6 | For 11 horſes, &c. | 5 | 17 | 6 |
| 2 - - - - | 4 | 9 | 6 | 12 - - - | 5 | 17 | 6 |
| 3 - - - | 4 | 18 | 6 | 13 - - - | 5 | 18 | 0 |
| 4 - - - - | 5 | 2 | 0 | 14 - - - | 5 | 18 | 0 |
| 5 - - - | 5 | 3 | 0 | 15 - - - | 5 | 18 | 0 |
| 6 - - - - | 5 | 7 | 6 | 16 - - - | 5 | 18 | 0 |
| 7 - - - | 5 | 10 | 0 | 17 - - - | 5 | 18 | 6 |
| 8 - - - - | 5 | 10 | 0 | 18 - - - | 5 | 19 | 6 |
| 9 - - - | 5 | 12 | 0 | 19 - - - | 6 | 0 | 0 |
| 10 - - - - | 5 | 17 | 6 | 20 and upwards | 6 | 1 | 0 |

The ſaid duties to be payable annually for every horſe, mare, or gelding, uſed on any occaſion for the purpoſe of riding, or of drawing any carriage for which duty is payable, or hired by the year, or any longer period, and to be paid by the perſon uſing the ſame, except as after-mentioned.

*Exemptions.* 1. Any perſon who ſhall keep any horſe, which ſhall be uſed truly and without fraud for the purpoſe of huſbandry, or of drawing any carriage (except ſuch carriages as are liable to duty) or carrying burdens in the courſe of the trade or occupation of the perſon to whom ſuch horſe ſhall belong, although ſuch horſe ſhall be uſed for riding in the manner herein-after mentioned; that is to ſay, when returning from any place to which any load ſhall have been drawn, or in going to any place from whence any load ſhall be to be brought back, or on account of ſuch horſe having been uſed for riding to procure medical aſſiſtance, or to or from market, or to or from any place of public worſhip, or to or from any election of members in parliament, or to or from any courts of juſtice, or to or from any meeting of the commiſſioners of taxes; provided ſuch horſe ſhall not, on any occaſion, be uſed for any other purpoſe ſave as aforeſaid.

2. Any perſon occupying a farm as tenant at rack-rent, the rent of which ſhall be leſs than 70l. a-year, and making a livelihood ſolely thereby; or any perſon occupying any eſtate, on any other tenure than as tenant at rack-rent

ſolely, or ſuch eſtate together with a farm at rack-rent, the value of which in the whole ſhall be leſs than equivalent to a farm at the rack-rent of 70l. a-year (reckoning the value of every eſtate occupied by the owner, or on any tenure other than as tenant at rack-rent, as equivalent to double the amount of the like farm at rack-rent), and making a livelihood ſolely by ſuch his own eſtate, or by ſuch eſtate and farm jointly, and uſing occaſionally for the purpoſe of riding any horſe which ſhall be *bonâ fide* kept for the purpoſes of huſbandry.

3. Any perſon occupying a farm, and making a livelihood ſolely thereby, or any perſon carrying on a trade, and making a livelihood ſolely thereby; or making a livelihood by ſuch occupation and trade jointly; or any eccleſiaſtical perſon not poſſeſſed of an annual income of 100l. or upwards, whether ariſing from any eccleſiaſtical preferment or otherwiſe, for one horſe, uſed only for the purpoſe of drawing any carriage liable to the duty on taxed carts.

### II. *Duties payable on Horſes let to hire.*

For every horſe, mare, or gelding, let to hire for the purpoſe of riding, or of drawing any ſuch carriage as aforeſaid, for any period of time leſs than one year, in any manner ſo that the ſtamp-office duty, payable on horſes let to hire, ſhall not be payable, the ſum of 2l. 13s. 6d. to be charged annually on the perſon letting the ſame; but, if a due return thereof ſhall not be made by the hirer, the progreſſive duty ſhall be chargeable in reſpect of every ſuch horſe, on the perſon hiring the ſame, and making ſuch default, and ſhall alſo for ſuch default forfeit 50l.

By 25 Geo. III. c. 51, poſt-maſters, inn-keepers, and other perſons, letting poſt-horſes without a licence, forfeit 10l. and keeping more than one inn under one licence, 20l. Every licenſed perſon to paint on the outſide pannel of each door of the chaiſe his chriſtian and ſurname, and place of abode, on pain of 5l. Alſo, *Licenſed to let Poſt-horſes* on the fronts of their houſes, on pain of 5l.

### III. *Duties payable on Horſes kept for the purpoſe of Racing or running for any plate, prize, or ſum of money, or other thing, or kept in training for any of the ſaid purpoſes.*

For every horſe, mare, or gelding, *bonâ fide* kept for the purpoſe of racing or running for any plate, prize, or ſum of money, or other thing, or kept in training for any of the ſaid purpoſes, whether in the ſtables of the proprietor or of any other perſon, the ſum of 2l. 13s. 6d. The ſaid duty to be charged annually on the perſons having the cuſtody, charge, or management, of ſuch horſes.

### IV. *Duty on Draught Horſes and Mules.*

For every horſe, mare, or gelding, not chargeable with any duty under the former heads, and for every mule, except in the caſes herein-after mentioned, wherein other duties are made payable, the ſum of 14s.

### V. *Duties payable on Huſbandry Horſes.*

Any perſon occupying a farm at rack-rent, the rent of which ſhall be leſs than 20l. a-year, and making a livelihood ſolely thereby, or occupying any eſtate on any other tenure than as tenant at rack-rent ſolely, or ſuch other eſtate together with a farm at rack-rent, the value of which in the whole ſhall be leſs than equivalent to a farm at the rack-rent of 20l. a-year, reckoning the value of every eſtate occupied by the owner, or on any tenure other than as tenant at rack-rent, as equivalent to double the amount of the like farm at rack-rent, and making a livelihood ſolely by ſuch his own eſtate, or by ſuch eſtate and farm jointly or principally thereby, and likewiſe a profit by any trade or employment, and keeping not more than two horſes, geldings, or mules, *bonâ fide* for the purpoſe of ſuch occupations, ſhall be charged for each the ſum of 2s. 10d.

Any perſon occupying a farm at rack-rent in Wales or Scotland, the rent of which ſhall be leſs that 10l. ſterling a-year, and making a livelihood principally thereby, or occupying any eſtate on any other tenure than as tenant at rack-rent, or ſuch other eſtate, together with a farm at rack-rent, the value of which in the whole ſhall be leſs than equivalent to a farm at the rack-rent of 10l. ſterling a-year, reckoning the value of every eſtate occupied by the owner thereof, or on any tenure other than as tenant at rack-rent, as equivalent to double the amount of the like farm at rack-rent, and making a livelihood principally thereby, and likewiſe a profit by any trade or employment, and keeping not more than two horſes *bonâ fide* for the purpoſes of ſuch occupation, or of ſuch trade or employment, jointly, or either of them ſeparately, ſhall be charged for each of two ſuch horſes, or mules, the ſum of 2s. 10d.

The ſaid duties to be charged annually, and paid by the perſons keeping or uſing ſuch horſes or mules, and to be payable for every horſe and mule which ſhall not be chargeable with any duty according to the preceding head.

*Exemptions.*—Any perſon whatever for any horſe, mare, or gelding, not being of the height of thirteen hands, of four inches to each hand, or which ſhall not at any time whatever have been uſed for any purpoſe of labour, or otherwiſe.

### GENERAL EXEMPTIONS.

1. Any horſe belonging to his majeſty, or any of the royal family.

2. Any poſtmaſter, or perſon licenſed by the commiſſioners of the duties on ſtamps, in reſpect of any horſe let to hire, in any manner where the ſtamp-office duty payable on horſes let to hire ſhall be paid on each letting, and which ſhall not be uſed for any other purpoſe.

3. Any perſon licenſed to keep any public ſtage-coach, in reſpect of any horſe which ſhall be ſolely uſed by ſuch perſon in drawing ſuch ſtage-coach from place to place for hire.

4. Any perſon licenſed to keep any hackney-coach, for any horſes kept for the purpoſe of drawing ſuch coach.

5. Any dealer in horſes aſſeſſed to the duties on dealers for any horſe, mare, or gelding, kept *bonâ fide* for ſale, and not kept or uſed for any other purpoſe.

6. Any perſon who, on account of poverty, ſhall be diſcharged from the aſſeſſment made in reſpect of his dwelling-houſe, for any horſe; provided ſuch perſon ſhall not keep more than one, and the ſame ſhall not be let to hire.

7. Any rector, vicar, or curate, actually doing duty in the church or chapel of which he is rector, vicar, or curate, who ſhall not be poſſeſſed of an income of 60l. per annum from eccleſiaſtical preferment or otherwiſe, and who ſhall not keep more than one horſe for the purpoſe of riding, except ſuch perſon who ſhall occaſionally perform the duty appertaining to any rector, vicar, or curate, without being the regular officiating miniſter of the pariſh.

8. Every perſon ſerving in any corps of yeomanry or volunteers, who ſhall have attended the exerciſe of his corps five days of muſter and exerciſe at the leaſt in the courſe of the preceding year, unleſs prevented by actual ſickneſs, and who ſhall be returned in the muſter-roll as having uſed any horſe for ſuch ſervice, ſhall be exempted from the payment of the duties in reſpect of ſuch one horſe.

9. Any non-commiſſioned officer or private of any of the regiments of cavalry, or in the artillery, for any horſe uſed in his majeſty's ſervice.

### DUTY ON HORSE-DEALERS.

Every perſon who ſhall uſe or exerciſe the trade and buſineſs of a horſe-dealer within London and Weſtminſter, and the liberties of the ſame reſpectively, the pariſhes of St. Mary-le-bone and St. Pancras, the weekly bills of mortality, or the borough of Southwark, in the county of Surrey, the annual duty of 22l. 10s.

Every perſon who ſhall uſe the trade and buſineſs in any other part of Great Britain, the annual duty of 11l. 5s.

"It is a good HORSE that never ſtumbles." The moral of this proverb is intended to ſhow, that there is no creature but what may ſome time or other make a falſe ſtep; and therefore pleads an excuſe for thoſe perſons who may inadvertently commit an error either in word or action; thus putting a check upon intemperate blame, or uncharitable cenſure.

HORSE (The), a ſmall iſland or rock in the North Sea: two miles and a half eaſt from the iſland of Pomona.

HORSE-BAL'LET, ſ. A horſe-dance.

HOR'SE-BEAN, ſ. A ſmall kind of bean uſually given to horſes.

HOR'SE-BEECH, ſ. in botany. See Carpinus.

HOR'SE-BLOCK, ſ. A block from which to mount a horſe.

HOR'SE-BOAT, ſ. A boat uſed for conveying or ferrying horſes.

HOR'SE-BOY, ſ. A boy employed in dreſſing horſes; a ſtable-boy.

HOR'SE-BREAKER, ſ. One whoſe employment is to tame horſes, and to the ſaddle.—Under Sagittarius are born chariot-racers, *horſe-breakers,* and tamers of wild beaſts. *Creech.*

HORSE-CHES'NUT. See Æsculus.

HOR'SE-CLOTH, ſ. A cloth to throw over a horſe.

HOR'SE-COURSER, ſ. One that runs horſes, or keeps them for the race. A dealer in horſes.

HOR'SE-CRAB, ſ. A large kind of ſhell-fiſh. *Ainſworth.*

HORSE-CU'CUMBER, ſ. The large green cucumber.

HOR'SE-DANCE, ſ. A dance awkwardly performed.

HOR'SE-DUNG, ſ. The excrement of horſes.

HOR'SE-EYE-BEAN. See Dolichos.

HOR'SE-FACE, ſ. A face with large features. *Johnſon.*

HOR'SE-FEEDER, ſ. One who feeds horſes, and trains them for the road or race.

HOR'SE-FLESH, ſ. The fleſh of horſes.—The Chineſe eat *horſe-fleſh* at this day, and ſome gluttons eat colt's-fleſh baked. *Bacon.*

HOR'SE-FLY, ſ. A fly that ſtings horſes, and ſucks their blood, commonly called the *foreſt-fly.* See Hippobosca, p. 188 of this volume, with the correſpondent engraving.

HOR'SE-HAIR, ſ. The hair of horſes:

His glitt'ring helm, which terribly was grac'd
With waving *horſe-hair.* *Dryden.*

HOR'SE-ISLAND, a ſmall iſland near the ſouth-weſt coaſt of Ireland, and county of Kerry: three miles north from Hog's Head.

HOR'SE-ISLAND, a ſmall iſland of Scotland, in the Frith of Clyde, near the coaſt of the county of Ayr. Lat. 55. 41. N. lon. 1. 39. W. Edinburgh.

HOR'SE-ISLANDS, a cluſter of ſmall iſlands near the eaſt coaſt of Newfoundland. Lat. 50. 25. N. lon. 55. 30. W. Greenwich.

HOR'SE-LAUGH, ſ. A loud violent rude laugh:

A *horſe-laugh,* if you pleaſe, at honeſty.
A joke on Jekyl. *Pope.*

HOR'SE-LEECH, ſ. A horſe-doctor. The leech that bites horſes, and ſucks their blood. See the article Hirudo, in this volume, and the correſpondent engraving.

HOR'SE-LITTER, ſ. A carriage hung upon poles between two horſes, in which the perſon carried lies along. —He that before thought he might command the waves of the ſea, was now caſt on the ground, and carried in a *horſe-litter.* 2 *Mac.* ix. 8.

HOR'SE-MEASURE, ſ. A rod divided into hands and inches, in order to meaſure horſes.

HOR'SE-MEAT, ſ. Provender.—Though green peaſe and beans be eaten ſooner, yet the dry ones that are uſed for *horſe-meat* are ripe laſt. *Bacon.*

HOR'SE-MINT. See Mentha.

HOR'SE-MUSSEL, ſ. A large muſſel. See the article Mytilus.—The great *horſe-muſſel,* with the fine ſhell, that breedeth in ponds, do not only gape and ſhut as the oyſters do, but remove from one place to another. *Bacon.*

HOR'SE-PIPE, ſ. in botany. See Equisetum.

HOR'SE-PLAY, ſ. Coarſe, rough, rugged, play.—He is too much given to *horſe-play* in his raillery, and comes to battle like a dictator from the plough. *Dryden.*

HOR'SE-POND, ſ. A pond for horſes.

HOR'SE-RACE, ſ. A match of horſes in running.—Trajan, in the fifth year of his tribuneſhip, entertained the people with a *horſe-race.* *Addiſon.*

HORSE-RAD'ISH. See Cochlearia.

HOR'SE-SHOE, ſ. A plate of iron nailed to the feet of horſes. See the article Farriery, vol. vii. p. 244, and the correſpondent engraving.

HOR'SE-SHOE, a rock in the Iriſh Sea, near the eaſt coaſt of Ireland: one mile ſouth of Wicklow Head.

HOR'SE-SHOE-HEAD, ſ. A diſeaſe in infants, in which the ſutures of the ſkull are too open. *Scott.*

HOR'SE-SHOE-POINT, the moſt ſoutherly point of land near the eaſt end of the iſland of St. Chriſtopher. Lat. 17. 19. N. lon. 63. 32. W. Greenwich.

HOR'SE-SHOE-VETCH. See Hippocrepis.

HOR'SE-STEALER, ſ. A thief who takes away horſes.

HOR'SE-TAIL, ſ. in botany. See Equisetum.

HOR'SE-TAIL (Shrubby). See Ephedra.

HOR'SEBACK, ſ. Riding poſture; the ſtate of being on a horſe.—If your ramble was on *horſeback,* I am glad of it, on account of your health. *Swift to Gay.*

When manniſh Mevia, that two-handed whore,
Aſtride on *horſeback* hunts the Tuſcan boar. *Dryden.*

HOR'SEMAN, ſ. One ſkilled in riding.—A ſkilful *horſeman* and a huntſman bred. *Dryden.*—One that ſerves in wars on horſeback.—Encounters between *horſemen* on the one ſide, and foot on the other, are ſeldom with extremity of danger; becauſe, as *horſemen* can hardly break a battle on foot, ſo men on foot cannot poſſibly chaſe *horſemen.* *Hayward.*—A rider; a man on horſeback:

A *horſeman's* coat ſhall hide
Thy taper ſhape, and comelineſs of ſide. *Prior.*

HOR'SEMANSHIP, ſ. The art of riding; the art of managing a horſe:

Peers grew proud, in *horſemanſhip* t' excell;
Newmarket's glory roſe, as Britain's fell. *Pope.*

HOR'SENECK, a point of land, on the north ſide of Long Iſland, in North America, between Hog's Neck and Eaſton's Neck.

HOR'SENECK, a town of the American States, in Fairfield county, Connecticut, called by the Indians *Pai hom ſing,* ſettled in 1680: ſix miles north-eaſt of Rye, in Weſt Cheſter county, New York ſtate. A bloody battle was fought here between the Dutch and the Indians, in 1646. The Dutch with great difficulty obtained the victory. Great numbers were ſlain on both ſides; and their graves appear to this day. It is fifty-three miles ſouth-weſt of New Haven, and thirty-ſeven north-eaſt of New-York city.

HOR'SENECK, a townſhip of the American States, in Eſſex county, New Jerſey, on the ſouthern bank of Paſſaic river above the Little Falls, four miles ſouth-weſt of the town of Patterſon.

HOR'SENS, a ſea-port town of Denmark, ſituated on the Baltic, in Jutland, in the dioceſe of Aarhuus. The harbour is too ſhallow to admit veſſels deeply laden, ſo that goods are brought to the town in lighters. It is a place of conſiderable trade, with manufactures of flannel and other woollen ſtuffs, and contains two churches: nineteen miles ſouth-ſouth-weſt of Aarhuus. Lat. 55. 57. N lon. 9. 45. E. Greenwich.

HOR'SEWAY, ſ. A broad way by which horſes may travel:

Know'ſt thou the way to Dover?
—Both ſtile and gate, *horſeway,* and footpath. *Shakeſpeare.*

HOR'SHAM, a large and pleaſant town in the county of Suſſex, pleaſantly ſituated in the Weild, thirteen miles from Dorking, twenty from Brighthelmſtone, and thirty-ſix from London. It ſends two members to parliament, and is governed by a ſteward, and two bailiffs, who are the returning officers. Horſham had its name from Horſa, brother to Hengiſt the Saxon; and has ſent members to parliament ever ſince the 30th of Edward I. Here is a large new-built county gaol; and here the Lent aſſizes for the county are conſtantly holden. The church is a very ancient ſtructure, large, and handſome. Here is a large free-ſchool, and other charitable endowments. The market-day is Saturday; alſo on the laſt Tueſday in every month there is a large market for cattle. Here are five fairs annually, viz. Monday before Whit-Sunday; July the 18th, the Saturday following, November the 16th, and November the 27th.

HOR'SHAM, a townſhip of the American States, in Montgomery county, Pennſylvania.

HORS'ING, *ſ.* Mounting on horſeback; covering a mare; putting a boy on another's back previous to flogging.

HORS'LEY (John), a learned Engliſh antiquarian, a native of Northumberland, educated at the grammar-ſchool of Newcaſtle-upon-Tyne. He was afterwards entered in one of the Scotch univerſities, where he took his degree, and then ſettled at Morpeth, as paſtor to a congregation of diſſenters. He died in December 1731, at the age of forty-ſix. His great work, entitled *Britannia Romana*, did not appear till 1732, ſome time after his death. It contains an hiſtorical relation of the Roman tranſactions in Britain; and a deſcription of the Roman walls, illuſtrated with maps. The ſecond part contains a collection of all the Roman inſcriptions and ſculptures which have been diſcovered in Britain; and the third part is devoted to the geography of the iſland, as laid down in Ptolemy, Antonine's Itinerary, the Notitia, &c. Mr. Horſley was likewiſe well verſed in mathematical ſtudies, and gave lectures in the ſeveral branches of natural philoſophy with great approbation, both at Newcaſtle and Morpeth.

HORST, a town of Germany, in Weſtphalia, and biſhopric of Paderborn: ten miles weſt-ſouth-weſt of Paderborn, in the road to Lipſtadt.

HORST, a town of Germany, in Weſtphalia, and county of Mark: ſix miles north-north-weſt of Hattingen.

HORST, a town of Germany, in the duchy of Holſtein: four miles eaſt of Krempe.

HORST'MAR, a town of Germany, in Weſtphalia, and biſhopric of Munſter: fifteen miles north-weſt of Munſter. Lat. 52. 9. N. lon. 24. 48. E. Ferro.

HORSZC'ZYK, a town of Poland, in the palatinate of Volhynia: forty-eight miles north from Zytomiers.

HOR'TA, or HORTI'NUM, in ancient geography, a town of the Sabines, on the confluence of the Nar and the Tiber. *Virgil.*

HOR'TA, a town of Portugal, in the province of Beira: one league and a half ſouth from St. Joza da Peſqueira.

HOR'TA, or ORTA (Garcius ab), a Portugueſe herbaliſt, and profeſſor of philoſophy in the univerſity of Liſbon. In 1534, he embarked for the Eaſt Indies, in the fleet commanded by De Souſa. He afterwards became firſt phyſician to the count of Redondo, viceroy of the Indies; and died at Goa, in an advanced age. He compoſed a valuable work in the Portugueſe language, on the medicinal and edible plants of India, entitled *Coloquios ſobros os ſimplices, &c.* Goa, 1563, 4to. which gave to Europe the firſt notice of the vegetable riches of that country. His work was nearly copied by Chriſtopher da Coſta, in a book on the ſame ſubject, only throwing it out of the dialogue form, and adding figures. Cluſius alſo tranſlated it into Latin; and other verſions were made of it in different languages.

HORTAL'IGER, *ſ.* Among the Turks, one of the officers who are to prepare the tents and lodgings for the grand ſignior and his retinue on any expedition. *Dict. of Arts.*

HORTA'TION, *ſ.* [*hortatio*, Lat.] The act of exhorting; a hortatory precept; advice or encouragement to ſomething.

HOR'TATIVE, *ſ.* [*hortor*, Lat.] Exhortation; precept by which one excites or animates.—Generals commonly in their *hortatives* put men in mind of their wives and children. *Bacon.*

HOR'TATIVE, *adj.* Belonging to exhortation.

HOR'TATORY, *adj.* [*hortor*, Lat.] Encouraging; animating; adviſing to any thing; uſed of precepts, not of perſons; a *hortatory* ſpeech, not a *hortatory* ſpeaker.

HORTEN'SIA, *ſ.* in botany. See HYDRANGEA.

HORTEN'SIA, [Latin.] The name of a woman; the daughter of Hortenſius; a Roman lady of remarkable eloquence.

HORTEN'SIAN, *adj.* [*hortus*, Lat. a garden.] Belonging to a garden.

HORTEN'SIUS (Quintus), a celebrated Roman orator, born in the year before Chriſt 115. He began to plead at the age of nineteen; and the firſt cauſe in which he appeared was that of the people of Africa; and he afterwards pleaded for the king of Bithynia. When judicial proceedings were interrupted by the Social war, Hortenſius entered into the army, and roſe to the poſt of military tribune. He afterwards paſſed through the uſual courſe of civil offices to the conſulſhip, which he ſerved with Cæcilius Metellus in the year before Chriſt 70. At that period he had acquired ſo much power and diſtinction by his eloquence, that, when the lot of the Cretan war fell upon him, he reſigned it to his colleague, preferring the peaceable triumphs of the forum and ſenate-houſe. He excluſively led the Roman bar till the appearance of Cicero, who was his junior by ſome years, and firſt rivalled, and then ſurpaſſed, him. It was to the credit of theſe two great orators that they lived on terms of friendſhip, which is imputed to the mediation of Atticus, the common friend of both. Cicero has teſtified that Hortenſius was not the enemy or detractor of his praiſes, but rather the partner of his labours and fame; and that they never impeded each other's career, but, by their mutual communications, admonitions, and encouragements, were each other's auxiliaries. Hortenſius was a writer, and publiſhed annals, orations, and licentious verſes; but he gained leſs reputation by his pen than by his powers as an advocate. He continued to plead till within a few days of his death, which happened in his ſixty-fourth year, before Chriſt 51.

HORTENSIA, daughter of the orator, inherited her father's eloquence; which ſhe exerciſed in pleading the cauſe of the Roman ladies before the triumvirs, Antony, Octavius, and Lepidus, who had iſſued an edict compelling them to declare their property as preparatory to a heavy taxation. Her harangue was extant in the time of Quintilian, who ſpeaks of it with diſtinguiſhed applauſe.

HORTEN'SIUS (Lambert), a Dutch writer, born in 1518, at Montfort, in the province of Utrecht. He derived his Latin name from the circumſtance of being ſon to a gardener. He ſtudied firſt at the univerſity of Louvain; and afterwards was a preceptor in the college of St. Jerom at Utrecht, and entered into prieſt's orders. In 1544 he accepted the prefecture of the college of Naerden, which he held till his death. At the cruel ſack of that town by the Spaniards in 1572, (ſee the article HOLLAND, in this volume,) his houſe was pillaged, and his natural ſon maſſacred before his eyes. He himſelf was near undergoing the ſame fate, when he was recogniſed and ſaved by an officer who had been his ſcholar. He died a year or two afterwards at his country-houſe near Naerden. He wrote annotations on the ſix firſt books of the Eneid, and on Lucan's Pharſalia: they were publiſhed after his death at Utrecht, in 1578. His other works were, 1. *Seceſſionum Civilium Ultrajectinarum Lib. VII.* 2. *De Bello Germanico a Carolo V. Cæſ. geſto, Lib. VII.* 3. *De Tumultu Anabaptiſtarum.* 4. *Satyrarum Lib. VIII.* 5. *Epithalamiorum Lib. I.*

HOR'TES, a town of France, in the department of the Upper Marne, and chief place of a canton, in the diſtrict of Langres: three leagues eaſt from Langres.

HORTICUL'TURAL, *adj.* Belonging to horticulture.

HORTICULTURE, *ſ.* [from *hortus*, Lat. a garden, and *cultura*, cultivation.] The art or profeſſion of a gardener; the act of planning and forming the different compartments of a garden, as well for beauty, pleaſure, and ornament, as for the propagation of eſculent vegetables, the raiſing and training of fruit-trees, and the care and management of the hot-houſe, green-houſe, &c.

Our idea of a garden is as ancient as the creation of our firſt parents, who were placed in the garden of Eden, "to till and to dreſs it." Hence it has been juſtly inferred, that a garden is the pleaſanteſt, moſt accommodating, and healthieſt, ſpot for the dwelling of man; for it is now well known, that vegetation purges the air of its azotic effluvia, while the perpetual ſucceſſion of odoriferous plants, fruits, flowers, and herbs, impregnate the ſurrounding atmoſphere with aromatic and grateful fragrance, highly favourable to health and longevity. Of this fact we have a remarkable proof, in the biographical ſketch given of Dr. Hodges, p. 217 of this volume; who, being one of the phyſicians deputed by the city of London to attend the ſick and dying patients in the great plague of 1665, wholly eſcaped the infection, and preſerved his life, by having a pan of burning coals conſtantly carried before him into which perfumes and aromatic herbs were continually thrown, to purify the air around him. Poets and hiſtorians, both ancient and modern, have celebrated in lofty and captivating language the felicities of a highly-cultivated garden; while the ingenious Mr. Hervey, in his Meditations on a Flower Garden, has fixed our contemplations on the goodneſs and benignity of Him, by whoſe bounty all things were brought into exiſtence for the accommodation and comfort of his creature Man.

As the firſt arts of civilization took place in Aſia, it is to the eaſtern world that we muſt turn our enquiries for the moſt ancient garden. Noah, we are told, planted a vineyard; but Solomon ſurpaſſed all others in the extent and magnificence of his garden. Flowers and fruits are particularly ſpoken of as the ornaments and the produce of it; and aromatic vegetables formed a conſiderable part of the gratifications it afforded. The camphor and the cinnamon-tree, with all trees of frankincenſe, and all the chief ſpices, flouriſhed there. *Cant.* iv. 12. Indeed we muſt ſuppoſe his gardens to have been both amply and curiouſly furniſhed, ſeeing the kinds, nature, and properties, of the vegetable tribes, ſeem to have been a favourite ſtudy with the royal philoſopher, and to have been deemed a ſubject worthy of his pen; for we are told, that he wrote of plants, from the lofty cedar of Lebanon, down to the hyſſop of the wall. *Kings* iv. 33. Fountains and ſtreams appear alſo to have had a ſhare in the compoſition, probably for ornament as well as uſe.

The hanging gardens of Babylon were a prodigy, having been formed on the terraces and roofs of the royal palace, whither ſoil was conveyed for that purpoſe. They afforded the moſt cooling ſhade, and delicious fragrance, to the interior of the whole palace; but particularly to the apartments beneath them.

From ſuch examples, we are not to wonder that princes and potentates, in every part of Aſia, even down to the preſent time, ſhould have been more or leſs ſumptuous and coſtly in their gardens. In Perſia, the utmoſt attention is paid, not only to the magnificence, but to the general utility, of their gardens; and in India, or Hindooſtan, they are rendered ſacred among the rajahs and chiefs, as the abode of their gods, and places of ſoft and ſalacious retirement for themſelves and favourites, between the intervals of the toils of war, and the cares and perplexities of the ſtate. But the moſt coſtly and extenſive of all gardens in the world, were probably thoſe of Shalimar, belonging to the palace of the Mogul emperor Shah Jehan, which coſt him a million of money; and in the grandeur and ſumptuous diſplay of them, he ſeems to have rivalled even the magnificence of Solomon himſelf. See p. 46 of this volume.

In China, where the population is too abundant for the ſoil, neither labour nor expence is of any conſideration in the formation of their gardens. When a mandarin erects his palace, he conſiders not the ſituation intended for his garden, nor whether the ſpot be favoured or abandoned by the rural deities. If the latter, he invites them, or compels them, to return. His point is to change every thing from what he found it; to explode the wildneſs of creation, and introduce novelty and beauty. If there be a waſte, he adorns it with trees; if a dry deſert, he waters it with a canal, or floats it with a lake. If there be a ſmooth flat, he varies it with all poſſible converſions; he undulates the ſurface; he raiſes it in hills, ſcoops it into valleys, and enlivens the ſcene with broken rocks. He ſoftens aſperities, brings amenity into the wilderneſs, or animates the tameneſs of an expanſe, by accompanying it with the majeſty of the foreſt. In the gardens of the emperor of China are many buildings of a ſingular and curious nature, peculiar to that people; and there are portions or diviſions of the garden ſet apart for the ladies, into which no ſtranger can be admitted. See the article CHINA, vol. iv. p. 483, &c.

In Europe, which was inhabited much later, and the people total ſtrangers to the luxuries of the eaſtern world, we muſt naturally expect to find their gardens leſs extenſive and coſtly. Even in Greece, the moſt elegant and refined of the European ſtates, we hear nothing of the *grand* and *ſublime* in the diſplay of their gardens. Homer, indeed, in his Odyſſey, beſtows great praiſe on the celebrated garden of Alcinous; which, however, contained but four acres, and conſiſted of no more than an orchard, a vineyard, beds for eſculent vegetables, pomegranates, olives, with two fountains for a ſupply of water; ſo that, as late as the time of Homer, we are ſure that an incloſure of four acres, comprehending orchard, vineyard, and kitchen-garden, was the utmoſt ſtretch of horticultural luxury the European world had ever yet beheld.

We are told by Plutarch, that, before the time of Cimon, the Academus, or garden of the academy, was a rude and uncultivated ſpot; but that it was planted by that general, and had water conveyed to it; but whether for uſe, to refreſh the trees, or for ornament, does not appear. Near the academy were the gardens of Plato and of Epicurus; which, however, were but ſmall. The ſcene of Plato's Dialogue concerning Beauty is elegantly deſcribed as being on the banks of the river Iliſſus, and under the ſhade of the plantane; but no artificial arrangement of objects is mentioned, nor any thing which will lead us to imagine the proſpect to be a garden, or any other than merely natural objects.

Among the Romans, a taſte for gardening, any otherwiſe than as a matter of private utility, ſeems not to have prevailed till a very late period; at leaſt the writers on huſbandry, Cato, Varro, Columella, and Palladius, make not the leaſt mention of a garden as an object of pleaſure, but ſolely with reſpect to its productions of herbs and fruits. The Lucullan gardens are the firſt we find mentioned of remarkable ſplendour. Plutarch ſpeaks of them as incredibly expenſive, and equal to the magnificence of kings. They contained artificial elevations of ground to a great height, of buildings projected into the ſea, and vaſt pieces of water made upon land. It is not improbable, from the conſideration of Lucullus having ſpent much time in Aſia, that theſe gardens might be laid out in the Aſiatic ſtyle. The Tuſculan villa of Cicero, though often mentioned, is not any where deſcribed in his works, ſo as to give an adequate idea of the ſtyle in which his gardens or grounds were diſpoſed.

There is but little to be found in Virgil relative to this ſubject. Pines, according to him, were a favourite ornament in gardens; and flowers, particularly roſes, were much eſteemed. The Pæſtan roſes were moſt valued for their excellent odour; and the ſame quality appears to be the cauſe why they were placed by Tibullus as ornaments to the Elyſian fields. Pliny has left us deſcriptions of two of his villas; but, as he uſed his Laurentine villa for his winter retreat, it is not ſurpriſing that the garden makes no conſiderable part of the account. On his Tuſcan villa he is more diffuſe; the garden makes a conſiderable part of the deſcription :—and what was the principal beauty of that pleaſure-ground? Exactly what was the admiration of this country about fourſcore years ago; box-trees cut into monſters, animals, &c. and the names of himſelf and his gardener cut out in letters. He deſcribes ſlopes, terraces, a wilderneſs, ſhrubs methodically trimmed, a marble baſon, pipes ſpouting water, a caſcade falling into the baſon, bay-trees alternately planted with planes, and a ſtraight walk, from whence iſſued others parted off by hedges of box and apple-trees, with obeliſks placed between every two; ſo that here wants nothing to make a garden in the reign of the emperor Trajan ſerve for a deſcription of one in that of our king William.

In the paintings found at Herculaneum are a few traces of gardens, as may be ſeen in the ſecond volume of the prints. They are ſmall ſquare incloſures, formed by trellis-work and eſpaliers, and regularly ornamented with vaſes, fountains, and careatides, elegantly ſymmetrical, and proper enough for the narrow ſpaces allotted to the garden of a houſe in a capital city.

The introduction of *bowers* into gardens, had its origin in Italy; and the deſign was evidently to conſtruct a kind of ſummer apartment or ſitting-room, formed of twining plants and ſhrubs, amidſt the fragrant odours and cooling ſhades of the garden. See the article BOWER, vol. iii. p. 321.

In more modern times, a taſte for improvement and magnificence in the gardens of Europe became the vogue. In France vaſt ſums were expended by Charles IX. Henry IV. and Louis XIV. and XV. in forming the gardens to their reſpective palaces, particularly that of Verſailles. In Spain and Portugal the ſame ſpirit of horticultural refinement quickly prevailed; but in thoſe countries which approximate towards the north, and where long intervals of cold are unfavourable to vegetation, the gardens remain in a leſs improved ſtate. In Holland, however, the utmoſt efforts of man have been exerted, to ſecure to individuals their favourite and chief delight,—a uſeful and pleaſurable garden; yet the old ſtiff taſte ſtill prevails among them; ſtraight gravel walks divide their gardens into quarters; rows of huge trees ſhut out all proſpect; and ſtatues, urns, or fountains, decorate very corner. But of all the nations of Europe, Italy alone excepted, none can vie with England in the beauty, taſte, and elegance, of her gardens; a perfection that has ariſen wholly out of the progreſs made in the refined arts in this country, which gave, as it were, life and true perſpective to the variegated tints of landſcape-painting, whereby Nature was unboſomed, and preſented to the raviſhed eye in her moſt ſimple, yet moſt majeſtic, forms. Theſe elevated ideas of the landſcape-painter were happily caught by the horticulturiſt; and lawns and pleaſure-grounds ſoon became objects ſufficiently enchanting, not only to excel the tints of the canvas, but to engage the ſkill of the draughtſman, and the fineſt touches of the pencil, to copy and imitate them. The ingenious Mr. Kent, who united the ſkill of the landſcape-painter with an original taſte for deſigning pleaſure-grounds and lawns, firſt introduced them as an improvement to the ſcite of a noble manſion; and thus gave riſe to the preſent faſhion of gardens in England, which are the juſt admiration of all foreigners. His capital ſort was the deſtruction of dead walls for boundaries in front, and the introduction of ſunk fences or foſſes; which not being ſeen or ſuſpected even at a ſhort diſtance, the common people called them Ha! Ha's! to expreſs their ſurpriſe at finding a ſudden and unperceived check to their walk. This was by no means the ſmalleſt part of the improvement of Kenſington-gardens, which rank among many other diſtinguiſhed examples of Mr. Kent's refined taſte and judgment.

Thus it ſeems to follow, that horticulture naturally divides itſelf into two branches; the one comprehending a judicious arrangment of lawns, ſhrubberies, and pleaſure-grounds; the other, the care of the kitchen-garden, the raiſing and training fruit-trees to the higheſt perfection of bearing, together with the management of the hot-houſe, green-houſe, &c.

With regard to the ornamental part of this profeſſion, it muſt be evident that ſuperior ſkill and judgment are requiſite, in order to ſoften down the aſperities of an unfavourable ſituation, and give beauty and elegance to a dull and inſipid waſte. On ſuch ability the ſcientific part of the buſineſs reſts; and this will be ever enlarged, or narrowed, in proportion as the choſen ſpot ſhall be ſurrounded with the beauties or deformities of contiguous objects, which are to be interwoven into the general ſcenes.

Before a ſingle ſtep be taken, deep reflection, and a plentiful exerciſe of the mind's eye, ſhould be called in to direct the artiſt, and prevent any fatal miſtake from being made at the outſet of the plan. Even the haſty or inconſiderate cutting down of a ſingle tree, may too late be found to rob the pleaſure-ground of one of its principal beauties, and expoſe to view ſome barren or offenſive object, which the life of the proprietor may ſcarcely allow him time to cure. So on the other hand, an exceſs of foliage, ſuffered to obſtruct the eye in tracing the connection of a well-grouped winding ſcene, to darken the general proſpect, or exclude the early rays of the morning ſun, are faults equally prepoſterous, though much ſooner and more eaſily cured.

In the arrangement and diſpoſition of the ſhrubbery, a conſiderable ſhare of botanical knowledge is eſſential. It is highly neceſſary to blend the moſt agreeable colonrs of Nature in due ſucceſſion, that, by thus catching her moſt pleaſing features, a new creation may appear to open on the raviſhed eye. Thus the living landſcape is chaſtened and poliſhed; and the productions of various diſtant countries are at once preſented to our view. The introduction of foreign trees and plants, which we owe principally to the late Archibald duke of Argyle, contributes greatly to the richneſs of modern landſcape. The mixture of their various greens, the happy contraſt of forms, between the Engliſh foreſt-trees and the northern and Weſt-Indian firs and pines, are improvements made ſince the time of Mr. Kent, or were but little known to him. The weeping-willow; almoſt every florid ſhrub; and moſt trees of delicate or bold expanſive leaf; are but modern tints in the compoſitions of our gardens.

After ſecuring ſufficient aid from trees and ſhrubs, the next object of conſideration is WATER; which, though not abſolutely neceſſary to a beautiful compoſition, yet occurs ſo often, and is ſo capital a feature, that it is always regretted when wanting; and no large place can be ſuppoſed, nor a little ſpot imagined, in which it may not be agreeable. It accommodates itſelf to every ſituation, is the moſt intereſting object in a landſcape, and the happieſt circumſtance in a retired receſs; captivates the eye at a diſtance, invites approach, and is delightful when near; it refreſhes an open expoſure; it animates a ſhade, cheers the drearineſs of a waſte, and enriches the moſt crowded view. In form, in ſtyle, and in extent, it may be made equal to the greateſt compoſitions, or adapted to the leaſt; it may ſpread in a calm expanſe to ſoothe the tranquillity of a ſpaceful ſcene; or, hurrying along a devious courſe, add ſplendour to a gay, and extravagance to a romantic, ſituation. So various are the characters which water can aſſume, that there is ſcarcely an idea in which it may not concur, or an impreſſion which it cannot enforce.

## ON THE IMPROVEMENT OF FRUITS IN ENGLAND.

Nothing can be more deſirable to thoſe who are at great expence in cultivating the choicer fruits, than to have them produced of the full ſize, and richeſt flavour. Theſe perfections, however, are too commonly deficient, owing to cauſes as numerous as they are unſuſpected; though none of them, perhaps, wholly incurable. It does not appear that our gardeners or nurſerymen have called forth much exertion to overcome theſe evils, or manifeſted any great ſkill or judgment in their endeavours to produce new varieties or improvements in our table-fruits; though no part of Nature's works offers a wider field for ſucceſsful experiments and pecuniary reward.

The method of naturalizing trees and plants in different climates, has never been ſufficiently ſtudied; but has been left to the routine of common gardeners, while it ought to have engaged the attention of the moſt acute philoſophers. We know that improved fruits are the neceſſary produce of improved culture; and that the offſpring more or leſs inherits the character of its parent. The wild crab of our woods has thus been converted into the golden pippin; and the numerous varieties of the plum can boaſt no better origin than that of our native ſloe, raiſed in a better ſoil, and treated with ſuperior culture. So likewiſe experience and obſervation ſufficiently prove, that all plants have a natural tendency to adapt their habits to every climate in which art or accident places them; and thus the pear-tree, which appears to be a native of the ſouthern parts of Europe, or the adjoining parts of Aſia, has completely naturalized itſelf in England, and has acquired, in a great number of inſtances, the power to ripen its fruits in the early part even of an unfavourable ſummer. Hence we have fair grounds of hope, that the vine and peach-tree may be made to adapt their habits ſo effectually to our climate, as to ripen their fruits in a very ſuperior manner to what they have hitherto done. Some valuable experiments for this purpoſe have recently been made by T. A. Knight, eſq. F.R.S. which he has moſt obligingly communicated in the "Tranſactions of the Horticultural Society of London;" from which we ſhall extract many intereſting particulars.

Almoſt every plant, the exiſtence of which is not confined to a ſingle ſummer, admits of two modes of propagation; by *diviſion of its parts*, and by *ſeed*. By the firſt of theſe we are enabled to multiply an individual into many, each of which, in its leaves, its flowers, and fruit, permanently retains, in every reſpect, the character of the parent ſtock. No new life is here generated; and the graft, the layer, and the cutting, appear to poſſeſs the youth and vigour, or the age, diſeaſe, and debility, of the plant of which they once formed a part. No permanent improvement, or originality, has therefore ever been derived, or can be derived, from the art of the grafter, or the choice of ſtocks of different ſpecies or varieties; for, to uſe the phraſe of lord Bacon, the graft in all caſes *overruleth the ſtock*, from which it receives *aliment*, but *no motion*. Seedling plants, on the contrary, of every cultivated ſpecies, ſport in endleſs variety. By ſelection from theſe, therefore, we are alone to hope for ſucceſs in our purſuit of improved varieties of the choiceſt fruit.

No experienced gardener can be ignorant, that every ſpecies of fruit acquires its greateſt ſtate of perfection in ſome peculiar ſoils and ſituations, and under ſome ſimilar mode of culture; the ſelection of a proper ſoil and ſituation is therefore the firſt object of the improver's purſuit; and nothing ſhould be neglected which can add to the *ſize*, or improve the *flavour*, of the fruit from which it is intended to propagate. Due attention to theſe points in ſeedling plants, will in almoſt all caſes be found to comprehend all that is neceſſary to inſure the introduction of new varieties of fruit, of equal merit with thoſe from which they ſpring; but the improver, who has to adapt his productions to the cold and unſteady climate of England, has nevertheleſs many difficulties to contend with; he has to combine hardineſs, energy of character, and early maturity, with the improvements of high cultivation. Nature has, however, in ſome meaſure, pointed out the path he is to purſue; and, if it be followed with patience and induſtry, few obſtacles will be found, which may not be either removed, or eaſily paſſed over.

If two plants of the vine, or other tree of ſimilar habits, or even if obtained from *cuttings* of the ſame tree, were placed to vegetate, during ſeveral ſucceſſive ſeaſons, in very different climates; if the one were planted on the banks of the Rhine, and the other on thoſe of the Nile, each would adapt its *habits* to the *climate* in which it was placed; and if both were ſubſequently brought, in early ſpring, into a climate ſimilar to that of Italy, the plant which had adapted its habits to a cold climate would inſtantly vegetate, whilſt the other would remain perfectly torpid. Preciſely the ſame thing occurs in the hot-houſes of this country, where a plant accuſtomed to the temperature of the open air will vegetate ſtrongly in December, whilſt another plant of the *ſame ſpecies*, and ſprung from a cutting of the *ſame original ſtock*, but habituated to the temperature of a *ſtove*, remains apparently lifeleſs. It appears, therefore, that the powers of vegetable life, in plants habituated to cold climates, are more eaſily brought into action than in thoſe of hot climates; or, in other words, that the plants of cold climates are moſt excitable; and as every quality in plants becomes hereditary, when the cauſes which firſt gave exiſtence to thoſe qualities continue to operate, it follows that their ſeedling offſpring will have a conſtant tendency to adapt their habits to any climate in which art or accident places them.

New varieties of every ſpecies of fruit will be better obtained by introducing the farina of one variety of fruit into the bloſſom of another, than by propagating from any ſingle ſort. When an experiment of this kind is made, between varieties of different ſize and character, the farina of the ſmaller kind ſhould be introduced into the bloſſoms of the larger; for, under theſe circumſtances, there is always a prevalence in fruit of the character of the female parent; probably owing to the following cauſes. The ſeedcoats are generated wholly by the female parent, and theſe regulate the bulk of the lobes and plantula; and it has been obſerved, in raiſing new varieties of the peach, that, when one ſtone contained two ſeeds, the plants theſe afforded were inferior to others. The largeſt ſeeds, obtained from the fineſt fruit, and from that which ripens moſt perfectly and moſt early, ſhould always be ſelected on raiſing ſeedling plants. It is ſcarcely neceſſary to inform the experienced horticulturaliſt, that it will be neceſſary to extract the ſtamina of the bloſſoms from which he propoſes to propagate, ſome days before the farina begins to ſhed, when he propoſes to generate new varieties in the manner here recommended. When young trees have ſprung from the ſeed, a certain period muſt elapſe before they can become capable of bearing fruit, and this period, claimed by Nature, cannot perhaps be ſhortened by any means. Pruning and tranſplanting are both injurious; and no benefit can be effected, during this period, either by manure or culture. The young plants ſhould be ſuffered to extend their branches in every direction, in which they do not injuriouſly interfere with each other; and the ſoil ſhould juſt be ſufficiently rich to promote a moderate degree of growth, without ſtimulating the plant to preternatural exertion, which always induces diſeaſe. Thoſe qualities ought alſo to be ſought in the parent fruits, which are deſired in the offſpring; and the moſt perfect and vigorous offspring will be obtained, of plants as of animals, when the male and female parent are not cloſely related to each other.

The varieties of the *Peach*, from which Mr. Knight firſt propagated his ſeedling plants, were the *large French mignon*, and the little *red nutmeg*, uſing the ſtigmata of the former, and the pollen of the latter. The trees of each variety had been removed, early in the ſpring of the preceding year 1801, from pots of moderate ſize into others which were very large, and were filled with mould of the moſt favourable quality; and in theſe pots the plants had grown with exceſſive vigour. The aid of artificial heat was employed in the ſpring of 1802, to enable the wood and bloſſoms of each plant to acquire the moſt perfect ſtate of maturity in the ſucceeding autumn; and during winter the pots were defended from ſevere froſt, that the minute fibrous roots of the plants might be wholly preſerved; and, as the ſpring approached, the trees were kept in as low and equal a temperature as poſſible, that the powers of life, in the plants, might not be prematurely excited into action, nor in any degree uſeleſsly expended. Nevertheleſs, owing to the wood and buds having acquired maturity early in the preceding autumn, and an accumulated excitability from long reſt and cold, the bloſſoms began to ſwell rapidly on the firſt approach of ſpring; and very early in March it became neceſſary to place the trees in the hot-houſe, the bloſſoms being ſo far advanced as to be ſubject to ſome danger from froſt.

As ſoon as the bloſſoms had fallen, the fruit was ripened under every advantage of heat and light, the glaſs having been taken off every favourable hour, during the laſt ſwelling of the fruit, to admit the ſolar rays, without its intervention. Three *French mignon Peaches* only were ſuffered to remain on each tree, and ſix of theſe (which attained the greateſt ſtate of perfection) afforded eight plants in the ſucceeding ſpring.

Of the new varieties thus obtained three are very early; two of them ripened ten days before the *Royal George Peach*, and three weeks before the *red Roman Nectarine*, which grew on the ſame wall, and adjoined the ſeedling trees; and therefore they are not much later than their *male* parent, which they ſtrongly reſemble in colour, and in the form and character of their leaves; but their fruit is much *larger*, many having exceeded ſeven inches and a half in circumference. The fruit of each of theſe new varieties is ſoft and melting, and very readily quits the ſtone; they are alſo very ſuperior in flavour.

In the ſpring of 1809, all the ſeedling plants were expoſed without any covering, to aſcertain the comparative degrees of hardineſs of their bloſſoms; and in this reſpect they were found to differ very widely. The bloſſoms of two of the varieties appeared, however, to be very hardy, and promiſed an abundant crop, though the ſeaſon was very unfavourable. The beſt *Peach* proved to be one of the moſt hardy.

“The ſucceſs, (ſays Mr. Knight,) of the firſt and *only* experiment of which I have fully ſeen the reſult, has completely anſwered my hopes; and I entertain little doubt that the *Peach-tree* might, in ſucceſſive generations, be ſo far hardened and naturalized to the climate of *England* and *Ireland*, as to ſucceed well as a *ſtandard* in favourable ſituations. It is my wiſh to try the effects of propagating ſucceſſive generations alternately from the open wall, and from the hot-houſe, and of introducing the pollen from the open wall to the bloſſoms of the hot-houſe, with the hope of obtaining varieties which will be at once hardy and early. The *Peach* does not, like many other ſpecies of fruit, much exerciſe the patience of the gardener who raiſes it from the ſeed; for it may always be made to bear when three years old, and there is ſomething in its habits which induces me to believe that it might be made to bear at only two years old. In proſecuting ſuch experiments, I would recommend the ſeedling *Peach-trees* to be retained in pots, and buds from them, only, to be inſerted in older trees; for their rapid and luxuriant growth is extremely troubleſome on the wall, and pruning is death to them.”

In order to eſtabliſh beyond a doubt, the aſſertion that foreign plants of a very delicate nature can be made, by a ſucceſſion of ſeedlings, to adapt themſelves naturally to this climate, the following experiment was made by ſir Joſeph Banks, bart. at his houſe at Spring Grove, near Hounſlow.

In 1791, ſome ſeeds of Zizania aquatica were procured from Canada, and ſown in a pond at Spring Grove; they grew, and produced ſtrong plants, which ripened their ſeeds; thoſe ſeeds vegetated in the ſucceeding ſpring, but the plants they produced were weak, ſlender, not half ſo tall as thoſe of the firſt generation, and grew in the ſhalloweſt water only; the ſeeds of theſe plants produced others the next year ſenſibly ſtronger than their parents of the ſecond year.

In this manner the plants proceeded, ſpringing up every year from the ſeeds of the preceding one, every year the ſeedlings becoming viſibly ſtronger and larger, and riſing from deeper parts of the pond, till the year 1804, when ſeveral of the plants were ſix feet in height, and the whole pond was in every part covered with them as thick as wheat on a well-managed field.

Here we have an experiment which proves, that an annual plant, ſcarcely able at firſt to endure the ungenial ſummer of England, has become, in fourteen generations, as ſtrong and as vigorous as our indigenous plants are, and as perfect in all its parts as in its native country.

Moſt of our common flowering ſhrubs have been long introduced into the gardens; the bay-tree has been cultivated more than two centuries; it is mentioned by Tuſſer, in the liſt of garden-plants inſerted in his book, called Five Hundred Points of Good Huſbandry, printed in 1573.

The Laurel was introduced by Mr. Cole, a merchant, living at Hampſtead, ſome years before 1629, when Parkinſon publiſhed his Paradiſus Terreſtris; and at that time we had in our gardens, Oranges, Myrtles of three ſorts, Lauriſtinus, Cypreſs, Phillyrea, Alaternus, Arbutus; a Cactus brought from Bermudas, and the Paſſion-flower, which laſt had flowered here, and ſhowed a remarkable particularity, by riſing from the ground near a month ſooner, *if a ſeedling plant*, than if it grew from roots brought from Virginia. All theſe were at that time tender plants; Mr. Cole caſt a blanket over the top of his laurel, in froſty weather, to protect it; but, though nearly two centuries have ſince elapſed, not one of them will yet bear with certainty our winter froſts.

Though many of theſe ſhrubs ripen their ſeeds in this climate, it never has been the cuſtom of gardeners to ſow them; they are chiefly propagated by ſuckers and cuttings, and ſome few others by imported ſeeds; conſequently the very identical laurel introduced by Mr. Cole, and ſome others of the plants enumerated by Parkinſon, are now actually growing in our gardens; no wonder then, that theſe original ſhrubs have not become hardier, though probably they would have done ſo, had they paſſed through ſeveral generations by being raiſed from Britiſh ſeeds.

Surely then it is worthy a trial, ſince we find that plants raiſed from ſuckers or cuttings do not grow hardier by time, and eſpecially as the experiment on Zizania points out the road, to ſow the ſeeds of ſuch tender ſhrubs and trees as will ripen them in this climate. Fourteen generations, in the caſe of the Zizania, produced a complete habit of ſucceeding in England; but a conſiderable improvement in hardineſs was evident much ealier. Hence therefore, by the continued propagation from ſeedling plants, the peach and the nectarine, and other delicate fruits, may unqueſtionably be brought to endure the uncertain ſeaſons of our climate, and ripen their fruit with more certainty, and of a larger ſize, and finer flavour, than any of the old varieties now propagated in England.

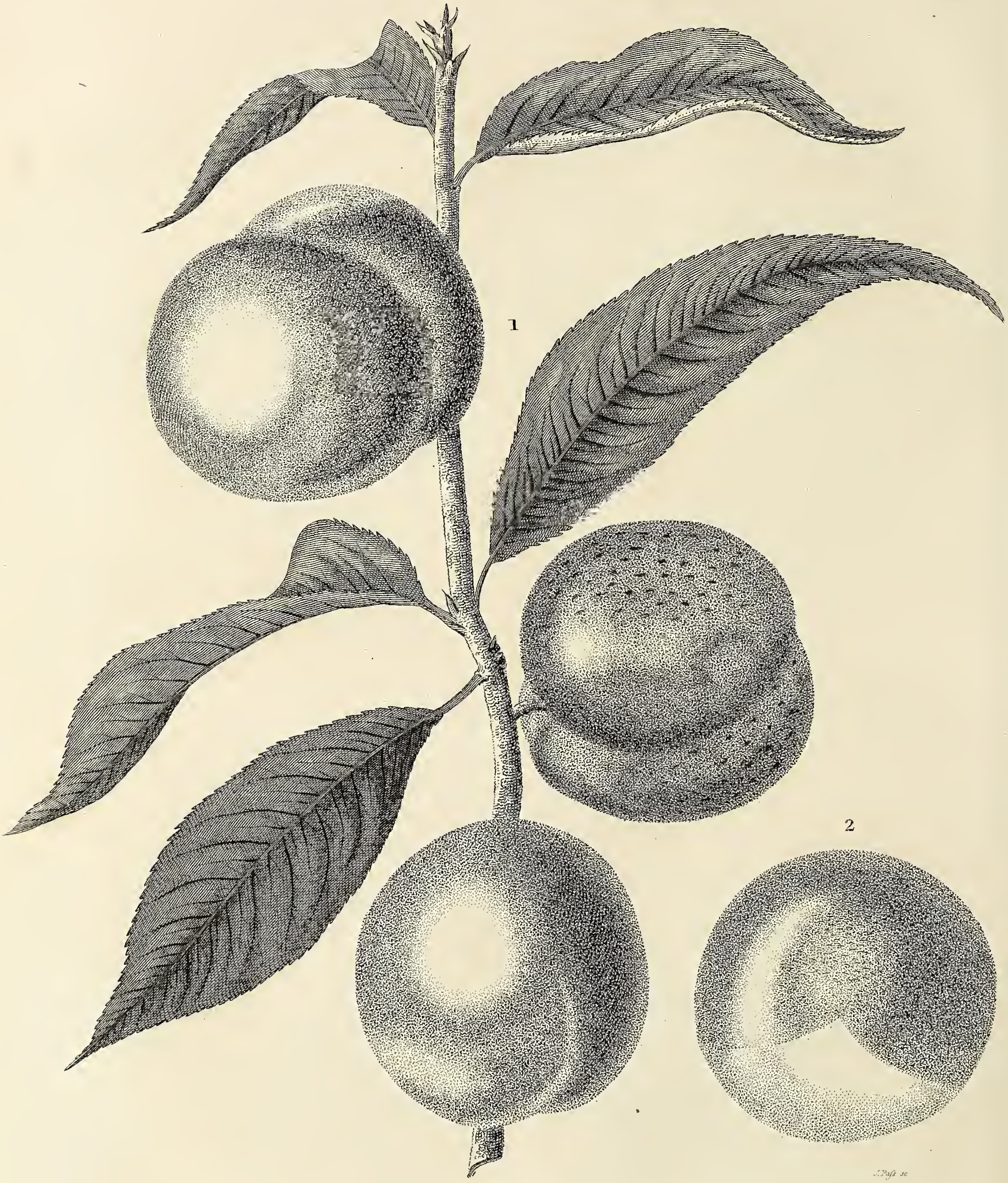
Many gardeners, not very deeply read in botany, having inſiſted that the peach and nectarine are two diſtinct ſpecies of AMYGDALUS, it may be proper here to ſhow, that they are mere varieties of the ſame parent plant; and that both peaches and nectarines are ſometimes the ſpontaneous produce, not only of one tree, but of one and the ſame branch. No leſs than ſix inſtances of this kind are enumerated by R. A. Saliſbury, eſq. p. 103 of the Tranſactions of the Horticultural Society; which we ſhall ſtate from that gentleman's papers.

The firſt inſtance of which we have any tradition, appears to have been handed down in a letter of the late Peter Collinſon, eſq. to the great Linnæus. He there, after giving an account of a ſuppoſed adulterous intercourſe between two apple-trees, ſtanding near each other, one of which in conſequence bore both ſmooth and rough fruits, mentions a peach-tree that produced peaches and nectarines.

The ſecond inſtance occurred in Yorkſhire, at Londeſborough, then the reſidence of the earl of Burlington; it made ſo much noiſe at the time, which was previous to the

# HORTICULTURE.

Plate I.



J. Pass sc

1. Peaches & Nectarine produced naturally on one Stem 2. A Fruit partly Peach & partly a Nectarine.

London: Pub.d as the Act directs. April 15, 1810, by J. Wilkes.

the death of that famous gardener Thomas Knowlton, as to be viſited by the late Dr. Richardſon, and many other diſtinguiſhed horticulturaliſts of that extenſive county.

The third inſtance is commemorated in a painting done by the celebrated Ehret, now in the poſſeſſion of Meſſrs. Lee and Kennedy; being accompanied with a diſſection of the two fruits, which are the *alberge jaune*, ſometimes called the orange-peach, it is very ſatisfactory.

The fourth inſtance was noticed more recently in the garden of William Gilpin, eſq. at Eaſt Sheen; of this likewiſe a painting, but without diſſections, has been made by Mr. Hooker.

The fifth inſtance was diſcovered early in June 1807, on a peach-tree in the garden of ſir John Arundel, at Huntingdon. Mr. Saliſbury, never having ſeen an inſtance of the kind, went immediately to the ſpot; and, after detaching the branch carefully from the wall, he ſoon ſatiſfied himſelf that no *bud* had been inſerted. There was, however, only a ſingle nectarine, between two peaches, upon the tree, which the gardener ſaid was the Belle Chevreuſe. An accurate ſketch of the branch, with the fruit, is given in the annexed Engraving, fig. 1.

The ſixth inſtance was in Mr. Wilmot's garden at Iſleworth, which Mr. Saliſbury alſo examined in Auguſt 1807; and was informed that this tree, which is the Royal George, ſeldom fails to produce both peaches and nectarines. Two only of the latter then remained.

To the above intereſting information, Mr. Saliſbury adds the ſingular example of both theſe fruits being joined in one. It was preſented to Mr. Saliſbury by Dr. Batty, who accidently obſerved it among a number of peaches ſent to him by James Wyatt, eſq. from the neighbourhood of Hounſlow. This fruit is correctly repreſented at fig. 2.

"Moſt of the gardeners, (ſays Mr. Saliſbury,) with whom I have converſed reſpecting theſe anomalies, attribute them to the pollen of neighbouring nectarine-trees brought by bees; but, as the young fruit is ſmooth or downy long before it is impregnated, that cannot be the cauſe; and, in my humble opinion, no change of this ſort is produced *ſubſequently*. Not that I have a ſhadow of doubt of the important conſequences which enſue when the ſtigma of one plant imbibes pollen belonging to another; but theſe are only manifeſted in the *ſucceeding* generation. Linnæus in the *Plantæ Hybridæ* and *Generatio Ambigena* of his *Amænitates Academicæ*, firſt promulgated a doctrine which I firmly believe, that varieties, ſpecies, and even genera, have been created in this manner; and without the fulleſt comprehenſion of it no horticulturaliſt can hope to be ſucceſsful in raiſing new fruits endowed with the perfections he wiſhes." The theory of Linnæus, is, that the new vegetable will reſemble its father, or that from which the pollen came, in ſtem and leaves; but its mother, or that upon which the ſtigma is ſituated, in flowers and fruit; and this idea has been confirmed by the ingenious experiments of Mr. T. A. Knight.—For the natural hiſtory of the peach-tree, and its ſeveral ſpecies, with the management and culture recommended by the late Phillip Miller, eſq. F. R. S. ſee the article AMYGDALUS, vol. i. p. 493–500; and the correſpondent Engravings.

## ON PRUNING AND TRAINING WALL-TREES.

This moſt ſcientific department of horticulture has been long conducted upon defective and irrational principles. Proper attention is rarely paid to the form which the ſpecies or variety ſhould naturally aſſume; and either too little of the wood is taken out, or otherwiſe the moſt promiſing ſhoots are cut away, and the tree left bare. Theſe extremes are ſtudiouſly to be avoided, as attended with evils equally miſchievous; wall-trees being preſently ſpoiled by either practice. If the tree be too full of wood, the ſhoots and fruits cannot be properly ripened; and, if they are too thin, the conſequence of the cutting that has made them ſo, is the production of wood, rather than fruit, forcing out ſhoots, where otherwiſe bloſſom-buds would have been formed. The deſignation of trees againſt a wall neceſſarily begets the art of pruning; and on the ſkilful uſe of the knife will depend their future health, form, and fruitfulneſs. If a tree is young and newly planted, the firſt thing is to head it down, by cutting off (if it is a nectarine, peach, or apricot) all the ſhoots, and the ſtem itſelf, down to a few eyes, that the lower part of the wall may be furniſhed with new and ſtrong wood. Make the cut ſloping, and behind the tree, taking care to plaſter the part with cow-dung, clay, or ſtiff earth. Care muſt be taken to leave two or three eyes, or four, if a high wall, on each ſide of the ſtem, from which ſhoots will come in a proper direction for training. The number of eyes may be alſo according to the ſtrength of the plant, and its roots. If there are not two well-placed eyes on each ſide of the ſtem, two ſhoots, thus ſituated, may be left, cutting them ſhort to two or three eyes each. Eyes or ſhoots behind are of no uſe, therefore let them be early diſplaced by rubbing or cutting. This work is to be performed about the beginning of April, when the tree is putting forth its ſhoots.

If, towards the end of May, there ſhould be wanting ſhoots on either ſide the tree, having, perhaps only one put forth where two were expected, that one ſhoot ſhould be cut, or pinched down, to two or three eyes; and before ſummer is over there will be found good ſhoots from them, and thus by Midſummer a proper head may ſtill be obtained. As the lateral ſhoots advance, let them be timely nailed to the wall, cloſe, ſtraight, and equi-diſtant; but uſe no force while they are tender. Lay in as many ſhoots as may be convenient throughout the ſummer, for choice at winter-pruning; yet not ſo as to over-crowd the tree. In forming the tree, keep each ſide as nearly as can be equal in wood, and the ſhoots inclining downwards, which is a mode of training neceſſary to fill the lower part of the wall, as well as to check the too free motion of the ſap, which wall-trees are liable to from their warm ſituation and continual cutting. All the branches ſhould have an horizontal tendency, though the upper cannot have it ſo much as the lower ones. Thoſe that are perpendicular, or nearly ſo, mount the wall too faſt, and run away with the food that ſhould paſs to the horizontals, which, being impoveriſhed by the vigorous middle branches, gradually become too weak to extend themſelves, and nouriſh the fruit. The pruner, therefore, muſt be content to have ſome of the wall, over the middle of the tree, unoccupied; or, at leaſt, ſuffer none but weak or very moderate ſhoots to have a place there.

The idea of a well-formed tree is tolerably well repreſented by the expanded ribs of a fan. Regularity is allowed to be ſo neceſſary to the beauty of a wall-tree, that ſome have even drawn lines for a guide to train by; but Nature, ever free and eaſy, will not ſubmit to ſo much formality, and ſuch a perfect diſpoſition of the branches is not neceſſary. A tree may be regular, without being linear, and the uſeful ſhoots are not to be ſacrificed to a fanciful preciſion. Though croſſing of branches is againſt rule, yet caſes may happen, as in want of wood or fruit, where even this awkwardneſs may be temporarily permitted. The object is FRUIT; and, to obtain this end, form muſt ſometimes give way. All the fore-right and back ſhoots ſhould be diſplaced in time; for they exhauſt the ſtrength of the tree, and occaſion a rude appearance. It is a very expeditious method to diſplace ſuperfluous ſhoots by puſhing, or breaking them off; but, when they get woody, it is apt to tear the bark; and, in this caſe, the knife muſt be uſed; the better way is to diſ-bud by rubbing; yet a young luxuriant tree ſhould be ſuffered to grow a little wild to ſpend the ſap. There is one evil, however, attendant on diſ-budding, and rubbing off young fore-right ſhoots, that ſome fruit-ſpurs are thus loſt; for apricots are apt to bear on little ſhort ſhoots; and there are peaches which do the ſame; ſo that it is a rule with ſome pruners to wait to diſtinguiſh ſpurs from ſhoots, and then to uſe the knife; but uſe it as little as may be in the ſummer.

In regulating a tree, at any time, begin at the bottom and middle, and work the way orderly upward and outward. Never ſhorten in ſummer, except a forward ſhoot where wood may be wanting; but, where the tree is too thick, cut clean out what may be ſpared. None of the ſhoots produced after Midſummer ſhould ever be nailed in, except where wood is wanting to fill a naked place:—they never bear fruit.

The HEALTH of wall-trees is greatly facilitated and improved by careful pruning. The extremities of a tree will never continue in vigour, without a ſtrict attention to the middle, that it have no ſtrong wood growing erect, which would deprive all the other parts of their due nouriſhment. When the ſides of a tree are well extended, and full of healthy wood, then ſome ſhoots of moderate ſubſtance may be trained up the middle. The bending of a branch too much is a violence to be avoided; ſo that every ſhoot ſhould be kept from the firſt in the direction it is to grow. Luxuriant wood muſt be got rid of in time, before it has robbed the weaker branches. That is luxuriant wood, which, according to the general habit of the tree, is much larger than the reſt. If ſtrong wood, that is not very luxuriant, happens to be at the bottom of the tree, ſo that it can be trained quite horizontally, it may often be uſed to good purpoſe, as this poſition checks the ſap. A luxuriant ſhoot may be kept in ſummer, where it is not deſigned to retain it, merely to cut it down at the winter-pruning to two or three eyes, for getting wood where wanted the next year; or this ſhortening may take place in June, to have new ſhoots the preſent year.

All diſeaſed, damaged, weak, or worn-out, branches, as they occur, ſhould be cut out, to make room for better; but, if a tree is generally diſeaſed, ſome caution muſt be uſed not to cut out too much at once, if there be any hope of reſtoring it. A very old tree, or a young one, that does not thrive, may be cut a great deal; but ſo as to leave a general ſprinkling of the beſt of the branches, and an eye or two of the weaker ones, in an alternate order. A weak tree is ſtrengthened by training it more erectly than uſual, as leſs check is thus given to the ſap, and ſo the ſhoots are more likely to ſwell; ſuch a tree ſhould be kept thin of branches, and always pruned early in autumn, keeping the top free from ſuch wood as is ſtronger than that below, and all the ſhoots ſhorter than uſual.

Old decaying trees ſhould be leſſened a little every year, and conſtantly watched, to obſerve where young and ſtrong ſhoots are putting out below, in order to cut down to them; and, though the time for doing this is commonly at autumn or winter pruning, yet it may be beſt done in ſummer, as the ſhoots would thrive the better; obſerving to put ſome clay, or cow-dung, to the part, to prevent gumming, which ſummer-pruning is very apt to occaſion. A judicious pruner may bring the oldeſt and moſt ill-conditioned tree to a healthy and bearing ſtate, if all is but right at the root, with a good ſoil about it. Any bark that is decayed by cracks, &c. ſhould be cleared away to the quick, either by rubbing or the knife; as filth and inſects are apt particularly to gather there; wipe the part clean with ſponge and ſoap.

Hog-dung, applied freſh, is ſaid to have a peculiar efficacy in recovering weak trees; and cow-dung may reaſonably be expected to do good, if the ſoil is a warm or hungry one, and, if not ſo, the hog-dung is not ſo proper, as it is a cold dreſſing. If the ſoil is a ſtrong one, a compoſt of fowl's or ſheep's dung, lime, with any freſh light earth, one part of each of the former, and three of the latter, mixed with the ſoil that is taken off, will be a proper manure; to which a little ſharp ſand may be added. An animal dreſſing, as of entrails, or any carrion, or bullock's or hog's blood, applied to the roots, has been frequently found effectual to make fruitful, and to recover decaying trees, and in particular vines. All theſe applications ſhould be made late in autumn, or early in ſpring.

The conſtitution of a tree is ſometimes naturally barren; or the ſoil that the roots have got into may be ſo deleterious, that no pains or perſeverance will avail any thing; but, continuing fruitleſs and ſickly, admoniſhes the owner to take it up, and try another plant, rectifying the ſoil thoroughly, if the evil is thought to ariſe there. Sometimes a tree of this kind, when removed to a different ſoil, and pruned greatly down, does very well. A ſoil too rich of horſe-dung often occaſions trees to be blighted; and the remedy is to impoveriſh it with a ſharp ſand. In order to health and ſtrength, a tree muſt not be kept too full during ſummer, as it prevents the proper ripening of the wood, and makes the ſhoots long-jointed. If more than one ſhoot proceed from the ſame eye, reſerve only the ſtrongeſt and beſt ſituated. A crowded tree cannot be healthy, and it becomes both lodging and food for inſects. The bloſſom-buds of a tree being always formed the year before, they will be few and weak in a thicket of leaves, as debarred of the neceſſary ſun and air. Watering wall-trees with an engine ſmartly on a ſummer's evening, is conducive to their health, and frees them from inſects.

The FRUITFULNESS of wall-trees is derived from their proper form and health; and which will very much depend upon good management in the winter. If the trees have been properly attended to during the ſummer, there will be now leſs to do; and the leading objects are to thin them, taking out what wood is to ſpare, in order to fill the tree again by ſucceeding ſhoots. Luxuriant wood, or thoſe ſhoots that are gigantic, muſt be taken out from the reſt, as they would impoveriſh the good and deſtroy the weak branches, and are never fruitful; but, if a tree is generally luxuriant, the leſs it is cut, comparatively ſpeaking, the better. Such a tree, after a few years, may come to bear well; and, when it begins to ſhoot moderately, ſome of the biggeſt wood may be taken away every year, or ſhortened down to two or three eyes, and ſo brought into order. The more horizontally free-ſhooting trees are trained the better; as bending the ſhoots checks the ſap.

The next object is to FURNISH a tree. In order to this, the principal ſtep is the ſhortening of the ſhoots, which occaſions them to throw out below the cut for future uſe. If they were not to be ſhortened, the tree would preſently extend a great way, bearing chiefly at the extremities, while in the middle it would be very thin of fruit, and thus a great part of the wall loſt; which not to ſuffer, is the art of a pruner that ſhows he has both ſkill and foreſight.

The mode of bearing in peaches, nectarines, and apricots, is on the laſt year's wood, which makes it neceſſary to ſhorten, in order to a certain ſupply of ſhoots for bearing the next year; and thus to have ſucceſſion wood in every part of the tree. The rule for ſhortening is this: Conſider the ſtrength of the tree, and, the more vigorous the ſhoots are, cut off the leſs. If a luxuriant tree were to have its ſhoots much ſhortened, it would throw out nothing but wood; and, if a weak tree were not pretty much cut, it would not have ſtrength to bear. From vigorous ſhoots one-fourth may be cut off; from middling ones, one-third; and from weak ones, one-half. In ſhortening, make the cut at a leading ſhoot-bud, which is known by having a bloſſom-bud on the ſide of it; or, which is better, one on each ſide. Bloſſom-buds are rounder and fuller than leaf-buds, and are diſcernible even at the fall of the leaf, and plainly ſeen early in the ſpring. It is moſt deſirable to make the cut at twin-bloſſoms; yet, as this cannot always be done, the due proportion of length muſt generally determine. It often happens, that the bloſſom-buds are chiefly, and ſometimes all, at the end of the ſhoot; but ſtill it ſhould be ſhortened, if it is at all long. Never cut where there is only a bloſſom-bud, and prefer thoſe ſhoots that are ſhorteſt jointed, and have the bloſſoms moſt in the middle. The ſhoots that lie well, and are fruitful, or healthy, and but a few inches long, may be left whole. Always contrive to have a good leader at the end of every principal branch.

In furniſhing a tree, conſider where it wants wood, and cut the neareſt unbearing branch, or, for want of ſuch, a bearing one, down to one, two, or more, eyes, according to the number of ſhoots deſired, for in ſuch cloſe ſhortening, a ſhoot will come from each eye. With a view to wood for filling up a naked place, a ſhoot formed after Midſummer may be thus ſhortened; though the general rule is, to diſplace all ſuch late ſhoots as uſeleſs; the beſt dependence for bloſſoms being on the early-formed ſhoots.

The beſt time for winter-pruning is at the fall of the leaf, and ſhould take place as ſoon as the leaves begin to fall. November is, generally ſpeaking, a good time; but, if this month be paſt, then February, if it is mild, or as ſoon after as poſſible, ſhould be embraced for this purpoſe.

An autumn-pruning will make the tree ſtronger, and the bloſſoms come bolder and forwarder; and, if trees are then cut, it greatly leſſens the work of ſpring. This practice gives alſo a better opportunity to crop the borders with cauliflowers, lettuces, radiſhes, &c. to ſtand the winter. But, though an autumn-pruning is for theſe reaſons to be recommended, yet it is beſt to leave young trees, for a year or two, after heading down, till ſpring; and luxuriant trees ought alſo to be ſo left, not only to check the ſtrength of the coming ſhoots, but to ſee better where their bloſſoms are, that no fruit be loſt, as in this ſtate they bear but ſparingly.

In an autumn-pruning, apricots ſhould be cut laſt; but, if ſpring be the time, the rule is to begin with apricots, then peaches, and laſtly nectarines. Apricots ſhould not be ſo much ſhortened as peaches, nor do they ſo well endure the knife. Shoots of the apricot, if under a foot, may be left uncut, if there be room. The ſpurs of apricots ſhould be ſpared, if not too long, or numerous; for they bear well, and continue for years. Some ſorts of peaches alſo put out fruit-ſpurs, and muſt be managed accordingly: for a pruner's buſineſs conſiſts not ſimply in providing a preſent or a next year's crop of fruit, but to manage his trees ſo as to lay a foundation for years to come. He is to anticipate conſequences, and provide for the future.

The THINNING of fruit, when too thick upon the tree, is a buſineſs that muſt be annually attended to; for it will generally prove loſs, and not gain, to leave too many for ripening. It weakens the tree, prevents ſtrong bloſſoms for the next year, and hinders the fruit from coming to its ſize and flavour. This work ſhould be done when the fruit is about the ſize of a horſe-bean.

The rule for thinning is, to leave no two fruits ſo cloſe as to ſwell one againſt another; except the tree is generally ſhort of fruit, when twins may be left on ſtrong branches. Three or four, on a long and ſtrong branch, are quite enough, and ſo in proportion for weaker wood; this is ſaid of the larger ſorts of peaches and nectarines; apricots may, in general, be left ſomewhat thicker on a flouriſhing tree, and the leſs kinds of peaches and apricots may ſtill be ſomewhat more numerous, as the early maſculine apricot, the nutmeg-peach, and nutmeg-nectarine; there may alſo be more nectarines left on a tree than peaches.

Vines require great attention, as to pruning and training; but all will avail little, if they have not a warm ſoil, and full ſun, or ſome accidental advantage, as being planted at the back of a warm chimney; and, though they will grow and bear leaves any where, they will not fruit well in England, without a favourable ſeaſon, or hot ſummer. Young new-planted vines ſhould be pruned quite ſhort, for two or three years, that they may get ſtrong. If the plant has a weak root, not above one ſhoot ought to grow the firſt year, which ſhould be cut down in autumn, or to two or three eyes. The beſt time for the principal or winter pruning of vines is as ſoon as the fruit is off, or the leaves falling. November does very well; and, if this month paſſes, February ſhould be adopted, rather than quite in the winter. Late in the ſpring they are apt to bleed by cutting, which greatly weakens them.

The mode of bearing in vines is only on ſhoots of the preſent year, proceeding from year-old wood. The rule, therefore, at winter-pruning, is, to reſerve ſuch ſhoots of the year as are beſt ſituated as to room, for training of thoſe ſhoots that are to come from them, which will be almoſt one from every eye. Make choice of thoſe that are placed moſt towards the middle, or ſtem of the vine, that all the wall may be covered with bearing-wood; and every year cut ſome old wood out that reaches far, to make room for younger to follow. The reſerved ſhoots ſhould be twelve or fifteen inches aſunder, if they are ſtrong, and weak ones may be ſomething leſs; hardly too much room can be allowed them. The ſhortening of the ſhoots ſhould be according to their ſtrength, and the ſpace there is for training thoſe ſhoots that will be produced, which always grow very long. If there is room, three, four, or five, eyes may be left, but not more to any ſhoot, except it is deſirable to extend ſome ſhoot to a diſtance to fill up a particular ſpace, and then eight or nine eyes may be left; which being repeated again another year, a vine will ſoon extend itſelf to a great diſtance.

Sometimes vines are trained on low walls, by a long extended horizontal branch, a few inches from the ground, as a mother bearer. Thoſe ſhoots that come from this horizontal are to be trained perpendicularly, and cut down to one or two eyes every year, that they may not encroach too faſt on the ſpace above them. If the vine is confined to a narrow but lofty ſpace, it is to be trained to an extended perpendicular mother bearer, having ſhort lateral ſhoots pruned down to a ſingle eye, or at moſt two. The management of vines requires ample cutting, that they may not be too full in the ſummer; for they put out a great deal of wood, and extend their ſhoots to a great length; and therefore the pruner muſt reſolve to cut out enough.

The ſummer management of vines muſt alſo be carefully attended to. As ſoon as the young ſhoots can be nailed to the wall, let them not be neglected; but remember they are very tender, and will not bear much bending; train in only the well-placed ſhoots, rubbing or breaking off the others. The embryo fruit is ſoon ſeen in the boſom of the ſhoot, and thoſe thus furniſhed are of courſe to be laid in, as many as can be found room for, in preference to thoſe ſhoots that are barren, which nevertheleſs ſhould alſo be trained, if they are ſtrong and well placed, and there is ſpace for them. Rub off all ſhoots from old wood, except any tolerable one that proceeds from a part where wood is wanting to fill up ſome vacant ſpace. The ſtopping of the ſhoots is to take place according to the ſtrength and ſituation of them, or whether fruitful or barren. Thoſe weak ſhoots that have fruit, and are ill placed, or confined for room, may be ſtopped at the ſecond, or even firſt, joint above the fruit, early in the ſummer; but thoſe ſhoots that are ſtrong, and have room to grow, ſhould not be ſtopped till they are in flower, in July, and at the third or fourth joint above the fruit. The barren ſhoots are to be trained at full length, and not ſtopped at all, if there is room for them, or, at leaſt, but a little ſhortened towards autumn, as in Auguſt, becauſe they would put out a number of uſeleſs and ſtrong ſide-ſhoots, if cut ſooner.

Fig-trees are beſt pruned early in October; but the more uſual time is early in ſpring, as after an autumn cutting, if late, they are apt to die. But, if not completely pruned at this time, let the ſtragglers be taken out, and the reſt laid in cloſe without ſtraining: thus they will be more conveniently covered. The mode of bearing in the fig is, that fruit chiefly comes the preſent year on the little ſhoots from wood of the preceding, and that towards the ends of the branches; which circumſtances dictate the rules for pruning. Two-years old wood will bear ſome, but older wood never.—See the article Ficus, vol. vii. p. 350–356; and the correſpondent Engraving.

Pears, when judiciouſly ſelected, conſtitute a good wall-fruit. A young pear-tree, if planted againſt a wall in autumn, ſhould not be cut down till ſpring, when the head is to be reduced according to the goodneſs of the root, and ſo as to lay a proper foundation for covering the wall. If it has a bad root, all the ſhoots ſhould come off, and only the ſtem be left, with a few eyes to form new ſhoots. But generally ſome of the ſhoots are to be left, with due ſhortening, only taking it as a rule, that it is not proper to leave much wood on; but to prune down freely, in order to the putting out ſtrong ſhoots for parent branches.

The time for general or winter-pruning of pear-trees ought to be November, as the bloſſoms are then very diſcernible; and at ſpring-pruning they get ſo turgid and tender, that almoſt the leaſt touch knocks them off, or even the jarring of the tree. When the bunches of ſpurs get too thick and projecting, ſome muſt occaſionally be removed, and a thin ſharp chiſſel and mallet will do the work well, where the wood is too ſtrong for the knife. When a tree gets to the extent of its bounds, it is to be ſhortened down to a well-placed young ſhoot, which may ſerve for a leader; which leader ſhould be provided by a provident ſelection in the ſummer. See the article Pyrus.

Cherries produce the largeſt fruit againſt walls. A new-planted cherry-tree is beſt to have but one ſtrong ſhoot from the bud, and then cut down at ſpring, ſo as to have two or three eyes on each ſide, to lay in well to the wall; but, if older and fuller of wood, head it down as in eſpalier pruning. Cherry-trees ſhould be trained at length, four or five inches aſunder. The fruit comes from ſpurs all along the ſhoots, on one and two-years old wood, which will continue to bear. Some cut all ſuperfluous ſhoots entirely away, and others leave a ſprinkling of ſhort ſtubs, which may be allowed; but let them not advance too forward. The morella, however, has a different mode of bearing from others, the fruit proceeding moſtly from eyes along the branches of new or year-old wood; the pruner, conſequently, is to lay in a proper ſupply of young wood every year, always removing the older wood to make room. The morella-cherry is commonly planted againſt north walls, where they grow large, and hang long, as they are commonly not wanted till late in the ſeaſon to preſerve; but, if planted upon warmer walls, their fruit is finer, and, when thoroughly ripe, excellent for table in September, or October, according to the aſpect of their growth.

Plums of the finer ſorts well deſerve to be planted againſt walls. The pruning of them is much the ſame as given in the directions for cherries; only that the branches ſhould be laid ſomewhat wider according to the ſort, whether free, or leſs free, in their growth.

The work of pruning ESPALIER-TREES is much the ſame as for wall-trees. The only difference is, that, inſtead of being ſpread upon walls, the branches are faſtened to ſtakes, or frames, as trelliſes. The faſtenings are commonly ties of ozier twigs, bark of withy, baſs, yarn, or ſoft pack-thread, inſtead of nails, which however may be uſed to frame-work, if they are ſmall and ſharp-pointed. As trees planted for eſpalier-training ſhould be young, let great care be taken to ſet them off right at firſt, by regular ſhoots, well furniſhed immediately from the ſtem; which is effected by proper heading down. Apples, pears, plums, cherries, &c. need not be ſo much freed of their branches at planting, as peaches, nectarines, and apricots. Heading down is adviſeable to be deferred till ſpring, not only on account of froſts injuring the top eye of the freſh-cut ſhoots; but becauſe the head of a tree helps to puſh out roots. The propereſt time to prune the heads of new-planted eſpaliers, is when new roots are formed; and then a head diſproportioned to the roots ſhould by no means be ſuffered, as the new ſhoots in ſuch caſe would be too weak to be healthy or fruitful.

The pruning of ſtandard-trees is the ſame, whether full, half, or dwarf, ſtandards; and the object is to form a compact handſome round and open head, rather ſmall than large, equal on all ſides, with tolerably erect wood, capable of ſupporting the fruit without much bending. A little pruning of ſtandards every year, and a general one every three or four years, to cut out what is decayed, and ſome of the older wood, where a ſucceſſional ſupply of young may be obtained to ſucceed, is the way to keep them in vigour, and have the beſt of fruit; for that which grows on old wood gets ſmall and auſtere. In the firſt year of new-planted ſtandards, they are to be cleared in the ſpring, of all weak and improper ſhoots, reſerving only a few of the ſtrongeſt. If there are four regularly-placed ſhoots oppoſite to each other, it is ſufficient to form a good head, ſhortening them down to a few eyes each. What the head will be, may be foreſeen, by conceiving two or three ſhoots to come from each of the buds below the cut. The ſecond year, in ſpring, the head muſt again be attended to, and the ſuperfluous wood cut out, or ſhortened, ſo as to provide for the future form and ſtrength of the tree; reſerving only ſuch ſhoots as recommend themſelves for their poſition and vigour. After this, the head will form itſelf, ſo as to need only the cutting out a few ſuperfluities; but no ſhortening is allowed, except ſome of the loweſt branches, or any one where wood is wanted to fill a vacancy; for which purpoſe, a weak ſhoot may do, cut down to one or two eyes. Let no ſhoots remain on the ſtems below the head, nor ſuckers above the roots.

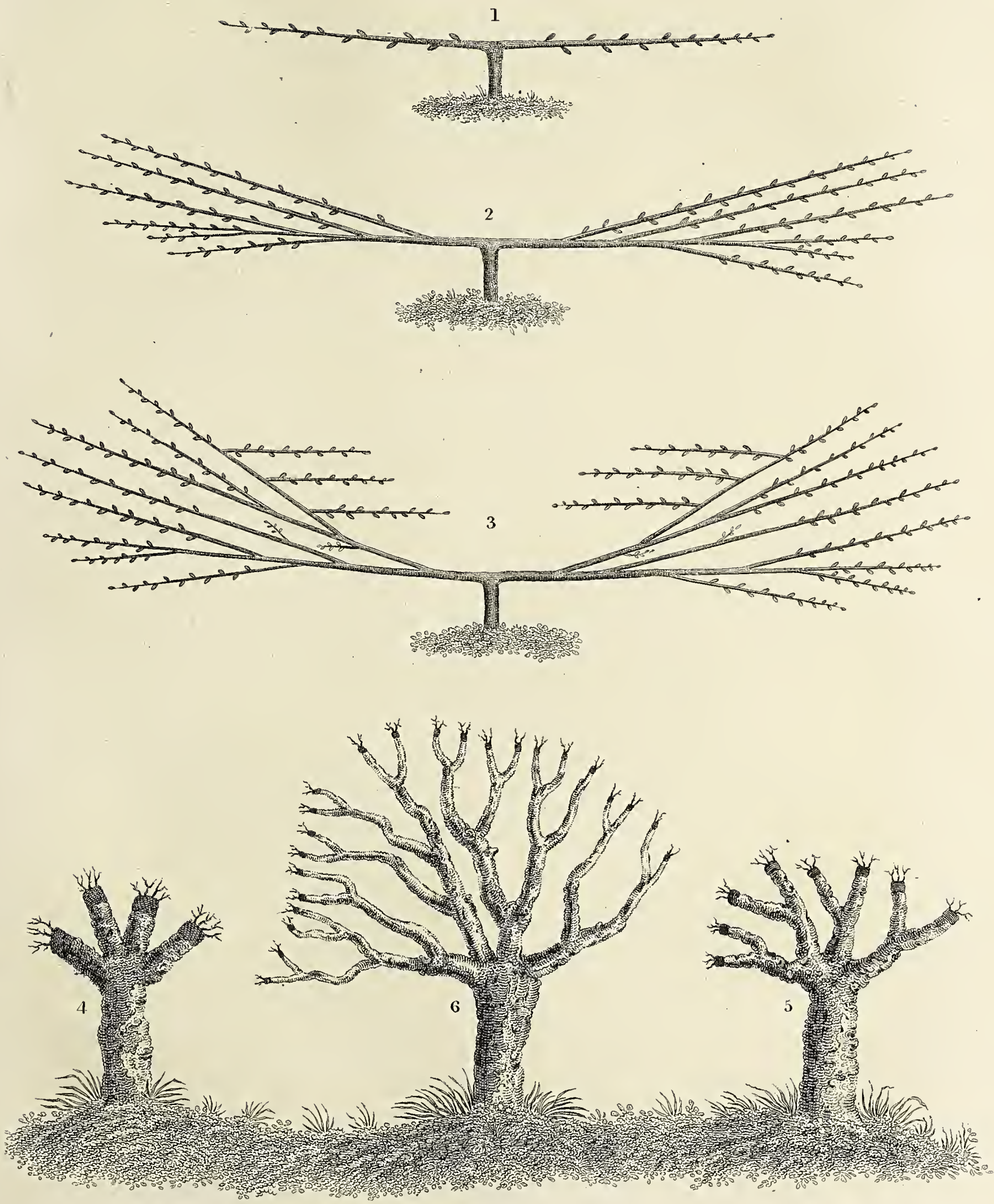
Such is the mode of pruning and training fruit-trees, now recommended by our beſt practical gardeners. Mr. T. A. Knight, however, whoſe valuable hints for improvements in horticulture we have already noticed, recommends a new method, founded on the following principles, which we ſhall ſtate in his own words.

"From the reſult of experiments I have made to aſcertain the influence of gravitation on the deſcending ſap of trees, and the cauſe of the deſcent of the radicle, and aſcent of the expanding plumule of germinating ſeeds, I have been induced to believe that none of the forms, in which fruit-trees are generally trained, are thoſe beſt calculated to promote an equal diſtribution of the circulating fluids; by which alone permanent health and vigour, and power to afford a ſucceſſion of abundant crops, can be given. I have therefore been led to try a method of training which is, I believe, different from any that has been practiſed: and, as the ſucceſs of this method has fully anſwered every expectation, a conciſe account of it cannot be unacceptable to the horticulturaliſt. This experiment was made on the peach. The trees, which were ſeedling plants of *one-year old only*, were headed down as uſual, early in the ſpring, and two ſhoots only were trained from each ſtem in oppoſite directions, and in an elevation of about five degrees; and, when the two ſhoots did not grow with equal luxuriance, the ſtrongeſt was depreſſed, and a greater elevation given to the weakeſt, by which means both were made to acquire an equal degree of vigour. Theſe ſhoots, receiving the whole ſap of the plants, grew with much luxuriance, and in the courſe of the ſummer each attained about the length of four feet. Many lateral ſhoots were of courſe emitted from the young luxuriant branches; but theſe were pinched off at the firſt or ſecond leaf, and were in the ſucceeding winter wholly deſtroyed; then the plants, after being pruned, appeared as repreſented in the annexed Engraving, at fig. 1.

"In the ſucceeding ſeaſon, as many branches were ſuffered to ſpring from each plant as could be trained conveniently, without ſhading each other; and by ſelecting the ſtrongeſt and earlieſt buds towards the points of the yearling branches, and the weakeſt and lateſt near their baſes, Mr. Knight was enabled to give to each annual ſhoot

## HORTICULTURE.

Plate II.



*New Methods of Training and Grafting.*

J. Paſs sculp.

London Published as the Act directs, Feby 1st 1810 by J. Wilkes.

ſhoot nearly an equal degree of vigour; and the plants appeared, in the autumn of the ſecond year, as repreſented at fig. 2. The experienced gardener will here obſerve, that a greater ſurface of leaf is given to the light, without placing any of the leaves ſo as to ſhade others, than can poſſibly be done by any other mode of training; and, in conſequence of this arrangement, the growth of the trees was ſo rapid, that at two years old ſome of them were fifteen feet wide; and the young wood in every part acquired the moſt perfect maturity. In the winter, the ſhoots of the laſt ſeaſon were alternately ſhortened, and left their whole length; and they were then prepared to afford an abundant and regular bloſſom in the ſucceeding ſpring.

"In the autumn of the third year, the trees were trained as repreſented at fig. 3, the central part of each being formed of very fine bearing-wood; and the ſize and general health of the trees afforded evidence of a more regular diſtribution of the ſap, than has been witneſſed by any other mode of training.

"A wall-tree, from the advantageous poſition of its leaves relative to the light, probably generates much more ſap, comparatively with the number of its buds, than a ſtandard-tree of the ſame ſize; and, when it attempts to employ its reſerved ſap in the ſpring, the gardener is compelled to deſtroy (and frequently does ſo too ſoon and too abruptly) a very large portion of the ſmall ſucculent ſhoots emitted, and the Aphis too commonly prevents the growth of thoſe which remain. The ſap in conſequence ſtagnates, and appears often to choke the paſſages through the ſmall branches; which in conſequence become incurably diſeaſed, and ſtunted in their growth; and nature then finds means of employing the accumulated ſap, which, if retained, would generate the morbid exudation, gum, in the production of luxuriant ſhoots. Theſe ſhoots our gardeners, from Langley to Forſyth, have directed to be ſhortened in ſummer, or cut out in the ſucceeding ſpring; but great advantages have been found by leaving them wholly unſhortened; when they have uniformly produced the fineſt poſſible bearing-wood for the ſucceeding year; and ſo far as this practice from having a tendency to render naked the lower or internal parts of the tree, whence thoſe branches ſpring, that the ſtrongeſt ſhoots they afford invariably iſſue from the buds near their baſes. The laterals alſo that ſpring from theſe luxuriant ſhoots, if ſtopped at the firſt leaf, often afford very ſtrong bloſſoms and fine fruit in the ſucceeding ſeaſon. Whenever therefore ſpace can be found to train in a luxuriant ſhoot, it ſhould rarely or never be either cut out or ſhortened; it ſhould, however, never be trained perpendicularly, where that mode can be avoided."

## OF GRAFTING AND BUDDING.

This ingenious operation conſiſts in the inſertion of a cion or bud into a ſtock, or ſtem, raiſed for the purpoſe, and is neceſſary to the enſuring of good fruit; or rather, to have the ſame produced on the new tree as that of the old one from whence the graft was taken: it is ſometimes performed on the branches of trees, and may be on the roots, a piece being raiſed out of the ground for the purpoſe.

Grafting is like planting upon a plant; for, though there is an union of the parts, there is in fact little other communication than a root has with the ground. The cion, or bud, draws nouriſhment from the ſtock, but no other than is properly adapted to its own peculiar pores, which by a kind of chemical proceſs it alters, ſo as to become excluſively its own. A great variety of fruit is produced by grafting from the ſame kind of ſtock, juſt as a great variety of plants are from the ſame ſoil. The art of grafting is a very curious diſcovery; and, though it requires ſome ingenuity to perform it, a few trials will make it familiar, and it will prove an agreeable ſource of amuſement and pleaſure; ſince by its means young trees may be always at hand for replacing old or unſucceſsful ones. The method is as follows:

Proper ſtocks being ready, and cions or buds procured, it will be requiſite to have a ſharp pen-knife, and a ſmooth-edge pruning-knife, with ſome well-wrought loam or clay, and ſome ſtrong yarn. The clay ſhould be made up as mortar, mixed with ſhort hair, with a little horſe-dung, and prepared a day or two before-hand. The firſt thing to be done is, to cut off the head of the ſtock at the proper height, and in a fair part of the bark, making a ſmooth flat top: if the ſtock is too ſtrong for the knife, and a ſaw is uſed, it muſt be ſmoothed with the knife afterwards. Dwarf-trees are to be grafted within ſix inches of the ground, and ſtandards as high as the ſtock will well bear, conſidering whether they are to be half or full ſtandards; the former at about three or four feet, the latter at five or ſix. But trees deſigned for ſtandards may be grafted, or inoculated, at a lower height, the graft being trained to the deſired length, by keeping it to a ſingle ſtem.

The cions ſhould be healthy and ſtrong, and taken from the outſides of fruitful trees, where the juices of the wood have been properly digeſted by ſun and air: they ſhould be taken from trees juſt in their prime, or at full bearing, and not before. Let the cions of pears, plums, and cherries, be cut from the middle to the end of January, and at fartheſt not beyond the middle of February; the ſeaſon muſt, however, ſomewhat govern. Cions cut early are prevented from getting too forward in bud; and if the buds begin to ſtart, and look white, they ſeldom take. By cutting them as long as they may be kept before uſed, the ſap of the ſtock gets in forwardneſs; for it muſt firſt begin to ſtart, and ſo be ready to puſh itſelf quickly into the cion, to form a union with it.

In proceeding to graft, take off a little of the lower end of the cion firſt, and then cut it in length, ſo as to have three or four eyes to appear above the claying: two eyes will be ſufficient for a ſtandard, but four is better for a dwarf that is to be trained. In cutting cions into lengths, let the top eye be juſt in front, or juſt behind, but rather the former. Uſe not the upper part of a cion, as the wood is too raw for the purpoſe, and will be ſhrivelled; yet ſtrong cions, properly inſerted, ſeldom miſs through drought; indeed they will take ſooner than if quite freſh cut and full of ſap The beſt time for grafting is uſually from Mid-February to Mid-March; but in a forward ſeaſon they will take ſooner, and in a backward one ſometimes later.

CLEFT-GRAFTING has been the moſt common method of propagation; and, though it is not the neateſt, yet it is a certain and eaſy way to young practitioners. The ſtocks for this purpoſe ſhould be ſtrong, about three quarters of an inch diameter; but it may be uſed with very young ſtocks, having cions of like thickneſs. Cut off the head, as before directed, ſo as to have a ſmooth part in the ſtock, where the cion is to be placed; and, cutting a part of the ſtock off ſlopewiſe, oppoſite to this place, leave the top, or the crown of the ſtock, about half an inch wide. Then cleave the ſtock with a ſtrong knife, or ſharp chiſel, about two inches deep, as near the middle as poſſible, ſo as not to divide the pith; and, if any roughneſs appears in the ſlit, ſmooth it with a pen-knife; but ſomething of a wedge kind muſt be put into the ſlit to keep it open to receive the cion, leaving proper room to put it in. Cut the cion on each ſide to the form of a wedge at bottom, an inch or more long, making that ſide which is to be placed inwards in the ſtock, thinner by about one-third. Put the cion in, ſo that its bark, and that of the ſtock be level; and, if the bark of the ſtock be thick, let the bark of the cion ſink in a trifle, as the current of ſap that unites them always runs betwixt the bark and wood. The cion being placed, take the wedge out that kept the ſtock open; yet, if the ſtock be ſo ſtrong as to pinch the cion too hard, eaſe it by leaving a little bit of dry wood in the cleft. The graft muſt be nicely faſtened round with yarn, and the whole clayed over to an inch above and half an inch below, ſmoothing it off taper, with a trowel, or knife. And as this is done with a view to keep out wet, ſun, and air, if the clay falls off, or cracks, it muſt be immediately renewed, till the ſeaſon comes to take off the bandage, which is at or about Midſummer. If it be deſired to put in two cions, to form a tree for the wall, or eſpalier, there ſhould be two clefts parallel to one another, one on each ſide the pith. Some put in two cions, merely in caſe one ſhould miſs; but it is not adviſeable. It need hardly be obſerved, that in this caſe the crown muſt be left whole.

Whip-grafting has the advantage of cleft-grafting in neatneſs, and not requiring the ſtocks to be ſo old by a year or two, as very ſmall ones will do in this way; for the ſtock is directly covered by the cion, and it takes with certainty if properly performed. Having cut the head of the ſtock off, and the cion to its proper length, ſlope the lower end of the cion about an inch and a half, and to a point; then cut the ſtock to anſwer it, bark againſt bark, and tie them together exactly to their place, and clay it. But, for the greater certainty of keeping a cion to the part, cut it ſo as to leave a ſmall ſhoulder at the top of the ſlope, and the ſtock ſo as to leave a narrow bit of its crown to anſwer it, and to hold it.

Grafting in the bark, called *crown-grafting*, is perhaps as good a way as any, both for eaſe of operation and certainty of ſucceſs; but it will hardly ſuit any other fruit than apples or pears, as other cions will be paſt uſe before the bark of the ſtocks will peel, as the time for this buſineſs is towards the end of March, or beginning of April. In fact, no grafting can take place but when the ſap begins to riſe. The head of the ſtock being cut off, make a ſtraight ſlit down and through the bark from the top, at the place deſtined for the graft, which ſhould be rather ſoutherly or weſterly. This ſcore down the bark ſhould be nearly as long as the ſlope cut of the cion, which may be one and a half or two inches. Looſen the bark a little at the top of the ſcore, and then with ſome ſmooth inſtrument of wood, ivory, bone, or ſilver, open the bark ſufficiently to receive the cion, by puſhing the inſtrument down a trifle below the bottom of the ſlit. Cut a bit of the bark of the cion ſmooth off at the bottom, that it may not turn up in puſhing down. It will be proper to cut the cion with a ſmall ſhoulder, to reſt upon the ſtock. And becauſe, when the cion is in, it will bear the bark up hollow from the ſtock, ſcore the bark on each ſide the cion, ſo that it may fall cloſe to the ſtock and to the edges of the cion: then bind and clay it neatly. This mode of grafting is uſed moſt properly with ſtrong ſtocks, and ſometimes is applied to large branches, and even trunks of old trees, to change the ſorts, or renew the wood. In proportion to the largeneſs of which, from two to five or ſix cions are put in, and ſometimes of different ſorts; and, if the ſtock be large, the more the better, as it heals over the ſooner, and as they inſure the life of the ſtock, by receiving and carrying off the ſap; in which reſpect a ſingle branch of the head of an old ſtock may be left on, for the ſap to paſs off by when it begins to move. Having inſerted the cions, and bound them, clay the top of the ſtock well, ſo as to ſhoot off the wet.

Side-grafting is done in the bark, ſimilar to inoculation; a cion being inſerted inſtead of a bud. The head of the ſtock, in this method, is not to be cut off, only thinned a little, and the ſide-ſhoots taken away. The bark of the ſtock, where the inſertion of the cion is to be, muſt be cut through in the form of the letter T, as wide and as long as is ſufficient to receive the cion, cut as before, with a ſlope face of at leaſt an inch long, taking advantage of a part of the ſtock that is a little gibbous. Let the bark of the ſtock be neatly raiſed to receive it, but no more than is neceſſary; a bit of the bark may be ſliced off the part that is over the croſs cut, to receive the cion the better.

Approach-grafting, or inarching, is performed in April or May, when the ſtock we would graft, and the tree we would propagate, grow ſo near together as to be brought conveniently into contact; and the nearer the graft and the ſtock are of a ſize, the better. This mode of propagation is eſteemed the ſureſt of all, as it will conjoin branches of trees which are ſcarcely congenerous in their nature; and in truth, ſome fruits cannot be ſo well propagated any other way. Plants in pots or tubs, being eaſily brought together, are frequently propagated in this manner; and hence inarching is uſed much in greenhouſes and hot-houſes for various things, as oranges, lemons, pomegranates, jaſmins, and vines, ſometimes; oranges and lemons thus treated in May will be united by Auguſt. The method is: bend the beſt-ſituated young branch of the tree or ſhrub to be propagated, to the ſtock to be grafted; and, having determined on the part at which moſt conveniently to fix the ſhoot, cut the bark of that part of the ſhoot off, with nearly half the wood, (not to touch the pith,) to the length of about three inches for a ſtrong branch, or leſs for a weaker. Then cut exactly ſo much of the bark and wood of the ſtock off, as will receive the cut part of the branch, or ſhoot, ſo as to bring bark and bark in contact in every part; and, if the contrivance of lipping be uſed, it will ſecure them better together. Bind and clay; and, if in open ground, fix a ſtake to tie the work, ſo that the wind may have no power over it. As ſoon as the graft has taken, which will be probably in four months, let the head of the ſtock be carefully cut off with a keen knife, three or four inches above the binding, which being then removed, bind and clay again, to remain about a month. In March following, cut off the branch from the parent cloſe to the grafting, and alſo the ſtub of the ſtock that was left. The head of the ſtock is ſometimes cut off before grafting; in which caſe a ſloping cut half-way the thickneſs of the ſtock, is to receive the cion; but here the graft and the ſtock muſt be both of a ſize, or nearly ſo. This is called *inarching*, when the head is cut off; and *approach-grafting*, when it is not. Horticulturaliſts moſtly prefer the former method.

Budding, or inoculation, is now the moſt conſiderable mode of propagation. Apricots, peaches, and nectarines, are chiefly propagated this way, and plums and cherries may be. Pears are ſometimes budded, and apples have been; but the ſucceſs is uncertain. Not only fruit, but foreſt and ornamental trees and ſhrubs, are inoculated. The branches alſo of trees as well as ſtems are ſometimes budded, which is beſt done on two-years wood, though it may be on both younger and older. Inoculation begins as ſoon as good ſhoots with good eyes of the preſent year can be had, ſo that the ſeaſon may be reckoned from Mid-June to Mid-Auguſt; but about Old Midſummer, or rather after, is the beſt time for the work; it ſhould be done in a morning, or evening, except the day be cloudy, when any part of it will do.

Apricots being firſt ready, the budding-ſeaſon begins with them. The ſtocks to be uſed are thoſe of the plum (raiſed from ſtones or ſuckers) when about half an inch thick; and the operation is to take place from four to eight inches from the ground. Peaches and nectarines are propagated on the ſame ſort of ſtocks; but if the plum-ſtock is firſt budded with an apricot very low, and when of proper ſize budded with a peach, and eſpecially a nectarine, the advantage is reckoned that it takes beſt ſo, and comes to a better bearing, producing an improved fruit, and particularly the red Roman nectarine. Apricots may be expected to be leſs luxuriant by double-budding, in which caſe the firſt bud ſhould be of the Bruſſels ſort. Plums and cherries may be inoculated on ſucker-ſtocks of any kind; yet if a free growth is required, as for ſtandards, &c. ſtocks raiſed from ſtones are beſt; viz. plums on plums, and cherries on cherries, though they will take upon each other. Pears, if for ſtandards, ſhould be inoculated on pear-ſtocks, and on thoſe raiſed from ſeed, rather than ſuckers; but, if for dwarfs, quince-ſtocks may be beſt; white-thorn ſtocks are ſometimes uſed with the ſame view, but the fruit gets ſtony.

Stocks for budding dwarfs ſhould be three years old;

but for ſtandards four or more, though ſmall ſtocks may be budded for ſtandards alſo, if the ſhoot proceeding from the bud be trained to a ſingle ſtem, till of ſufficient height to be topped in order to form a head. Standards ſhould be from three to ſeven feet high before they are topped, according to the height they are deſired to be of, as half or full ſized; but dwarfs for training can hardly branch off too low, being budded at five or ſix inches, or leſs, from the ground; the ſhoot from the bud ſhould be ſhortened, at a year's growth, to five or ſix eyes, or to four that are well placed, with a lateral direction for the wall.

Before the buds are prepared, get the ſtock ready to receive them, by taking off lateral ſhoots, leaving an uncut ſingle ſtem. At the part fixed on for the inoculation, cut the bark through to the wood in form of a T, the croſs and the down ſlit being of the length neceſſary to take in the bud, which may be cut with from one to two inches of bark; putting the point of a knife in to the top of the down cut of the ſtock, raiſe the bark all the way to the bottom, ſo that it may juſt receive the bud with proper fitneſs.

To cut or procure the buds, put your knife in about three-fourths of an inch above the eye, and with a ſlope downwards cut the cion half through, then do it at the ſame diſtance below the eye, and, ſloping it upwards, cut till the knife meets the upper inciſion, ſo that the eye or bud may be directly in the middle. Examine the inſide of the bark; and, if there be a cavity juſt behind the eye, or bud, it is good for nothing, and another muſt be procured; for the cavity ſhows that the root of the bud is with the wood, inſtead of being with the bark.

When the bud is put in, if it ſhould prove a little too long, cut the ſpare part off ſo as to let the top of the bud fall in ſtraight with the croſs cut of the ſtock. Thus fixed, bind it moderately tight in its place with wet yarn, and, paſſing by the bud, go on to the top, or rather above it. Care muſt be taken that the bud is not hurt, and it is to be left only juſt ſtarting out between the yarn.

Another way is this: Clap the bud to the ſtock, being firſt ſquared, and ſcore the bark on each ſide, and acroſs the top; and, inſtead of ſcoring the bark at the bottom, do it a quarter of an inch above the bottom ends of the ſide lines; then take off the bark between the lines, and place the bud, by puſhing it down this lower piece of bark, being firſt looſened, which will ſerve to hold it. Bind it cloſe, but not over tight. If in this method the bud fits exactly, it is a very ſure and neat way of inoculating.

If the buds have taken, it will be viſible in about three weeks, or a month. As often as any ſhoots appear below the budding, cut them off, and alſo ſome of the ſhoots above, if there are many of them; for it is not proper that an inoculated ſtock ſhould have a large head. In a month looſen the bandage, by taking it off, and putting it on lightly again for another month. In March, cut the head of the ſtock off cloſe behind the budding, in a ſloping direction; ſome leave three or four inches of the ſtock above the bud till the following ſpring, and it will ſerve to tie the new ſhoot to, in order to keep it erect. Suffer no ſhoots from the ſtock, but rub the buds off as faſt as they appear. Though inoculation may ſeem the ſloweſt mode of propagating fruit-trees, it proves eventually the quickeſt; and is the moſt certain way to produce free-growing trees, with a well-covered ſtock. The inſertion of a bud has alſo the advantage over a cion, as a failure does not hurt the ſtock ſo much.

Lipping is cutting the ſlope-face of the cion, ſo as to leave a rib down the middle; and then cutting out a notch in the part of the ſtock that is to receive it.—Double-budding is twice budding, firſt the ſtock, and then the ſhoot, when it is grown big enough, which is in two years.

In cider-countries, the grafting upon decayed or decaying apple-trees has been lately found of conſiderable advantage to the proprietors of orchards. An improved method of conducting this proceſs has been lately diſcovered by William Fairman, eſq. near Sittingbourn, in Kent, which he calls *Extreme Branch-Grafting*, and for which the Society of Arts, &c. preſented him with their ſilver medal. He deſcribes the operation as follows: “Having from time to time obſerved in my orchards, that ſeveral trees became ſtunted and barren from approaching decay, and had an unſightly appearance from breaking the rows, and deſtroying the uniformity of the plantation, it became an object of ſome moment to cure the defect. This was only to be done by bringing the trees into an equal ſtate of bearing; an object of the greateſt importance in the ſyſtem of orcharding, and alſo for the recovery of old barren trees, which are fallen into decay, not ſo much from age as from the ſorts of their fruits being of the worn-out and deemed nearly loſt varieties.

“Having long entertained theſe thoughts, and been by no means inattentive to the accompliſhment of the deſign, I attempted to change their fruits by a new mode of grafting; and am bold enough to aſſert, that I have moſt fortunately ſucceeded in my experiments. Having many trees of this deſcription, I made an experiment on three of them in March 1798, each being nearly a hundred years old. They were not decayed in their bodies, and but little in their branches. Two of theſe were golden-pippins, and the other was a golden-rennet. Each likewiſe had left off bearing for ſeveral years. Proceſs as follows: Cut out all the ſpray wood, and make the tree a perfect ſkeleton, leaving all the healthy limbs; then clean the branches, and cut the top of each branch off where it would meaſure in circumference from the ſize of a ſhilling to about that of a crown piece. Some of the branches muſt of courſe be taken off where it is a little larger, and ſome ſmaller, to preſerve the canopy or head of the tree; and it will be neceſſary to take out the branches which croſs others, and obſerve that arms are left to fork off, ſo that no conſiderable opening is to be perceived when you ſtand under the tree, but that they may repreſent an uniform head. The trees being thus prepared, put in one or two grafts at the extremity of each branch; from this circumſtance the method is called *extreme branch-grafting*.

“A cement, hereafter deſcribed, muſt be uſed inſtead of clay, and the grafts tied with baſs or ſoft ſtrings. As there was a conſiderable quantity of moſs on the bodies and branches of the trees, I ordered my gardener to ſcrape it off, which is effectually done when they are in a wet ſtate, by a ſtubbed birch-broom. I then ordered him to bruſh them over with coarſe oil, which invigorated the growth of the tree, acted as a manure to the bark, and made it expand very evidently; the old cracks were ſoon, by this operation, rendered inviſible. By the beginning of July the bandages were cut, and the ſhoots from the grafts ſhortened, to prevent them from blowing out. I muſt here too obſerve, that all the ſhoots or ſuckers from the tree muſt enjoy the full liberty of growth till the ſucceeding ſpring, when the greater part muſt be taken out, and few but the grafts ſuffered to remain, except on a branch where the grafts have not taken; in that caſe, leave one or more of the ſuckers, which will take a graft the ſecond year, and make good the deficiency. This was the whole of the proceſs. The ſyſtem ſucceeds equally well on pear, as alſo on cherry, trees.

“By obſerving what is here ſtated, it will appear that the tree remains nearly as large when the operation is finiſhed as it was before the buſineſs was undertaken; and this is a moſt eſſential circumſtance, as no part of the former vegetation is loſt, which is in health fit to continue for forming the new tree. It is worthy of notice, that, when the vivifying rays of the ſun have cauſed the ſap to flow, theſe grafts, inducing the fluid through the pores to every part of the tree, will occaſion innumerable ſuckers or cions to ſtart through the bark, which, together with the grafts, give ſuch energy to vegetation, that in the courſe of the ſummer the tree will be actually covered over by a thick foliage, which enforces and quickens the due circulation of ſap. Theſe, when combined, fully compel the roots to work for the general benefit of the tree.

"In theſe experiments I judged it proper to make choice of grafts from the ſorts of fruits which were the moſt luxuriant in their growth, or any *new* variety; and, if this obſervation is attended to, the practitioner will clearly perceive, from the firſt year's growth, that the grafts would ſoon ſtarve the ſuckers which ſhoot forth below them, if they were ſuffered to remain. With a view to accompliſh this grand object of improvement, I gave much attention to the general practice of invigorating old trees; and I happily diſcovered the error of the common mode of grafting but a ſhort diſtance from the trunk, or body, called *cleft-grafting*, as ſhown in the Horticultural Plate II. fig. 4. There the circumference of the wounds is ſo large as to require ſeveral grafts, which cannot firmly unite and claſp over the ſtumps, and conſequently theſe wounds lay a foundation for after-decay. If that were not the caſe, yet it ſo reduces the ſize of the tree, that it could not recover its former ſtate in many years, and it is dubious if it ever would; whereas, by the method of *extreme grafting*, as ſhown at fig. 6, the tree will be larger in three or four years than before the operation was performed; for, all the large branches remaining, the tree has nothing to make but fruit-bearing wood; and from the beautiful verdure it ſoon acquires, and the ſymmetry of the tree, no argument is neceſſary to enforce the practice.

"Fig. 5 ſhows an experiment made about ten years ſince. The error of fig. 4 was there a little amended, and gave the idea of grafting at the extremity. Thoſe done in my orchards, on the plan of fig. 5, did not, neither were they able, to bear as many apples laſt ſeaſon, which was a bearing year, as thoſe on the plan of fig. 6, which produced about two buſhels each tree of the fineſt fruit I had in my orchards, from the third-ſummer's wood only. Some grafted with Ribſton's pippins were beautiful.

"Cement for Grafting.—One pound of pitch, one pound of reſin, half a pound of bees'-wax, quarter of a pound of hogs'-lard, and a quarter of a pound of turpentine; to be boiled up together, but not to be uſed till you can bear your finger in it."

## OF HOT-BEDS.

In this uncertain climate, hot-beds are of conſiderable uſe in forwarding many productions of our gardens; and they are of many years ſtanding, having been introduced by Gerard, in 1597. Without their aid, we could not enjoy ſo many of the eſculent vegetables of warmer countries, nor could we have our tables furniſhed *ſo early* with many of our own indigenous productions, as we now do in winter and ſpring. In promoting the growth of cucumbers and melons, their utility is univerſally admitted.

According to the quantity and quality of the materials put together for hot-beds, the heat will be proportioned as to the ſtrength and duration; and by a judicious uſe in making, and the management afterwards, many advantages may be obtained from them. The great point is, to ſuit the degree of heat to the nature of the different plants to be cultivated, that they may have neither more nor leſs than is neceſſary to promote a regular vegetation. Two errors are common in the uſe of hot-beds; ſowing or placing in the ſame bed things of a very different nature as to the climate they grow beſt in, and forcing with too much heat even the tendereſt. Though it may not anſwer our too haſty views, the heat of a bed had better be ſlack than otherwiſe. A ſtrong hot-bed, that ought to be made a fortnight before it is uſed, is ſometimes furniſhed by impatience in a few days, and various ill conſequences follow, which naturally fruſtrate expectation.

The ſize of a hot-bed, as to length and breadth, muſt be apportioned to the frame; and the height of it according to the ſeaſon. In a dry ſoil, a bed may be ſunk in the ground from ſix inches to a foot, to make it more convenient to manage. But beds made forward in the ſeaſon ſhould rather be on the ſurface, for the ſake of being able to add ſtrong linings, &c.

The beſt ſort of dung is that made of bean-ſtraw, next wheat, rye, oats, and barley. When the ſeaſon is pretty much advanced, hot-beds may be made of graſs-mowings and weeds, which is a common practice in the cider-countries. Theſe heats, however, are often too violent, and laſt not long; yet they may be lined with theſe materials, if done in time; otherwiſe, if a green hot-bed gets greatly cool, it will not be recovered.

Hot-beds are ſometimes made of the refuſe bark of a tanner's yard, and alſo of oak-leaves; but theſe muſt have walled pits, of a large ſize, and are ſeldom uſed but in hot-houſes. A bark-bed properly made, and managed by forking up at two or three months' end, will hold a fair, moderate, and ſteady, heat, four, five, or ſix, months. The bark is to be got freſh, after it has been thrown out of the vats a few days, and, if not moderately dry, kept a few days longer to drain, and, if the weather is fair, it may be opened to the ſun to dry; for it will not ferment if it is put together wet. When it is made into a bed, it muſt be only beaten together with the fork, and not trampled. In a fortnight it will have come to a fine heat, and fit for immediate uſe.

The pit ſhould be eleven or twelve feet long, five or ſix feet wide, and a foot, or a little more, higher than the bark in front, and two feet higher behind, to receive the mould on a body of bark three feet deep; but, if for the cultivation of any thing in pots, as there will need no mould, the pits need not be ſo deep, the pots being plunged in the bark; or the pit may be made level all round, of a depth to hold the bark and mould, on which frames of wood may be ſet. Let the pit be ſunk one-third or one-half in the ground, as the ſoil about it is dry or not.

The uſes to which hot-beds may be applied are various, but chiefly for the cultivation of cucumbers and melons. At the ſpring of the year, however, hot-beds are commonly made uſe of for forcing crops of ſeveral vegetables, as radiſhes, carrots, cauliflowers, lettuces, potatoes, turnips, kidney-beans, purſlane, tarragon, ſmall ſallading, &c. For the cultivation of cucumbers and melons, and all the different ſpecies now known, as laid down by the late Philip Miller, eſq. F.R.S. ſee the article Cucumis, vol. v. p. 442–456, and the correſpondent Engraving.

For the culture of Mushrooms, ſee the article Agaricus, vol. i. p. 192; Mr. P. Miller's method.

With reſpect to the form, and the frames, of our common hot-beds, Mr. T. A. Knight has ſuggeſted the following obvious improvements. "The ſurface of the common hot-bed (ſays Mr. Knight) is made perfectly horizontal; and, to give ſome degree of elevation to the glaſs, that end of the frame which is to ſtand towards the north is made nearly as deep again as the other; ſo that, if the mould were placed of the ſame depth (as it ought to be) over the whole bed, the plant would be too far from the glaſs at one end of the frame, and would want ſpace at the other. To remove this inconvenience, I tried the effect of placing the hot-bed on an *inclined plane* of earth, elevated about fifteen degrees, making the ſurface of the dung and mould parallel with it, and adapting the ſhape of the frame to the ſurface of the bed; by which means the plants and the mould of the bed became much more expoſed to the influence of the ſun. And, though the improvement may appear trivial, it is not attended with any expence whatever, ſince the frame, when made as recommended, coſts conſiderably leſs than when made in the old form.

"I have often uſed, with great ſucceſs, a frame and hot-bed thus formed for forcing grapes, by placing the bed at three feet diſtance from the wall to which the vines were trained, and introducing their branches into the frame, through holes made at the north end of it (the vines having been trained to a ſouth wall), as ſoon as the firſt violent heat of the bed had ſubſided. The white chaſſelas grape, thus treated, ripens in July, if the branches of the vine be introduced in the end of April; and a moſt abundant crop may be thus obtained; but the neceſſity of pruning very cloſely renders the branches, which have been forced, unproductive of fruit in the ſucceeding ſeaſon; and others, from the wall, muſt conſequently be ſubſtituted.

"If an inclined plane of earth be formed for the hot-bed, and vines be trained in a frame adapted to it, the grapes ripen perfectly in Auguſt; and if ſmall holes be made through the ſides of the frame, through which the young ſhoots of the vines can extend themſelves in the open air, a ſingle plant, and a frame of moderate ſize, will be found to yield annually a very conſiderable weight of grapes. For this purpoſe the frames ſhould not be more than ten feet long, nor more than ſix in breadth, or the young ſhoots will not be ſo advantageouſly conducted out of them into the open air; and the depth of the frame, either for the hot-bed or inclined plane of earth, ſhould not be leſs than eighteen inches. The holes in the ſide of the frame, through which the young ſhoots are to paſs, ſhould of courſe be cloſed during the ſpring, and till wanted; and, if the weather be cold, it will be neceſſary to cover the frames at night. When the grapes are nearly full-grown and begin to ripen, it will alſo be highly advantageous to draw off the glaſſes during the day in fine weather, by which means the fruit will be expoſed to the full influence of the ſun, without the intervention of the glaſs, and will attain a degree of perfection that it rarely acquires even in the vinery, or hot-houſe."

## OF MUSHROOM-BEDS.

In addition to the late Mr. Miller's directions for the culture and growth of garden-muſhrooms, which we have recited under the article AGARICUS, in our firſt volume, it will be proper here to add the following improved methods lately adopted by the moſt intelligent gardeners.

Prepare the beds at the end of Auguſt, in order to furniſh the table with muſhrooms all the winter, except in caſe of extreme and intenſe froſts. Make the beds in the following manner: Dig a trench three feet wide, one foot deep, and what length you pleaſe; from ten to fifteen feet is ſufficient for a moderate family. If your ſoil be wettiſh, let the bed be quite above ground. Take horſe-dung, three or four good cart-loads for twenty feet, lay it in a heap to ferment for ten or twelve days, or lay it abroad till little heat remains in it; for great heat deſtroys the ſpawn of muſhrooms. The dung ſhould be warm and moiſt, not dry and ſuch as has already been exhauſted by fermentation. So ſoon as you perceive the heat to be gone off, fill the trench with the dung, near one foot above the ſurface of the adjacent ground; above that, lay ten inches of freſh, light, rich earth; and obſerve to cover the ſides of the dung-bed with the ſame earth, and as much of the earth gathered from the fields, with the muſhroom-ſpawn upon the ſides, as can be; and then take ſome of the ſpawn, and plant the ſmall knobs of it, ſix inches aſunder, half an inch deep into the earth; then take another layer of dung, lay it ten inches thick, and, above that, another layer of the rich light earth, and the field-earth on the ſides eight inches thick; obſerving, as you lay the ſtratums of earth and dung, to draw in the ſides narrower, ſo as to make the bed aſcend gradually in form of a ridge, and ſtill drawing it narrower, till you arrive at the top, and in ſuch a manner, as the knobs of ſpawn may not be buried deeper than half an inch, planting the knobs all the way up; by which means you may have four layers of dung, and as many of earth.

When your bed is thus made and planted, lay good wheat-ſtraw, or looſe litter, half a foot or more thick; and, as the cold increaſes, cover to twelve inches in thickneſs. After ten days, take off the litter with your hands, to ſee if the muſhrooms begin to appear; if they come black or brown and long-ſhanked, cut them over, and riddle on a little of the fine earth upon them; and, when they appear again, they will come up white, round, and fit for uſe; this is called *purging* of them; their firſt bad appearance being owing to too much heat in the dung. It will be neceſſary to look them over every day in September, which is the chief ſeaſon of their growth. If allowed to grow large, they will ſoon become too big for uſe, rot, breed worms, and infect all the young ſpawn near them. To prevent this, gather them once every day; in doing which, pull them gently out, ſo as not to leave their ſtems behind, which would canker and breed worms, and rot the ſpawn. If any of this ſhould come up with the muſhrooms, take it off gently, and plant it in again without bruiſing it, and it will ſoon root. Make another bed in the ſame manner at the end of September, and no later.

Some make the muſhroom-beds entirely of dung, without ſtratums of earth, only covering the ſides of the dung with earth three or four inches thick. When this method is followed, always put good dry litter or ſtraw four inches thick between the earth laid on the ſides of the beds and the dung, which prevents the earth from caking or cracking into rents, which it is apt to do, from the heat of the dung; and on the top of the ſtraw, which immediately covers the muſhroom-bed, put ſome warm litter from the ſtable, or from a dung-heap, in the cold ſeaſon, and this will much promote the growth of the muſhrooms. If the froſt ſhould continue, and the warm litter cool, add ſome freſh warm litter upon the ſtraw-covering. Such beds, if duly attended to, will laſt ſeveral months, and produce great crops; and, as the muſhrooms for uſe grow, ſo will the ſpawn, which ought to be laid up in a dry warm place until the ſeaſon for uſing it. The ſpawn will keep four months; ſo that, if you give up the muſhroom-beds in May, the ſpawn will keep until September following, among their own earth, and even until October or November in a warm and dry place. In very ſevere froſts or great rains, obſerve to increaſe the ſtraw-coverings, and in great ſtorms ſometimes lay boards above the ſtraw, ſo as to reſt gently againſt the ſides of the beds, but not to reſt ſo much on the muſhrooms as to bruiſe them.

By continuing the forcing of muſhrooms, they may be continued good until the months of April or May. If when muſhrooms are ſet down in Auguſt, September, or October, or even later, they do not produce immediately, they ſhould not be deſtroyed, but let them remain all the winter covered with ſtraw, and in March probably, but moſt certainly in April, May, and June, a moſt plentiful crop of muſhrooms may be expected.

Another method of raiſing muſhrooms is this: About the end of February, lay old rotten dung in a trench nine inches deep, and ſix in breadth, fill it up and tread it well down, and above the dung put ſome earth, taken in October preceding from a paſture where muſhrooms grow in plenty; cover the dung with it five inches thick, tread it as hard as you can, and make the bed level; keep it clear from weeds, and in May the muſhrooms will begin to appear; if they come up black, take ſome turf of the muſhroom-paſture, half an inch thick only, and tread it down on the bed; this will purge them, and make them come up of a good colour. Such a bed will continue good for two years.

## OF THE FLOWER-GARDEN.

Although the flower-garden, ſtrictly ſo called, is rather out of faſhion, the flowers being now plunged in borders, and in front of ſhrubberies, yet, as many perſons reſiding in the country are fond of amuſing themſelves in the cultivation of theſe innocent and beautiful productions of the vegetable world, we ſhould not have deemed our article complete without giving the following inſtructions for their cultivation.—For the firſt introduction of flowers into gardens, and the method of drying and preſerving

ſerving them, and their uſe in the Materia Medica, ſee the article Flower, vol. vii. p. 468–470.

Flowers are claſſed into *annuals*, *biennials*, and *perennials*. Annuals are thoſe that are ſown and flower, and generally die, within a year. Biennials are thoſe that are ſown one year, and flower and generally die the next; though ſome of theſe, by ſowing early, and forwarding by a little heat, will blow the ſame year. Perennials are thoſe that do not flower the year they are ſown, but the next, and continue to live years afterwards, ſome fewer, ſome more. Of this claſs there is a great variety, perhaps fifty to one of the laſt, moſtly fibrous-rooted, ſome fleſhy, ſome bulbous, and ſome tuberous, &c. Moſt of the perennials are annual in their ſtalks, which die down to the ground in winter, and freſh ſhoots riſe in the ſpring. But, ſtrictly ſpeaking, all of each claſs are not annual, biennial, and perennial; for ſome of the annuals come a ſecond or a third year, as Chineſe holyhock and Indian pink; and a few others would live through the winter if houſed. Of the biennials, the ſame may be ſaid of the ſtock July-flower, ſweet-william, and wall-flower; only the former of theſe plants does not always live through the winter. Of the perennials, ſome do not flower well above three or four years, as the holyhock, &c. for which a ſowing ſhould of courſe take place the year before they are wanted. A few may alſo go off the ſecond year, having perfected only one blow. For a more perfect knowledge of this department of Horticulture, ſee the article Botany, in our third volume, and the correſpondent Engravings.

Culture of Annuals.—Mid-March is a good time to ſow the tender ſorts, though the curious and ſkilful floriſt, being well furniſhed with proper frames, may begin a month ſooner; the end of March, or beginning of April, is, however, not too late, and will perhaps better ſuit thoſe who are inexperienced. In order to ſucceed well, there ſhould be provided fine dry and rich earth, good ſtable-dung, frames and lights, or hand-glaſſes, and mats to cover. A moderately-ſtrong hot-bed, for a one-light frame, may be prepared, and, the heat being ſomewhat abated, the ſeeds ſhould be ſown thinly in drills, two or three inches aſunder, on five or ſix inches of mould, or leſs on a weak bed: or ſow in pots, plunged to the rims. Cover the ſeeds from a quarter to half an inch, or more, according to their ſize. Some of them will appear in a few days, and others will lie a fortnight or more, according to the circumſtances of their nature, age, and the heat or moiſture they meet with in the bed. Water, juſt warm, ſhould be gently given them, as they appear to need it; and air, as much as they can be thought to bear, a little at firſt, and by degrees more, for this is eſſential to their health and ſtrength.

Provide another bed by one month from the ſowing, to ſet the plants out in; and, having ſix inches depth of mould, place them five or ſix inches aſunder, allotting thoſe to the warmeſt part of the bed which were longeſt coming up, and which are of courſe the weakeſt; or they may be put out in ſmall pots of five inches diameter; placing the talleſt behind. If not ſown till the beginning of April, this ſecond bed may poſſibly do for the whole buſineſs, with proper management to keep up its heat, and covering well on nights; but a third bed is commonly neceſſary, in order to bring the plants on forward and fine. In this bed, it being covered over with four or five inches of mould, the plants ſhould be in ſmall pots, one in each, and plunged an inch deep, cloſe to one another. As the bed gets cooler, the pots are to be earthed higher, till up to the rims in mould; but, if planted without pots, the diſtance ſhould be eight or nine inches aſunder. As theſe tender annuals cannot bear the full open air till Midſummer, give them as much of it as poſſible in the frames, by degrees even taking off the glaſſes in the middle part of mild days. Keep up a heat in the third bed as long as can be, that the plants may continue in a growing ſtate, and not get ſtunted by cold at bottom.

It is hardly neceſſary to hint that the beds muſt be larger, and frames deeper, every time the plants are ſhifted. As the firſt frame was a one-light, let the ſecond be a two-light, and the third a three-light, which may be raiſed upon bricks, or boarded round the bottom, as occaſion may require. From the ſmall pots, let them be tranſplanted into bigger in time, or into warm borders, where, if covered with hand-glaſſes ſet on bricks for a while, it would ſecure them from unkind weather, till got a little hardened. In this changeable climate of England, there is hardly any knowing when tender plants may be expoſed ſafely; yet too much houſing and covering is to be avoided as much as poſſible. Some of the tender flowers in pots may be plunged to the rims in the ground, to keep their roots cool, and for the ſake of being conveniently covered; in which caſe, it is proper to put a bit of tile underneath the pot to keep out worms, which are apt to do great miſchief. Good ſeed from tender annuals will not be well had, but from February-ſown plants. Skilful gardeners, ſowing early, and having plenty of dung and drawing-frames, produce ſurpriſing plants of the tender annual claſs; ſo that the globe-amaranth has been raiſed to three, and the giant coxcomb, and tricolor, from three to five or ſix, feet high. Tender flowers, deſigned to gather ſeed from, ſhould begin to have ſome protection of glaſs about Mid-Auguſt, at leaſt during the nights, till they are fully ripened in September.

The leſs-tender annuals might have a ſlighter bed, about two feet thick, made for them at Mid-March, or a little after, being ſown and managed as above directed for the tender ſorts. When they are one or two inches high, they muſt be taken up with a ball of earth about their roots, and either tranſplanted on another bed, about one and a half foot thick of dung, or into the borders or ground; the ſmall kinds at four or five, and the larger at ſix or eight, inches aſunder. Let them be watered and kept moiſt, and ſhaded from ſun till well ſettled. Spindle-rooted plants, as ſtocks, &c. ſhould be moved where they are to blow as young as may be; but fibrous-rooted ones may be ſhifted much older.

The hardy annuals may be ſown from the middle to the end of March, as the beſt average ſeaſon. But nature ſeems evidently to direct an autumn-ſowing, for many ſorts which are then ſhed come up at ſpring, and make the fineſt blow, and produce the beſt ſeed for propagation. A number, therefore, might be ſcattered on the ſurface of the ground at random, after being kept a little while to harden. A ſecond, or even a third, ſowing of hardy annuals may be made, at two or three weeks apart, to continue the blow, eſpecially of thoſe that come early, and are ſoon off; Mid-May is not too late. In ſhort, of every flower that blows in ſummer, there may be *three* ſowings, and *two* of thoſe that come in autumn, in order to a full ſucceſſion. But, as hardy annuals do not tranſplant well, they ſhould be ſown where they are to remain, and they muſt have a good ſoil in order to ſucceſs. A few choice ſorts ſhould be ſown in pots, ſetting them where they have only the morning ſun; and, when in flower, they will ſerve to put into any particular place or apartment for ornament.

Of Biennials.—Theſe are to be ſown in drills, or in beds, at broadcaſt, the latter end of March, or beginning of April, where they have only the morning ſun, and the ground ſhould be cool, or kept ſo by occaſional watering; the beginning of May, however, is not too late. Thin the young plants on the ſeed-beds ſoon after they appear, and keep them well weeded. They may either remain till autumn to be planted out where they are to blow; or, if they grow too ſtrong and crowding, let every other be drawn in ſummer, and planted out wider into nurſery-beds for uſe in autumn, or the following ſpring. The latter ſeaſon will do for final planting, though the former is beſt, as the roots get eſtabliſhed in the ground; when if moved in the ſpring they are apt to meet with a check. In ſevere winters, however, thoſe moved in autumn are ſometimes killed, and therefore a few may be reſerved to ſpring; when being moved with good balls of earth, they will not be much checked.

Of Perennials.—This claſs of flowers are propagated, many of them by their roots, according to their nature, as fibrous, bulbous, &c. ſome by layers, ſuckers, offſets, ſlips, cuttings, and a few by ſeed only. All ſorts bearing ſeed are occaſionally propagated this way, for the purpoſe of producing new varieties, or to raiſe finer plants, as thoſe from ſeed generally prove. It happens, however, when they are propagated from ſeed, that, though ſometimes a better, yet more frequently a leſs beautiful, flower is produced of many ſorts; and this is the reaſon why the other modes of propagation are ſo much adopted, by offſets, &c. as thus they come identically the ſame with the mother plant. Another obſtacle againſt ſome ſorts being ſown is, that they are ſeveral years before they come to blow, as all bulbous and tuberous-rooted flowers.

The Dutch have made themſelves famous by their patience and perſeverance in raiſing bulbs and tubers, and ſow every year ſome of each kind, which pays them well, when they meet with an eminently-good flower. A new ſort of anemone, auricula, carnation, ranunculus, and even a polyanthus, will frequently fetch a guinea; and a tulip, or a hyacinth, ſometimes ten.

To raiſe bulbous and tuberous-rooted flowers, they ſhould be ſown in boxes, about three feet long, two wide, and ſix inches deep, filled with light rich earth, about the middle of Auguſt, or September, and ſetting them in a ſunny ſheltered place not under cover. Sowings may take place alſo in March or April, removing the boxes in May to where they may have only the morning ſun. Thin them a little if they come up thick; and, when the ſtalks die, put on half an inch of fine freſh mould; and, after the decay of the leaf next ſummer, they muſt be planted out in nurſery-beds, two or three inches aſunder, according to their nature; and ſome will blow the following year, as the anemone and ranunculus, &c. though the hyacinth will be four, or five, and the tulip ſeven or eight, firſt. Theſe muſt be removed from the firſt nurſery-bed to another, as ſoon as their tops are decayed, and planted at ſix inches diſtance; and ever after treated as blowing plants. Keep them very clear of weeds, particularly the ſeedlings; which protect in ſevere weather from froſt, or heavy rain, by mats and hoops.

Fibrous-rooted perennials, if propagated from ſeed, are to be treated as biennials; but they are moſtly increaſed other ways, with leſs trouble, chiefly by parting the roots in autumn and ſpring, or by rooted ſlips or offſets, ſhortening their ſtraggling fibres. Many of them have creeping roots, and increaſe ſo faſt, that it is neceſſary to take them up every three or four years; and a removal of this ſort is proper for moſt perennials, in order to greater neatneſs, and a ſuperior cultivation; for, though large tufts look handſome, they may be too bulky, and ſome kinds are apt to rot when thick, the ſtalks and flowers come weak, and the leaves, toward the bottom, turn yellow.

The general culture of bulbous and tuberous roots is, to take them up annually, ſoon after they have flowered; when their leaves and ſtalks turn yellow and decay, then the root is at reſt, and its fibres die. When firſt taken up, lay them covered in dry ground for a few days, and clean and harden them in the ſun; after which they muſt be ſtored in a dry place, till wanted: damp is apt to rot them. It is not indeed abſolutely neceſſary to take bulbs and tubers up every year, as every ſecond or third may do; but it is the common practice of gardeners to do ſo, becauſe it gives an opportunity to remove the offſets for propagation, and the mother bulbs are thus ſtrengthened, as alſo from the renewed ſoil they meet with by a freſh plantation. Some people ſuffer them to remain many years without taking up; but then they ſtarve one another, and go off from their original beauty.

Autumn-flowering bulbs are to be taken up in May, if their leaves are decayed. Spring-flowering bulbs ſhould be replanted in September or October; thoſe of the ſummer in October or November; and thoſe of autumn in July or Auguſt. The ſcaly bulbs, as lilies, &c. ſhould not be kept out of the ground above a month or ſix weeks. Thoſe that flower in ſummer may be put in the ground at different times, as early and late in autumn, and early in the new year, but not later than February, to obtain a ſucceſſion of blow. If any are put in at the end of February, or beginning of March, they ſhould remain two years for increaſe. This is a common practice with the anemone and ranunculus; but, when planted in winter, the ſoil ſhould be a dry one, or made ſo, by digging in a good quantity of fine ſea-coal aſhes, and coarſe or drift ſand; elſe they are apt to rot, if much wet falls, before they have ſtarted fibres, eſpecially when followed by ſharp froſt. Offſets of bulbs, and weak tubers, ſhould be planted a month before the full-ſized roots; and, as they are not expected to flower the firſt year, ſhould be diſpoſed of in nurſery-beds, where they may grow a year or two, according to their ſtrength. Thoſe taken from ſcaly bulbs will not endure to be kept out of ground, and muſt therefore be planted almoſt immediately.

The ſoil that beſt ſuits bulbous and tuberous-rooted flowers, is a ſandy loam; but moſt of the ſorts are not very nice. The ground for them ſhould however be well dug, that their fibres may ſhoot freely, and wet be completely drained from them, when much of it falls. This work ſhould be done a week before planting, that the ground may ſettle. In a light ſoil, roots of the ranunculus have been known to ſtrike a yard deep, which may admoniſh, that in a clay bottom it is proper to lay a body of ſtones about eighteen inches deep, that too much moiſture may not be detained to ſicken the roots. The depth at which bulbs ſhould be planted, muſt be according to their ſize, three or four inches deep, from their top. Tubers alſo according to their ſize; anemones and ranunculuſes at two or two and a half inches, &c. Some bulbs will come up even when a foot below the ground, as crown-imperials, &c. ſome perſons, therefore, plant them deeper than the above rule, in order to be able to ſtir the ſurface of the ground without damaging them; but it is not adviſable.

The proper diſpoſition of bulbous and tuberous roots, is either in beds of from three to four feet and a half wide, for the curious ſorts; or in patches, to form cluſters of three, four, or five, agreeable to the room they require. There ſhould be only one in a place of the white or orange lily, crown-imperial, and ſuch-like large bulbs. In beds, the fancy ſorts of bulbs, and tubers, may be ſet in rows, eight or nine inches aſunder, and from five to ſeven inches in the rows, according to their ſize. The diſtance of four inches apart is, however, by ſome floriſts, thought ſufficient for anemones and ranunculuſes; but certainly more room is adviſable where a ſtrong blow is deſired. Hyacinths ſhould be planted at ſeven or eight, though they are more commonly ſet at ſix, inches. Tulips ſhould be at eight or nine, though ſix is often all that is allowed them. When planted, if rain does not come in about four or five days, beds of bulbs and tubers ſhould be watered, to ſet them growing, that they may not mould and rot.

Spring-flowering bulbs may be brought forward by planting them in pots, or in water-glaſſes, and ſetting them in warm rooms, or hot-beds; and thus, even in winter, we may have ornaments and ſweets that court our admiration. The great variety of hyacinths and polyanthus narciſſus, furniſh us amply in this way; but other early bulbs may alſo be thus forwarded. Pots placed in a light warm kitchen-window, may be brought forward to make their blow in the parlour; or, if placed in any window open to the ſouth, it will forward them. Theſe ſhould be potted in October, and have a light dry ſoil, occaſionally giving water. Bulbs may be put in glaſſes at this time, and once a month after, to February, for a ſucceſſion. Let the bulb juſt touch the water, which ſhould be ſoft, and repleniſhed ſo often as to keep it up to the bottom of the bulbs. Let it be completely changed about once a-week; and if a bit of nitre, the ſize of a pea, be put in each time, it will ſtrengthen the blow.

Bulbs, propagated from offsets, produce a flower exactly like the parent; but varieties are only to be obtained from ſeed, which never produces flowers quite like the original the ſeed came from. Let the ſeed be ſaved only from choice flowers, thoroughly ripe; and, being hardened a little in the ſun, may be ſowed ſoon after, in pots, or boxes, of good light earth.

Of all flowers or flowering-ſhrubs, the roſe ſeems to claim precedence. In its varieties it ſhould be planted in all ſituations; but the Provence more particularly. Occaſionally every ſort may bear a few late flowers; but chiefly the Provence. To encourage them to bear in the latter part of the year, pulling off the firſt roſes, as ſoon as they begin to decay, is a mean; but to pull off all the buds, at the uſual time of blow, is a more certain method. A more ſure way, ſtill, is to top the new ſhoots towards the end of May, or prune down to two or three eyes. Tranſplanting roſes in the ſpring, is a mean to effect a middle blow; and if into a north border, and cool ground, this may be done late in April, or even in May, watering and pruning at the ſame time ſhort. Early roſes are obtained by being trained againſt a ſouth wall. The monthly roſe thus planted, and having the light of a cucumber-frame put before it, will ſometimes come as early as the end of April, or beginning of May. It is a good method to put moſs round the roots of theſe trees in March, to keep the ground warm, and at the ſame time moiſt, which helps to produce both forward and large roſes; in dry and hot ſituations they often require water. For all the known varieties of the roſe, and methods of culture, ſee the article Rosa.

## FLOWERING SHRUBS AND EVER-GREENS.

To SHRUBS we are indebted for much of the beauty and elegance of our gardens; and hence they juſtly merit every care, though they produce little or no edible fruits. They aſſiſt in forming an agreeable ſhade, they afford a great variety of flowers with leaves differently tinged, and are ſtandard ornaments, that give us pleaſure without occaſioning much trouble. Many ſhrubs are raiſed from ſuckers, others from layers, ſome from cuttings, and moſt may be propagated from ſeeds, which produce the fineſt plants. Before they are planted out for ornament, they ſhould be trained two or three years in a nurſery, to be formed into a full and regular-ſhaped head.

Though deciduous ſhrubs may be planted almoſt at any time, yet October is much the beſt month, eſpecially if a moiſt ſeaſon; the exception being made as to a cold wet ſoil, in which all ſorts of planting is beſt done in ſpring. Ever-greens muſt be cautiouſly planted, and ſhould not be ventured upon in winter; and even in autumn and ſpring they ought not to be meddled with in unfavourable weather. It is a good rule, to expoſe the roots to the air no longer than can be helped; ever-greens ſhould therefore be planted immediately after they are taken up, and their roots alſo very carefully preſerved whole. And, if the ſhrubs are ſmall, let them be removed with balls of earth to them, trimming off the projecting ends.

As ſpring is, on the whole, the fitteſt time for moving ever-green ſhrubs, and as the deciduous ſorts do then alſo very well, ſhrubberies and clumps properly enough become the work of March, a little earlier or later, according to the ſoil and ſeaſon. Light ſandy ſoils ſhould always be planted in good time, and any fair weather that appears ſettled ſhould not be neglected; the beginning of April, however, is generally reckoned the beſt ſeaſon for planting ſhrubs. A good medium way is to plant the deciduous ſorts the beginning of March; and, leaving places for the ever-green kinds, plant them the end of March or the beginning of April. But it would ſtill be a better way to plant deciduous ſhrubs in autumn, and the ever-green ſorts in ſpring. The diſtances of the plants muſt be according to the ſize they uſually attain. Some grow off ſlow at firſt, but afterwards get large; but ſtill theſe ſhould be rather conſidered in a middling way, otherwiſe the ground will be a long time naked. Some ſorts will require not more than three feet diſtance, others four, five, or ſix; but, as they are ſmall when planted, and perhaps much of a ſize, the future height and ſpread are not to be too much conſidered.

The ſeaſon of ſhrubs flowering and leafing is a material point to provide for, by a proper diſtribution, that there may be a difference of decoration every month, in every part. And in this buſineſs, an equally-diverſified mixture of the ever-green and deciduous ſorts, is neceſſary to be obſerved. As to the proportion of this mixture, it will depend entirely upon taſte, and the opportunity of procuring the ſort. A regularity in planting ſhrubs is ever to be avoided, except juſt in the front, where there ſhould always be ſome low ones, and a border for flowers, chiefly of the ſpring, as ſummer ones are apt to be drawn up weak, if the ſhrubbery-walks are not very wide. The flowers ſhould be of the loweſt growth, and rather bulbous-rooted. In open ſhrubberies an edging of ſtrawberries is proper, and the hautboy preferable, on account of its ſuperior ſhow when in flower; but in theſe ſituations the wood-ſtrawberry is more commonly planted, as it will produce fruit with leſs ſun and air than any other ſort. For fences about a plantation, the laurel, yew, and holly, have been, for many years, the principal ever-greens; the former as a lofty and open fence, the ſecond as cloſe and moderate in height, and to be cut to any thing, the laſt as trainable by judicious pruning to an impregnable and beautiful hedge. Deciduous diviſions are beſt made with the ſmall-leaved elm, or the hop-hornbeam, as they are tonſile, and of a peculiar neat foliage to the very bottom. If a lofty hedge is wanted, the beech makes a good one.

## AROMATIC HERBS AND PLANTS.

Aromatic herbs and plants are particularly to be attended to; for, though their fragrance does not equal many of the flowers, yet their utility is much greater. They are divided alſo into *annual*, *biennial*, and *triennial*.

Of the firſt kind are: Mentha, or mint; Mentha, or penny-royal; Meliſſa, or balm; Anethum, or fennel; Tanacetum, or tanſey; Artemiſia, or tarragon; Anthemis, or chamomile; Mentha, or peppermint; Liguſticum, or lovage.

Of the ſecond kind are: Origanum, or ſweet marjoram; Satureja, or ſummer ſavory; Scandix, or chervil; Anethum, or dill; Calendula, or marigold; Ocimum, or baſil; Apium, or parſley; biennial, Carum, or caraway; Pimpinella, or aniſe; Angelica, angelica, biennial-perennial.

Of the third kind are: Thymus, or thyme; Salvia, or ſage; Satureja, or winter-ſavory; Origanum, or pot-marjoram; Origanum, or winter ſweet marjoram; Hyſſopus, or hyſſop; Ruta, or rue; Roſmarinus, or roſemary; Lavendula, or lavender. The above have abiding tops, and continue furniſhed with leaves, in moſt caſes, all the year round.

Among the perennial kinds, the principal aromatics are thyme, ſage, winter-ſavory, marjorams, mint, penny-royal, tanſey, tarragon, and fennel. The others are uſed moſtly for domeſtic occaſions, as hyſſop, balm, chamomile-flowers, lovage, rue, and roſemary. And for ſimple medicinal purpoſes in a family; the peppermint for diſtillings; alſo the lovage and penny-royal occaſionally for the ſame purpoſe; and the lavender for its flowers, both to diſtil for lavender-water, and to lay among clothes to give them a ſweet and agreeable ſcent: ſome ſorts of ſage, common mint, and balm, are alſo uſed occaſionally by way of tea; and young green mint and tarragon often in ſallads. But among the annual and biennial aromatics, the ſweet marjoram, ſummer-ſavory, chervil, dill, marigold, baſil, parſley, and coriander, are the powerful ſorts to cultivate for culinary uſes, &c. The caraway and aniſe are cultivated in ſome inſtances for ſeeds, both to uſe in the kitchen, and for diſtilling; alſo ſometimes the coriander-ſeed, but more generally the two former: and the angelica, principally for the young tender ſhoots of its ſtalks which are uſed in confectionary, to candy as a vegetable ſweetmeat, and the ſeeds for medicine. Some of theſe annual aromatics are alſo in ſome caſes uſed to give flavour to ſallads, as chervil, coriander, baſil, &c. the young leaves being uſed in ſmall quantities to mix with ſome principal ſallad herbs. See the deſcription of each under its reſpective genus.

All the perennial aromatics are eaſily raiſed, either by ſlips, offsets, parting the roots, or by ſeed; and may be planted in ſpring, ſummer, or autumn, in beds or borders at from ſix to ten or twelve inches aſunder; but the annual and biennial kinds, continuing in the former only one ſeaſon, and in the latter only till the ſecond year, muſt be raiſed every year or two, from ſeed in the ſpring, in any compartment of common earth in the open ground, except the baſil, which, being tender, muſt be raiſed in hot-beds, in order to be tranſplanted in May or June; moſt of the others generally remain where ſown in the natural ground, but may be occaſionally tranſplanted, the ſweet-marjoram and ſummer-ſavory in June, &c. and likewiſe the angelica, as being of large growth, in ſummer. As ſome of theſe only afford their uſeful parts at particular ſeaſons, as mint, balm, penny-royal, tarragon, ſweet-marjoram, &c. they ſhould be cut and preſerved at ſuch times for winter uſe, as about July and Auguſt. But for the marigold, chamomile-flowers, and thoſe of lavender, as well as ſage-tops, marjoram, hyſſop, and ſuch-like, which often ſtand the winter, autumn may be better, as they will then be ready in caſe of a ſevere winter. Parſley generally furniſhes proper ſupplies of green leaves all the year; baſil and dill only in ſummer; chervil and coriander principally in ſummer and autumn, of the ſpring and ſummer ſowings; or, if ſome of each be alſo ſown in Auguſt, they will continue green all the winter, but the coriander will require a little protection in that ſeaſon; and the caraway, aniſe, and angelica, continue only in ſummer and autumn. For a particular deſcription of all known flowers, flowering ſhrubs, and aromatic herbs, with engravings of the moſt beautiful and curious exotic kinds, and the mode of cultivation, ſee under their generic names in this Encyclopædia.

## MONTHLY WORK THROUGHOUT THE YEAR.

JANUARY.—In this cold and dreary month, let every thing be done that the weather and circumſtances will permit, in order to prepare for the work of next month, which, when it happens to be an open ſeaſon, is a very important one to the early and ſucceſsful produce of the garden. Protect all things that need it from the froſt. Turn and meliorate manure and compoſt, and dung for hot-beds, and other purpoſes. Trench and prepare the ground for the purpoſes firſt wanted. Prepare the beds for cucumbers towards the end of the month; and for forcing early radiſhes, lettuces, creſs, muſtard, carrots, &c.

FEBRUARY.—In this buſy month no time ſhould be loſt, that every thing may be done in its earlieſt ſeaſon. The ſkilful gardener is ſufficiently aware of this; yet in general the month of February is too much neglected. It is now that ſufficient ground ſhould be got ready for planting and ſowing. Borders ſhould be ſtirred, dug, and dreſſed. Gravel-walks may be put in order. Hot-beds ſhould be fully attended to for cucumbers, &c. Wall-trees, but particularly grape-vines, ſhould now be pruned. Sow cucumbers, melons, peaſe, the early hotſpur. Beans, the early mazagans. Radiſhes, on heat and in beds. Lettuces, on heat or not. Small ſallading under the frames, or on a warm border. Cabbages, the ſugar-loaf-ſorts; or if early ones are wanted, ſow the Yorkſhire ſort on heat. Savoys, onions, leeks, parſley, ſpinach, carrots, on heat or not. Parſnips, celery, kidney-beans on heat, cauliflowers on heat. Plant horſe-radiſh, garlic, rocambole, ſhalots, cives, mint on heat; potatoes, early ſorts, on heat and in warm borders. Vines, wall, eſpalier, and ſtandard, fruit-trees, foreſt-trees, and deciduous ſhrubs, if the ſeaſon prove mild, may now be planted. Trees and ſhrubs may now be propagated by grafting, by ſuckers, layers, and cuttings. Sow alſo kernels, ſtones, and ſeeds, of fruit, on fine well-broke earth; providing for exotics a little heat, &c.

MARCH.—The firſt week in this month, like the laſt in February, is of the utmoſt importance to the good gardener, and muſt be made the beſt uſe of by thoſe who would have things in good ſeaſon, and be well furniſhed for the ſummer. This is, in ſhort, the univerſal ſeed-time. Order and neatneſs in the pleaſure-ground, as well as garden, are now alſo principal objects. Graſs-plats and gravel-walks ſhould now be put in order. Weeding ſhould be begun, and theſe enemies to good culture nipped in the bud. Aſparagus-beds now carefully fork, and dreſs. Strawberry-beds, weed, ſtir the mould, and dreſs. Artichokes, dreſs towards the end of the month. Earth-up your peaſe, beans, and whatever elſe needs it. Stick peaſe in time, and ſtop them, or not. Graft for fruit-trees; but apples towards the end of the month. Prune wall-trees without delay, but firſt vines. Hot-beds carefully attend, and prepare new ones. Prick out cauliflowers, cabbages, lettuces, &c. Sow cauliflowers, ſavoys, onions, &c. radiſhes, the ſpindle-rooted; lettuces of all ſorts; ſmall ſallads. In the firſt week, alexanders, aſparagus, beets, Hamburgh-parſley, ſalſafy, ſcorzonera, ſkirrets, finochio, red-cabbage, turnip-radiſhes. Second and third weeks turnips, on heat, and in open ground, and kidney-beans on heat, or a warm border. Laſt week, brocoli, early purple. Naſturtiums, capſicums, love-apples, herbs of all ſorts; ſtrawberries, particularly the alpines. Plant potatoes, and Jeruſalem artichokes, and other things as laſt month.

APRIL.—If by unfavourable weather, or any means, the early ſpring-cropping of the ground has been prevented, make no delay to finiſh, and to get the garden into a complete ſtate of cultivation. As this month is the opening of ſpring, rake and clean up all parts neatly. Turf ſhould now be laid, and edgings of the borders put in order. Finiſh pruning and grafting. Make hot-beds in due time for fruiting cucumbers, melons, tender annuals, &c. Peaſe, earth-up, and ſtick before they droop. Beans in bloſſom, crop the tops, and earth-up firmly. Prick out celery, and plants of every kind when fit. Sow as ſoon as poſſible, what was omitted in the laſt month. Then, ſalſafy, ſcorzonera, pompions, and gourds. Late ſavoys, and cauliflowers, boorcole, brocoli, and Bruſſels-ſprouts. Chou-milan; chardons; kidney-beans; cabbages, chiefly the large ſugar-loaf. Herbs, culinary and medicinal. Naſturtiums, baſil, on heat. Provide alſo ſucceſſion-crops of cucumbers and melons. Peaſe, large and ſmall. Beans, the broad ſorts. Carrots, turnips, celery, lettuces, finochio, ſpinach, radiſhes, ſmall ſallading, and onions to draw young. Plant aſparagus, artichokes, lettuces, chives, garlic, rocambole, and ſhalots, firſt week. Cabbages, early and late; cauliflowers; kidney-beans that have been raiſed on heat; potatoes for a full crop.

MAY.—In this charming month we gather vegetables that have ſtood the winter, and been the care of the preceding months, with ſome of the early products of ſpring alſo: thus it is the hope and fruition of reward that ſweetens labour. Therefore, let neatneſs be purſued throughout the garden; deſtroy the weeds every where, by the hand or hoe. Water, if dry weather, new-planted trees, ſhrubs, and flowers, ſtrawberries, cauliflowers, &c. Thin all ſorts of ſeedling crops. Prick out lettuces, celery, brocoli, boorcole, cauliflowers, ſavoys, cabbages, leeks, &c. Earth-up potatoes, peaſe, beans, cabbages, celery, &c. Prepare freſh hot-beds for cucumbers and melons. Regulate the wall-trees and vines, and prune figs. Thin the fruit that is ſuperabundant on wall-trees. Sow naſturtiums, herbs, and tall kidney-beans, firſt week; endive and purſlane, ſecond week; cauliflowers about the middle. Alſo ſucceſſion-crops of cucumbers for picklers. Melons for mangoes. Dwarf kidney-beans, celery, radiſhes, turnips, cabbages, ſavoys, brocoli, peaſe, beans, finochio, ſalſafy, ſcorzonera, chardons, ſpinach, lettuces, radiſhes, and ſmall ſallading, chiefly firſt week. Plant kidney-beans that have been forwarded on heat. Cucumber and melons, ſecond crop. Cauliflowers, ſavoys, cabbages, coleworts, celery in trenches, artichokes, potatoes, capſicums, &c. Trees and ſhrubs may yet ſucceed under good management; but the chance will be againſt them. Propagate herbs, culinary and medicinal, by ſlips and cuttings, but rather the latter. For ſage it is now the beſt time.

JUNE.—In this month the gardener begins to find ſome repoſe from his labour. The ground is now fully cropped, as to principals; and the chief buſineſs is to ſee that the various plants, according to their different ages of growth, do not droop for want of the neceſſary aſſiſtance of culture, or good management. Particularly attend to trained trees, to regulate them before they get into diſorder, which ſhould be done once a-week. Then thin by the hoe, or hand, all ſorts of crops. Prick out celery, endive, ſavoys, brocoli, &c. Break the leaves over cauliflowers ſhowing heads. Earth-up high peaſe, beans, &c. Stick peaſe, and top beans when in full bloom. Cucumbers, attend duly, to air, water, train, &c. Melons, ditto, prune, and tile under the fruit. Prune wall-trees, vines, and eſpaliers. Aſparagus, finiſh cutting before Midſummer. Sow turnip-radiſhes of all ſorts, but chiefly the large white and black Spaniſh for autumn uſe, in cool ground. Endive for a principal crop. Alſo ſucceſſion-crops of celery, brocoli, peaſe, broad beans, kidney-beans, radiſhes, lettuces, ſmall ſallading, purſlane, turnips, cabbages, carrots, finochio, and ſpinach. Plant cucumbers and melons, capſicums, leeks, and celery; cauliflowers, brocoli, boorcole, ſavoys, and cabbages. Moiſt weather at this ſeaſon is very advantageous for pricking out, or planting, eſculent vegetables; and it muſt not be neglected when it occurs.

JULY.—The garden now, if it has been duly attended to, abundantly gratifies the ſight, the taſte, the ſmell; and thoſe who have the pleaſing advantage of enjoying it, ſhould be extremely ſedulous that it be ſtill kept in order. Therefore prepare vacant ground for cropping, and let as little of it as poſſible lie rude and unproductive. Let not a weed appear. Keep the gravel-walks, graſs-plats, and edgings, in nice order. Earth up peaſe, broad and kidney beans, celery, cabbages, &c. Blanch white-beet, lettuce, and finochio. Stick peaſe, and running kidney-beans, according to their age. Thin all ſmall crops to their due diſtances. Prick out celery, endive, brocoli, cabbages, &c. Gather ſeeds as they ripen, leſt the beſt be loſt; and herbs for drying, gather as ſoon as in flower. Take up garlic, rocambole, ſhalots, &c. Wall-trees regulate, and occaſionally prune. Vines ſtop, and take off the ſide ſhoots. Inoculate fruit-trees, roſes, &c. Strawberry runners take off; except the firſt. Sow brocoli, firſt week, for late uſe. Endive, winter-crop, in open ground. Peaſe and beans may yet be ſown. Kidney-beans, dwarfs, firſt week. Radiſhes, chiefly the large black and white Spaniſh turnip ſorts. Lettuces, the winter ſorts. Spinach, firſt week, the round; and in the laſt week the prickly-ſeeded. Onions, a few Welch, and Straſburgh, ſecond week. Coleworts, firſt week for winter, laſt week for ſpring. Turnips, any ſort, both early and late in the month. Plant celery at ſix inches; leeks the ſame; endive, lettuces, coleworts, cabbages, ſavoys, brocoli, boorcole, and cauliflowers, at two feet, or more, in a rich ſoil. Propagate herbs, by cuttings, or ſlips. Trees and ſhrubs, by laying ſhoots of the preſent year. Slips and cuttings of ſome ſorts, may ſtrike, by the help of a hand-glaſs.

AUGUST.—In this month the horticulturiſt anticipates the products of the future year, and ſows various vegetables in autumn to ſtand the winter, for ſpring and ſummer uſe; ſo that, in this reſpect, Auguſt is an important ſeaſon for gardening-work, and the ſeveral ſowings ſhould be regularly made, in order to ſucceſs. Prick out celery, and other things, as winter-greens. Earth-up peaſe, beans, kidney-beans, celery, &c. Blanch endive, beet, chardon, finochio, &c. Stake tall plants which are ſtanding for ſeed; and gather the ſeed as it ripens. Gather herbs for drying juſt when in flower. Take up ſhalots, garlic, rocambole, &c. Prune grape-vines, and keep in good order. Gather fruit before the ſun has ſhone long upon it. Mat up currants and gooſeberries for late uſe. Strawberries clear from runners, weeds, &c. Pickling-cucumbers gather twice a-week. Melons, prune, train, and water ſparingly. Sow coleworts in the firſt week; cabbages in the ſecond; cauliflowers in the third. Onions, a full crop, and a few Straſburgh in a warm border, firſt week. Lettuces, at the beginning, middle, and end, of the month. Small ſallading, in a ſhady place. Chervil and American creſs, ſecond week. Kidney-beans, dwarf, on a warm border, firſt week. Spinach round, firſt week, prickly third week; the former at broadcaſt, and the latter in drills. Turnips, firſt or ſecond week. Carrots, ditto. Herbs, firſt week. Plant leeks, celery, lettuces, endive, cabbages, coleworts, late brocoli, and boorcole, as laſt month. Strawberries, and herbs culinary and medicinal, towards the end of the month, that they may be well rooted before winter. Propagate trees and ſhrubs, by laying young ſhoots in fine rich earth, and keep the ground clean about them.

SEPTEMBER.—This is the principal harveſt-month of the gardener, when the ſeeds of the moſt uſeful eſculents are to be gathered, the haulm cleared, and preparations made for the enſuing year's crops. Now prepare ground for planting ſhrubs. Gather the different fruits, and ſtore them well. Grapes tie up in gauze or crape. Figs keep in cloſe training to ripen the fruit. Pickling-cucumbers gather before they get ſpotted. Melons carefully protect from cold and wet. Herb-beds clear and dreſs. Naſturtiums gather before ripe for pickling. Onions, being dry and hard, take in. Garlic, ſhalots, and rocambole, tie up; and ſtore. Seeds, ſuch as are well dried, dreſs and put up. Sow ſpinach, turnips, Welch onions, and endive, firſt week, for late ſpring uſe. Radiſhes of all ſorts, but chiefly the large black turnip. Small ſallading under glaſs; corn-ſallad, chervil, and ſorrel. Plant, as before, coleworts, endive, cabbages, ſavoys, brocoli, boorcole, Bruſſels ſprouts, chou-milan, and celery; alſo lettuces on dry warm ground. Herbs, pot and medicinal, from parted roots, or offsets. Shalots, garlic, &c. Strawberries, any time this month. Shrubs, begin to plant towards the end; alſo currants, gooſeberries, and raſpberries. Propagate ſhrubs by laying young ſhoots; and cuttings may be planted of gooſeberries, currants, laurels, honeyſuckles, &c. towards the end.

OCTOBER.—This is the chief month of the year for planting trees, ſhrubs, &c. No part of it ſhould be loſt, in either working the ground well for the purpoſe, or putting in the plants without delay. Early planting, if the ground is fit, is of much conſequence. Eſculents are now alſo to have their winter-quarters provided them as ſoon as poſſible, leſt the weather ſhould prove bad. Dig, dung, trench, and drain, your ground thoroughly. Prick out cabbages for winter or ſpring planting. Blanch celery and finochio by earthing; endive, beet, and chardons, by tying. Aſparagus-beds and ſeedlings, dreſs, ſecond week. Strawberries, if not before, dreſs out of hand. Raſpberries, dreſs, and plant coleworts between them. Seeds and fruits gather carefully, and houſe well. Dig up, and ſtore clean and dry, carrots, potatoes, parſnips, Jeruſalem artichokes, &c. Herb-beds dreſs at this time. Vines, wall-trees, &c. regulate, if not fully prune. Sow beans, mazagan, third and fourth week. Peaſe, ditto, early ſorts. Lettuces, firſt week, in a warm border. Small ſallading, under glaſs. Radiſhes, early purple ſhort-top, or early Sandwich, will ſucceed in a ſouth aſpect. Carrots, a few early horn, in a warm border, may be tried. Plant Anjou cabbage, and boorcole. Brocoli, a few plants, firſt week, for lateſt ſpring uſe. Coleworts, firſt week. Cabbages, any time. Endive and celery, firſt week, for late ſpring uſe. Cauliflowers, ſettle ſoon. Lettuces, ſhalots, garlic, rocambole, in dry ground. Wall-trees, and other ſhrubs, any time; but ever-greens the firſt week. Layers of trees and ſhrubs made laſt year being rooted, take up, and plant out for good. Propagate trees and ſhrubs by ſuckers; and by layers of the young wood, roſes, jaſmines, bay, laurel, lauruſtinus, vines, figs, filberts, codlins, mulberries, &c. By cuttings or ſlips, gooſeberries, currants, barberry, jaſmines, honey-ſuckles, laurels, box, &c.

NOVEMBER.—This is moſt commonly the principal month for planting, though October is by far the beſt: but, if not then done, it will not be now proper to delay it. The leaves not being off ſhould be no obſtacle. Now anticipate winter, ſo as to put all things in order, and furniſh the ground early. Vacant ground, dig, manure, trench, hoe. Weed crops of ſpinach, winter onions, &c. Cucumber and melon earth, ſtore up in dry time. Dig up carrots, potatoes, Jeruſalem artichokes, and parſnips. Alſo, when in danger of froſt, ſome red beet, ſcorzonera, ſalſify, ſkirrets, Hamburgh parſley, leeks, turnip-radiſhes, and horſe-radiſh, all of them may be preſerved awhile in a cellar, or longer in dry ſand. Fruit, lateſt ſorts, gather in the firſt week; and examine that already houſed. Prune all trees, except figs, but cherries the firſt. Cauliflowers under glaſſes attend to, and thoſe in head break the leaves over. This vegetable, and brocoli, may be taken up when in proſpect of froſt, and laid in a cellar, where they will keep perhaps a month; but tie the leaves together at the tops with yarn, or a hay-band. Sow carrots, early horn. Beans and peaſe the firſt week, for a principal early crop. Plant celery yet, and endive ridged. Coleworts and cabbages, in the firſt week. Wall-trees, and others. Shrubs, deciduous, but not ever-greens. Strawberries, upon neceſſity, but do it the firſt week. Propagate as laſt month, by ſuckers, ſlips, diviſions, cuttings, of various ſorts, and layers, as roſes, &c.

DECEMBER.—Though the garden is now no longer a decorated ſcene, yet it affords many things of promiſe, which demand attention; and which the induſtrious horticulturiſt will ſedulouſly forward for the coming year. In order to this, guard againſt froſt by every poſſible means. All vacant ground clean, dung, rough-dig, or trench. Hot-beds prepare and manage the materials for. Compoſts incorporate well by turning over. Orchards prune and dreſs, dig, or plough the ſoil. Prune wall pear-trees, eſpaliers, and ſhrubs. Drain the wet from orchard, garden, nurſery, &c. Sow beans, peaſe, radiſhes, lettuces, under glaſs in a warm border; ſmall ſallad, as creſs, muſtard, and lap-lettuce, on a ſlight heat. Thus the old year with its produce dies away, to be renovated in improved products by the new one.

## Of the NURSERY.

By means of a NURSERY, trees are ready upon the ſpot, to be tranſplanted without damage to the roots from being long out of the ground; and, the climate and ſoil being the ſame in which they are raiſed, and are to grow and to fruit, there is a ſort of certainty of ſucceſs, that could not otherwiſe be had. There is alſo a great advantage in raiſing trees, in a very material point, in an aſſurance of having fruit that we know we like, by getting grafts, or buds, from trees of which we have taſted and admired the fruit.

In a nurſery, ſtocks may be raiſed for fruit-trees, ſhrubs propagated by ſuckers, ſlips, and cuttings, and flowers of the biennial and perennial ſorts may be ſown, bulbous offsets planted, and thus a ſtock may be readily provided for furniſhing any part of the pleaſure-ground. For all or ſome of theſe objects, a ſpot ſhould at all events be allotted, if it were only the cool corner of a large garden, having a good ſoil.

Suckers, ſlips, and cuttings of any kind, ſhould be attended to for forming a proper head; ſhortening the ſhoots, and keeping a clear ſtem below, and the roots free from ſuckers. Two years commonly fit ſuckers for planting out, and three years ſlips and cuttings. Seedlings of the choicer fruits are beſt raiſed in pots.

A nurſery ſhould be laid out into beds of about four feet wide, with alleys of about two; and thus all the work of it will be done conveniently, and the plants will have free air to ſtrengthen them. In the alleys may be buried ſome dung, which will be at hand, and uſeful, when well rotted by time and turning over, to dreſs the beds as they may need it.

Stocks for grafting fruit are raiſed from ſuckers of plums, cherries, codlins, crabs, pears, and quinces; and ſometimes from cuttings of codlins and quinces; but thoſe ſtocks raiſed from ſeeds and ſtones are much beſt, if we conſult freedom of growth. If ſucker-ſtocks grow ever ſo well, they are apt to put forth ſuckers, which is not only a troubleſome circumſtance, but exhauſts a tree, and prevents fruitfulneſs. It is to be underſtood, that the graft will in ſome meaſure partake of the nature of the ſtock; therefore ſoft mealy fruit ought to be propagated on auſtere ſtocks, and the contrary; tender delicious fruits, deſigned for forcing, ſhould always be on ſmart-flavoured ſtocks, or they become inſipid.

Though crab-ſtocks for apples are moſtly uſed, yet the ripe black ſeeds of any other ſmart-eating apple may be ſown, either in autumn or ſpring; ſow in October or November; and, if this ſowing fails, the enſuing ſpring may be adopted, towards the end of February. At theſe times, the well-ripened ſeeds of pears, or ſtones of plums or cherries, may be ſown. The ſtones of any ſort of plum (damſons excepted) produce ſtocks for apricots, peaches, and nectarines; and, though the white ſorts are commonly preferred, the red wheat-plum is excellent for the apricot; of black plums the muſcle is thought the beſt.

Thoſe ſeeds or ſtones that are ſaved early, or are to be kept through the winter for ſpring-ſowing, ſhould be preſerved from air in dry ſand: let them be put in a box layer upon layer, three or four courſes, covering the top three inches, and guard againſt mice. Nuts, acorns, and cheſnuts, are put in the ground at the ſame time, as alſo the ſeeds of various ſorts of ſhrubs and foreſt-trees. The tenderer ſorts of ſhrubs and trees are indeed beſt ſown in March, or beginning of April; and a gentle hot-bed would be of advantage, to bring up the ſeeds with certainty. The ſeeds or kernels of apples and pears may be ſown in drills a full inch deep, a foot aſunder, and ſcattered thinly in them, preſſing the ground a little to them; or ſow at broadcaſt. But take care not to uſe the ſeeds of fruit that has grown on a hollow tree, for they will rarely vegetate.

The ſtones of any fruit ſhould be ſown at near two inches depth; and nuts, &c. at three or four. Stones and nuts muſt be ſet thin, with the ſmall end upwards; for here the ſhoot puſhes out. If the beds are ſown all over, cover the ſeed with mould previouſly drawn aſide in the alleys; but drills have the neateſt appearance, and ſome little uſe may be made of the ſpaces between them the firſt year. Prepare the beds by digging the ſoils well to a full foot in depth, and let the ſurface be made fine; thus will the roots ſtrike down freely to preſerve themſelves from drought, wet will drain away, and the young plants puſh ſtraight upward; four-feet beds are beſt.

During the firſt year, they ſhould be kept moderately cool, by watering in dry ſeaſons, or laying moſs, or ſome ſhort litter, over the beds. And as to weeding, though they muſt not be ſmothered, yet ſome ſmall weeds may be ſuffered to grow in ſummer, as they help to ſhade the plants, and keep the ground cool. Seedling trees are very apt to ſuffer by drought. Thin them in the ſummer, after rain, from two inches to three or four aſunder, according to their nature; and at the end of the year thin to from nine inches to a foot aſunder: thoſe drawn may be planted out at the ſame diſtance; and thoſe left ſhould be re-planted the ſecond year, leſt the roots ſtrike too much downwards. The firſt winter they ought to be protected from ſevere froſts, by ſome light dry litter, which remove in mild weather.

Stocks deſigned to grow for full ſtandards ſhould be ſet in rows, three or four feet aſunder, and at one foot and a half in the rows; or, if ſet at the before-mentioned diſtances, they may be tranſplanted again, another year or two, wider. Rows for dwarfs need not be ſo far aſunder as thoſe for ſtandards: but, before they are planted, the ſide-ſhoots muſt be trimmed off, and the tap-roots ſhortened, in order to procure a clean ſtraight ſtem, and a full root.

The ſecond year, in October, thoſe left at about a foot diſtance in the rows, may either be taken up and re-planted, cutting the tap to make buſhy roots, or, taking out every other, left to grow of a ſize fit to graft, or inoculate, as they ſtand. Stocks of any kind will be three or four years growing, or two or three from planting out, before they are fit for grafting; and, if ſtrong ſtocks are wanted, more time will be neceſſary: the rule of ſubſtance may be from a quarter to an inch, or more, in diameter. As dwarf-trees are grafted, or inoculated, within five or ſix inches of the ground, much leſs ſtocks will do for them than for ſtandard-trees, which are grafted at ſo many feet high, if for full-ſized trees. Stocks that are naturally of a ſlow growth, are coveted for dwarf-trees, that they may not mount the wall, fill the eſpalier, or increaſe to a large head too faſt. So for apples, inſtead of crab-ſtocks, which are commonly of free growth, thoſe raiſed from the ſeeds of the paradiſe-apple are recommended, as growing dwarf.

For pears, dwarf-ſtocks are raiſed from quince-cuttings, layers, or ſuckers; but, as quince-ſhoots are commonly of a weak and crooked growth, the ſtocks from pear-ſeeds are moſtly uſed. But ſuckers may be obtained from pears, quinces, &c. by cutting down an old tree within a foot of the ground; and theſe, being planted out for a year or two, become good ſtocks. If the ſuckers, or ſhoots, lie high, they may be earthed up to induce them to ſtrike. But ſuckers will be often forced, by only cutting off the top of an old tree, which is an experiment to be recommended, in pears particularly, as there will be formed a new head, and an opportunity given to graft for a better ſort. And, if there are no ſuckers, there may be low-placed ſhoots, proper for layers, of thoſe trees that will thus ſtrike; and moſt trees will, if not the firſt, perhaps the ſecond year.

Stocks from ſuckers, for dwarf plums and cherries, are often better than thoſe raiſed from ſtones, as being leſs free in their growth; and the common red cherry and the black are to be preferred for ſtocks, whether as to ſuckers or ſeedlings. If ſuckers of any tree grow at a proper diſtance from the parent ſtock, they may be grafted or inoculated without removal, till wanted to plant out for fruiting. Suckers that are for ſtocks ſhould always be planted out in autumn, and ſtand twelve months at leaſt before they are uſed. Apricots, peaches, and nectarines, are grafted by inoculation on plum-ſtocks, on thoſe raiſed from ſtones; but for apricots it hardly ſignifies. Figs, quinces, and mulberries, are raiſed from ſuckers, layers, and cuttings, without grafting; but from layers is the beſt method, being more ſure than cuttings, and more fruitful than ſuckers; and in one year they will be rooted. The ſeaſon for both cuttings and layers is October, though February is rather better for the fig. The layers from fig-trees muſt not be taken off till the beginning of March, for when planted in autumn they are apt to die; let other layers, however, be then removed. Medlars are grafted on pear, or crab, or ſervice-tree, ſtocks; but more commonly upon white-thorn ſtocks, though the fruit is not reckoned ſo good.

Grape-vines are generally raiſed from cuttings and layers, ſometimes from buds, either in autumn or ſpring; but for cuttings rather the latter; and, if the vines are pruned in February, or before, lay the cuttings by in dry mould or ſand, till March or April. Place the layers in the ground, about four or five inches deep, leaving two or three eyes out. The cuttings ſhould have three in the ground, and only one or two out, or be about a foot or fifteen inches long, and placed a little aſlant; chooſe the ſhorteſt jointed. Cuttings ſhould have a knot of the old wood at bottom, for thoſe cut off above, though they may ſtrike, will not produce ſo good or fruitful plants; they are alſo beſt taken from the lower part of the tree, the wood there being the moſt ripened. Vines are beſt raiſed where they are to grow, by opening a hole, and placing two cuttings in, one of which is likely to anſwer. Keep it to one ſhoot, and cut down to two eyes in autumn. Keep to two ſhoots the next ſummer, and prune down to two or three eyes in autumn, and then the vine will proceed with vigour, and bear well.

Cheſnuts are raiſed by ſowing thoſe that are imported, three inches deep, and four aſunder, in rows ſix inches apart; where growing two years, let them be planted out half a yard apart, in rows a yard aſunder. When five or ſix feet high, they may be moved where they are to remain. If the ſeed is good, it will ſink in water.

Walnuts are raiſed from well-ripened nuts, ſown either in autumn or ſpring; and if the latter, which may be rather beſt, preſerve the nuts in their outer coats, in dry ſand. Theſe trees are beſt but once moved, and their tap-root preſerved, if for timber, with the head as entire as poſſible; but, if for fruit, the tap-root ſhould be ſhortened, to prevent the tree mounting, and the head may be cut, to accommodate it to the root, as to ſize. The walnut prefers a dry ſoil, and if gravelly it does beſt; and, though walnut-trees are many years before they come to bear, yet, if it were only for the wood, poſterity would have reaſon to commend the planter of them.

Filberts are raiſed from nuts, or ſuckers, and layers, the latter of which is the beſt method; or they may be grafted on the common nut-tree. The nuts ſown in autumn, or kept dry in ſand till February, produce fine trees, but generally differ a little from the ſorts ſown, and make a variety generally for the worſe.

Currants and gooſeberries are raiſed principally from ſuckers, ſlips, and cuttings, but beſt from the latter. When from ſeed, it is with a view of obtaining varieties; and hence the many ſorts of gooſeberries now offered by nurſerymen. Chuſe cuttings, or ſlips, of the laſt year's wood, from fruitful trees, about nine or ten inches long, and ſet them four or five in the ground, half a yard aſunder; train them to one ſhoot, or at the moſt two, the firſt year, and in the next ſeaſon head them down to ſix or ſeven eyes, when a fine head will be formed the following year, and in the autumn they may be moved where they are deſtined to fruit.

Barberries are raiſed from ſuckers, layers, cuttings, or ſeed ſown in autumn or ſpring. The latter mode of propagation produces the fineſt ſhrubs, with the largeſt fruit; though it is ſeldom practiſed, ſuckers being generally plenty. Raſpberries are almoſt univerſally propagated from ſuckers, being always abundant; and as this ſaves a year, and ſeed produces varieties not always deſirable, ſowing is not very commonly adopted in raiſing this ſpecies of fruit.

Strawberries are raiſed from ſeeds, offſets, and runners, but almoſt univerſally from the laſt; plants from ſeed produce the largeſt fruit, and ſometimes a variety that is highly ſuperior to the original. It ſhould be ſown in pots or boxes, in March or April. This method is particularly to be recommended for the alpine, chuſing the largeſt and moſt conical fruit for ſeed. The young offſets of the preſent year, ſlipped in autumn, or thoſe of the laſt year ſlipped in ſpring, will do for plants; but the firſt runners are more commonly and properly uſed; and, to have theſe fine, the runners beyond ſhould be pinched off in time. Offſets, early in ſpring, and forward runners in ſummer, may be planted out in cool ground, at ſix inches diſtance, by way of a nurſery, in order for making new plantations towards the end of September, or in October. This is thought a good way, though it is ſeldom practiſed. The common method is to let the runners remain till September, and then, as early in the month as may be, to dreſs the beds, and ſelect the ſtrong and moſt buſhy-rooted ſets for forming new beds. It would, however, be an advantage, both to the old ſtools and the young plants, to ſuffer only the firſt or ſecond runners to remain for that purpoſe.

In the management of a nurſery, the young plants of trees and ſhrubs ſhould be dug round once a-year, by a downright cut of a ſharp ſpade, a little diſtance from the ſtems, nearer or farther off according to their age, to ſhorten ſtraggling roots, and produce new ones more at home: let this be done in October or February; the former time is beſt for the older plants, and the latter for young ones. The ſpade alſo may be drove under them to cut off the tap-roots, where it is not an object to preſerve them. By this practice a good full buſhy root will be obtained, fitting plants for a proſperous removal; but it ſhould be done a year before tranſplanting; it alſo improves the ſoil. Ever-greens in particular would be ſafer to move, being thus treated; and, if only to be moved from one part of the ground to another, balls of earth in this caſe will hold well to them. Immediately after the operation, a thorough watering will be proper to ſettle the earth to the roots, except the ground be quite moiſt; but this work of digging a nurſery is beſt done when the ground is dry.

## OF THE FORCING OR HOT-HOUSE.

It is not known to what nation or people we are indebted for the diſcovery of the art of accelerating the growth of eſculent vegetables and fruits, and of ripening them before their accuſtomed time, by ſubjecting them to the operation of heat, in imitation of that of the ſun. In the eaſtern countries, where the genial warmth of the climate affords two or three harveſts within the year, and furniſhes ſpontaneous ſucceſſions of the fineſt fruits and vegetables, ſuch an invention could not be of the ſmalleſt utility; it muſt therefore have had its riſe in ſome of the nations of Europe, where the climate is ever more or leſs variable and uncertain.

From the evidence of Martial, lib. viii. 68, we learn that the Romans were acquainted with the uſe of hot-houſes; but whether they borrowed or not the idea from the Greeks, does no where appear. Tiberius Cæſar, who was fond of cucumbers, had them in his garden throughout the year by means of ſtoves, where they were grown in boxes, wheeled out in fine weather, and replaced in the nights, or in cold weather. *Pliny*, xix. 23. Flues the Romans were well acquainted with; they did not uſe open fires in their apartments as we do, but in the colder countries they always had flues under the floors of their apartments. Mr. Lyſons found the flues, and the fire-place from whence they received heat, in the Roman villa he has deſcribed in Glouceſterſhire; in the baths alſo, which no good houſe could be without, flues were uſed to communicate a large proportion of heat for their ſudatories, or ſweating-apartments. The article with which their windows were glazed, was talc, or what we call Muſcovy glaſs, (*Mica membranacea*;) from its uſe it was called *lapis ſpecularis*; and ſo common was the uſe of this material for windows, that the glazier, or perſon who fitted the panes, had the name of Specularius.

In Martial's Epigrams, (obſerves ſir Joſeph Banks,) the following remarks preſent themſelves. The firſt deſcribes a peach-houſe: the word *pale*, which ſeems meant as a ridicule upon the practice, gives reaſon for this ſuppoſition; we all know that peaches grown under glaſs, cannot be endowed either with colour or with flavour, unleſs they are expoſed by the removal of the lights, from the time of their taking their ſecond ſwell, after ſtoning, to the direct rays of the ſun; if this is not ſtrictly attended to, the beſt ſorts will be only pale-green when ripe, and not better than a turnip in point of flavour; but it is not likely that a Roman hot-houſe ſhould, in the infancy of the invention, be furniſhed with moveable lights, as ours are.

The ſecond epigram of Martial refers plainly to a grape-houſe, but it does not ſeem to have been calculated to force the crop at an earlier period than the natural one; it is more likely to have been contrived for the purpoſe of ſecuring a late crop, which may have been managed by deſtroying the firſt ſet of bloom, and encouraging the vines to produce a ſecond. The laſt line of the epigram, which ſtates the office of the houſe to be that of *compelling* the winter to produce autumnal fruits, leads much to this opinion.

Next to the Romans, the French appear to have been the earlieſt in the uſe of hot-houſes. The firſt noticed were eſtabliſhed in the royal gardens at Anet, by order of Francis I. and it appears that Henry IV. had open arcades erected to face the ſouthern ſun, for accelerating the early growth of peaſe. And yet la Quintinie, who formed the ſuperb kitchen-garden at Verſailles, had ſcarcely in his time made any farther advances; for it is well known that fruits and flowers were at that time brought by poſt from Provence to Louis XIV. for the gratification of his court. Fagon, at the Jardin-des-plantes at Paris, was the firſt who cauſed glazed ſaſhes to be conſtructed for the protection and growth of foreign plants, which, for want of ſufficient light, could not flouriſh in the green-houſes built for orange-trees, ſuch as the ſuperb orangerie at Verſailles. To thoſe ſaſhes were added ſtoves and furnaces. But theſe methods do not appear to have been applied to forcing fruit, till the reign of Louis XV.

We are aſſured that an Engliſhman, named Gordon, was the firſt who made experiments of this kind, in conſequence of obſerving that a vine-branch, which accidentally entered between two ſaſhes of a window, put out leaves long before the reſt of the ſtem, and that the forced grapes it produced ripened better. Hence is ſaid to have ariſen all the hot-houſe ſaſhes, the frame-lights, hand-glaſſes, or covers formed of ſmall panes of glaſs joined together in leaden frames, and thoſe formed of large plate-glaſs. At length Richard Senior built both for himſelf at St. Germain, and afterwards for the French king at Trianon, hot-houſes, in which were ſeen, for the firſt time in France, peaches, cherries, plums, ſtrawberries, apricots, and vines, bearing fruit in the depth of winter; and lilacs, roſes, honeyſuckles, ſeringas, hyacinths, narciſſuſes, and other flowers, in full bloom.

And here it is pleaſing and curious to remark, in what a ſingular manner plants adjuſt themſelves to the ſeaſon of the year, nay to the hour of the day, and become inured by artificial heat and gentle degrees to a foreign climate. Near the pole they are later in growth, and ripen ſo much the quicker, as the ſummer arrives more late, and operates more forcibly. Plants that grow in ſouthern countries, when brought to Europe, ripen later the firſt year, as they wait for the ſun of their own clime; the following ſummers they arrive earlier and earlier at maturity, as they become habituated to their new ſituation. In the artificial warmth of a hot-houſe, each ſtill follows its native ſeaſons; even if it have been fifty years in Europe. The plants of the Cape bloſſom in our winter, as then arrives the ſummer of their native country. The marvel of Peru bloſſoms with us at night; probably, obſerves Linnæus, becauſe it is then day in America, whence it originally came. Thus every individual plant adheres to the time, even to the hour of the day, at which it has been wont to open and ſhut; and by thus retaining their habits, and arriving at due perfection in our hot-houſes, they ſuggeſted the poſſibility of raiſing and ripening the moſt delicious foreign fruits in colder countries.

Hot-houſes for the growth of pines ſeem not to have been known in England at the beginning of the eighteenth century. Lady Mary Wortley Montagu, on her journey to Conſtantinople, in the year 1716, remarks the circumſtance of pine-apples being ſerved up in the deſert, at the electoral table at Hanover, as a thing ſhe had never before ſeen or heard of. Had pines been then grown in England, her ladyſhip, who moved in the higheſt circles, could not have been ignorant of the fact.

Hot-houſes have hitherto been too frequently miſapplied, under the name of *Forcing-houſes*, to the vain and oſtentatious purpoſe of *hurrying* fruits to maturity, at a ſeaſon of the year when the ſun has not the power of contributing any thing towards their natural flavour; we have however begun to apply them to their proper uſe, and we have peach-houſes built for the purpoſe of preſenting that excellent fruit to the ſun when his genial influence is the moſt active. We have others for the purpoſe of ripening grapes, in which they are ſecured from the chilling effects of our uncertain autumns; and we have brought them at laſt to as high a degree of perfection here, as either Spain, France, or Italy, can boaſt of. We have pineries alſo, in which that delicate fruit is now raiſed in a better ſtyle than is generally practiſed in its native intertropical countries; except perhaps, in the well-managed gardens of rich individuals, who may, if due care and attention is uſed by their gardeners, have pines as good, but cannot have them better, than thoſe we know how to produce in England.

The principal object in the conſtruction of a hot-houſe, is indiſputably that of forming its roof in ſuch a manner as to receive all the heat it poſſibly can from the rays of the ſun, and that at ſuch ſeaſons of the year when the maturation of the fruit ſtands moſt in need of the ſolar influence. This important object has by no means been unattended to by the ingenious Mr. T. A. Knight, who has favoured the public with the following intereſting obſervations on the proper elevation which he thinks ſhould be preferred. It is ſufficiently evident, that, when the *ſame* fruit is to be ripened in the *ſame* climate and ſeaſon of the year, one peculiar form for the elevation of the roof of the hot-houſe muſt be ſuperior to every other; and that in our climate, where ſunſhine and natural heat do not abound, that form, which admits the greateſt quantity of light through the leaſt breadth of glaſs, and which affords the greateſt regular heat with the leaſt expenditure of fuel, muſt, generally ſpeaking, be the beſt; and, if the truth of this poſition be admitted, it will be very eaſy to ſhow that few of our hot-houſes are at preſent well-conſtructed.

"It is well known, (ſays Mr. Knight,) that the ſun operates moſt powerfully in the hot-houſe, when its rays fall moſt perpendicularly on the roof; becauſe the quantity of light that glances off without entering the houſe, is inverſely proportionate to the degree of obliquity with which it ſtrikes upon the ſurface of the glaſs; and it is therefore important to every builder of a hot-houſe to know by what elevation of the roof the greateſt quantity of light can be made to paſs through it. To aſcertain this point, I have made many experiments, and the reſult of them has ſatisfied me that, in latitude 52, the beſt elevation is about that of 34 degrees."

On this elevation, therefore, Mr. Knight erected his vinery, which is forty feet long, and heated by a ſingle fire-place; the flue paſſing entirely round without touching the walls; and in the front a ſpace of two feet is left between the flue and the wall, in the middle of which ſpace the vines, which are trained to the roofs, about eleven inches from the glaſs, are planted; and, as both the wall and flue are placed on arches, the vines are enabled to extend their roots in every direction, whilſt, in the ſpring, their growth is greatly excited by the heat which their roots and ſtems receive from the flue. Air is generally admitted at the ends only, where all the ſaſhes are made to ſlide, to afford a free paſſage of air through the houſe, when neceſſary, to prevent the grapes becoming mouldy in damp ſeaſons. About four feet of the upper end of every third light of the roof is made to lift up, (being attached by hinges to the wood-work on the top of the back wall,) to give air in the event of very hot and calm weather.

This plan is principally recommended for a vinery; but, by ſinking the front wall below the level of the ground, and making a ſmall change in the form of the bark-bed, the ſame elevation of roof may be made equally applicable for the pinery. No upright front glaſs ought, in any caſe whatever, to be uſed; for light can always be more beneficially admitted by adding to the length of the roof, if that be properly elevated; and much expence may be ſaved, both in the building and in fuel. Though this conſtruction is very favourable for grapes and pine-apples, yet Mr. Knight candidly acknowledges, it is not ſo proper for the peach-tree.

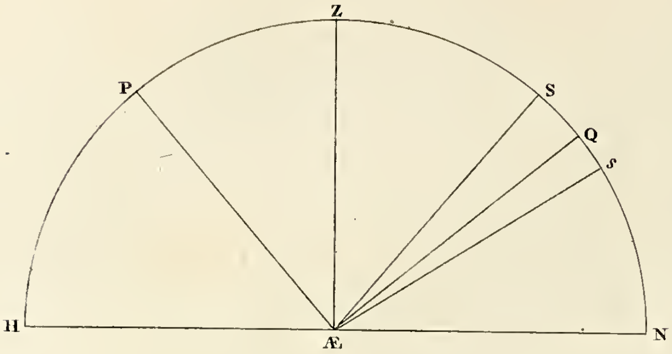
Improving on Mr. Knight's idea of concentrating the ſolar rays upon what ſhall appear to be the beſt poſſible elevation of the roof, the Rev. Thomas Wilkinſon has publiſhed the following ingenious Paper upon that ſubject, in the Tranſactions of the Horticultural Society for 1809. "Although it is probable that more depends on the *management*, than on the inclination of the *roof*, in any hot-houſe whatever, yet, as it is ſatisfactory to proceed on ſomething like principles, I endeavoured to aſcertain why an angle of 34° was preferable to any other; which has led me to take a general view of the ſubject. By pointing out the times when the ſun's rays will be perpendicular to any conſtruction, and the reflection at the different angles of incidence, we ſhall be enabled to compare with ſome accuracy the effects of the ſun on different degrees of inclination, abſtractedly of internal arrangement, ſtoves, flues, and culture. Now the angle contained between the back wall of the hot-houſe, and the inclined plane of the glaſs roof, always equals the ſun's altitude, when his rays fall perpendicularly on that plane, provided that the inclination of the plane to the horizon be at an angle not leſs than 28° 2′, nor greater than 75°. The former is the caſe with moſt cucumber-frames; the latter with many pineries. It alſo follows that, within the above limits, the ſun's rays are perpendicular *twice* in the year, once in going to, and once in returning from, the tropic. Hence then, having determined in what ſeaſon we wiſh to have the moſt *powerful* effects from the ſun, we may conſtruct our hot-houſes accordingly, by the following rule. Make the angle contained between the back wall of the houſe and its roof = to the complement of latitude of the place, ± the ſun's declination for that day on which we wiſh his rays to fall perpendicularly. From the vernal to the autumnal equinox, the declination is to be added; and the contrary.

"To apply theſe principles to the conſtruction recommended by Mr. Knight, we have the inclination of roof, = 34°. Therefore the ſun's altitude when his rays fall perpendicularly is 56°, which, taking the latitude of London to be 51° 29′, will happen when his declination is 17° 31′, about May 20, and July 21. Now we want the genial warmth of the ſun *moſt* in ſpring; and therefore, for general purpoſes, that conſtruction would perhaps be beſt which gives us the greateſt quantity of perpendicular rays *then*. If the inclination were 45°, the ſun's rays would be perpendicular about April 6th, and September 4th. This conſtruction has the following limit: the height of the back wall muſt not exceed the width of the houſe + the height of the front wall. And, as the rays would vary very little from the perpendicular for ſeveral days before and after the 6th of April and September 4th, the loſs of rays ariſing from reflection would be nearly a minimum. Even at the winter ſolſtice, the loſs by the obliquity of the angle of incidence, according to Bouguer's Table of Rays reflected from Glaſs, would be only two in one thouſand more than when the rays fall perpendicularly. But at the angle of 34°, the two days when the

# HORTICULTURE.

Plate III.

1



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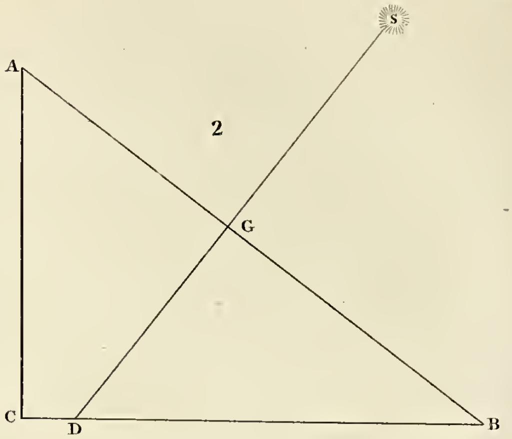

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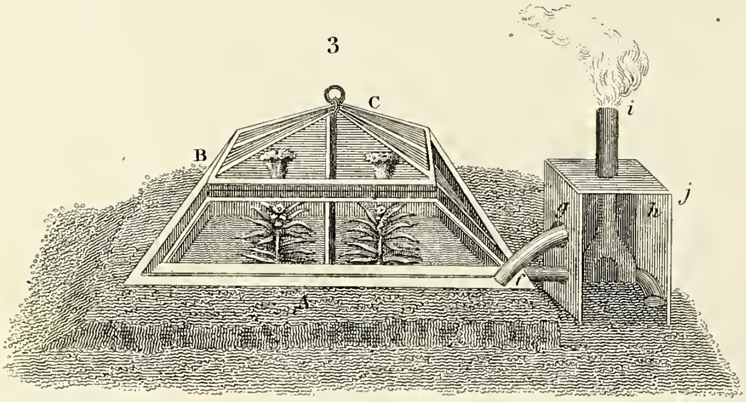

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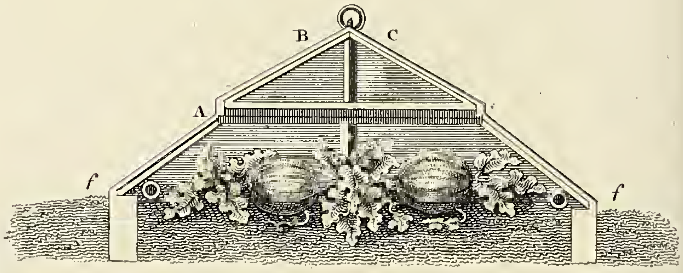

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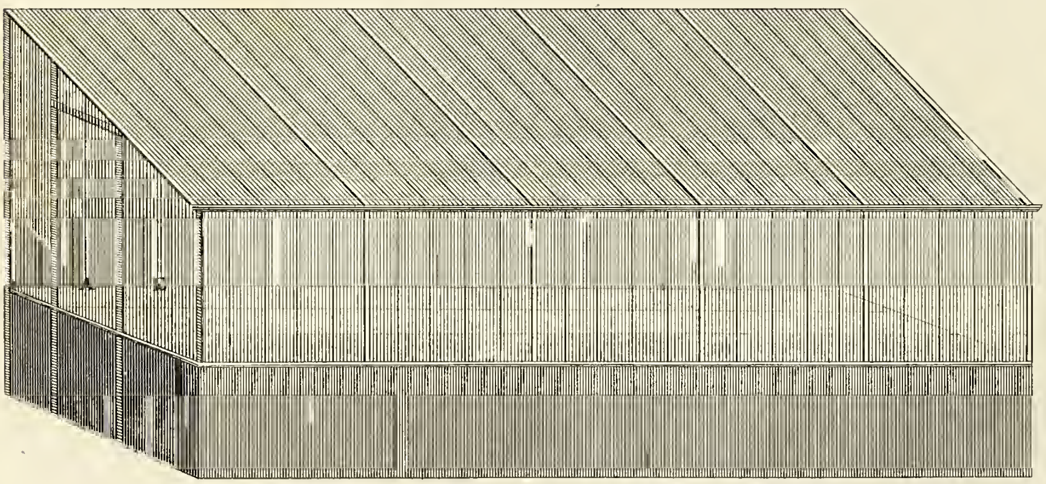

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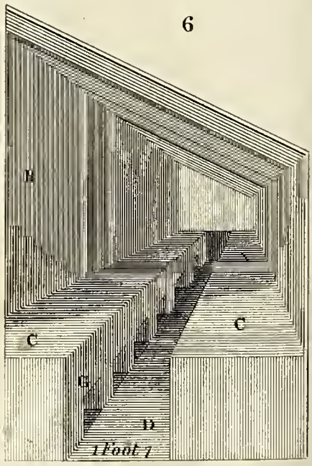

*New-invented Forcing-frames, and Grapery.*

J. Paſs sculp.t

London; Pub.d as the Act directs, Jan. 27. 1810, by J. Wilkes.

rays are perpendicular being near each other, a great part of theſe advantages is loſt; and on the contrary the reflected rays are nearly the moſt poſſible, which they would actually be if the angle were depreſſed only 6° more. Beſides, the good effects of the inclination are the greateſt when leaſt requiſite, July 21. The diagrams in the Horticultural Plate III. will ſhow the angles of altitude and elevation of the roof. At fig. 1, HN is the horizon, ÆQ the equator, P the pole, Z the zenith, S and *s* the ſun, Æ the earth: then the ſun's altitude SÆN = QÆN ± SÆQ = compt. of latitude + ſun's declination. At fig. 2, ABC is the ſection of a hot-houſe, SGD a perpendicular ray: then as the triangles BGD, ACB, are ſimilar to the angle GDB = angle CAB, i. e. the angle at A between the wall and roof = angle of ſun's altitude when his rays fall perpendicularly.

Though theſe improvements appear not to have reached France, yet we have from that country a moſt uſeful and ingenious conſtruction of forcing-frames, which are either uſed ſeparately, or made ſubſervient to the purpoſes of the hot-houſe. This appears to have been the invention of M. Bénard, deſcribed as follows: The lower part of the frame A, as repreſented in the Horticultural Plate III. fig. 3 and 4, is formed by the union of two ſquare ſaſhes, the lower about 13 decimetres, (4 feet French,) the upper only 9. The latter is raiſed above the former about 5 decimetres, (13 inches French,) and the two are joined by ſmall iron-rods fit for the reception of the panes of glaſs. The upper part, B, conſiſts of a wooden ſaſh, bearing alſo four iron rods at the corners, and four in the middle, joined together at a ſingle point C, where a heavy ring is affixed; the inclination of this upper part being leſs rapid than the roofs of the common green-houſes; it is only 3 decimetres by 8 for the half-breadth.

During the time when the vegetation having grown up requires more height in the building, a height of wood may be placed between the two portions, ſo as to raiſe the upper part one decimetre at leaſt; another placed below would raiſe the whole, when needful, more than two. From this arrangement of the glaſs ariſes a body of light extremely favourable to vegetation. The proximity of the glaſs is another advantage, which is the more important, as it is well known that plants kept under glaſs become weak, by lengthening themſelves to exceſs in order to reach and touch the glaſs, near which the influence of the ſun is always greateſt. And, laſtly, the inclination of the glaſs, and its being placed in three different planes, increaſes more and more the effect of the ſolar heat.

Shutters applied in ſucceſſion, whether toward the north or toward the ſun, protect the plants from the cold, or ſhield them from an exceſs of heat, and may be uſed throughout the whole year, or during the winter nights.

Thus, with mere glazed frame-lights, a great number of young and delicate plants may be reared, eſpecially the fineſt melons; and the more common productions may be accelerated, as well as a variety of flowers; or ſmaller erections may be made for theſe various uſes; but the extent of the ground thus preſerved from the chilling moiſture of cold rains is an advantage not to be neglected or forgotten.

All this, however, conſtitutes but half the merit of theſe hot-houſes. It is evident they may be placed over a hot-bed, accompanied with chafing-diſhes, and their ſhutters covered and ſurrounded with horſe-dung when needful; though, as is well known, the heat of that ſubſtance, which is often difficult to be obtained, is ſtill more difficult to be kept up.

The heat of furnaces is liable to the ſame objections on account of their extent, even in the ſmalleſt hot-houſes. Another defect in theſe buildings is the diſtance of the plants from the glaſs. A third ariſes from the great maſs of air heated to a loſs; not to mention the no leſs important maſs of the materials, naturally cold in themſelves, of which the walls are built. Laſtly, their being ſtationary, is one of the greateſt obſtacles to their being employed in horticulture. They are an expence only to be incurred by land-owners, and by land-owners who live in affluence, or by an extremely ſmall number of gardeners, induſtrious enough to derive from their hot-houſes a quantity of fruit, which, if it does not enrich, indemnifies them at leaſt for the expences attending this method.

But all theſe inconveniences ſeem to be avoided by the frame-lights to which M. Bénard has adapted an apparatus for procuring heat from a kind of fuel equally convenient and œconomical, namely, two ſmall furnaces, in one of which, *h*, is placed a ſtrong earthen pan filled with the dregs of oil, or *two*, in caſe of extreme need; a ſecond furnace, *g*, above, with another pan placed there at the time when the fire is lighted; an iron pipe, *f*, placed at the bottom of the frame, to warm the wood and earth by means of the ſmoke paſſing through it; the circulation of which ſmoke is furthered by the ſecond furnace, where the end of the pipe paſſing through it receives a local heat, which rarifies the air throughout the whole pipe; a wooden box, *j*, to incloſe theſe parts, which are conſtructed of thin materials; an iron pipe, *i*, terminating, if needful, in a T, to carry off the ſmoke when it has become uſeleſs. This is the whole apparatus. The œconomical gardener will find an advantage in having it in his power to keep the parts not actually in uſe under cover: by which they laſt longer, and their expence is conſequently diminiſhed. By ſubſtituting a number of theſe forcing-frames for one hot-houſe, an advantage which muſt be conſidered as almoſt invaluable is obtained; viz. that of varying the temperature, and accommodating it to the different plants they contain, as well as to their various periods of vegetation.—Theſe improvements ſeem to be gaining ground very faſt in England.

Mr. Richard March, of Barnſtaple, in the county of Devon, has lately erected a grapery, the plan of which, as being of conſiderable intereſt, he offers to the public as follows: "This invention is a ſimple, cheap, and eaſy, mode of raiſing grapes, of a quality ſuperior in flavour and perfection to any I have before met with. The exact form of the building is repreſented in the Engraving, at fig. 5. The front and end walls are built with brick, two feet high from the ground, and glazed in front, two feet eight inches high, at each end, and on the top, like a common green-houſe. It fronts due ſouth, to receive every advantage of the ſun. A, in fig. 5, is the door; B, in fig. 6, which exhibits a ſection of the building, is the back, or garden-wall; CC are two beds of earth, two feet high, encloſed in a narrow brick-wall; D, the paſſage between them. The back wall, B, is plaſtered with mortar, made of lime, ſmith's cinders, and ſcales from the anvil, each equal parts. Thoſe vines which are ſet at the end of the grapery are trained along the wall, and meet in the centre; the grapery is twenty-two feet long; in which ſpace, and at the ends, no leſs than ten vines, of different ſorts, are introduced through the wood-work on the wall, which projects for that purpoſe. It is only four feet eight inches high in front, ſix feet ſix inches wide, and eight feet high at the back. Before the building was erected, I obtained all the information I could, from gentlemen of my acquaintance who underſtood the management of vines in France, Spain, Italy, Portugal, &c. from whom I learned, that the roots of the vines ſhould not be more than two feet ſix inches aſunder, nor let to run high, and but little wood ſuffered to grow from each root. Obſerving theſe rules, I tried ſeveral experiments; and found the following method to be attended with ſingular ſucceſs. Fill the two beds with rotten dung and garden-earth; water the ſame, when the ſun appears the whole day, morning and evening, and ſo in proportion. The exhalation will ſupply every part of the vine with nouriſhing warm water, as may be ſeen by examining the vine, which appears to be one of the cauſes of producing the effect. In the beds or earth-pits, pine-apples, or any thing elſe, may be raiſed, to remain, or to be tranſplanted. In winter, remove the earth in the pits, place bricks on their edge, half-way up from the bottom, each row three feet aſunder. On the bricks, place common plaſtering-laths, on their edge; over which put ſome long litter, taken from horſe-dung, and put upon it the earth which was removed. Doors being made in the walls of the earth-pits, at the front of each partition, or ſix doors in each pit, as at G, in fig. 6, put into each as much fermented horſe-dung as it will hold; ſtop it up cloſe with a wooden ſtopper, and let it remain ſix or eight days; then take it out, and repeat the ſame during the winter, or any time you pleaſe. The flavour of any fruit raiſed in beds ſo managed, is ſuperior to what is raiſed in a hot-houſe, and fire is ſaved. To prevent the heat from being too great in the ſummer, put five ſquares of glaſs, ſeparately framed, with an axis for each to turn on, one in each light. The air, by being rarified, will lift up the ſquares, and eſcape; after which, each ſquare will ſhut again of itſelf, and maintain a regular heat without farther attention; but, when the ſun is very intenſe, cold air may be admitted by ſliding ſaſhes, one at each end of the grapery, as at E, in fig. 5; but this will require attention, leſt the grapery cool too faſt. In froſty weather, it is neceſſary that the glaſs part of the grapery ſhould be covered with mats; and, as the buds of the vines break early in the ſpring, it is alſo neceſſary to train the vines ſo as not to touch the glaſs, leſt the buds periſh. When the grapes are ſet, break off all ſuperfluous ſhoots every ſecond or third day; by which means, you will have ripe grapes in July, and the following eight months. Laſt year I left ſome on the vine to dry, and in March following I found them equal to any jar-raiſins imported. If theſe inſtructions are attentively obſerved, wine may be made in this country, as rich, and of as good quality, as any imported. It will anſwer the purpoſe of every man, who has a ſpot of ground, to build a grapery, ſince no profit in horticulture will be ſuperior to it. The whole of the expence of building my grapery did not exceed 14l. and, when the vines came into bearing, one year's produce, if ſold, would have more than cleared all expences; from which the profits may be eaſily calculated."

For the further improvement and early maturation of grapes, the following ſingular diſcovery has been communicated by John Williams, eſq. which we ſhall recite in his own words. "It is a fact well known to gardeners, that vines, when expoſed in this climate to the open air, although trained to walls with ſouthern aſpects, and having every advantage of judicious culture, yet in the ordinary courſe of our ſeaſons ripen their fruit with difficulty. This remark, however, though true in general, admits of ſome exceptions, for I have occaſionally ſeen trees of the common white-muſcadine and black-cluſter grapes, that have matured their fruit very well, and earlier by a fortnight or three weeks than others of the ſame kinds, apparently poſſeſſing ſimilar advantages of ſoil and aſpect.

The vines that ripened the fruit thus early, I have generally remarked, were *old trees*, having trunks eight or ten feet high, before their bearing-branches commenced. It occured to me, that this diſpoſition to ripen early, might be occaſioned by the dryneſs and rigidity of the veſſels of the old trunk, obſtructing the circulation of that portion of the ſap which is ſuppoſed to *deſcend* from the leaf. And, to prove whether or not my conjectures were correct, I made inciſions through the bark on the trunks of ſeveral vines, removing a circle of bark from each, and thus leaving the naked alburnum above an inch in width completely expoſed; this was done in the months of June and July. The following autumn the fruit growing on theſe trees came to great perfection, having ripened from a fortnight to three weeks earlier than uſual; but in the ſucceeding ſpring the vines did not ſhoot with their accuſtomed vigour, and I found that I had injured them by expoſing the alburnum unneceſſarily.

In 1807, theſe experiments were repeated. At the end of July and beginning of Auguſt, I took annular exciſions of bark from the trunks of ſeveral of my vines; and, that the expoſed alburnum might be again covered with new bark by the end of autumn, the removed circles were made rather leſs than a quarter of an inch in width. Two vines of the white frontiniac, in ſimilar ſtates of growth, being trained near to each other on a ſouth wall, were ſelected for trial; on one of theſe the experiment was made; the other was left in its natural ſtate, to form a ſtandard of compariſon. When the circle of bark had been removed about a fortnight, the berries on the experimented tree began evidently to ſwell faſter than thoſe on the other, and by the beginning of September ſhowed indications of approaching ripeneſs, while the fruit of the unexperimented tree continued green and ſmall. In the beginning of October the fruit on the tree that had the bark removed from it, was quite ripe, the other only juſt began to ſhow a diſpoſition to ripen; and the bunches were ſhortly afterwards deſtroyed by the autumnal froſts. In every caſe in which circles of bark were removed, I invariably found that the fruit not only ripened earlier, but the berries were conſiderably larger than uſual, and more highly flavoured.

The effects thus produced, I can account for only by adopting Mr. Knight's theory of the *downward* circulation of the ſap, the truth of which theſe experiments tend ſtrongly to confirm. I therefore imagine, by cutting through the cortex and liber, without wounding the alburnum, that the deſcent of that portion of the ſap which has undergone preparation in the leaf is obſtructed, and confined in the branches ſituated *above* the inciſion; conſequently the fruit is better nouriſhed, and its maturation haſtened. It is certainly a conſiderable point gained in the culture of the vine, to be able to bring the fruit to perfection, by a proceſs ſo ſimple, and ſo eaſily performed. But, leſt there ſhould be any miſconception in the foregoing ſtatement, I will briefly deſcribe the exact method to be followed by any perſon who may be deſirous of trying this mode of ripening grapes. The beſt time for performing the operation on vines growing in the open air, is towards the end of July, or beginning of Auguſt; and it is a material point, not to let the removed circle of bark be too wide; from one to two eighths of an inch will be a ſpace of ſufficient width; the expoſed alburnum will then be covered again with new bark before the following winter, ſo that there will be no danger of injuring the future health of the tree.

It is not of much conſequence in what part of the tree the inciſion is made; but, in caſe the trunk is very large, I ſhould then recommend, that the circles be made in the ſmaller branches. It is to be obſerved, that all ſhoots which come out from the root of the vine, or from the front of the trunk ſituated below the inciſion, muſt be removed as often as they appear, unleſs bearing-wood is particularly wanted to fill up the lower part of the wall, in which caſe one or two ſhoots may be left.

Vines growing in hot-houſes are equally improved in point of ſize and flavour, as well as made to ripen earlier, by taking away circles of bark; the time for doing this, is when the fruit is ſet, and the berries are about the ſize of ſmall ſhot. The removed circles may here be made wider than on vines growing in the open air, as the bark is ſooner renewed by the warmth and moiſture of the hot-houſe. Half an inch will not be too great a width to take off in a circle from a vigorous growing vine; but I do not recommend the operation to be performed at all in weak trees.

I think that this practice may be extended to other fruits, ſo as to haſten their maturity, eſpecially figs, in which there is a moſt abundant flow of returning ſap; and it demonſtrates to us, why old trees are more diſpoſed to bear fruit than young ones. Miller informs us, that the vineyards in Italy are thought to improve every year by age, till they are fifty years old. It therefore appears to me, that nature, in the courſe of time, produces effects ſimilar

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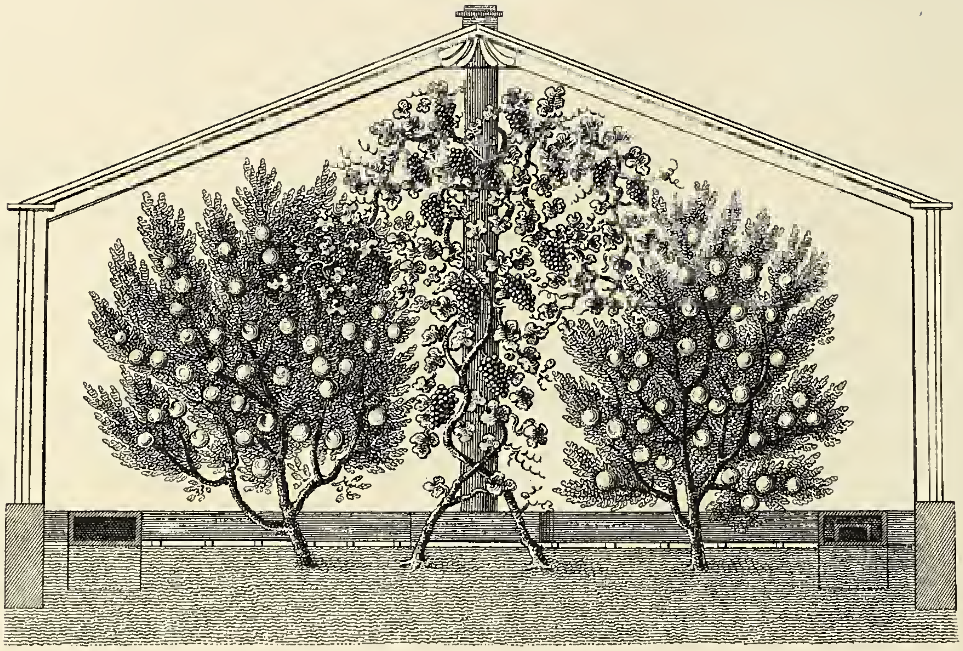

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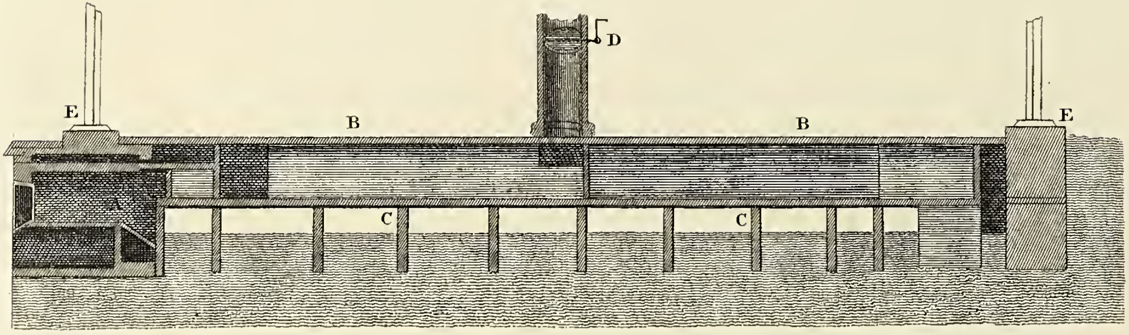

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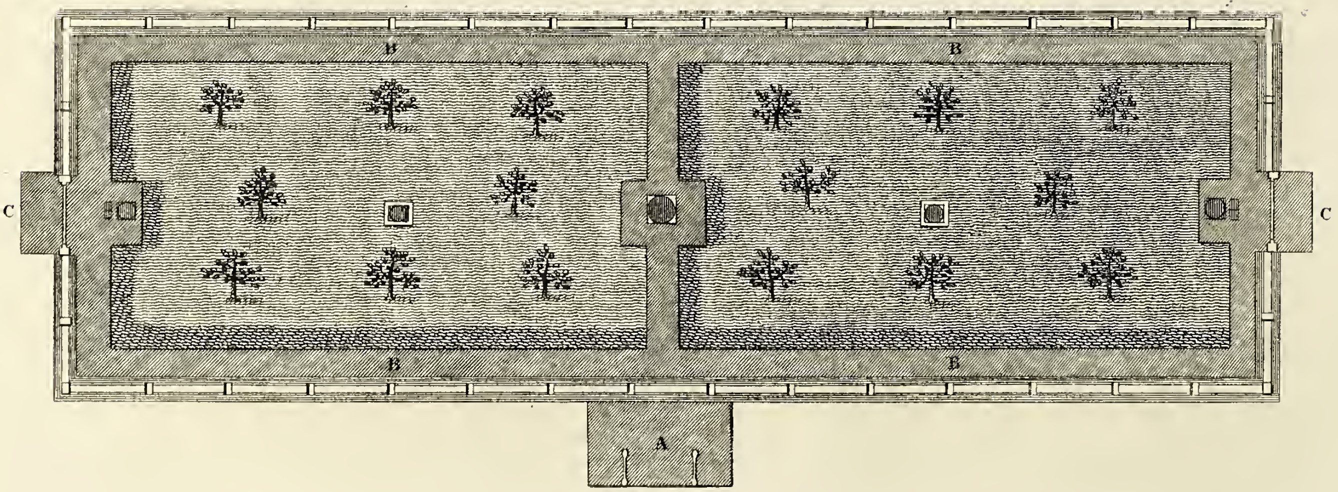

M$^{r}$. Loudon's, Improved Peach-House.

J.Paſs sculp.

London; Pub$^{d}$ as the Act directs, Feb. 16 1810, by J. Wilkes.

ſimilar to what I have above recommended to be done by art. For, as trees become old, the returning veſſels do not convey the ſap into the roots with the ſame facility they did when young; thus, by occaſionally removing circles of bark, we only anticipate the proceſs of nature; in both caſes a ſtagnation of the true ſap is obtained in the fruiting-branches, and the redundant nutriment then paſſes into the fruit.

I have ſometimes found, that, after the circle of bark has been removed, a ſmall portion of the inner bark has adhered to the alburnum; it is of the utmoſt importance to remove this, though ever ſo ſmall, otherwiſe, in a very ſhort ſpace of time, the communication is again eſtabliſhed with the root, and little or no effect produced. Therefore, in about ten days after the firſt operation has been performed, I generally look at the part from whence the bark was removed, and ſeparate any ſmall portion which may have eſcaped the knife the firſt time."

The vine often bleeds exceſſively when pruned in an improper ſeaſon, or when accidentally wounded; for the effectual cure of which, Mr. Knight recommends the following preparation: If to four parts of ſcraped cheeſe be added one part of calcined oyſter-ſhells, or other pure calcareous earth, and this compoſition be preſſed ſtrongly into the pores of the wood, the ſap will inſtantly ceaſe to flow; by the aid of this, the largeſt branch may of courſe be taken off at any ſeaſon with ſafety.—For the natural hiſtory and various ſpecies of the vine, with the method of trimming and dreſſing vineyards, ſee the article VITIS, in this Encyclopædia, and the correſpondent Engravings.

## ON AN IMPROVED PEACH-HOUSE.

The ingenious Mr. Loudon, the well-known projector of many improved hot-houſes for different gentlemen, has lately offered to the public a Peach-Houſe on a new conſtruction, in which he propoſes that the trees ſhould be planted and ſuffered to grow as ſtandards. His remarks upon the ſubject are as follows:

Every one knows that theſe trees are always "trained" upon a wall or trellis; the practice of which originated from a deficiency of heat in our climate. By training and faſtening the branches, the trees are preſerved from violent winds; and, when this is done on walls, the additional heat produced by the reflection of the ſun is certainly conſiderable. Some horticulturiſts may be diſpoſed to add, as another advantage of training, that the branches and fruit are thereby uniformly expoſed to the ſun. But this is not true, for one ſide only of the tree and fruit is fully expoſed; and, as this is rather unnatural to all trees, it muſt certainly be more proper to afford them a ſituation in which an equable and regular heat can be obtained on every ſide.

One principal intention of placing vegetables in hot-houſes is, that they may enjoy a heat ſimilar to their natural climate; and why they are not alſo allowed to enjoy their natural freedom, can only be accounted for, by adverting to the deficiency of obſervation and reflection in thoſe gardeners who generally have the direction in matters of this kind. Mr. John Mawer, of Dalry, had a hot-houſe, in which he planted peach-trees againſt the wall, and two ſtandard-trees of the ſame kind in the centre. At the time of Mr. Mawer's death, both the wall and ſtandard-trees had been ſix years planted; the former were pruned, and otherwiſe treated in the uſual mode, and bore ordinary crops of fruit, ſome years few, in others a conſiderable quantity. The latter never had one twig cut from them, and every year bore a double proportion of more beautiful, larger-ſized, and better-flavoured, fruit, than thoſe againſt the wall.

A double crop of fruit, and much leſs expence in management, are certainly advantages which deſerve ſerious attention, whatever may be the circumſtances which produce the overplus. But, when the cauſe aſſigned for this fact agrees ſo well with the general economy of nature, it ought to convince every perſon capable of reflecting on the ſubject, of the great ſuperiority of the plan now recommended; and conſequently, that peaches, nectarines, &c. when grown in a hot-houſe, ſhould not be trained upon the walls, but be planted as ſtandards, and left to aſſume their natural ſhape and modes of fructification.

The firſt thing requiſite is, that the houſe ſhould have glaſs on all ſides, in order to admit the ſolar rays to every part of the trees. That this may be beſt effected it follows, that it ſhould be made of an oblong form, and placed ſouth and north; and that the trees ſhould be planted ſo as to enjoy perfect freedom in the houſe. The next thing is, that the upright ſide-glaſſes ſhould be made as high as poſſible, not leſs than fourteen feet, in order that the trees may not be cramped or compreſſed. In order that no advantage of ſpace ſhould be loſt, it ſeems preferable to plant dwarf-trees, that they may fill the houſe with branches regularly from the ground to the roof.

No vines ſhould be planted againſt the rafters in this peach-houſe; but they may be planted near the columns, a black and a white ſpecies on oppoſite ſides, and trained around them to their tops, where they may be left in a great meaſure to themſelves, and in the progreſs of their growth they will hang down obliquely, and ſtretch acroſs among the branches of the trees, forming curious and diverſified feſtoons of grapes, and producing more fruit than if trained in ſtraight lines, upon a wall or trellis.

This peach-houſe may be placed either with one end againſt a wall, or made a detached building in any part of a garden. In this laſt caſe the furnace may be concealed under ground, and the ſhaft or chimney either carried up in a ſmall plate-iron column, or in a flue under ground, to the garden-wall, or ſome concealed ſpot. But, when the flue is carried under ground, a vacuity muſt be formed around it, in order to prevent the bad effects of the damp or moiſture of the ſoil from retarding the draught of the fire.

In the Horticultural Plate IV. the plan and component parts of this peach-houſe are exhibited. Fig. 1, repreſents the ground-plan, with the order in which the young trees are planted. Along the middle are ſeen the baſes of the five columns which ſupport the roof, the centre one of which forms the chimney into which the flues are directed. A, the furnace and fuel-pit. BBBB, the upper ſurface of the flues, which forms an area all round the houſe, meeting at the central column, whence the ſmoke iſſues. CC, the entrance-doors.

Fig. 2, repreſents a tranſverſe ſection, to ſhow the under-ground works. A, the furnace and fuel-pit. BB, the croſs-flue, which conducts to the ſhaft or chimney. CC, ſupporters of the flues, carried to a conſiderable depth, in order to allow the roots of the trees to advance in every direction. D, the inſide of the centre column, or chimney, ſhowing the damper, which is turned round by the handle at D, inſtead of being drawn out, as in the common manner. EE, the foundation-walls, carried but juſt above the ſurface of the ground, and on which the upright ſides of glaſs are fixed.

Fig. 3, repreſents a tranſverſe ſection of the elevation or upper part of the peach-houſe, with the trees arrived at puberty, and covered with fruit. Alſo the vines, twining round the central column with that freedom which Nature deſigned.

## ON AN IMPROVED PINERY.

There are ſeveral things, Mr. Loudon obſerves, which have rendered pineries more expenſive than other hot-houſes. 1. More furnaces, in order to produce the higher degree of heat requiſite for maturating this delicate fruit; 2. The great expence attending the pit for the bark, in which the plants are plunged or inſerted. 3. The expence of paved paſſages uſually made all round the houſe. 4. Attendance throughout the whole year, and conſtant fires during three-fourths of it. 5. The expence of the frequent renewal of the bark in the pits, in order to produce and keep up a ſufficient heat. A very conſiderable part of theſe expences Mr. Loudon propoſes to diminiſh, by the conſtruction of the Pinery he now offers to the notice of the public. The general form of the hot-houſe for this purpoſe, is of no conſequence; ſo that any of the hot-houſes already-erected may be eaſily altered to ſuit this plan; which is carried into effect by only one furnace, ſupplied with air flues, and regulated by regiſters. A large air-chamber is alſo formed around and above it, by flooring the whole hot-houſe with pavement, or large tiles. A paſſage is to be made through the middle of the houſe, above the openings which communicate with the air-flues below. This paſſage forms the houſe into two beds or pits for the pine-apples. Under each of theſe, above the pavement, muſt be laid broken bricks or ſtones, ſix or eight inches in depth; then over theſe may be laid two inches of rough gravel, over that one inch of coarſe ſand, and afterwards a rich maiden earth or mould, in which the pines are to be plunged.

The intention of the rough ſtones, is to preſerve an air-vacuity between the earth in which the plants are placed, and the heated pavement. And the great advantage of having it formed in this way, is, that the ſtones and gravel will preſerve an equable heat a much longer time than bark, and completely prevent any danger of over-heating the roots of the pines.

Holes and tubes, with covers or ſtoppers neatly fitted to them, are to be conſtructed in the paſſage-walls through the centre of the hot-houſe. Through theſe holes and tubes water is to be occaſionally poured, which will raiſe a moiſt natural heat, highly congenial to vegetation, and will afterwards paſs out of the tubes in ſteam. In this way a fertilizing heat, equally ſalutary with that of bark, leaves, or dung, the uſual means of obtaining this heat, may be had without any riſk of producing thoſe dangerous extremes to which the fermentable materials are liable; and without the trouble or expence of renewing them, or of ſhifting the plants, in order to ſtir up or augment the "bark-bed," which in this hot-houſe is wholly diſpenſed with.

If water be poured into the ſtone vacuity under the plants, then by ſhutting up the holes in the parapet, and alſo putting on the covers of the tubes, the ſteam generated will aſcend through the gravel and ſand into the pine-bed; and there it will be condenſed among the earth and the roots of the plants, producing very beneficial effects. Even when no fire is uſed, by pouring in water in this manner, although the precaution of ſhutting the holes and tubes were not to be taken, it would prove of great advantage to the plants, by producing a moiſt and natural heat in the ſoil. Indeed the tubes may be left open at pleaſure, and then the water poured in will fill the houſe with ſteam; or, ſhould the houſe appear too warm, they could be ſhut, and then the heat would be kept back. So that, independent of the moiſt and uniform heat thus produced in the bed of pines, the temperature of the air of the whole houſe might be raiſed or lowered at pleaſure.

There are alſo to be openings in the paſſage which communicates with the air-chamber that ſurrounds the flues; by opening which, the whole heated air can be admitted into the houſe at once. Thus it will be perceived, that from this air-chamber, and the large maſs of maſon-work kept continually hot, three conſequences will follow, of the utmoſt importance: viz. 1. During the ſeaſon when fires are uſed, the temperature of the houſe can be raiſed to any degree required. 2. That there can be no danger of overheating the houſe. 3. That, during the ſeaſon of fires, ſteam can be produced in the greateſt abundance for any purpoſe deſired, and at no additional expence.

Another advantage, and one of no ſmall conſequence for the health and beauty of the plants, and the flavour and magnitude of the ripe fruit, is, that by uſing rich maiden earth, in lieu of bark, the plants may eaſily be placed on a ſlope correſponding to that of the glaſs, which will bring them all equally near the warm rays of the ſun. And by having a paſſage in the centre of the hot-houſe only, inſtead of all round it, nearly *one-third* more pines can be grown than in a common hot-houſe of the ſame dimenſions.

Upon the principles of the pine-ſtove, the pit for cultivating the young pines, raiſing early cucumbers and melons, for blowing curious flowers, or for any ſimilar purpoſe, may be made very ſuperior to thoſe in common uſe. This pit may be a hundred feet long, and divided into four compartments, heated only by one furnace. Theſe diviſions may be kept of the ſame or of different degrees of heat, by means of the heated air collected around and near the furnace. This is accompliſhed by keeping the different regiſters ſhut, except the one in the diviſion in which the air is intended to be admitted; or, the heated air may be permitted to enter into one, two, three, or the whole of the diviſions at once, by properly opening and ſhutting the valves. It is almoſt needleſs to mention, that each of theſe diviſions may alſo be ſupplied with ſteam and heated air from the tubes, as directed for the pine-ſtove.

The ground-plan of this pine-pit is repreſented in the Horticultural Plate V. fig. 1, where AA, denote the front wall. BB, the back wall. CCCC, the flues, in an area, all round. DD, ſupporters of the pavement, above which is placed the rubble-ſtone, and then the maiden earth or mould. E, the furnace. F, ſteps to the excavation in which the furnace is erected. GG, the chimneys.

Fig. 2, repreſents a longitudinal ſection of the pine-pit, with the young plants in the order of their growth. AB, the range of ſaſhes. CC, the ſpaces between the ſupporters of the pavement. DD, the flues. E, centre diviſion-wall. FF, tubes which admit air and ſteam from the rubble-ſtone vacuity. GG, tubes which admit air and ſteam from the large vacuity under the rubble-ſtones, which ſurrounds the flues.

Fig. 3, exhibits a tranſverſe ſection of the pine-pit, and ſhows the open manner in which the foundation is conſtructed under the bed of pines, in order to admit a free circulation of the heated air to the roots of the young plants.

Fig. 4, is a ſection of a ſmall maſs of the maſon-work, containing a circular hole through the centre, furniſhed with two pipes or tubes one within the other. The inner one conducts the hot air; and the outer one the cool air: and the ſpace round them is calculated to collect the ſtagnated air, that as little heat as poſſible may be loſt.

Fig. 5, ſhows the carron regiſter, uſed in regulating the air from the flues of the hot-houſe and pine-pit.

Fig. 6, exhibits a tranſverſe ſection of the improved pinery. A, the paſſage through the centre of the hot-houſe, dividing the pinery into two beds. BB, the rubble-ſtone vacuity. CC, the earth or mould in which the pines are matured. DD, the air and ſteam tubes. E, a curtain, or inner roofing, conſiſting of a roll of coarſe flannel. F, the back ſhed, affording a ſituation which may be made an excellent muſhroom-bed. GGGG, the vacuities every way round the flues. H, air-flue. IIII, ſmoke-flues.

It is a great recommendation of all Mr. Loudon's plans, that they have a ſtrict view to economy, and ſound reaſoning to direct their conſtruction. One and not the leaſt of his improvements, is, what he terms "*an inner roofing*." It conſiſts of a ſet of coarſe flannel curtains, fixed on rollers at the top of the back wall, and lets down under the glaſs frames or roofing, in order to ſhut out all night air from the plants, as ſhown in the Engraving.—For the natural hiſtory of the Pine-apple, its various ſpecies, and the late Mr. Miller's method of propagation and culture, ſee the article BROMELIA, vol. iii. p. 424–429, and the correſpondent Engravings.

That experienced agriculturaliſt and well-known writer, J. Anderſon, D. C. L. and F. R. S. obſerving, not without conſiderable intereſt and pleaſure, the rapid improvements going on in horticulture, and particularly in the art of forcing, and maturating at an early ſeaſon, the choiceſt table-fruits; and perceiving the inadequate conſtruction of forcing-houſes in general, and particularly

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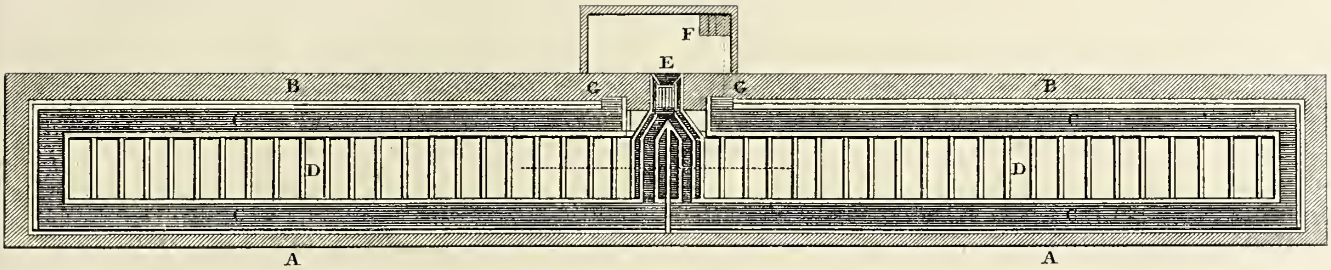

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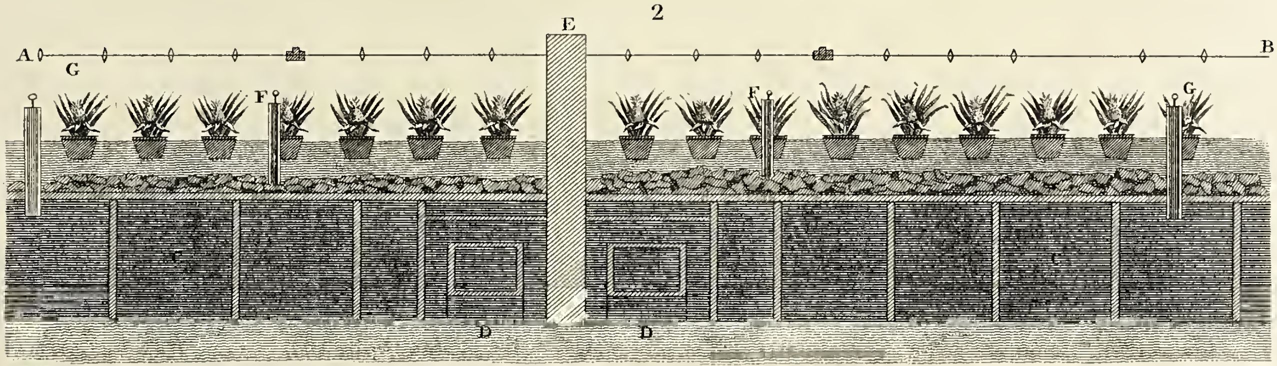

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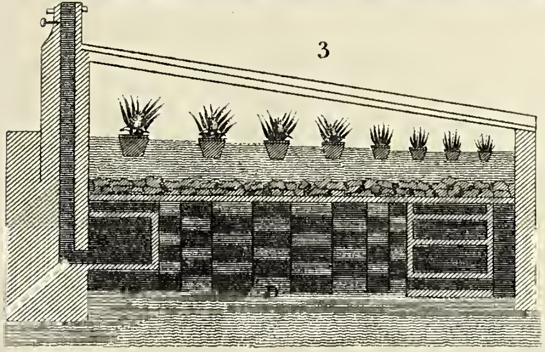

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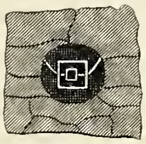

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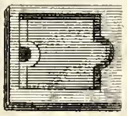

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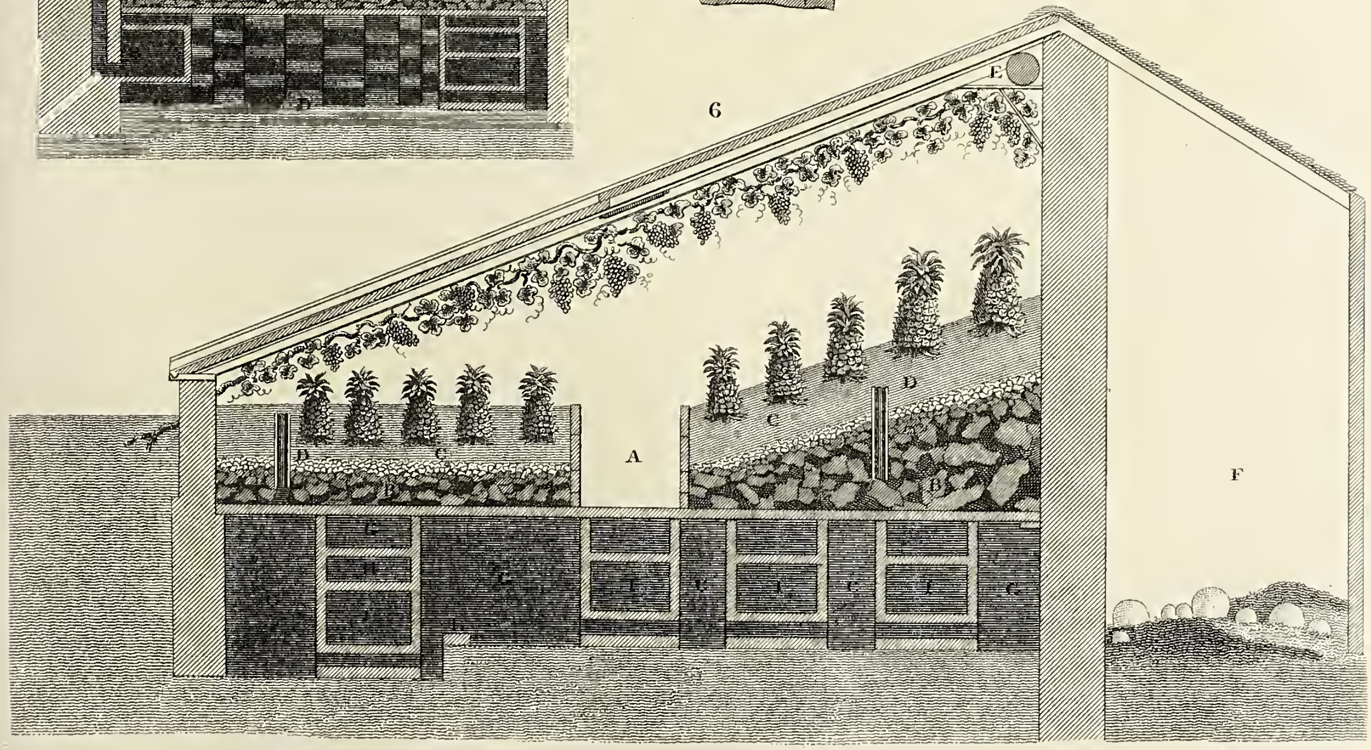


*Mr. Loudon's Improved Pinery.*

J. Pass sculp.

London; Pub^d. as the Act directs, March 10, 1810, by J. Wilkes.

that a ſeparate building was moſtly thought neceſſary for each different kind of fruit, he conceived it would be a deſideratum in this kind of ſpeculation, to conſtruct a hot-houſe upon ſuch principles and dimenſions as ſhould be capable of producing all the articles now propagated in England in this way, without the neceſſity of employing different buildings: and at the ſame time that it ſhould poſſeſs the peculiar advantage of receiving the rays of the ſun from every point of the compaſs, and by this means ripen and maturate its fruits ſooner and larger than any other hot-houſe hitherto erected. For this ingenious contrivance, and for the ſecurity of his property therein, Dr. Anderſon has obtained his majeſty's letters patent.

He recommends that the roof of the hot-houſe ſhould be flat, inſtead of inclined, and made air-tight, to prevent the eſcape of hot air; which, from its ſuperior lightneſs, always aſcends to the top; and, in the common hot-houſes, eſcapes between the panes of glaſs, which are in them lapped over each other. When the air becomes over-heated by the exceſſive action of the ſun, the ſuperabundant caloric is conveyed by means of a pipe into an air-chamber, which is placed over the houſe, while cold air is admitted below; and the heated air in the air-chamber is preſerved, to be returned, by means of the communication-pipe, to the hot-houſe, when the operation of the night air, or of clouds or cold winds, has cooled the internal air, and conſequently diminiſhed its volume.

The patent hot-houſe here deſcribed, which is intended to be heated for the greateſt part of the year by the ſun alone, or by means of an Argand lamp, requires no kind of maſonry in its conſtruction, and is to be placed in an open ſituation, detached from every wall or building. The whole ſtructure is to be of glaſs, ſo as to enjoy the benefit of the ſolar rays from morning till evening, without impediment. When winter renders it neceſſary to employ culinary fire, Dr. Anderſon endeavours to guard againſt every poſſible loſs of heat; and inſtead of flues running along a wall, the defect of which in the economiſing of caloric is evident, he adviſes that the ſtove ſhould be conſtructed ſo that the ſmoke may paſs into a ſmoke-chamber *below* the houſe, through the floor of which almoſt the whole of the generated heat will proceed upwards into the region where its influence is required. Some ingenious contrivances are ſuggeſted, by the uſe of valves, for the tranſmiſſion and regulation of heat, ſimilar in ſome reſpects to what are recommended by Mr. Loudon.

Sir Joſeph Banks, with ſtill more enlarged ideas of the capacious power and utility of hot-houſes, were they employed to their full extent, reaſons as follows on this important ſubject. The next generation will in all probability erect hot-houſes of much larger dimenſions than any of thoſe we have hitherto ſeen propoſed, ſuch as may be capable of raiſing trees of more conſiderable ſize; they will alſo, inſtead of heating them with flues, ſuch as we uſe, and which waſte in the walls more than half of the warmth they receive from the fires that heat them, uſe naked tubes of metal filled with ſteam, inſtead of ſmoke. Horticulturiſts will then be enabled to admit a proper proportion of air to the trees in the ſeaſon of flowering; and as we already are aware of the uſe of bees to diſtribute the pollen where wind cannot always be admitted to diſperſe it, and of *ſhaking* the trees when in full bloom, to put the pollen in motion, they will find no difficulty in ſetting the ſhyeſt kinds of fruits. Thus, under the progreſs now making in horticultural improvements, it requires not the gift of prophecy to foretell, that ere long the aki and the avocado pear of the Weſt Indies, the flat peach, the mandarine orange, and the litchi of China, the mango, the mangoſtan, and the durion of the Eaſt Indies, and poſſibly other valuable fruits, will be frequent at the tables of opulent perſons in England; and ſome of them perhaps, in leſs than half a century, be offered for ſale on every market-day at Covent Garden.—See thoſe ſeveral fruits under their generic names in this Encyclopædia, and the correſpondent Engravings.

## OF THE GREEN-HOUSE AND CONSERVATORY.

The green-houſe was unqueſtionably the firſt kind of building contrived for the purpoſe of houſing plants; the ſtyle of which was originally very uncouth, being little more than open ſheds, cloſed with ſhutters or folding doors at night. In proceſs of time, however, they aſſumed a more pleaſing form, by being fronted with glaſs; but theſe buildings, by having given way to the conſervatory, are in general heavy and taſteleſs, unleſs it be ſome which have been very lately erected. They were built for the reception of oranges, lemons, myrtles, and ſome other plants which firſt found their way into England from milder climates. This building had no flues or contrivances of any ſort for increaſing the natural heat, but the air of the room was warmed only by the ſun; and the cold kept out very carefully at night, which was all theſe plants required.

As to the dimenſions of the green-houſe, ſays Mr. Miller, they muſt be proportioned to the number of plants the building is to contain; but the depth ſhould never be greater than the height in the clear, which in ſmall or middling houſes may be ſixteen or eighteen feet, but for large ones from twenty to twenty-four feet is a good proportion: for, if the green-houſe be long and too narrow, it will have a bad appearance both within and without, nor will it contain ſo many plants, if proper room be allowed for paſſing in front, and at the back of the ſtages on which the plants are placed; and on the other hand, if the depth of the green-houſe be more than twenty-four feet, there muſt be more rows of plants placed to fill the houſe than can with conveniency be reached in watering and cleaning; nor are houſes of too great depth ſo proper for keeping plants in health as thoſe of a moderate ſize.

The windows in front ſhould extend from about one foot and a half above the pavement, to within the ſame diſtance of the ceiling, which will admit of a cornice round the building over the heads of the windows. As it is neceſſary to have theſe windows ſo long, it will be impoſſible to make them in proportion as to their breadth; for, if the ſaſhes be more than ſeven or eight feet broad, they will be troubleſome to move up and down, and their weight will occaſion them to decay very quickly. The piers between the windows ſhould be as narrow as is conſiſtent with their neceſſary ſtrength to ſupport the roof; for which reaſon ſtone is preferable, or hard well-burnt bricks. If theſe piers are made of ſtone, they ſhould be two feet and a half in diameter, worked as columns cylindrical, whereby the rays of the ſun will not be obſtructed ſo much as if they were ſquare; but, if they are built of bricks, it will be proper to make them three feet in front; and they may be ſloped off towards the inſide to admit the ſun. If a tool-houſe be erected at the back of the green-houſe, the back wall need not be more than two bricks and a half in thickneſs; but, if not, it muſt be three bricks or three bricks and a half thick, to keep out the froſt.

The floor of the green-houſe may be laid with Bremen-ſquares, Purbeck-ſtone, or broad-tiles; and muſt be raiſed two feet above the ground, where the ſoil is dry; but, if the ſituation be moiſt and ſpringy, the floor ſhould be raiſed at leaſt three feet above the ſurface; and, if the whole be arched with low brick arches under the floor, it will be of great ſervice in preventing the damps riſing in winter, which are often extremely hurtful to the plants, eſpecially in great thaws, when the air is too cold to be admitted into the houſe to take off the damps. Under the floor, about one foot from the front, a flue, if deſired, one foot in width, and two feet in depth, may be carried the whole length of the houſe, which may be returned againſt the back wall, and carried up in proper funnels adjoining to the tool-houſe, three times over each other, by which the ſmoke may paſs off. The fire-place may be at one end of the houſe; and the door at which the fuel is put in as alſo the aſh-grate, may be contrived to open into the tool-houſe, ſo that it may be quite hid from ſight, and be dry; the fuel alſo may be laid in the ſame ſhed, ſo as always to be ready for uſe. The wall on the back part of the houſe ſhould be either laid over with ſtucco, or plaſtered with mortar and white-waſhed, to keep out the froſt, which will penetrate through the walls, eſpecially when it is attended with a ſtrong wind.

To prevent froſt from penetrating through the roof, reeds, heath, or furze, ſhould be laid between the ceiling and the ſlate, with which theſe kind of buildings, from its harmonizing ſo perfectly with the canopy of Nature, ſhould univerſally be covered. And care ſhould be taken, in framing the joints, that the weight may not lie upon the ceiling; for they ſhould be laid a foot thick at leaſt, as ſmooth as poſſible, and faſtened down well with laths to prevent their riſing, and then covered over with a coat of hair-mortar, which will keep out the air, and alſo prevent mice and other vermin from harbouring in them, which, if left uncovered, they would certainly do.

In the green-houſe there ſhould be erected ſtages, ſo as to place the pots or tubs of plants in regular rows one above another, whereby the heads of the plants may be ſo ſituated, as not to interfere with each other. The loweſt row of plants, or forwardeſt towards the windows, ſhould be placed about four feet from them, that there may be a convenient breadth left next the glaſſes to walk in front; and the rows of orange-trees ſhould riſe gradually from the firſt, in ſuch a manner that the heads of the ſecond row ſhould be entirely advanced above the firſt, the ſtems only being hid; and at the back of the houſe there ſhould be allowed a ſpace of at leaſt five feet, for the conveniency of watering the trees, and to admit a current of air round them, that the damps occaſioned by the perſpiration of the plants may be the better diſſipated, which by being pent in too cloſely often occaſions a mouldineſs upon the tender ſhoots and leaves; and, when the houſe is cloſe ſhut up, this ſtagnating rancid vapour is often very deſtructive to the oranges; for which reaſon alſo they ſhould never be crowded too cloſe to each other, nor ſhould ſucculent plants ever be placed among them. For the natural hiſtory and different ſpecies of the orange-tree, lemon, citron, &c. and method of culture, ſee the article CITRUS, vol. iv. p. 625–631, and the correſpondent Engravings.

The plants are uſually put into the green-houſe in October, or as ſoon as the morning and evening froſts begin to come on. In this ſituation they remain till the end of May or the middle of June, according to the ſeaſon, when they are removed to the place where they are to ſtand through the ſummer. Much of their growth and ſucceſs depends upon the choice of a ſheltered and convenient ſituation for them at this ſeaſon; it muſt not be expoſed to the meridian ſun, nor to the weſt or north winds, both which are extremely hurtful to them when firſt expoſed, and again in the autumn. Here they muſt be refreſhed with frequent waterings, in dry weather at leaſt three times a-week. Before the plants are removed out of the green-houſe, it is neceſſary to ſhift at leaſt all the ſmall plants; that is, to take them out of their pots, to cut off part of their roots round the ball of earth, and to put them again into the ſame pot, if the plant is not in a healthy ſtate; or, if it is, into one a ſize larger; ſhortening the irregular ſide-branches as they may require, and tying them up neatly. The mould into which the plants are to be ſhifted is of conſiderable importance. The beſt is to be obtained from commons where ſheep and cattle paſture, particularly in low ſheltered places, where the fineſt graſs grows, and the ſoil is deepeſt. A foot of the top ſoil with the turf may be taken off; and, if it be a ſandy or hazel loam, it will do alone; but, if it be a ſtrong loam, ſome ſand and black peaty or mooriſh ſoil ſhould be added. Such ſoils, laid in a heap for at leaſt ſix of the winter months, and frequently turned over, will ſuit moſt green-houſe plants.

Aloes, meſembryanthemums, ixias, and ſuch liliaceous plants in general as are inhabitants of exotic houſes and glaſs-caſes, require a ſoil which is a degree lighter, and which will not retain the water, but let it paſs readily; and a little coal-aſhes at the bottom of each pot may be uſeful for this purpoſe. The great number of ericas, and other beautiful plants from the Cape of Good Hope, from America, and Botany Bay, delight and flouriſh in that ſort of earth which comes neareſt to their native ſoil. Thus the ericas like a black peat or mooriſh ſoil; and the others that which is made a degree ſtronger with loam.

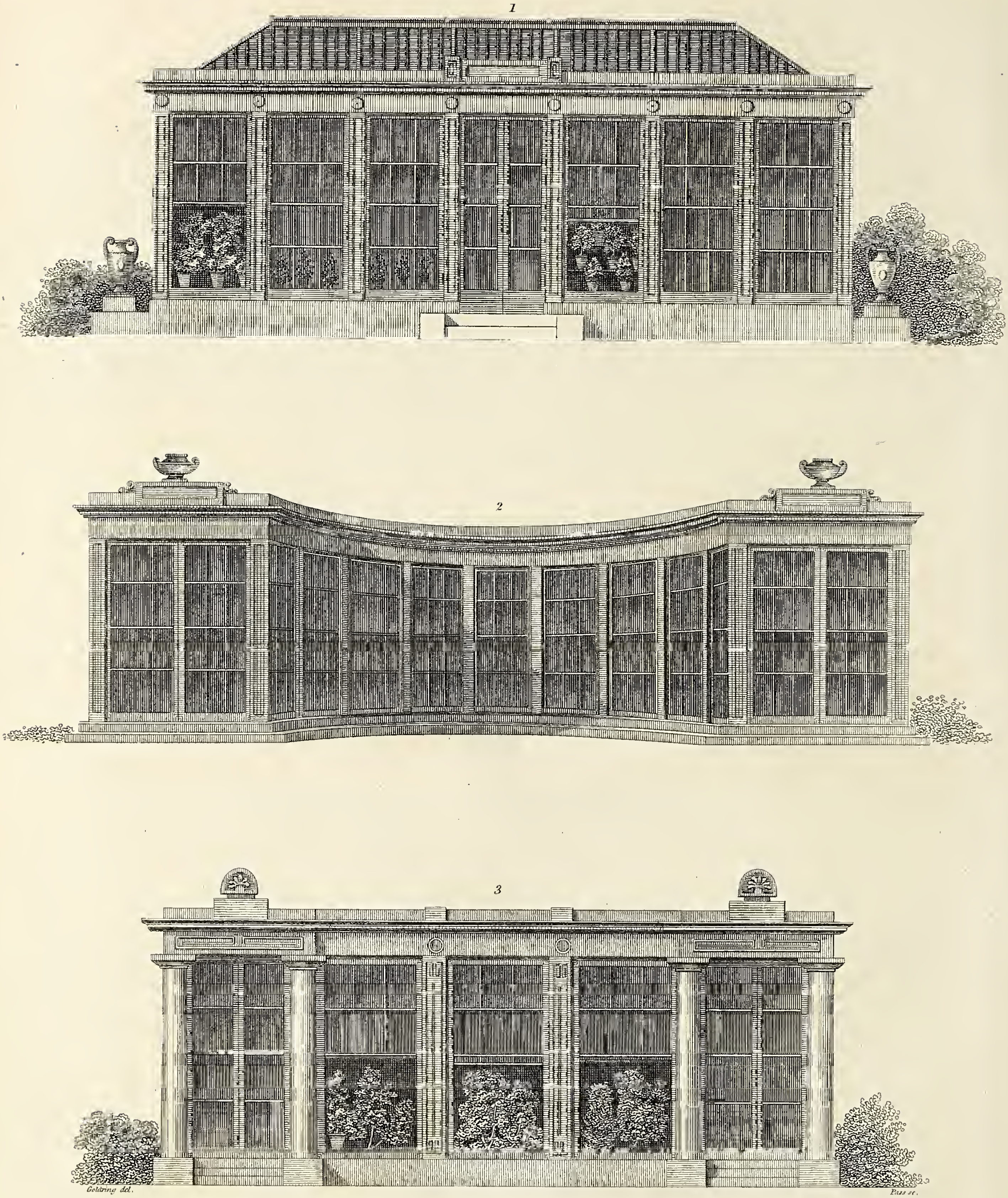
Thus the green-houſe, by the introduction of the Cape and American plants, and the addition of a flue, as above directed, came to anſwer the joint purpoſes of a green-houſe and conſervatory; and hence they have been generally conſidered as ſynonymous terms. Their eſſential difference, however, is this. In the green-houſe, the trees and plants are either in tubs or pots; and are placed on ſtands or ſtages through the winter, till they are removed into ſome ſheltered ſituation abroad for the ſummer. In the conſervatory, the ground-plan is uſually laid out in beds and borders, made up of the beſt compoſitions of ſoils that can be procured, three or four feet in depth, for exotics of a more delicate nature, or brought from ſtill milder or warmer climes. In theſe the ſhrubs and trees are regularly planted, in the ſame manner as hardy plants are in the open air. Inſtead of taking out the plants in ſummer, as in the green-houſe, the whole of the glaſs roof is taken off, when the ſalubrity of the ſeaſon will permit, and the plants are expoſed to the open air; and at the approach of the autumnal froſts the lights are again put on, and remain ſo till the May or June following.

One part of the conſervatory may be appropriated to ſuch plants as come from Africa, New South Wales, and the like climates; and require what is called a dry ſtove. Another part may have a bark-bed, for plants from the Eaſt and Weſt Indies, which require a tan-heat to plunge the pots in, and a greater degree of fire to keep up the heat of the ſtove to within a few degrees of that of their native climate. Thus plants from almoſt every part of the world, of the greateſt beauty and fragrance, though of a tender and delicate nature, may, by appropriate care and attention, be made ornaments to our Engliſh gardens, through the medium of a conſervatory. In the late ingenious Mr. Miller's plan, the conſervatory is erected with wings, one facing the ſouth-eaſt, and the other the ſouth-weſt. In theſe are erected his ſtoves; the bark-ſtove facing the ſouth-eaſt, and the dry ſtove facing the ſouth-weſt; that from the time of the ſun's firſt appearance upon any part of the building, until it goes off at night, it is conſtantly reflected from one part to the other, and the cold winds are alſo kept off from the front of the centre building. In the area many of the more tender exotic plants are placed in the ſummer ſeaſon; and in the ſpring, before the plants can be ſet out, the beds and borders of this area may be filled with anemonies, ranunculuſes, early tulips, &c. In the centre of this area may be a ſmall baſon of water, which will be very convenient for watering the plants, not only on account of its nearneſs, but becauſe the water will be ſoftened and warmed by the reflection from the glaſſes.

The wing facing the ſouth-eaſt is always to be preferred for the bark-ſtove, becauſe the ſun, at its firſt appearance in the morning, ſhines directly upon the ſaſhes, and, warming the air of the houſe, gives new life to the plants, after the long nights of the winter ſeaſon. In theſe buildings alſo, if there are not ſheds running behind them their whole length, the walls ſhould not be leſs than three bricks thick; and if they are even more it will be better, becauſe, where the walls are thin and expoſed to the open air, the cold will penetrate; and, when the fires are made, the heat will eſcape through the walls; ſo that it will require a larger quantity of fuel to maintain a proper temperature of warmth in the houſe; hence, in general, the cloſer and better theſe houſes are built, the leſs fuel will be required to warm them.

The conſtruction of theſe buildings has of late years been very much improved; and their ſcite more happily choſen.

# HORTICULTURE.



*1, A modern Green-house _ 2, A circular Conservatory _ 3, A common Conservatory.*

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choſen. Green-houſes ſhould, whenever it can be ſo contrived, catch the eye from the moſt public apartments in the manſion; yet ſtill the approach to them ſhould wind through ſhrubberies and clumps, that the idea of them might become effaced by a variety of other pleaſing objects, till they burſt at once upon the eye, and on a nearer approach produce ſo fragrant an odour, and ſo extended a plantation of trees in alternate flower and fruit, that you might fancy yourſelf ſuddenly tranſported into an orange-grove in the moſt favourite climate of their ſpontaneous growth.

With reſpect to the conſervatory, the moſt deſirable, as well as moſt rational, ſituation for it to be placed, is in one of the wings of the manſion-houſe, where by a ſpacious pair of folding doors it might be thrown open to the dining-parlour, and contribute all its odours and beauties at an unexpected moment, to enhance the pleaſurable enjoyments of the feſtive board.

Where, however, ſuch a ſituation cannot be contrived, or where it is deſirable for them to harmonize with ſome diſtant object, their beauty and effect would be conſiderably increaſed, by erecting them in a *circular form*, ſimilar to the Creſcent at Bath. Thus they might fill up ſome blank in a broken horizon, and unite with parts on the right and left, rich in ſcenery and verdure, ſo as almoſt to produce the effects of a panorama; or they might, in this form, ſtand with peculiar advantage beneath a majeſtic amphitheatre of hanging woods, or extenſive plantations, ſhut out by their means from the cold and chilling blaſts of the north and north-eaſt, while their warm ſouthern aſpect, rendered doubly ſo by their circular conſtruction, would be found to cheriſh and fertilize the moſt tender exotic plants. To this form of building there appears but one objection, which is the extra-expence charged for all circular works; but to a man of fortune, where the manſion-houſe and grounds are to be laid out on an extenſive ſcale, this conſideration cannot be an object.—For modern views of theſe buildings, ſee the Horticultural Plate VI.—All the Green-houſe and Exotic Plants, with Engravings of the moſt curious kinds, will be found under their generic names in this Encyclopædia.

Horticulture, in painting and ſculpture, is claſſically repreſented in the Frontispiece to this volume.

HORTICUL'TURIST, *ſ.* One employed in gardening.

HOR'TOBAGY, a river of Hungary, which riſes about ſix miles ſouth of Debreczin, and runs into the Theyſſe.

HOR'TOBAGY, a town of Hungary, on a river of the ſame name: ſeventeen miles ſouth-ſouth-weſt of Nanas.

HOR'TON, a townſhip of the American States, in King's county, Nova-Scotia. Salmon river runs through Horton, and ſupplies the inhabitants with excellent ſalmon.

HORTO'NA, in ancient geography, a town of Italy, on the confines of the Æqui.

HORTS'KIRK, a town of Germany, in Auſtria: four miles ſouth-weſt of Putzeinſtorf.

HOR'TULAN, *adj.* [*hortulanus*, Lat.] Belonging to a garden.—This ſeventh edition of my *hortulan* calendar is your's. *Evelyn.*

HOR'TUS, *ſ.* [from *orior*, to riſe, as being the ſource of vegetation.] A garden. The womb is alſo called by this name, as being the garden or repoſitory of the human ſeed.

HOR'VATZ, a town of Croatia: eighteen miles ſouth-weſt of Varaſdin.

HORVATZ'KA, a town of Croatia: twenty-ſix miles ſouth-weſt of Varaſdin.

HO'RUS, a ſon of Iſis, one of the deities of the Egyptians. See Orus.

HOR'WAL, a town of Lithuania, in the palatinate of Minſk: twenty-eight miles ſouth of Rohaczow.

HOR'ZITZ, a town of Bohemia, in the circle of Konigingratz: eleven miles ſouth-eaſt of Gitſchin.

HORZIZ'KA, a town of Bohemia, in the circle of Koniggratz: ſix miles ſouth of Trautenau.

HO'SACK, or Hoo'sack, a townſhip in Renſſelaer county, New York, ſituated on a river of the ſame name; and by the cenſus it contains 3035 inhabitants.

HO'SAH, a city of Paleſtine, belonging to the tribe of Aſher; ſituated upon the boundaries of that province. *Joſh.* xix. 29.

HOSA'MAH, [Hebrew.] A man's name.

HOSAN'NA, *ſ.* [הושיענא, Heb. *i. e.* ſave, we beſeech thee; οσαννὰ, Gr.] An exclamation of praiſe to God.—The public entrance which Chriſt made into Jeruſalem was celebrated with the *hoſannas* and acclamations of the people. *Fides.*

> Through the vaſt of heav'n
> It ſounded, and the faithful armies rung
> *Hoſannah* to the Higheſt. *Milton.*

HOSE, *ſ.* plur. *hoſen*; [hoꞅa, Sax. *hoſan*, Welſh; *oſſan*, Erſe; *oſſanen*, plur. *chauſſe*, Fr.] Breeches.—Theſe men were bound in their coats, *hoſen*, hats, and other garments, and caſt into the midſt of the fiery furnace. *Dan.* iii. 21.

> He croſs examin'd both our *hoſe*,
> And plunder'd all we had to loſe. *Hudibras.*

Stockings; covering for the legs.—He, being in love, could not ſee to garter his *hoſe*; and you, being in love, cannot ſee to put on your *hoſe*. *Shakeſpeare.*

> Will ſhe thy linen waſh, or *hoſen* darn,
> And knit thee gloves? *Dryden.*

HOSE'A, the firſt of the minor prophets, as they ſtand in the Hebrew and Greek Bibles, though probably the third in order of time. He was the ſon of Beeri, but we are not informed to what tribe he belonged. His predictions were delivered during the reigns of Uzziah, Jotham, Ahaz, and Hezekiah, kings of Judah; and in the days of Jeroboam, king of Iſrael. He chiefly addreſſes Iſrael; but introduces frequent mention of Judah. He not only inveighs againſt the vices of the people, but arraigns the conduct of their kings, princes, and prieſts. Like moſt of the Hebrew prophets, he tempers denunciations of God's vengeance againſt an idolatrous and vicious people, with promiſes of abundant mercies upon their repentance and reformation. He abounds with ſhort and lively compariſons; and, like the beſt Greek and Roman writers, often omits the particle of ſimilitude. Theſe compariſons he ſometimes accumulates, in the ſpirit of that poetry which is moſt admired. He is often diſtinguiſhed by great force of expreſſion, and is ſometimes highly animated; he contains many beautiful paſſages, in the ſimilies, the allegories, the pathos, and in the figures; and in many parts he is truly ſublime. This prophet, according to biſhop Horſley, was born more than ſeven hundred and fifty years before the Chriſtian era; and his miniſtry continued for the ſpace of ſixty-eight years: and, as at its commencement he was of ſufficient age to chooſe a wife and to marry, he muſt have lived to extreme old age.

HO'SEIN, the ſecond ſon of Ali by Fatima, Mahomet's daughter, equalled his elder brother Haſan in beneficence, and inherited the martial ſpirit of his father. See the article Arabia, vol. ii. p. 14–15.

HOSHAI'AH, [Hebrew.] A man's name.

HO-SI', a town of China, of the third rank, in the province of Yun-nan: fifteen miles ſouth of Sin-hing.

HO'SIER, *ſ.* [from *hoſe*.] One who ſells ſtockings.—As arrant a cockney, as any *hoſier* in Cheapſide. *Swift.*

HOSHE'A, the laſt king of Iſrael, and the ſon of Elah. He projected the emancipation of Iſrael from the Aſſyrian yoke; and, having refuſed the annual tribute, endeavoured to ſtrengthen himſelf by an alliance with So, king of Egypt. This attempt led to the final deſtruction of the Iſraelitiſh monarchy; for Shalmaneſer ſoon penetrated and broke all his meaſures. Advancing with his army, the Aſſyrian monarch laid waſte the whole land of Iſrael, quite to the gates of Samaria, to which he laid cloſe ſiege. Hoſhea, however, had ſo well fortified that city, that it held out almoſt three years againſt Shalmaneſer, but was then forced to ſubmit. After its ſubjugation, it was reduced to a heap of ruins; and the king, and all his ſubjects, were carried into captivity, and diſperſed throughout the Aſſyrian empire. The barbarities which the Aſſyrians exerciſed towards them, are painted in dreadful colours by the prophet Hoſea, and in others of the prophetical writings. Thus fatally ended the Iſraelitiſh kingdom, after it had ſtood divided from that of Judah two hundred and fifty-four years. This cataſtrophe took place in the ninth year of the reign of Hoſhea, before Chriſt 721. 2 *Kings*, xvii.

HO'SIUS (Staniſlaus), an illuſtrious catholic prelate, born at Cracow in 1504. Having entered into holy orders, he was appointed a canon of Cracow; which preferment was ſoon followed by his nomination to the biſhopric of Culm, at the requſt of king Sigiſmund Auguſtus. Afterwards he was made biſhop of Warmia. Pope Pius IV. ſent him on miſſions to the emperor Ferdinand, and to the king of Bohemia, to negociate for the continuation of the council of Trent. Having proved ſucceſsful in theſe negociations, pope Pius ſent him, in 1561, a cardinal's hat. Afterwards he retired to his biſhopric in Poland, where he employed himſelf in preparing ſome of his numerous publications. From this ſituation he was recalled to Rome, by pope Gregory XIII. who appointed him grand penitentiary of the Roman church. He died in the neighbourhood of that city in 1579, at ſeventy-ſix years of age. The catholic pontiffs, and the writers of his time, were accuſtomed to call him, "the pillar of the church, the Auguſtine of his age," &c. He certainly was one of the ableſt polemical divines among the Catholics; and his controverſial writings are little, if at all, inferior to the beſt which appeared in his day. His works have undergone numerous impreſſions, and ſome of them have been tranſlated into the French, Italian, German, Flemiſh, Poliſh, Engliſh, and Armenian, languages. The moſt complete edition of them was publiſhed in Latin at Cologne, in 1584, in 2 vols. folio.

HOS'KIN, a town of the American States, in North Carolina: four miles north of Edenton.

HOS'NITZ, a river of Sileſia, in the principality of Oppau, which riſes about two miles ſouth of Benniſch, and runs into the Mora two miles ſouth of Troppau.

HOSPIDALET'TO, a town of Germany, in the biſhopric of Trent: fourteen miles ſouth-eaſt of Bormio, and thirty-five north-weſt of Trent.

HOSPIN'IAN (Rodolphus), a Swiſs proteſtant divine, born at Altorf, in the canton of Zurich, in 1547. Having loſt his father in 1563, he found an affectionate patron in Rodolphus Gualterus, his godfather. By his kind aſſiſtance he was enabled to viſit ſeveral univerſities, celebrated for the eminence of their profeſſors. During two years he continued at Marpurg, where he diſtinguiſhed himſelf by the aſſiduity with which he applied to his ſtudies, and his commendable behaviour. The ſame character he maintained at the univerſity of Heidelberg. In the year 1568, he was recalled to his native country, and admitted into the miniſtry; and in 1576, he was appointed miniſter of a church within a league of Zurich. In 1588, he was appointed archdeacon of the Caroline church. For near a year, he was deprived of his ſight by a cataract; notwithſtanding which he continued to preach *extempore*, and was happily couched in 1613. In 1632 his faculties became impaired, and he died in 1626, in the ſeventy-ninth year of his age. He was the author of the following works: 1. *De Origine & Progreſſu Rituum & Ceremoniarum Eccleſiaſticarum*, 1585. 2. *De Templis: hoc eſt, de Origine, Progreſſu, Uſu, & Abuſu, Templorum, ac omnino Rerum omnium ad Templa pertinentium*, 1587, folio, of which a larger edition, containing anſwers to Bellarmin and Baronius on the ſubject, appeared in 1603. 3. *De Monachis: ſeu, de Origine & Progreſſu Monachatus, ac Ordinum Monaſticorum, Equitum Militarium tam Sacrorum quam Secularium omnium*, 1588, folio, of which a ſecond edition, with a confutation of Bellarmin's book *De Monachis*, was publiſhed in 1609. 4. *De Feſtis Judæorum & Ethnicorum: hoc eſt, de Origine, Progreſſu, Ceremoniis, & Ritibus Feſtorum Dierum Judæorum, Græcorum, Romanorum, Turkarum, & Indianorum*, 1592, folio, of which a ſecond edition, with ſeveral corrections and additions, was printed in 1611. 5. *De Origine, Progreſſu, Ceremoniis, & Ritibus Feſtorum Dierum Chriſtianorum*, 1593, which was republiſhed in 1612, with conſiderable ſupplements, uſeful for the refutation of Bellarmin on the ſubject of the idolatry of the church of Rome. 6. *Hiſtoria Sacramentaria: hoc eſt, Libri quinque de Cœnæ Dominicæ prima Inſtitutione, ejuſque vero Uſu & Abuſu in primitiva Eccleſia; necnon de Origine, Progreſſu, Ceremoniis, & Ritibus, Miſſæ, Tranſubſtantiationis, &c.* 1598, folio; and a ſecond part of the ſame work, entitled, *De Origine & Progreſſu Controverſiæ Sacramentariæ de Cœna Domini inter Lutheranos & Orthodoxos quos Zuinglianos & Calviniſtas vocant exortæ, ab Anno Chriſti Salvatoris* 1517 *uſque ad Annum* 1602 *deducta*, 1602, folio. The preceding are all parts of his great work. The laſt of his compoſitions was written againſt the Jeſuits, and entitled, *Hiſtoria Jeſuitica; hoc eſt, de Origine, Regulis, Conſtitutionibus, Privilegiis, Incrementis, Progreſſu, & Propagatione, Ordinis Jeſuitarum, &c.* 1619, folio. An improved edition of all his works was printed at Geneva; in 1681, in ſeven volumes, folio.

HOS'PITA, *ſ.* in botany. See KLEINHOVIA.

HOS'PITABLE, *adj.* [*hoſpitabilis*, Lat.] Giving entertainment to ſtrangers; kind to ſtrangers:

Receive the ſhipwreck'd on your friendly ſhore;
With *hoſpitable* rites relieve the poor. *Dryden.*

HOS'PITABLY, *adv.* With kindneſs to ſtrangers:

Ye thus *hoſpitably* live,
And ſtrangers with good cheer receive. *Prior.*

HOS'PITAL, *ſ.* [*hoſpital*, Fr. *hoſpitalis*, Lat.] A place built for the reception of the ſick; or ſupport of the poor.—I am about to build an *hoſpital*, which I will endow handſomely for twelve old huſbandmen. *Addiſon.*—A place for ſhelter or entertainment. *Obſolete.*

They ſpy'd a goodly caſtle, plac'd
Foreby a river in a pleaſant dale,
Which chuſing for that evening's *hoſpital*,
They thither march'd. *Fairy Queen.*

In the early ages of the church, the biſhop had the immediate charge of all the poor, both ſound and diſeaſed, as alſo of widows, orphans, ſtrangers, &c. When the churches came to have fixed revenues allotted them, it was decreed, that at leaſt one-fourth part thereof ſhould go to the relief of the poor; and, to provide for them the more commodiouſly, divers houſes of charity were built, which are ſince denominated *hoſpitals*. They were governed wholly by the prieſts and deacons, under the inſpection of the biſhop. In courſe of time, ſeparate revenues were aſſigned for the hoſpitals; and particular perſons, out of motives of piety and charity, gave lands and money for erecting hoſpitals. When the church diſcipline began to relax, the prieſts, who till then had been the adminiſtrators of hoſpitals, converted them into a ſort of benefices, which they held at pleaſure, without giving account thereof to any body; reſerving the greateſt part of the income to their own uſe; ſo that the intentions of the founders were fruſtrated. To remove this abuſe, the council of Vienna expreſsly prohibited the giving any hoſpital to ſecular prieſts in the way of a benefice; and directed the adminiſtration thereof to be given to ſufficient and reſponſible laymen, who ſhould take an oath, like that of tutors, for the faithful diſcharge thereof, and be accountable to the ordinaries. This decree was executed and confirmed by the council of Trent.

In England, hoſpitals are either *aggregate*, in which the maſter or warden and his brethren have the eſtate of inheritance; or *ſole*, in which the maſter only has the eſtate in him, and the brethren, or ſiſters, having college and common ſeal in them, muſt conſent; or the maſter alone has the eſtate, not having college or common ſeal. So hoſpitals are eligible, donative, or preſentative. 1 *Inſt.* 342. The maſter of the hoſpital, who has college and common ſeal, may have a writ of right; for the right, and inheritance, is in him. If he has no college or common ſeal, he may have a *juris utrum. Co. Lit.* 341.

Any perſon ſeiſed of an eſtate in fee-ſimple may by deed enrolled in chancery erect and found an hoſpital for the ſuſtenance and relief of the poor, *to continue for* EVER; and place ſuch heads therein as he ſhall think fit; and ſuch hoſpital ſhall be incorporated, and ſubject to ſuch viſitors as the founder ſhall nominate; alſo ſuch corporations have power to take and purchaſe lands not exceeding two hundred pounds per annum, ſo as the ſame be not holden of the king; and to make leaſes for twenty-one years, reſerving the accuſtomed yearly rent; but no hoſpital is to be erected unleſs upon the foundation it be endowed with lands or hereditaments of the clear yearly value of ten pounds per annum. Stat. 39 Eliz. c. 5; made perpetual by ſtat. 21 Jac. I.

It has been adjudged upon this ſtatute, that if lands given to an hoſpital be at the time of the foundation or endowment of the yearly value of two hundred pounds or under, and afterwards they become of greater value by good huſbandry, accidents, &c. they ſhall continue to be enjoyed by the hoſpital, although they be above the yearly value of two hundred pounds. And goods and chattels, real or perſonal, may be taken of what value ſoever. 2 *Inſt.* 722. And if one give his land, then worth ten pounds a-year, to maintain poor, &c. and the land after comes to be worth a hundred pounds a-year, it muſt all of it be employed to increaſe their maintenance, and none of it may be converted to private uſe. 8 *Rep.* 130. But the founder cannot erect an hoſpital for years, lives, or any other limited time, but it muſt be *for ever*, according to the ſtat. 39 Eliz. c. 5.

The ſtat. 43 Eliz. c. 4. under which commiſſions may be awarded to certain perſons to enquire of lands or goods given to hoſpitals, and the lord chancellor is empowered to iſſue commiſſions to commiſſioners for enquiring by a jury, of all grants, abuſes, breaches of truſt, &c. of lands given to charitable uſes, does not extend to lands given to any college or hall in the univerſities, &c. nor to any hoſpital over which ſpecial governors are appointed by the founders; and it ſhall not be prejudicial to the juriſdiction of the biſhop or ordinary, as to his power of inquiry into and reforming abuſes of hoſpitals, by virtue of the ſtat. 2 Hen. V. c. 1. Theſe commiſſioners may order houſes to be repaired, by thoſe who receive the rents; ſee that the lands be let at the utmoſt rent; and on any tenant's committing waſte, by cutting down timber, they may decree ſatisfaction, and that the leaſe ſhall be void. *Hil.* 11 *Car.* Where money is kept back, and not paid, or paid where it ſhould not, they have power to order the payment of it to the right uſe; and, if money is detained in the hands of executors, &c. they may decree the money to be paid, with damages for detaining it. 4 *Rep.* 104.

The hoſpital of St. Croſs, near Wincheſter, and ſeveral other large hoſpitals, were anciently founded by particular ſtatutes, or acts of parliament. And Charles I. granted to the mayor and commonalty of London the keeping of Bethlem hoſpital, and the manors and lands belonging to it. Alſo the hoſpital in London for foundling children, is placed under the care of governors and guardians, who may purchaſe lands or tenements to the value of four thouſand pounds a-year; and they are to receive as many ſuch children as they think fit, which may be brought to the hoſpital, and ſhall there be bred up and employed, or placed apprentice to any trade, or the ſea-ſervice, the males till the age of twenty-four, and the females till twenty-one. See ſtats. 13 Geo. II. c. 32. 29 Geo. II. c. 29. 13 Geo. III. c. 82.

HOS'PITAL (Michael de l'), an illuſtrious chancellor of France, born in 1505, at Agueperſe, in Auvergne. He ſtudied the law in the moſt celebrated univerſities of France and Italy, and at the ſame time diſtinguiſhed himſelf by his proficiency in polite literature. He was made one of the auditors of the rota at Rome, which he quitted to follow the law-courts in Paris. He paſſed through the offices of counſellor of parliament, ambaſſador from the king to the council of Trent when transferred to Bologna, preſident in the chamber of accounts, maſter of requeſts, counſellor in the great council, and chancellor to Margaret ducheſs of Savoy, ſiſter of Henry II. continually riſing in the public eſteem for his abilities and integrity. He was the principal author of the edict of January 1562, which allowed freedom of worſhip to the Proteſtants. His harangues on this occaſion rendered him much ſuſpected by the Catholics, and odious to the court of Rome, and all his firmneſs and dexterity were neceſſary to ſupport the meaſure. At length, when the court had come to a reſolution of exterminating the reformed religion by violence, l'Hoſpital found himſelf looked upon with ſo much ſuſpicion, that he anticipated his diſmiſſion by a voluntary retreat. In 1568, having retired to his country-ſeat near Eſtampes, he received an order to reſign the ſeals, with which he readily complied. The pleaſures of the country, the converſation of a few ſelect friends, and the compoſition of Latin poetry, cauſed his time to paſs agreeably, and he acknowledged that he had never been ſo happy as now that he was freed from cares of ſtate. Here he died in 1573, at the age of ſixty-eight. The reform in legiſlation introduced by the chancellor l'Hoſpital was a laſting benefit to his country, for which his memory is held in the higheſt honour by the preſident Henault, and other enlightened patriots. It was compriſed in various ordonnances, particularly that of Moulins in 1566, and embraced a great variety of objects. Among the reſt, was the alteration of beginning the civil year with January 1ſt, inſtead of the former epoch of Eaſter. His writings are: 1. Latin Poems, ſeveral times printed, the laſt edition being of Amſterdam, 8vo. 1732. 2. Harangues before the States of Orleans. 3. Memoirs; containing Treaties of Peace, Appanages, Marriages, Recognitions, and other public Papers. 4. A Diſcourſe in Favour of Peace, printed in a collection of hiſtorical pieces, 1623. 5. His Teſtament. His eulogy was made a prize-ſubject by the French Academy in 1777; and his ſtatue in marble was erected by Louis XVI.

HOS'PITAL (William-Francis-Anthony de l', marquis de Ste. Même), a celebrated French mathematician, born in 1661. His genius for mathematical purſuits diſcovered itſelf at a very early period; for being preſent at the duke de Rohan's, when M. Arnauld and ſome other able geometricians were ſpeaking of a problem of M. Paſcal's, which appeared to them very difficult, he ventured to ſay that he believed he could ſolve it. They were ſurpriſed at ſuch preſumption in a boy of fifteen, for he was then no more; however, in a few days afterwards, he ſent them the ſolution. When he was thirty-two years of age, he diſtinguiſhed himſelf by the ſolution of problems, drawn from the deepeſt geometry, which had been propoſed to the mathematical world by John Bernouilli, and in the Acts of Leipſic. In the year 1693, he was received an honorary member of the Academy of Sciences at Paris; and from that time, for ſeveral years, both the journals of France, and thoſe of foreign countries, were enriched by his ſolutions of difficult problems. He was the firſt perſon who wrote in France on the ſubject of Newton's Analyſis, and on this account was regarded almoſt as a prodigy. His work was entitled, *L'Analyſe des Infinimens Petits*, 1696. The ſucceſs which this work met with, engaged him to exerciſe his genius on the production of another mathematical performance, in which he included *Les Sections Coniques, les Lieux Geometriques, la Conſtruction des Equations, et une Théorie des Courbes Mechaniques.* A little before this work was ready for the preſs, the author was attacked by a fever, which carried him off, in 1704, when only forty-three years of age. In 1707, his laſt-mentioned work was publiſhed in 4to.

HOS'PITAGE, *ſ.* [from *hóſpitium*, Lat.] The duty of a gueſt to his hoſt:

That his ungentle hoſt n'ote him appeach
Of vile ungentleneſs or *hoſpitage's* breach. *Spenſer.*

HOSPITAL'ITY, *ſ.* [*hoſpitalité*, Fr.] The benevolent practice of entertaining ſtrangers.—The Lacedemonians, forbidding all acceſs of ſtrangers into their coaſts, are, in that reſpect, deſervedly blamed, as being enemies to that *hoſpitality* which, for common humanity's ſake, all the nations on the earth ſhould embrace. *Hooker.*

HOS'PITALLER, *ſ.* [*hoſpitallier*, Fr. *hoſpitalarius*, low Lat. from *hoſpital.*] One reſiding in an hoſpital, in order to receive the poor or ſtranger. Uſed perhaps peculiarly of the knights of Malta. See the article KNIGHT.

*To* HOS'PITATE, *v. a.* [*hoſpitor*, Lat.] To reſide under the roof of another.—That always chuſes an empty ſhell, and this *hoſpitates* with the living animal in the ſame ſhell. *Grew.*

HOS'PITICIDE, *ſ.* [from *hoſpes*, Lat. a gueſt; and *cædo*, to kill.] One that kills his gueſt, one that kills his hoſt. *Scott.*

HOSPIT'IUM, *ſ.* A term uſed in old writers either for an inn or a monaſtery, built for the reception of ſtrangers and travellers.

HOSPITULA'RIA, *ſ.* in old records, a room or place, in religious houſes where ſtrangers are entertained.

HOSPITULA'RIUS, *ſ.* in old records, the perſon who had the care of the hoſpitularia.

HOS'PODAR, a title borne by the princes of Walachia and Moldavia, who receive the inveſtiture of their principalities from the grand ſignior.

HOST, *ſ.* [*hoſte*, Fr. *hoſpes*, *hoſpitis*, Lat.] One who gives entertainment to another.—Homer never entertained either gueſts or *hoſts* with long ſpeeches, till the mouth of hunger be ſtopped. *Sidney.*—The landlord of an inn:

Time's like a faſhionable *hoſt*,
That ſlightly ſhakes his parting gueſt by th' hand;
But with his arms out-ſtretch'd, as he would fly,
Graſps in the comer. *Shakeſpeare.*

[From *hoſtis*, Lat.] An army; numbers aſſembled for war:

Let every ſoldier hew him down a bough,
And bear't before him, thereby ſhall we ſhadow
The numbers of our *hoſt*. *Shakeſpeare.*

Any great number:

Give to a gracious meſſage
A *hoſt* of tongues: but let ill tidings tell
Themſelves, when they be felt. *Shakeſpeare.*

[*Hoſtia*, Lat. *hoſtie*, Fr.] The ſacrifice of the maſs in the Romiſh church; the conſecrated wafer.—When I was in catholic countries, I never declined kneeling in their churches at the elevation, nor elſewhere when the *hoſt* went by. *Cheſterfield.*

*To* HOST, *v. n.* To take up entertainment; to live, as at an inn:

Go, bear it to the Centaur, where we *hoſt*;
And ſtay there, Dromio, till I come to thee. *Shakeſpeare.*

To encounter in battle. To review a body of men; to muſter. *Obſolete.*

*To* HOST, *v. a.* To give entertainment to.—Such was that hag, unmeet to *hoſt* ſuch gueſts. *Spenſer.*

HOS'TAGE, *ſ.* [from *oſtage*, Fr.] One given in pledge for ſecurity of performance of conditions:

Your *hoſtages* I have, ſo have you mine;
And we ſhall talk before we fight. *Shakeſpeare.*

HOSTA'NA, a town of Iſtria: ſix miles north of Rovigno.

HOSTE, or L'HOSTE (John), a French mathematician and engineer, born at Nancy in Lorrain, but in what year is uncertain. For ſome time he was profeſſor of civil and canon law in the univerſity of Pont-à-Mouſſon; and afterwards occupied the mathematical chair, for which he appears to have been beſt adapted. By the talents which he diſplayed, he recommended himſelf to the favour of Henry duke of Lorrain, who removed him from his profeſſorſhip to Nancy, where he appointed him to the poſts of intendant of fortifications, principal engineer, and counſellor of war. L'Hoſte fortified Nancy, and publiſhed numerous valuable mathematical treatiſes. He died in the year 1631. The following are the titles of ſome of his principal works: 1. *Le Sommaire & l'Uſage de la Sphere Artificielle*, 4to. 2. *La Pratique de Géométrie*, 4to. 3. *Decription & Uſage des principaux Inſtrumens de Géométrie.* 4. *Du Cadran & Quarré.* 5. *Rayon Aſtronomique.* 6. *Baton de Jacob.* 7. *Interpretation du grand Art de Raymond Lulle, &c.*

HOSTE, or L'HOSTE (Paul), a French Jeſuit, and profeſſor-royal of mathematics at Toulon, born at Pont-de-Veſl, in 1652. He entered into the order in the year 1669, and afterwards took ſeveral voyages with marſhals d'Eſtrées and de Tourville, and the duke de Mortemart, whom he accompanied, for twelve years, in their naval expeditions. The marſhal de Tourville entertained a great regard for him, and it was in conſequence of his converſations with that commander, that he compoſed his Treatiſe on the Conſtruction of Ships. He died at Toulon in 1700, in the forty-ninth year of his age. He is principally known by his Treatiſe on Naval Evolutions, 1697, folio, which was reprinted in 1727, with corrections and enlargements. Annexed to it is the treatiſe already mentioned, On the Conſtruction of Ships. He alſo publiſhed, A Collection of ſuch Mathematical Treatiſes as are moſt requiſite for an Officer, 1692, in 3 vols. 12mo.

HOS'TEA, *ſ.* in botany, a genus of the claſs pentandria, order digynia. The generic eſſential characters are—Corolla twiſted, wheel-ſhaped; nectary ſtellate, covering the parts of fructification; folicles five-angled.

Hoſtea viridiflora, a ſingle ſpecies: leaves oppoſite, oblong, acute both ſides, very entire; racemes ſimple, ſmall, few-flowered, axillary. Native of Guiana.

HOS'TEL, or HOSTELRY, *ſ.* [*hoſtel*, *hoſtelerie*, Fr.] An inn.

HOSTELA'GIUM, *ſ.* in old records, the right which the lord of a manor claimed to lodge in the houſe of his tenant.

HOS'TELER, *ſ.* An innkeeper. *Scott.*

HOS'TER, *ſ.* One that takes in lodgers. *Scott.*

HOS'TERY. See HOSTRY.

HOS'TESS, *ſ.* [*hoſteſſe*, Fr. from *hoſt.*] A female hoſt; a woman that gives entertainment:

Fair and noble *hoſteſs*,
We are your gueſt to-night. *Shakeſpeare.*

A woman that keeps a houſe of public entertainment.—Undiſtinguiſhed civility is like a whore or a *hoſteſs*. *Temple.*

HOS'TESS-SHIP, *ſ.* The character of a hoſteſs:

It is my father's will I ſhould take on me
The *hoſteſs-ſhip* o' th' day; you're welcome, ſirs. *Shakeſp.*

HOS'TIA, *ſ.* in Roman antiquity, a ſacrifice to the gods for victory over an enemy.

HOS'TICIDE, *ſ.* [from *hoſtis*, Lat. an enemy, and *cædo*, to kill.] One who kills an enemy.

HOSTILA'RIA, *ſ.* in old records, the place in a religious houſe where ſtrangers were to be entertained. *Scott.*

HOSTILA'RIUS, *ſ.* The perſon who had the care of the hoſtilaria. *Phillips.*

HOS'TILE, *adj.* [*hoſtilis*, Lat.] Adverſe; oppoſite; ſuitable to an enemy:

Fierce Juno's hate,
Added to *hoſtile* force, ſhall urge thy fate. *Dryden.*

HOSTIL'IA, in ancient geography, a large town on the Po. *Tacitus.*

HOSTILI'NA, in heathen mythology, the goddeſs who was ſuppoſed to preſide over the corn while ſhooting into the ear.

HOSTIL'ITY, *ſ.* [*hoſtilité*, Fr. from *hoſtile.*] The practices of an open enemy; open war; oppoſition in war.—We have ſhow'd ourſelves fair, nay generous, adverſaries; and have carried on even our *hoſtilities* with humanity. *Atterbury.*

HOS'TING, *ſ.* An encounter in battle:

Strange to us it ſeem'd
At firſt, that angel ſhould with angel war,
And in fierce *hoſtings* meet. *Milton.*

A review; a muſter.—Lords have had the leading of their own followers to the general *hoſtings. Spenſer.*

HOST'LER, *ſ.* One who has the care of horſes at an inn.

HOST'LESS, *adj.* Inhoſpitable:

Who with ſir Satyrane, as earſt ye red,
Forth ryding from Malbeccoes *hoſtleſs* hous,
Far off aſpyde a young man, the which fled
From an huge geaunt. *Spenſer.*

HOS'TORP, a town of Sweden, in the province of Skone: ten miles north-weſt of Lund.

HOS'TRY, *ſ.* [corrupted from *hoſtelry.*] A place where the horſes of gueſts are kept:

Swift rivers are with ſudden ice conſtrain'd,
And ſtudded wheels are on its back ſuſtain'd;
An *hoſtry* now for waggons, which before
Tall ſhips of burden on its boſom bore. *Dryden.*

This interpretation (ſays Maſon in his Supplement to Johnſon) ſeems to be merely conjectural, from a ſimilitude of ſound and letters. Spenſer uſes the word for a mean lodging:

Only theſe mariſhes and myrie bogs,
In which the fearfull ewftes do build their bowres,
Yield me an *hoſtry* mongſt the croking frogs. *Fairy Queen.*

HOS'TUN, a town of France, in the department of the Drôme, and chief place of a canton, in the diſtrict of Romans: two leagues eaſt of Romans.

HOT, *adj.* [hat, Sax. *hat*, Scot.] Having the power to excite the ſenſe of heat; contrary to cold; fiery.—Black ſubſtances do ſooneſt of all others become *hot* in the ſun's light, and burn; which effect may proceed partly from the multitude of refractions in a little room, and partly from eaſy commotion of ſo very ſmall corpuſcles. *Newton.*

*Hot* and cold were in one body fixt;
And ſoft with hard, and light with heavy, mixt. *Dryden.*

Luſtful; lewd:

Now the *hot*-blooded gods aſſiſt me!
Remember, Jove, thou waſt a bull for my Europa. *Shakeſp.*

Violent; furious; dangerous.—That of Carthagena, where the Spaniards had warning of our coming, was one of the *hotteſt* ſervices that hath been known. *Bacon.*

Our army
Is now in *hot* engagement with the Moors. *Dryden.*

Ardent; vehement; precipitate.—Achilles is impatient, *hot*, revengeful; Æneas, patient, conſiderate, and careful of his people. *Dryden.*

Nature to youth *hot* raſhneſs doth diſpenſe,
But with cold prudence age doth recompenſe. *Denham.*

Eager; keen in deſire.—It is no wonder that men, either perplexed in the neceſſary affairs of life, or *hot* in the purſuit of pleaſure, ſhould not ſeriouſly examine their tenets. *Locke.*

She has, quoth Ralph, a jointure,
Which makes him have ſo *hot* a mind t' her. *Hudibras.*

It is applied likewiſe to the deſire, or ſenſe raiſing the deſire, or action excited; as, a *hot* purſuit:

Nor law, nor checks of conſcience, will we hear,
When in *hot* ſcent of gain and full career. *Dryden.*

Piquant; acrid: as, *hot* as muſtard.

HOT, HOTE, *pret.* of the verb HIGHT, both active and paſſive. Named:

A ſhepherd true, yet not ſo true,
As he that earſt I *hote.* *Spenſer.*

Was called.—It rightly *hot* the well of life. *Spenſer.*

HOT'-BED, *ſ.* A bed of earth made hot by the fermentation of dung. See the article HORTICULTURE, in this volume.

HOT'-BRAINED, *adj.* Violent; vehement; furious:

You ſhall find 'em either *hot-brain'd* youth,
Or needy bankrupts. *Dryden.*

HOT'-COCKLES, *ſ.* [*hautes coquilles*, Fr.] A play in which one covers his eyes, and gueſſes who ſtrikes him:

As at *hot-cockles* once I laid me down,
And felt the weighty hand of many a clown,
Buxoma gave a gentle tap, and I
Quick roſe, and read ſoft miſchief in her eye. *Gay.*

HOT'-HEADED, *adj.* Vehement; violent; paſſionate.—One would not make the ſame perſon zealous for a ſtanding army and public liberty; nor a *hot-headed* coxcomb forward for a ſcheme of moderation. *Arbuthnot.*

HOT'-HOUSE, *ſ.* A conſervatory for exotic plants, and for the purpoſe of forcing early fruits. See HORTICULTURE.

HOT'-MOUTHED, *adj.* Headſtrong; ungovernable:

I fear my people's faith,
That *hot-mouth'd* beaſt that bears againſt the curb,
Hard to be broken. *Dryden.*

HOT'-PRESSING, *ſ.* The art of paſſing the printed ſheets of a book between two hot metallic plates, whereby they acquire a ſmooth ſurface, and gloſſy appearance, highly conducive to the elegance of modern typography.

HO-TCHI', a town of China, of the ſecond rank, in the province of Quang-ſi: 1040 miles ſouth-weſt of Peking. Lat. 24. 61. N. lon. 125. 10. E. Ferro.

HOTCH'POT, or HOTCH'POTCH, *ſ.* [*haché en poche*, Fr. or *haché en pot*, Fr. as Camden has it, as being boiled up in a pot; yet the former corruption is now generally followed.] A word uſed for a confuſed mingling of divers things together, and among the Dutch it ſignifies fleſh cut into pieces, and ſodden with herbs or roots; but by a metaphor in law, it is a blending or mixing of lands given in marriage, with other lands in fee falling by deſcent; as if a man ſeiſed of thirty acres of land in fee, hath iſſue only two daughters, and he gives with one of them ten acres in marriage to the man that marries her; and dies ſeiſed of the other twenty acres; now ſhe that is thus married, to gain her ſhare of the reſt of the land, muſt put her part given in marriage, into hotchpot, i. e. ſhe muſt refuſe to take the ſole profits thereof, and cauſe her land to be mingled with the other; ſo that an equal diviſion may be made of the whole between her and her ſiſter, as if none had been given to her; and thus for her ten acres ſhe ſhall have fifteen, otherwiſe her ſiſter will have the twenty acres of which her father died ſeiſed. *Co. Lit.* 3. *c.* 12. This ſeems to be a right of waiving a proviſion, made for a child in a man's life-time, at his death; though, as it depends upon frank-marriage, and gifts of lands therein, it now ſeldom happens.

But there is a bringing of money into hotchpot, upon the clauſes and within the intent of the ſtatute for diſtribution of inteſtates' eſtates, ſtat. 22 & 23 Car. II. c. 10. Where a certain ſum is to be raiſed, and paid to a daughter for her portion, by a marriage-ſettlement, this has been decreed to be an advancement by the father in his life time, within the meaning of the ſtatute, though future and contingent; and, if the daughter would have any further ſhare of her father's perſonal eſtate, ſhe muſt bring this money into hotchpot; and ſhall not have both the one and the other. See 2. *Vern.* 638.

By the cuſtom of London, there is likewiſe a term of hotchpot, where the children of a freeman are to have an equal ſhare of one third part of his perſonal eſtate, after his death. *Preced. Canc.* 3. There is alſo in the civil law *collatio bonorum* anſwerable to this, whereby, if a child advanced by the father do after his father's deceaſe challenge a child's part with the reſt, he muſt caſt in all that he had formerly received, and then take out an equal ſhare with the others. 2 *Comm.* 190, 517.

HOTEL', [French.] A noble dwelling; commonly uſed for the palaces of kings or princes; ſuch as the hotel de Condé, hotel de Conti, hotel du Louvre, &c. In England it is uſed for a large inn, or a commodious lodging-houſe ready furniſhed.

HO'THAM, [Hebrew.] A man's name.

HO'THAN, [Hebrew.] A man's name.

HO'THIR, [Hebrew.] A man's name.

HOTH'NY, a river of Wales, which riſes in Brecknockſhire, and runs into the Monnow in Monmouthſhire.

HOT'LY, *adv.* With heat; not coldly. Violently; vehemently.—The ſtag was in the end ſo *hotly* purſued, that he was driven to make courage of deſpair. *Sidney.*

I do conteſt
As *hotly* and as nobly with thy love,
As ever in ambitious ſtrength I did
Contend againſt thy valour. *Shakeſpeare.*

The enemy, now at hand, began *hotly* to ſkirmiſh in divers places with the Chriſtians. *Knolles.*—Though this controverſy be revived, and *hotly* agitated, I doubt whether it be not a nominal diſpute. *Boyle.*—Luſtfully:

Voracious birds, that *hotly* bill and breed,
And largely drink, becauſe on ſalt they feed. *Dryden.*

HOT'MAN, or HOTOMA'NUS (Francis), a learned juriſt, born at Paris in 1624. At the age of fifteen, he was ſent to ſtudy the law at Orleans, where his progreſs was ſo rapid, that within three years he received his doctor's degree. He very early made himſelf known by a little work, *De Gradibus Cognationis*, and in 1547 he went to Lyons and printed another tract relative to civil law, which was much admired for the elegance of its ſtyle, and the knowledge it diſplayed in Roman antiquity. He then accepted the profeſſorſhip of belles-lettres at Lauſanne. While occupying the chair of juriſprudence at Straſburgh, he had invitations from ſeveral ſovereigns to ſettle in their dominions. Theſe he refuſed, in order that he might ſupport the proteſtant councils at Orleans. The ſupervening troubles cauſed him to retire for a time to Sancerre, where he compoſed an excellent work, *De Conſolatione*. He afterwards went to Geneva, where, in 1573, the chair of law was conferred upon him, which he retained till 1578. He then left Geneva, and taught law at Baſil, where he terminated his life in 1590. His works were publiſhed collectively by James Lect, in 3 vols. folio, Geneva, 1599.

HOT'NESS, *ſ.* Heat; violence; fury.

HO'TON, or COTON, a province of the Manchoo Tartars, ſubject to China, ſituated on the ſouth-eaſt border of the deſert of Gobi, or Shamo, ſuppoſed to have belonged to the ancient *Chatæ*. It is very populous; the inhabitants are commercial, cultivate cotton, flax, hemp, and wheat, and make conſiderable quantities of wine.

HOTOWAC'ZYN, a town of Lithuania, in the palatinate of Troki: ſixteen miles eaſt of Grodno.

HOTS, *ſ.* with cockfighters, the ſoft bits of leather faſtened to the ſpurs of fighting-cocks to prevent them from hurting one another in ſparring.

HO-TSIN', a town of China, of the third rank, in the province of Chan-ſi: twenty five miles weſt of Kiang.

HOT'SPRINGS. See the article SPRING.

HOT'SPUR, *ſ.* A man violent; paſſionate; precipitate; and heady.—Wars are begun by hair-brained diſſolute captains, paraſitical ſwarmers, unquiet *hotſpurs*, and reſtleſs innovators. *Burton.*—A kind of pea of ſpeedy growth.—Of ſuch peas as are planted or ſown in the gardens, the *hotſpur* is the ſpeedieſt of any in growth. *Mortimer.*

HOT'SPURRED, *adj.* Vehement; raſh; heady.—To draw Mars like a young Hippolytus, with an effeminate countenance, or Venus like that *hotſpurred* Harpalice in Virgil, this proceedeth from a ſenſeleſs judgment. *Peachum.*

HOT'TE, a mountain in the weſtern part of the ſouthern peninſula of the iſland of Hiſpaniola.

HOT'TENPLOZ, a town of Moravia, in the circle of Perau, inſulated in Sileſia: twelve miles north-north-eaſt of Jagendorf.

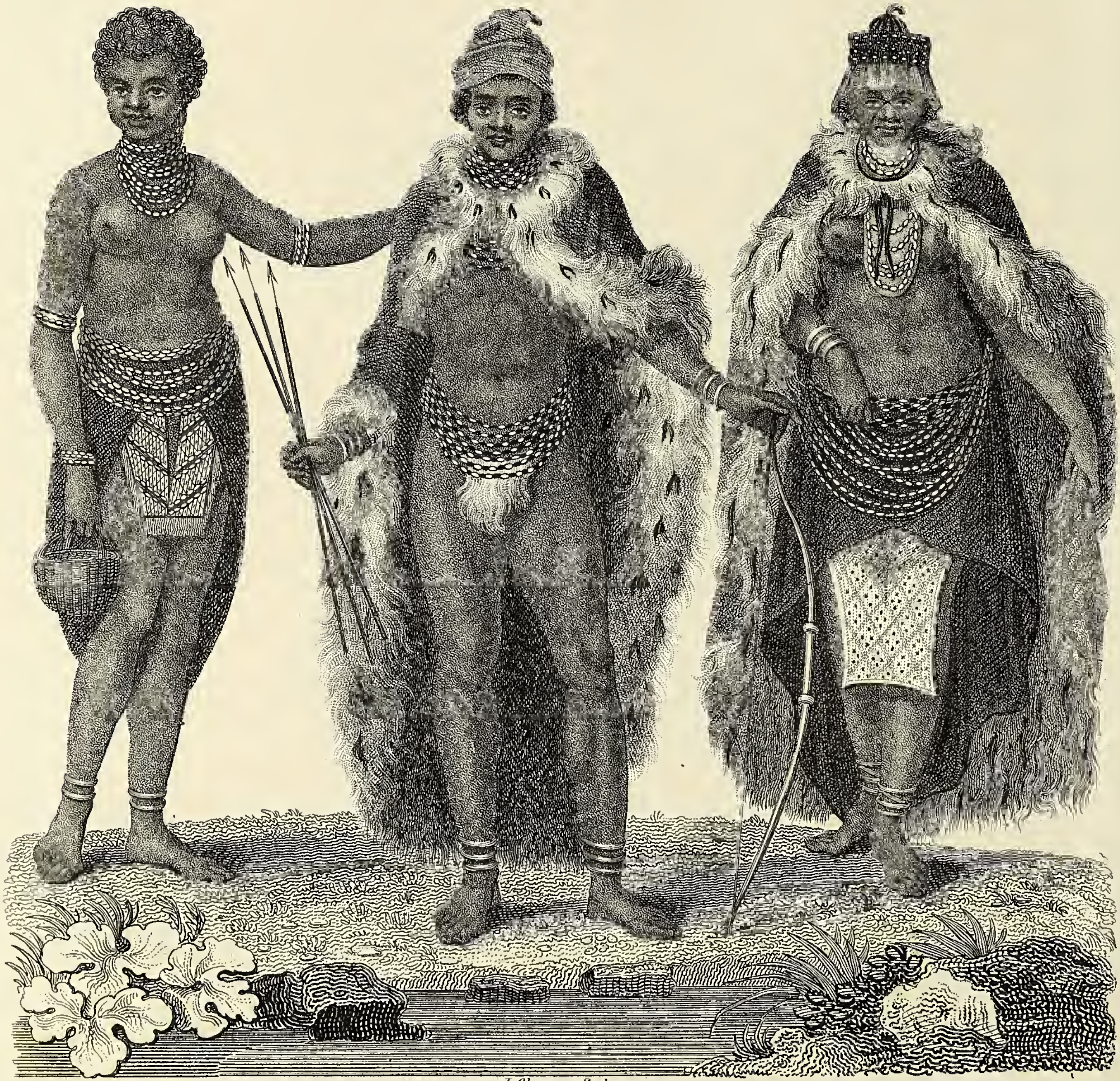
HOT'TENTOT, *ſ.* An inhabitant or native of HOTTENTOTTIA, which ſee.

HOTTENTOT CHER'RY. See CASSINE maurocenia and CELSTRUS lucidus.

HOTTENTOT'TIA, a very extenſive country in the ſouth of Africa, commencing at the Cape of Good Hope, which it includes, and extending interiorly to the land of Caffraria, and to very remote regions not yet known. For particulars of the firſt diſcovery and ſettlement of the Cape by the Dutch, the mode by which they ſeduced the inhabitants to give up the diſtrict every way round, and their ungenerous and cruel oppreſſion of the harmleſs Hottentots after they had become maſters of their land, ſee the article GOOD HOPE, vol. viii. p. 243–246.

Though the natives of this widely-extended country all go by the generic name of HOTTENTOTS, yet they conſiſt of many diſtinct tribes, governed by different honquers, or chiefs, who have no fixed reſidence, living like the Bedouin Arabs, in huts or portable houſes, and removing their kralls, or villages, whenever the paſture becomes too bare for the ſubſiſtence of their cattle, and upon the natural or violent death of an inhabitant. The known tribes are the Kochaquan, Suſſaquan, Odiquah, Chirigquan, Greater and Leſſer Namaquan, Attaquan, Heſſaquan, Sonquan, Dunquan, Damaquan, Gauros or Gouriquan, Houteniquan, Chamtover, and Heikom.

Among the different tribes of Hottentots, the women wear two or three coverings called a kroſs, faſtened about their bodies like an apron; the outermoſt, which is the largeſt, meaſuring from ſeven inches to twelve. This is frequently adorned with glaſs beads in different forms. The garment uſually worn for covering the body, is the ſkin of a wild beaſt, tied forwards over the breaſt. If the weather is not cold, they let it hang looſe over their ſhoulders, in a careleſs manner, when it reaches down to the calves of their legs, leaving the lower part of their breaſt, ſtomach, and fore part of the legs and thighs, bare; but in rainy and cold weather they wrap it round them; ſo that the fore part of the body likewiſe, is in ſome meaſure covered with it, as far as below the knees. That which is uſed by the women for the ſame purpoſe, does not differ from thoſe uſed by the men. The women frequently go bareheaded; when they cover their heads, it is with a cap in the form of a ſhort truncated cone, without any ſeam, made of ſome animal's ſtomach. Over this cap they ſometimes wear another ornament, conſiſting of an oval wreath, made of buffalo's hide, with the brown hair outwards. Both the rims of this wreath, as well the lower one on which it reſts, as the upper one, are always ſmooth and even; each of them ſet with a row of ſmall ſhells, to the number of more than thirty, in ſuch a manner, that, being placed quite cloſe to each other, their beautiful white enamel, together with their mouths, is turned outwards. Neither the ears nor noſes of the Hottentots are adorned with any pendants or other ornaments. The necks of the men are bare, but thoſe of the women are often decorated with a ſtrip of undreſſed leather, upon which are ſtrung eight or ten ſhells. Another ornament in uſe with both ſexes, is rings on their arms and legs. Moſt of theſe rings are made of thick leather ſtraps, generally cut in a circular ſhape, which, by being beat and held over the fire, are rendered tough enough to retain the curvature that is given them. It is theſe rings that, according to Sparrman, gave riſe to the unfounded and abſurd notion that the Hottentots wrap guts about their legs, in order to eat them occaſionally. The men wear from one to five or ſix of theſe rings on their arms, juſt above their wriſt, and alſo on their legs. Theſe rings are of various thickneſs, viz. ſometimes of that of a gooſe-quill, and ſometimes two or three times that ſize. Now and then they are made of pieces of leather, forming one entire ring, ſo that the arms and feet muſt be put through them, when the wearer wiſhes to put them on. Rings of iron and copper, but eſpecially of braſs, of the ſize of a gooſe-quill, are conſidered as genteeler, and more valuable, than thoſe made of leather. They ſeldom wear any ſhoes.



J. Chapman, Sculp.

*Hottentots_ Drawn from the Life by M Vaillant.*

London Published March 8, 1810, by J Wilkes.

The habitations of the Hottentots are as ſimple as their dreſs, and equally adapted to the wandering paſtoral life they lead. In fact, they ſcarcely merit any other name than that of huts; though they are ſufficient for the Hottentots' wants and deſires; who may therefore be conſidered as happy men, in being able in this point likewiſe ſo eaſily to ſatisfy them. Every hut is diſpoſed in the following manner: They are of a circular form, reſembling a round bee-hive or vault. The ground-plot is from eighteen to twenty-four feet in diameter. The higheſt of them are ſo low, that a middle-ſized man can ſcarcely ſtand upright. From the ſituation of the fire-place, which is in the centre, the Hottentots likewiſe have this advantage, that, when they ſit or lie in a circle round the fire, the whole company equally enjoy the benefit of its warmth. The door, which is low, is the only place that lets in the day-light; and at the ſame time the only outlet that is left for the ſmoke. The frame of this arched roof is compoſed of ſlender rods or ſprays of trees. Theſe rods, being previouſly bent into a proper form, are laid either whole or pieced, ſome parallel with each other, others croſſwiſe; they are then ſtrengthened by binding others round them, in a circular form, with withies. Large mats are then laid very neatly over this lattice-work, ſo as perfectly to cover the whole. The aperture which is left for the door is cloſed, whenever there is occaſion for it, with a ſkin fitted to it, or a piece of matting. Theſe mats are made of a piece of cane or reed. The reeds, being laid parallel to each other, are faſtened together with ſinews, or catguts, or elſe ſome kind of packthread, ſuch as they have had an opportunity of procuring from Europeans. The order or diſtribution of theſe huts in a kraal, or clan, is moſt frequently in the form of a circle, with the doors inwards; by this means a kind of yard or court is formed, where the cattle is kept at night. The milk, as ſoon as taken from the cow, is put to other milk which is curdled, and is kept in a leather ſack; of this the hairy ſide, being conſidered as the cleaneſt, is turned inwards; ſo that the milk is never drunk while it is ſweet.

Many falſehoods have been related of this people, which ſeem to have originated in the prejudices and miſrepreſentations of the planters, to which Kolben, as well as other travellers ſince his time, ſeem to have given too eaſy credit. Vaillant, who certainly had the beſt opportunities of being acquainted with them, from learning their language and living among them, ſpeaks of them with a degree of affection. Some authors have ſaid that the families of the ſavages ſleep all promiſcuouſly together in the ſame hut; and are neither acquainted with difference of age, nor that invincible horror which ſeparates beings connected by blood. The ſavages, indeed, confined to what is ſtrictly neceſſary, have never thought of preſerving, under an apparent decency, all the turpitude of unnatural inclinations; and ſeparate apartments for brother and ſiſter, mother and ſon, are not to be found among them. But to conclude, becauſe they have only one habitation, one bed, and one mat to repoſe on, after the labours of the day, that they live like the brutes, would be to calumniate innocence, and offer an inſult to nature. Vaillant ſays, he viſited many hordes of Hottentots, and never found any where but modeſty and reſerve amongſt the women, and among the men alſo. He thinks that the women of ſavage nations, once viſited by corrupted Europeans, and too well acquainted with their perverſe inclinations, proſtitute themſelves to all thoſe who chooſe to enjoy them, and gratify their taſte, from a dread of the barbarous cruelties which the whites are capable of committing. If there be a corner of the earth where a decency of conduct and manners is ſtill honoured, he thinks we muſt ſeek for its temple in the boſoms of the deſerts.

There is ſomething peculiar in the features of the Hottentot, which, in a certain degree, ſeparates him from the generality of mankind. His cheek-bones are exceedingly prominent, ſo that his face, being very broad in that part, and the jaw-bones, on the contrary, extremely narrow, his viſage continues ſtill decreaſing even to the point of the chin. This configuration gives him an air of lankneſs, which makes his head appear very much diſproportioned, and too ſmall for his full and plump body. His flat noſe, riſes ſcarcely half an inch at its higheſt elevation, and his noſtrils, which are exceſſively wide, often exceed in height the ridge of his noſe. His mouth is large, and furniſhed with ſmall teeth, well enamelled, and perfectly white: his eyes, very beautiful and open, incline a little towards the noſe, like thoſe of the Chineſe; and to the ſight and touch his hair has the reſemblance of wool; it is very ſhort, curls naturally, and in colour is as black as ebony. He has very little hair, yet he employs no ſmall care to pull out by the roots part of what he has; but the natural thinneſs of his eye-brows ſaves him from this trouble in that part. Though he has no beard but upon the upper lip, below the noſe, and at the extremity of the chin, he never fails to pluck it out as ſoon as it appears. This gives him an effeminate look, which, joined to the natural mildneſs of his character, deſtroys that commanding fierceneſs common to all men in a ſtate of nature, and which has acquired them the proud title of kings. With regard to proportion of body, a Hottentot is as perfect as if caſt in a mould. His gait is graceful and agile; and all his motions, which are eaſy, ſeem very different from thoſe of the American ſavages, who ſeem merely to have been ſketched out by the hand of nature. The women, with more delicacy of features, exhibit the ſame characteriſtic marks in their figure: they are equally well made. Their breaſts, particularly when young, being admirably placed, have a moſt beautiful form, and ſhow the age of puberty, or bloom of youth; their hands are ſmall, and their feet exceedingly well ſhaped, though they never wear ſandals. The ſound of their voice is ſoft; and their idiom, paſſing through the throat, is not deſtitute of harmony. When they ſpeak, they employ a great many geſtures, which give power and gracefulneſs to their arms. See the annexed Engraving.

The Hottentots, being naturally timid, are conſequently not at all an enterpriſing people. Their phlegmatic coolneſs, and their ſerious looks, give them an air of reſerve, which they never lay aſide, even at the moſt joyful moments; while, on the contrary, all other black or tawney nations give themſelves up to pleaſure with the livelieſt joy, and without any reſtraint. A profound indifference to the affairs of life, inclines them very much to inactivity and indolence; the keeping of their flocks, and the care of procuring a ſubſiſtence, are the only objects that occupy their thoughts. They never follow hunting as ſportſmen, but like people oppreſſed and tormented by hunger. In ſhort, forgetting the paſt, and being under no uneaſineſs for the future, they are ſtruck only with the preſent; and it is that alone engages their attention. They are, however, the beſt, the kindeſt, and the moſt hoſpitable, of people. Whoever travels among them may be aſſured of finding food and lodging; and, though they will receive preſents, yet they never aſk for any thing. If the traveller has a long journey to accompliſh, and if they learn, from the information he requires, that there are no hopes of his ſoon meeting with other hordes, that which he is going to quit ſupply him with proviſions, as far as their circumſtances will allow, and with every thing elſe neceſſary for his continuing his journey, and reaching the place of his deſtination.

Before the arrival of the Europeans at the Cape, the Hottentots were not acquainted with commerce, and, perhaps, they had no idea even of barter; but, on the appearance of tobacco, brandy, and toys, they were ſoon initiated into a part of the mercantile myſteries. Theſe objects, which at firſt were only agreeable novelties, by length of time have become wants. When theſe articles grow ſcarce among them, they are ſupplied by the Hottentots of the colonies; for it is proper to obſerve, that however eager they may be to get ſuch trifles into their poſſeſſion, they do not take the trouble to go one ſtep in ſearch of them themſelves, and they chooſe rather to do without them.

The Hottentots are repreſented as a miſerable and poor nation, ſuperſtitious, ferocious, and indolent, and exceſſively dirty; in a word, they are vilified in every poſſible manner. That they ſometimes beſmear themſelves with greaſe is a fact. But then it muſt be conſidered that all theſe ſavages, without exception, are excellent ſwimmers, and perhaps the beſt divers in the world; and the practice of bathing, which they uſe ſeveral times a-day, can leave little power to ointments, or even to duſt, to ſpoil and corrode the ſkin. The continual care and attention beſtowed by the Gonaquas in particular, on their dreſs, ſufficiently prove that they are fond of cleanlineſs; all, therefore, that can be ſaid is, that it is ill underſtood; and it might be neceſſary to enquire whether they are not obliged to greaſe themſelves in this manner, either on account of the temperature of the climate, or from a want of thoſe reſources which nature has not pointed out to them. Their clothes, indeed, are only the ſpoils taken from ſavage animals; but they do not neglect, as ſome have pretended, to clean and prepare them before they employ them for making dreſſes. A Hottentot is neither poor nor miſerable. He is not poor, becauſe, his deſires never exceeding his knowledge, which is very limited, he never feels the ſpur of neceſſity. The language, notwithſtanding its ſingularity, and the difficulty of pronouncing it, is, however, to be acquired by an European; according to M. Vaillant, it is more difficult to a Frenchman than to a Dutchman or German.

There is a ſpecies of Hottentots, who have got the name of *Boſhies-men*, from dwelling in woody or mountainious places. Theſe, particularly ſuch as live towards the north-eaſt, are ſworn enemies to the paſtoral life. They ſubſiſt by hunting and plunder, and never keep any animal alive for the ſpace of one night. By this means they have rendered themſelves odious to the Dutch planters, and are purſued and exterminated like wild beaſts; or taken alive, and made ſlaves of. The animals of this country are nearly ſimilar to thoſe of the other parts of Africa. Among the quadrupeds are the lion, elephant, hippopotamus, buffalo, the double-horned rhinoceros, panther, giraffe or camelopardalis, elk, antelope, ſpringbok, and gazel.

Since the Cape of Good Hope has been in poſſeſſion of the Engliſh, every mean has been exerted to meliorate and humanize theſe people; and a Hottentot regiment has been raiſed, which is ſpoken of in very flattering terms by the Britiſh officers. Able and intelligent perſons are alſo ſent out at the expence of the government to explore the country; ſo that we may in due time expect to be furniſhed with a rational and well-founded hiſtory of this people, and the whole of the country they exhibit. See the article Good Hope, referred to above.

HOT'TINGER (John-Henry), a Swiſs proteſtant divine, born at Zurich in 1620. He early diſcovered a ſtrong propenſity to learning, and a facility at acquiring languages; and by his rapid proficiency in the Latin and Greek, as well as Hebrew, tongues, attracted the notice of the truſtees of the ſchools, who determined to ſend him to purſue his ſtudies in foreign univerſities, at the expence of the public. In 1638 he went to Geneva, where he ſtudied under Frederic Spanheim, and then went to France. Afterwards he viſited Flanders and Holland, and ſettled as a ſtudent at the univerſity of Groningen, where he attended the theological lectures of the celebrated Francis Gomar, and profeſſor Alting, and ſtudied Arabic under Matthias Paſor. In about a year he removed to Leyden, to become tutor to the children of profeſſor Golius. Under his inſtructions, together with the aſſiſtance of a Turk, then at Leyden, Hottinger improved greatly in the knowledge of the Arabic; and he was permitted to copy, for his own uſe, many of the Arabic manuſcripts which Golius had in his collection. He made a viſit to England, where he contracted an intimacy with ſeveral of the moſt diſtinguiſhed literary characters. Upon his return to Zurich, in 1642, he was appointed profeſſor of eccleſiaſtical hiſtory; and in the following year was nominated to the profeſſorſhips of catechetical divinity and of the oriental languages. In 1653 he was appointed profeſſor in ordinary of rhetoric, and alſo profeſſor extraordinary of the divinity of the Old Teſtament, and of controverſial theology; and in the ſame year he was admitted into the college of canons.

Hottinger had now acquired ſo high a reputation for learning, and for the ſucceſs with which he preſided in the academic ſchools, that the elector palatine, who was deſirous of reſtoring the fame of the univerſity of Heidelberg, earneſtly requeſted his aid in that undertaking. The magiſtrates of Zurich having conſented to lend him to the elector for three years, in 1665 he went to Baſil, where he took his degree of doctor of divinity, and then proceeded to Heidelberg, at which place he met with the moſt gracious reception. Beſides the profeſſorſhip of divinity of the Old Teſtament, he was appointed principal of the Collegium Sapientiæ, and raiſed to the dignity of eccleſiaſtical counſellor. He was not recalled to Zurich before the year 1661, the magiſtrates having conſented, at the elector's earneſt requeſt, to prolong till then the term for which they had lent him. No ſooner had he returned home, than he was appointed preſident of the commiſſioners who were to reviſe the German tranſlation of the Bible. Soon after this he was unfortunately drowned in the river which runs through Zurich, in conſequence of the overſetting of a boat, in which he was proceeding to an eſtate which he had at the diſtance of two leagues from that city. This event happened in 1667, when but little more than forty-ſeven years of age.

For an exact catalogue of all Hottinger's works, we muſt, with Bayle, refer the curious reader to the *Bibliotheca Tigurina*; or, The Life of Hottinger, drawn up by Heidegger. We inſert, however, the titles of ſome of his moſt intereſting and important pieces. Theſe are, 1. *Exercitationes Anti-Morinianæ*, &c. 1644, 4to. intended to combat father Morin's opinion of the preference of the Samaritan Pentateuch to the Hebrew text, which Bayle notices as the author's firſt production. 2. *Theſaurus Philologicus, ſeu Clavis Scripturæ, quâ quicquid ferè Orientalium, Hebræorum maximè & Arabum habent Monumenta de Religione ejuſque variis Speciebus, Judaiſmo, Samaritaniſmo, Muhammediſmo, Gentiliſmo, de Theologia & Theologis, Verbo Dei, &c. breviter & aphoriſticè ita reſeratur & aperitur, ut multiplex inde ad Philologiæ, Theologiæ ſtudioſos Fructus redundare poſſit*, 1649, 4to. in the ſecond edition of which, the Samaritan, Arabic, and Syriac, are all given in their proper characters. 3. *Hiſtoria Orientalis, quæ ex variis Orientalium Monumentis collecta agit: primo, de Muhammediſmo, ejuſque Cauſis, tum procreantibus tum conſervantibus: ſecundo, de Saraceniſmo, ſeu Religione veterum Arabum: tertio, de Chaldaiſmo Superſtitione Nabatæorum Chaldæorum Charanæorum*, 4to. 4. *De Statu Chriſtianorum & Judæorum Tempore orti & nati Muhammedaniſmi: quinto, de variis inter ipſos Muhammedanos circa Religionis Dogmata & Adminiſtrationem Sententiis, Schiſmatis, & Hæreſibus excitatis*, &c. 1651, 4to. 5. *Promptuarium ſive Bibliotheca Orientalis, exhibens Catalogum, ſive Centurias aliquot tam Auctorum, quam Librorum Hebraicorum, Syriacorum, Arabicorum, Ægyptiacorum: addita Mantiſſa Bibliothecarum aliquot Europæarum*, 1658, 4to. 6. *Etymologicon Orientale, ſive Lexicon Harmonicum Heptaglotton; cum Præfatione de Gradibus Studii Philologici, & Apologetico brevi contra Abrahamum Ecchellenſem Maronitam*, 1661, 4to.

HOT'TINGER (John-James), ſon of the preceding, born at Zurich in 1652. He was educated under his father's inſpection till he was fifteen years of age, when he had the misfortune to loſe him by the accident mentioned above. In 1676 he was admitted to the miniſtry at Zurich, and from that time exerciſed its functions with much zeal and acceptibility. In 1698, upon the death of Heidegger, he was appointed profeſſor of theology in the univerſity of Zurich; which poſt he filled with great reputation and ſucceſs, during the remainder of his life. He died in 1735, when he had nearly completed his eighty-third year. The titles of his numerous productions in theology, ſcripture, criticiſm, and controverſy, would fill ſome pages; beſides which he alſo publiſhed a multitude of pieces in the German language, of which a catalogue is given in the collection entitled *Bibliotheca Bremenſis.*

HOT'TON, a town of the duchy of Luxemberg, on the Ourte: twenty miles ſouth-eaſt of Huy.

HOTTO'NIA, *ſ.* [ſo named by Boerhaave, from *Peter Hotton,* profeſſor of botany at Leyden.] The Water Violet; in botany, a genus of the claſs pentandria, order monogynia, natural order of palmæ, (lyſimachiæ, *Juſſ.*) The generic characters are—Calyx: perianthium one-leafed, five-parted; parts linear, from erect ſpreading. Corolla: one-petalled, ſalver-ſhaped; tube the length of the calyx; border five-cleft, flat; clefts ovate-oblong, emarginate. Stamina: filaments five, awl-ſhaped, ſhort, upright, oppoſite to the clefts of the corolla, and placed on the tube; antheræ oblong. Piſtillum: germ globular-acuminate; ſtyle filiform, ſhort; ſtigma globular. Pericarpium: capſule globular, acuminate, one-celled, placed on the calyx. Seeds: very many, globular; receptacle globular, large.—*Eſſential Character.* Corolla ſalver-ſhaped; ſtamina placed on the tube of the corolla; capſule one-celled.

*Species.* 1. Hottonia paluſtris, or common water-violet: peduncles in naked whorls of ſeveral flowers; leaves in whorls, pinnate. (See Botany Plate VII. fig. 12.) The root conſiſts of numerous white capillary fibres, which ſtrike deep into the mud. The ſtem is a ſcape, a foot high, ſimple, upright, towards the top roughiſh with little glands, at the bottom furniſhed with numerous leaves, whence proceed ſeveral ſtalks, which run out to a conſiderable length through the water, and throw out numerous white fibres. Leaves numerous, generally under water, growing in tufts on the tops of the young ſtems, bending downwards, the pinnas linear and flat. Flowers pale purple or white, with a yellow eye, in ſeveral whorls one above another, forming all together a handſome ſpike. This ſingular plant has the leaves under water, and the upper part of the flowering-ſtem only above; the flowers are beautiful; the leaves afford a refuge, and perhaps nouriſhment, to the freſh-water periwinkle, and other ſmall ſhell-fiſh. It abounds in ditches and marſhes, ſtagnant waters, and ſlow-running ſtreams, flowering in May and June, and continuing a long time in flower. The old writers call it *millefolium,* from the abundance of its leaves; and *viola,* which was a favourite name for the ſtock-gilliflower, and many other plants with handſome flowers, beſides the violet. In Engliſh, beſides water-violet, it has the names of water-milfoil or yarrow, and water-gilliflower; in Dodoen's Herbal by Lyte, *water-gilloſer.* In German, *waſſerviole*; in Dutch, *waterviolier*; in Daniſh, *vandrollike*; in Swediſh, *vattenrolleka*; in French, *plumeau, plume d'eau, plumette, violette aquatique, giroflée d'eau, millefeuille d'eau, Hottone*; in Italian, *miriofillo aquatico.*

2. Hottonia Indica, or Indian water-violet: peduncles axillary, one-flowered; leaves in whorls, trifid or thrice trifid. Stem a finger's length, quite ſimple. Leaves in whorls, frequently eight together, trifid or thrice trifid. A doubtful ſpecies.

3. Hottonia ſeſſiliflora, or ſeſſile-flowered water-violet: flowers in leafy whorls, ſeſſile; leaves in whorls, bipinnate and trifid. Stem ſimple, ſometimes with a branchlet at the top. The leaves under water reſemble thoſe of the firſt ſpecies, the upper ones are like thoſe of the ſecond ſpecies. Flowers ſeſſile, four to each whorl. It differs from the preceding in having the flowers in whorls; from the firſt in the flowers being ſeſſile, and the whorls leafy. Found in the Eaſt Indies by Burmann.

4. Hottonia litoralis, or ſea water-violet: leaves ovate-oblong, oppoſite, quite entire; flowers ſolitary. Stem commonly quite ſimple, eight inches high, upright. Leaves ſmooth; flowers purple, axillary, peduncled. The flower reſembles that of the ſecond ſpecies, but the leaves are very different. Native of Cochin-china.

*Propagation and Culture.* The common water-violet may be propagated in deep ſtanding waters, by dropping the ſeeds, as ſoon as they are ripe, into the water where they are deſigned to grow; and the ſpring following they will appear, and, if they are not diſturbed, will ſoon increaſe abundantly. The other ſorts are not known in Europe, in a living ſtate.

HOTTONVIL'LE, a town of France, in the department of the Moſelle, and chief place of a canton, in the diſtrict of Boulay: one league north-north-eaſt of Boulay.

HOTTO'T, a town of Frence, in the department of the Calvados, and chief place of a canton, in the diſtrict of Bayeux: three leagues and a half weſt of Caen.

HO'TY, a town of Sweden, in the province of Blekingen: twenty-one miles weſt of Carlſcrona.

HOT'ZEMPLOTZ, a river of Sileſia, which runs into the Oder in the principality of Oppeln.

HOU, a town of China, of the third rank, in the province of Chen-ſi: fifteen miles ſouth-weſt of Si-ngan.

HOU, or How, a town of Egypt, on the left bank of the Nile, ſituated on an eminence, which ſeems to be artificial, and is ſaid to have been built by the patriarch Joſeph: twenty-eight miles ſouth of Girge. Lat. 26. 2. N. lon. 49. 13. E. Ferro.

HOU-KEOU', a town of China, of the third rank, in the province of Kiang-ſi: twelve miles eaſt-north-eaſt of Kieou-kiang.

HOU-QUANG', a town of China, of the third rank, in the province of Chan-ſi: ten miles ſouth of Fuen-tcheou.

HOU-QUANG', a province of China, bounded on the north by Ho-nan, on the eaſt by Kiang-ſi, and Kiang-nan, on the ſouth by Quang-ſi, and Quang-tong, and on the weſt by Se-tchuen and Koei-tcheou, about 480 miles from north to ſouth, and 350 from eaſt to weſt. This province contains fifteen cities of the firſt rank. The greateſt part of the province is a flat open country, watered every where by brooks, lakes, and rivers, with great number and variety of fiſh and water-fowl; cattle are without number. The land produces all ſorts of grain and fruit, eſpecially oranges and citrons; the foreſts abound with trees, and the mountains with mines and medicinal plants; in the ſands of the rivers and brooks, which deſcend from the mountains, gold is found; there are mines of iron, tin, toutenague, &c. In the fields are great numbers of inſects which yield wax, as well as bees which produce honey. In a word, there is ſuch a great plenty of all ſorts of commodities, that it is commonly called the Magazine of the Empire; and it is a proverb among the Chineſe, that the province of Kiang-ſi may furniſh China with a breakfaſt, but none but Hou-Quang can wholly maintain it. The great river Yang-tſe croſſes it from weſt to eaſt.

HOU-TCHEOU', a city of China, of the firſt rank, in the province of Tche-kiang, ſituated near a large lake called Tai. The chief place in China for making writing pencils; the ſilk manufacture is likewiſe extenſive: 587 miles ſouth-ſouth-eaſt of Peking. Lat. 30. 52. N. lon 137. 18. E. Ferro.

HOU-TO', a river of China, which runs into the lake Pay in the province of Pe-tche-li.

HOU'AC, or Hou'at, a French iſland, in the Engliſh Channel, near the coaſt of Morbihan, about eight miles in circumference, defended by a fort: ſeven miles north-eaſt of Belle-Iſle. Lat. 47. 26. N. lon. 14. 36. E. Ferro.

HO'VAL, or Oualo', a kingdom of Africa, ſituated on the banks of the river Senegal, and on the coaſt of the Atlantic, ninety miles from eaſt to weſt, and eighteen from north to ſouth. The ſoil is rich and fertile, producing in the greateſt abundance maize, rice, legumes, indigo, tobacco, and cotton; the meadows feed great numbers of large and ſmall cattle, whoſe fleſh is excellent; game is plentiful, and birds in the greateſt number and variety; the foreſts abound with palm-trees. The king of Hoval takes the title of *brak,* or emperor: he was formerly very powerful, but is now leſs ſo, and often in want of millet for his ſupport. When he can ſhake off his indolence, he aſſembles his courtiers, travels with them through the villages of his kingdom, eats what proviſions he finds, drives away the cattle, and expoſes the owners to public ſale.

HOU'ANG-TCHEOU', a city of China, of the firſt rank, in the province of Tche-kiang: 580 miles ſouth-ſouth-caſt of Peking. Lat. 30. 52. N. lon. 137. E. Ferro.

HOU'BIGANT, (Charles-Francis), a learned and pious French catholic divine, born at Paris in 1686. The greateſt part of his time he ſpent in the moſt laborious ſtudy, with a view to the illuſtration of the ſacred ſcriptures; and as he had the misfortune, by the loſs of his hearing, to be deprived of the chief pleaſures of ſociety, he applied with the greater earneſtneſs to his books, in which he found conſtant conſolation under his infirmity. In 1753, he gave to the world his moſt valuable and important work, an edition of the Hebrew Bible, entitled, *Biblia Hebraica, cum Notis criticis, & Verſione Latina ad Notas criticas facta: accedunt Libri Greci, qui Deutero-Canonici vocantur, Authore, &c.* in 4 vols. folio. He died in 1783, at the great age of ninety-eight. Beſides his grand work, he publiſhed, 1. A Latin Tranſlation of the Pſalter, from the Hebrew, 1746, 12mo. 2. A Latin Tranſlation of the whole Old Teſtament, 1753, in 8 vols. 8vo. 3. Hebrew Roots, 1732, 8vo. 4. An Examination of the Pſalter of the Capuchins, 12mo. 5. A French tranſlation of an Engliſh book, by one Forbes, entitled, Thoughts on Natural Religion; and a French tranſlation, from the Engliſh, of the greater part of The Works of Charles Leſlie, 8vo. 1770. He alſo left behind him, in manuſcript, A Treatiſe on Study; a tranſlation of The Treatiſe of Origen againſt Celſus; a Life of Cardinal Berulle; and a complete French tranſlation of the Old and New Teſtament, according to corrected texts of the originals.

HOU'DRY (Vincent), a learned French Jeſuit, born at Tours in 1631. He died in 1729, at the advanced age of ninety-nine, with his faculties unimpaired, and able to read without the aid of ſpectacles. He was the author of an immenſe compilation in 22 vols. 4to. entitled, *La Bibliotheque des Prédicateurs*, containing much good matter, together with what is bad, or indifferent; a treatiſe On the Manner of imitating good Preachers; Ars Typographica, Carmen, &c.

HOUDA'IN, a town of France, in the department of the Straits of Calais, and chief place of a canton, in the diſtrict of Bethune: two leagues ſouth of Bethune.

HOU'DAN, a town of France, in the department of the Seine and Oiſe, and chief place of a canton, in the diſtrict of Montfort: three leagues weſt of Montfort, and three and a half ſouth of Mantes.

HOVE, a town of Norway, in the dioceſe of Drontheim: twenty-five miles north-weſt of Drontheim.

HOVE. The preterite of *heave*.

*To* HOVE, *v. n.* To hover:

No joy of ought that under heaven doth *hove*,
Can comfort me. *Spenſer.*

HO'VEDEN (Roger de), an Engliſh hiſtorian, born at York; and, entering into the church, was ſome time a profeſſor of theology at Oxford. He cloſely applied himſelf to the compilation of Engliſh hiſtory, and wrote annals in Latin, commencing from 731, the period at which Bede finiſhes, and coming down to the third year of king John, A.D. 1201. He is highly commended for his diligence and fidelity, and is reckoned by Leland to have ſurpaſſed all the writers of his claſs who preceded him. Such was his authority, that Edward I. cauſed ſtrict ſearch to be made in all the libraries for copies of Hoveden's Annals, in order to aſcertain the homage due from the crown of Scotland. This work was publiſhed in ſir Henry Saville's Collection of ancient Engliſh Hiſtorians, 1596, 1601, folio.

HOUEI'LLES, a town of France, in the department of the Lot and Garonne, and chief place of a canton, in the diſtrict of Caſtel Jaloux: two leagues and a half ſouth of Caſtel Jaloux.

HOV'EL, *ſ.* [diminutive of hoꝑe, houſe, Sax.] A ſhed open on the ſides, and covered overhead. A mean habitation; a cottage.

*To* HOV'EL, *v. a.* To ſhelter in a hovel:

And waſt thou fain, poor father,
To *hovel* thee with ſwine and rogues forlorn,
In ſhort and muſty ſtraw? *King Lear.*

HOV'EL, a town of Germany, in Weſtphalia, and biſhopric of Paderborn: ſix miles north-weſt of Lippſpring

HO'VEN, *part. paſſ.* Raiſed; ſwelled; tumefied.

HOVE'NIA, *ſ.* [ſo named by Thunberg, in honour of *M. ten Hoven*, one of the privy counſellors of Holland, a great cultivator of exotic plants.] In botany, a genus of the claſs pentandria, order monogynia, natural order of dumoſæ, (rhamni, *Juſſ.*) The generic characters are—Calyx: perianthium one-leafed, hairy at the baſe within, permanent, five-parted; parts ovate, reflex, deciduous. Corolla: petals five, obovate, very obtuſe, patulous, rolled up, involving the ſtamens, inſerted into the calyx between the ſegments, and of the ſame length with them. Stamina: filaments five, inſerted into the baſe of the calyx, and a little ſhorter; antheræ roundiſh, hid within the petals. Piſtillum; germ ſuperior; ſtyle upright, much ſhorter than the calyx; ſtigmas three, from patulous reflex, blunt. Pericarpium: capſule ovate-globular, three-furrowed, three-celled, three-valved. Seeds: ſolitary, lens-ſhaped, very ſmooth. Sometimes, but ſeldom, the calyx is four-parted, and there are only four ſtamens.—*Eſſential Character.* Petals five, convoluted; ſtigma trifid; capſule three-celled, three-valved.

Hovenia dulcis, a ſingle ſpecies. Root perennial; ſtem arboreous, thick, a fathom and a half in height; branches round, ſmooth; leaves alternate, petioled, ſubcordate, ovate, acuminate, ſerrate, hanging down, nerved, ſmooth, a hand in length. Native of Japan, near Nagaſaki; flowering from June to Auguſt, and ripening the fruit in November and December.

*To* HOV'ER, *v. n.* [*hovio*, to hang over, Welſh.] To hang in the air over head, without flying off one way or other:

Ah, my poor princes! ah, my tender babes!
If yet your gentle ſouls fly in the air,
And be not fix'd in doom perpetual,
*Hover* about me with your airy wings,
And hear your mother's lamentation. *Shakeſpeare.*

To ſtand in ſuſpenſe or expectation.—The landlord will no longer covenant with him; for that he daily looketh after change and alteration, and *hovereth* in expectation of new worlds. *Spenſer.*—To wander about one place.—We ſee ſo warlike a prince at the head of ſo great an army, *hovering* on the borders of our confederates. *Addiſon.*

HOV'ERING, *ſ.* The act of hanging over in the air.

HO'VESTADT, a town and caſtle of Germany, on the Lower Rhine, in Weſtphalia, ſituated on the Lippe: eight miles weſt of Lippſtadt.

HOU'GA (La), a town of France, in the department of the Gers, and chief place of a canton, in the diſtrict of Nogaro: ſeven miles weſt-north-weſt of Nogaro.

HOUGH, *ſ.* [from hoȝ, Sax.] The lower part of the thigh.—Blood ſhall be from the ſword unto the belly, and dung of men unto the camel's *hough.* 2 *Eſd.* xiii 36.—[*Hue*, Fr.] An adz; an hoe. See HOE.—Did they really believe that a man, by *houghs* and an axe, could cut a god out of a tree? *Stillingfleet.*

*To* HOUGH, *v. a.* To hamſtring; to diſable by cutting the ſinews of the ham.—Thou ſhalt *hough* their horſes. *Joſh.* ii. 6.—To cut up with a hough or hoe. To hawk or ſpit. This orthography is uncommon.—Neither could we *hough* or ſpit from us; much leſs could we ſneeze or cough. *Grew.*

HO'VIA, *ſ.* Once the name of ſome fruit-bearing exotic:

> Thus ſpake the goddeſs (on her painted ſkin
> Were figures wrought), and next calls *hovia* in;
> That for its ſtony fruit may be deſpis'd,
> But for its virtue next to cocoa priz'd. *Tate.*

HOUL, a river which runs into the Meuſe near Givet.

HOULE, a tribe of Arabs, ſubject to the king of Perſia, who inhabit all the coaſt from Bender Abbas to Cape Berdiſtan, and poſſeſs all the ports in this extent of coaſt. One part of the tract is parched and barren; but a range of hills, like Dahr Aſbàn, extends nearly to the ſea, and affords wood, which is cut down and exported by the inhabitants. Notwithſtanding theſe natural advantages, the Arabs of Houle do not cultivate their lands, but live by hunting and fiſhing. They are Sunnites; and are eſteemed among their neighbours for valour. If their forces could be brought to act in combination, they might eaſily conquer all the cities upon the Perſian Gulf. But almoſt every city is ſubject to a particular ſchiech; and, although theſe ſchiechs are all deſcendants from the ſame family, they chooſe rather to remain petty and poor, than to raiſe themſelves to a more opulent and reſpectable condition, by ſubmitting to act in concert, under the direction of one grand ſchiech.

HOU'LET, *ſ.* The vulgar name for an owl:

> Adder's fork, and blind worm's ſting,
> Lizard's leg, and *houlet's* wing. *Shakeſpeare.*

HOULIE'RES, (Antoniette du Liger de la Garde des), a diſtinguiſhed French poeteſs, born at Paris in 1638. Nature beſtowed upon her in an equal ſhare the beauties of perſon and of the underſtanding. Her talents for writing verſe were firſt cultivated by the poet Heſnault, and were afterwards improved by her own exertions. She married early Lafon ſeigneur des Houlieres, who was attached to her on account of her ſhining talents. Becoming a widow, ſhe fell into indigent circumſtances. She ſolaced herſelf, however, with poetical ſtudy, and acquired the knowledge of the Latin, Italian, and Spaniſh, languages. Philoſophy and religion were called in to ſupport her under the long and painful diſorders, which, in 1694, brought her life to a termination. She was aſſociated to the academies of Arles, and of the Ricovrati. Her poems were collected in 2 vols. 8vo. in 1724, and reprinted in 1747 in 2 vols. 12mo. They conſiſt of Idylls, Eclogues, Odes, Epigrams, and the tragedy of Genſeric. Of theſe the Idylls are the moſt eſteemed, and are accounted the beſt compoſitions of that claſs in the French language.

HOULS'WORTHY, a town in Devonſhire: it has a market on Saturdays, and is 215 miles from London.

HOULT, *ſ.* [from holt, Sax.] A ſmall wood. *Obſolete.*

> Or as the wind, in *hoults* and ſhady greaves,
> A murmur makes among the boughs and leaves. *Fairfax.*

HOU'MA, a town of Aſiatic Turkey, in the province of Natolia: twenty-four miles ſouth-eaſt of Kara-hiſar.

HOU'NA, a cape of Scotland, on the north coaſt of the county of Caithneſs: two miles weſt of Duncanſby Head. Lat. 58. 33. N. lon. 0. 15. E. Edinburgh.

HOUND, *ſ.* [from hunð, Sax. *hund*, Scot.] The moſt tractable and ſagacious of all our hunting dogs. See the article CANIS, vol. iii. p. 717.

*To* HOUND, *v. a.* To ſet on the chaſe.—God is ſaid to harden the heart permiſſively, but not operatively nor effectually; as he who only lets looſe a greyhound out of the ſlip, is ſaid to hound him at the hare. *Branthall.*—To hunt; to purſue.—If the wolves had been *hounded* by tigers, they ſhould have worried them. *L'Eſtrange.*

HOUND-POINT, a cape of Scotland, in the Frith of Forth, and north coaſt of the county of Linlithgow: ſeven miles weſt-north-weſt of Leith.

HOU'ND's-TONGUE. See CYNOGLOSSUM.

HOUNDS, *ſ.* A ſea term, the gradual projection of the maſt head.

HOUN'SLOW, a market-town, in the county of Middleſex, ten miles from London; it is a lively cheerful little town, owing to its being ſo great a thoroughfare to all the ſouthern and weſtern parts of England. The fairs are Trinity-Monday, and the Monday after September 29. The market is on Thurſdays. Here is a good charity-ſchool, and a chapel of eaſe. It had formerly a convent of mendicant friars, who, by their inſtitution, were to beg alms for the ranſom of captives taken by the infidels.

HOUR, *ſ.* [*heure*, Fr. *hora*, Lat.] The twenty-fourth part of a natural day; the ſpace of ſixty minutes. See the article CHRONOLOGY, vol. iv. p. 533.

> See the minutes how they run:
> How many makes the *hour* full complete,
> How many *hours* bring about the day,
> How many days will finiſh up the year,
> How many years a mortal man may live. *Shakeſpeare.*

A particular time:

> The conſcious wretch muſt all his arts reveal,
> From the firſt moment of his vital breath,
> To his laſt *hour* of unrepenting death. *Dryden.*

The time is marked by the clock.—The *hour* runs through the rougheſt day. *Shakeſpeare.*

HOUR'-CIRCLES, or HORARY-CIRCLES, great circles meeting in the poles of the globe or world, and croſſing the equinoctial or equator at right angles; the ſame as meridians. They are ſuppoſed to be drawn through every 15th degree of the equinoctial and equator, each anſwering to an hour, and dividing them into 24 equal parts. On both globes they are ſupplied by the meridian hour-circle and index. See the article GEOGRAPHY, vol. viii. p. 356.

HOUR'-GLASS, a kind of chronometer or clepſydra, ſerving to meaſure time by the deſcent or running of ſand, water, &c. out of one glaſs veſſel into another. The beſt, it is ſaid, are ſuch as, inſtead of ſand, have egg-ſhells, well dried in the oven, then beaten fine and ſifted.

HOUR'-LINES, on a dial, are lines which ariſe from the interſections of the plane of the dial with the ſeveral planes of the hour-circles of the ſphere; and therefore, muſt be all right lines on a plane dial.

HOUR'-SCALE, a divided line on the edge of Collins's quadrant, being only two lines of tangents of 45 degrees each, ſet together in the middle. Its uſe, together with the lines of latitude, is to draw the hour-lines of dials that have centres, by means of an equilateral triangle drawn on the dial-planes.

HOUR'LY, *adj.* Happening or done every hour; frequent; often repeated:

> Alcyone
> Computes how many nights he had been gone,
> Obſerves the waining moon with *hourly* view,
> Numbers her age, and wiſhes for a new. *Dryden.*

HOUR'LY, *adv.* Every hour; frequently:

> They with ceaſeleſs cry
> Surround me, as thou ſaw'ſt; *hourly* conceiv'd,
> And *hourly* born, with ſorrow infinite! *Milton.*

HOURS, or HORÆ, in mythology, the daughters of Jupiter and Themis; at firſt only three in number, Eunomia, Dice, and Irene; to which were afterwards added two more, Carpo and Thallote. Homer makes them the door-keepers of heaven. Ovid allots them the employment of harneſſing the Sun: "Jungere equos Titan velocibus imperat Horis." And ſpeaks of them as ſtanding, at equal diſtances, about the throne of Sol: "Et poſitæ ſpatiis equalibus, Horæ." The poets repreſent them as dreſſed in fine coloured or embroidered robes, and gliding on with a quick and eaſy motion.

HOURS, *Horæ*, *ſ.* in the Romiſh church, are certain prayers performed at ſtated times of the day; as matins, veſpers, lauds, &c.

HOUR'SAK, a town of Aſia, in Perſian Armenia: fifty leagues eaſt-north-eaſt of Erivan.

HOUS'AGE, *ſ.* The money paid for laying up goods in a houſe.

HOUSATON'ICK, a river of the American States, which unites with the Naugatic in the ſtate of Connecticut, and forms the Stratford at Derby.

HOUSE, *ſ.* [from huſ, Sax. *huys*, Dut. *huſe*, Scot.] A place wherein a man lives; a place of human abode.—*Houſes* are built to live in, not to look on; therefore let uſe be preferred before uniformity, except where both may be had. *Bacon.*—Any place of abode:

The bees with ſmoke, the doves with noiſome ſtench,
Are from their hives and *houſes* driven away. *Shakeſpeare.*

Place in which religious or ſtudious perſons live in common; monaſtery; college.—Theodoſius arrived at a religious *houſe* in the city, where now Conſtantia reſided. *Addiſon.*—The manner of living; the table.—He kept a miſerable *houſe*, but the blame was laid wholly upon madam. *Swift.*—In judicial aſtrology, it implies one twelfth part of the horoſcope. See the article ASTROLOGY, vol. ii. p. 310.—Family of anceſtors; deſcendants, and kindred; race:

The red roſe and the white are on his face,
The fatal colours of our ſtriving *houſes.* *Shakeſpeare.*

A body of the parliament; the lords or commons collectively conſidered.—Nor were the crimes objected againſt him ſo clear as to give convincing ſatisfaction to the major part of both *houſes*, eſpecially that of the lords. *King Charles.*

It is laid down as a general rule in the practice of the Engliſh laws, that the ſheriff, in executing any judicial writ, cannot break open the door of a dwelling-houſe: this privilege, which is ſacred to a man's habitation, ariſes from the great regard the law has to every man's ſafety and quiet, and therefore protects them from the inconveniences which muſt neceſſarily attend an unlimited power in the ſheriff, and his officers, in this reſpect; hence, by Magna Charta, every man's houſe is called his caſtle. *Co.* 91. 3 *Inſt.* 162. Yet in favour of executions, which are the life of the law, and eſpecially in caſes of great neceſſity, or where the ſafety of the king and commonwealth are concerned, this general caſe hath the following exceptions. 1ſt. That, whenever the proceſs is at the ſuit of the king, the ſheriff or his officer may, after requeſt to have the door opened, and refuſal, break and enter the houſe to do execution, either on the party's goods, or to take his body, as the caſe ſhall be. 5 *Co.* 91. But this ſhall not be done under any *general warrant*, a point of law eſtabliſhed in the celebrated Mr. Wilkes's caſe, which had the good effect of more firmly fixing the corner-pillar of our admired CONSTITUTION, and but for which the venerable fabric might have mouldered into duſt and ruins. 2dly. In a writ of ſeiſin or *habere facias poſſeſſionem* in ejectment, the ſheriff may juſtify breaking open the door, if denied entrance by the tenant; for the end of the writ being to give the party full and actual poſſeſſion, conſequently the ſheriff muſt have all power neceſſary for this end; beſides, in this caſe the law does not, after the judgment, look upon the houſe as belonging to the tenant, but to him who has recovered. 5 *Co.* 91. 3dly. Alſo this privilege of a man's houſe relates only to ſuch execution as affects himſelf; and therefore if a *fieri facias* be directed to the ſheriff to levy the goods of A. and it happens that A.'s goods are in the houſe of B. if after requeſt made by the ſheriff to B. to deliver theſe goods, he refuſes, the ſheriff may juſtify the breaking and entering his houſe. 5 *Co.* 93. 4thly. It hath been adjudged, that the ſheriff, on a *fieri facias*, may break open the door of a barn, ſtanding at a diſtance from the dwelling-houſe, without requeſting the owner to open the door; in the ſame manner as he may enter a cloſe, &c. 1 *Keb.* 698. 5thly. So on a *fieri facias*, when the ſheriff or his officers are once in the houſe, they may break open any chamber-door or trunks for completing the execution. 2 *Show.* 87. 6thly. So if the ſheriff's bailiffs enter the houſe, the door being open, and the owner locks them in, the ſheriff may juſtify breaking open the door, for the ſetting at liberty the bailiffs: for if, in this caſe, he were obliged to ſtay till he could procure a *homine replegiando*, it might be highly inconvenient; alſo it ſeems that, in this caſe, the locking in the bailiffs is ſuch a diſturbance to the execution, that the court will grant an attachment for it. *Palm.* 52. 7thly. That if the ſheriff, in executing a writ, breaks open a door where he has no authority for doing by law, yet the execution is good, and the party has no other remedy but an action of treſpaſs againſt the ſheriff. 5 *Co.* 93.

Therefore, as the dwelling-houſe of every man is ſacred, if thieves come to rob or kill him, and the owner or his ſervant kill the thieves in defending him and his houſe, that is not felony, nor ſhall he forfeit any thing. 2 *Inſt.* 316. See in this volume HOMICIDE. Commiſſioners of bankruptcy cannot break open a houſe to ſearch for the bankrupt's goods, unleſs it be the houſe of the bankrupt. 2 *Show.* 247.—The hundred is liable to damages by the burning of houſes. 9 *Geo.* I. *c.* 22.

*To* HOUSE, *v. a.* To harbour; to admit to reſidence:

Slander lives upon ſucceſſion,
For ever *houſed* where it gets poſſeſſion. *Shakeſpeare.*

To ſhelter; to keep under a roof:

Wit in northern climates will not blow,
Except, like orange-trees, 'tis *hous'd* from ſnow. *Dryden.*

To drive to ſhelter.—E'en now we *hous'd* him in the abbey here. *Shakeſpeare.*

*To* HOUSE, *v. n.* To take ſhelter; to keep abode; to reſide.—Graze where you will, you ſhall not *houſe* with me. *Shakeſpeare.*—To have an aſtrological ſtation in the heavens:

In fear of this, obſerve the ſtarry ſigns,
Where Saturn *houſes*, and where Hermes joins. *Dryden.*

HOU'SE-BREAKER, *ſ.* Burglar; one who makes his way into houſes to ſteal.—All *houſe-breakers* and ſharpers had *thief* written in their foreheads. *L'Eſtrange.*

HOU'SE-BREAKING, *ſ.* Burglary.—When he hears of a rogue to be tried for robbing or *houſe-breaking*, he will ſend the whole paper to the government. *Swift.*

HOUSE OF CORREC'TION. In every county of England there ſhall be a houſe of correction built at the charge of the county, with conveniences for the ſetting of people to work, or every juſtice of peace ſhall forfeit five pounds; and the juſtices in ſeſſions are to appoint governors or maſters of ſuch houſes of correction, and their ſalaries, &c. which are to be paid quarterly by the treaſurer out of the county ſtock. Theſe governors are to ſet the perſons ſent on work, and moderately correct them, by whipping, &c. and to yield a true account every quarter-ſeſſions of perſons committed to their cuſtody; and, if they ſuffer any to eſcape or neglect their duty, the juſtices may fine them. 7 *Jac.* I. *c.* 4. 14 *Geo.* II. *c.* 33.

The houſe of correction is chiefly for the puniſhing of idle and diſorderly perſons; parents of baſtard children, beggars, ſervants running away; treſpaſſers, rogues, vagabonds, &c. Poor perſons refuſing to work are to be there whipped, and ſet to work and labour; and any perſon who lives extravagantly, having no viſible eſtate to ſupport him, may be ſent to the houſe of correction, and ſet at work there, and may be continued there until he gives the juſtice ſatisfaction in reſpect to his living; but not be whipped. A perſon muſt be convicted of vagrancy &c. before he is ordered to be whipped. 2 *Bulſt.* 351. BRIDEWELL is alſo a priſon for correction in London, and one may be ſent thither. *Style* 57.

By ſtats. 14 Geo. II. c. 33, 17 Geo. II. c. 5, upon preſentment of the grand jury, or under ſtat. 22 Geo. III. c. 64, on preſentment of any one juſtice, on view, the juſtices at ſeſſions may build, or purchaſe land for building, or enlarge, buy, or hire, fit houſes of correction. And the juſtices are to take care that the houſe of correction be provided with proper materials for relieving, employing, and correcting, perſons ſent to the ſame. ' And two juſtices ſhall viſit the ſame twice or oftener in a year, and examine into the eſtate and management thereof, and report the ſame at the ſeſſions. The governor or maſter of a houſe of correction miſbehaving himſelf, may be fined or turned out, at the diſcretion of the juſtices. Offenders liable to be ſent to the houſe of correction, where the time and manner of their puniſhment is not expreſsly limited by law, may be committed until the next ſeſſions, or until diſcharged by due courſe of law.

By the ſtat. 22 Geo. III. c. 64, and the ſtat. 24 Geo. III. c. 55, the quarter-ſeſſions may appoint certain juſtices to be viſitors and inſpectors of ſuch houſes.—The ſtat. 31 Geo. III. c. 46, regulates the appointment and conduct of the governor and other officers of ſuch houſes; as alſo the appointment of the viſiting juſtices.—The above ſtatutes contain alſo many other regulations as to ſuch houſes of correction, a ſchedule of rules and orders for their government, as to employing and feeding the perſons therein; and which rules and orders are to be fixed up in every houſe of correction. See the article GAOL, vol. viii. p. 243–246.

HOU'SE-DOG, *ſ.* A maſtiff kept to guard the houſe.—You ſee the goodneſs of the maſter even in the old *houſe-dog*. *Addiſon.*

HOUSE ISLAND, one of the Shetland Iſlands, about ſeven miles long, and one broad. Lat. 60. 5. N. lon. 1. 37. E. Edinburgh.

HOU'SE-LAMB, *ſ.* A lamb kept up to be fatted; the fleſh of the moſt delicate fat lamb.

HOU'SE-MAID, *ſ.* A maid employed to keep the houſe clean.—The *houſe-maid* may put out the candle againſt the looking-glaſs. *Swift.*

HOU'SE-PAINTER, *ſ.* One whoſe buſineſs is to paint houſes; a common painter.

HOU'SE-WARMING, *ſ.* A feaſt or merrymaking upon going into a new houſe.

HOU'SEBOTE, a term which ſignifies *eſtovers*, or an allowance of neceſſary timber out of the lord's wood, for the repairing and ſupport of a houſe or tenement. And this belongs of common right to any leſſee for years or for life, holding under ſuch lord. But, if he take more than is needful, he may be puniſhed by an action of waſte.

HOU'SEHOLD, *ſ.* A family living together.—A little kingdom is a great *houſehold*, and a great *houſehold* a little kingdom. *Bacon.*

Of God obſerv'd,
The one juſt man alive, by his command,
Shall build a wond'rous ark, as thou beheld'ſt,
To ſave himſelf and *houſehold* from amidſt
A world devote to univerſal wreck. *Milton.*

Family-life; domeſtic management:

An inventory, thus importing
The ſeveral parcels of his plate, his treaſure,
Rich ſtuffs, and ornaments of *houſehold*. *Shakeſpeare.*

It is uſed in the manner of an adjective, to ſignify domeſtic; belonging to the family.—Cornelius called two of his *houſehold* ſervants. *Acts*, x. 7.

For nothing lovelier can be found
In woman, than to ſtudy *houſehold* good;
And good works in her huſband to promote. *Milton.*

HOU'SEHOLD, *adj.* Domeſtic, belonging to the houſe.

HOU'SEHOLD-STUFF, *ſ.* Furniture of a houſe; utenſils convenient for a family.

HOU'SEHOLDER, *ſ.* Maſter of a family.—A certain *houſeholder* planted a vineyard. *Mat.* xxi.

HOU'SEKEEPER, *ſ.* Houſeholder; maſter of a family.—If I may credit *houſekeepers* and ſubſtantial tradeſmen, all ſorts of proviſions and commodities are riſen exceſſively. *Locke.*—One who lives in plenty; one that exerciſes hoſpitality.—The people are apter to applaud *houſekeepers*, than houſeraiſers. *Wotton.*—One who lives much at home:

How do you both? You are manifeſt *houſekeepers*.
What are you ſewing there? *Shakeſpeare.*

A woman ſervant that has care of a family, and ſuperintends the other maid ſervants:

Merry folks, who want by chance
A pair to make a country-dance,
Call the old *houſekeeper*, and get her,
To fill a place for want of better. *Swift*

HOU'SEKEEPING, *adj.* Domeſtic; uſeful to a family.—His houſe for pleaſant proſpect, large ſcope, and other *houſekeeping* commodities, challengeth the pre-eminence. *Carew.*

HOU'SEKEEPING, *ſ.* Hoſpitality; liberal and plentiful table.—His table was one of the laſt that gave us an example of the old *houſekeeping* of an Engliſh nobleman; an abundance reigned, which ſhowed the maſter's hoſpitality. *Prior.*

HOU'SEL, *ſ.* [huꞅl, Sax. from *hunſel*, Gothic, a ſacrifice, or *hoſtia*, dimin. *hoſtiola*, Lat.] The holy euchariſt.

*To* HOU'SEL, *v. a.* To give or receive the euchariſt. *Both noun and verb are now obſolete.*

HOU'SELEEK, *ſ.* in botany. See SEMPERVIVUM.

HOU'SELESS, *adj.* Wanting abode; wanting habitation.—This *houſeleſs*, ſuffering, dying, Jeſus, fed many thouſands with five loaves and two fiſhes. *Weſt.*

HOU'SEROOM, *ſ.* Place in a houſe:

*Houſeroom*, that coſts him nothing, he beſtows;
Yet ſtill we ſcribble on, though ſtill we loſe. *Dryden.*

HOU'SEWIFE, *ſ.* This is now frequently written, *huſwife*, or *huſſy*.—The miſtreſs of a family.—You will think it unfit for a good *houſewife* to ſtir in or to buſy herſelf about her houſewifery. *Spenſer.*—A female œconomiſt.—The faireſt among the daughters of Britain ſhow themſelves good ſtateſwomen as well as good *houſewives*. *Addiſon.*

Farmers in degree,
He a good huſband, a good *houſewife* ſhe. *Dryden.*

One ſkilled in female buſineſs.—He was bred up under the tuition of a tender mother, till ſhe made him as good a *houſewife* as herſelf; he could preſerve apricots, and make jellies. *Addiſon.*

HOU'SEWIFELY, *adj.* Skilled in the acts becoming a houſewife. Taken from houſewifery.—By this *houſewifely* metaphor our anceſtors meant to inform us, that the lands ſhould be mixed and blended together, and then divided in equal portions. *Blackſtone.*

HOU'SEWIFERY, *ſ.* Domeſtic or female buſineſs; management becoming the miſtreſs of a family:

He ordain'd a lady for his prize,
Generally praiſeful; fair and young, and ſkilled in *houſewiferies*. *Chapman.*

Female œconomy.—Learn good works for neceſſary uſes; for St. Paul expreſſes the obligation of Chriſtian women to good *houſewifery*, and charitable proviſions for their family and neighbourhood. *Taylor.*

HOU'SING, *ſ.* The act of ſecuring in a houſe. Quantity of inhabited building.—London is ſupplied with people to increaſe its inhabitants, according to the increaſe of *houſing*. *Graunt.*—[From *houſeaux*, *heuſes*, or *houſes*, Fr.] Cloth originally uſed to keep off dirt, now added to ſaddles as ornamental.

HOUS'LING, *adj.* [from *houſel.*] Sacramental, alluding to the Roman-catholic ſacrament of marriage:

His own two hands the holy knotts did knitt,
That none but death for ever can divide;
His owne two hands, for ſuch a turne moſt fitt,
The *houſling* fire did kindle and provide,
And holy water thereon ſprinkled wide;
At which the buſhy teade a groome did light,
And ſacred lamp in ſecret chamber hide. *Fairy Queen.*

HOUSS, *ſ.* [from *houſeaux*, or *houſes*, Fr.] Covering of cloth originally uſed to keep off dirt, now added to ſaddles as ornamental ſigns:

Six lions' hides with thongs together faſt,
His upper parts defended to his waiſt;
And where man ended, the continu'd veſt,
Spread on his back, the *houſs* and trappings of a beaſt.
*Dryden.*

HOUS'SA, the capital of a large kingdom of the ſame name, ſituated to the eaſtward of Tombuctoo in Africa, and is a great mart for Mooriſh commerce. It is larger, and more populous, than Tombuctoo itſelf. The trade, police, and government, are nearly the ſame in both; but in Houſſa, the Negroes are in greater proportion to the Moors, and have ſome ſhare in the government.

*To* HOUST, *v. n.* [from heoꞃꞅꞇan, Sax.] To cough. *Scott.*

HOUS'TON (William), an able phyſician and botaniſt, who went to the Weſt Indies firſt in the capacity of a ſurgeon, and upon his return ſtudied phyſic at Leyden under Boerhaave, and graduated in 1729. While he reſided at that univerſity he inſtituted a ſet of experiments upon brutes concerning the effects of perforation of the thorax upon reſpiration, which were publiſhed in the twenty-ninth volume of the Philoſophical Tranſactions. He was made a fellow of the Royal Society; and, returning again to the Weſt Indies, he took up his reſidence at the Engliſh ſettlement in the bay of Campeachy. A deſcription of the plant affording the contrayerva-root was firſt ſent by him to the Royal Society, and publiſhed in the thirty-ſeventh volume of their Tranſactions. He likewiſe tranſmitted to Mr. Miller, at Chelſea, the ſeeds of many rare and new plants, collected by him in Jamaica and Cuba, and upon the Spaniſh main. He fell a ſacrifice to theſe labours in an unhealthy climate, and died in July 1733. A manuſcript catalogue of plants collected by him, together with engravings by his own hand, came into the poſſeſſion of P. Miller, eſq. and afterwards into that of ſir Joſeph Banks, who publiſhed them under the title of *Reliquæ Houſtonianæ*, 4to. tab. xxvi. 1781. They contain the characters and deſcriptions of fifteen genera, and eleven ſpecies, the latter all natives of the country about Vera Cruz. The deſcriptions are according to the ſyſtem of Tournefort.

HOUSTO'NIA, *ſ.* [ſo named by Gronovius, from the ſubject of the preceding article.] In botany, a genus of the claſs tetrandria, order monogynia, natural order of ſtellatæ, (rubiaceæ, *Juſſ.*) The generic characters are—Calyx: perianthium very ſmall, four-toothed, upright, permanent. Corolla: one-petalled, funnel-ſhaped; tube cylindric, long; border four-parted, ſpreading, parts roundiſh. Stamina: filaments four, in the neck of the corolla, very ſmall; antheræ ſimple. Piſtillum: germ ſuperior, roundiſh, compreſſed; ſtyle ſimple, ſhorter than the ſtamens; ſtigma bifid, acute. Pericarpium: capſule roundiſh, twin, gaping tranſverſely at the top, two-celled, two-valved; valves oppoſite to the partition. Seeds: few (three or four) ſmall, ovate, adhering to the partition.—*Eſſential Character.* Corolla one-petalled, funnel-form; capſule ſuperior, two-celled, two-ſeeded; (ſeeds three or four in each cell. *Gærtner.*)

*Species.* 1. Houſtonia cærulea, or blue-flowered houſtonia: root-leaves ovate, ſtem compound, firſt peduncles two-flowered. This is a vernal plant, with terminating flowers. From a ſlender root it produces ſmall, oblong, pointed leaves, ſpreading on the ground in a ring; among theſe, ſlender ſmooth ſtalks ariſe, at the height of two inches forming a joint, and furniſhed with two or three ſmall leaves; here they divide into two, or ſometimes three, ſlender branches, or peduncles, an inch or two in length, having at the end of each a ſingle blue flower. Native of Virginia, whence it was ſent by John Baniſter.

2. Houſtonia purpurea, or purple-flowered houſtonia: leaves ovate-lanceolate, corymbs terminating, flowers ſuperior. This has leaves in pairs, reſembling thoſe of chickweed. The flower is of a red purple. Native of Maryland; where it is alſo found with a narrower leaf.

3. Gærtner has a ſpecies (from ſir Joſeph Banks's Herbarium) which he calls H. longifolio: the capſule of which is ſuperior, bipartile, at the baſe ſurrounded by the four-parted calyx, compreſſed at the top, marked with two grooves; receptacle fungoſe, ſubglobular, pedicelled, fixed to the middle of the partition of each cell, when ripe falling along with the ſeeds; of which there are three or four in each cell, compreſſed a little, having a ridge along the back, and a little umbilical ſcar in the middle of the belly; they are of a very dark brown colour.

HOUT BAY', a bay on the ſouth coaſt of Africa, north-north-weſt from the Cape of Good Hope. Lat. 34. 5. S. lon. 18. 19. E. Greenwich.

HOU'TEVILLE (Claude-Francis), a French eccleſiaſtic, born at Paris in 1688. He was promoted, in 1723, to the abbey of St. Vincent du Bourg-ſur-mer, in the dioceſe of Bourdeaux, and in the ſame year was admitted a member of the French Academy. Upon the death of the abbé Dubois, in 1742, he was elected perpetual ſecretary of the academy; but he did not fill that poſt many months, being cut off by death in the ſame year, when about the age of fifty-four. His moſt admired work was firſt publiſhed in 1722, under the title of *La Vérité de la Religion Chrétienne, prouvée par les Faits*, 4to. A ſecond and conſiderably-enlarged edition of it was publiſhed in 1741, in 3 vols. 4to. He was alſo the author of, 2. A Philoſophical Eſſay on Providence, 1728, 12mo. 3. An Hiſtorical Eulogium on M. Boſſuet, Biſhop of Meaux, inſerted among the funeral orations for that illuſtrious prelate publiſhed at Paris in 1731, 12mo; and ſeveral Diſcourſes pronounced before the French Academy.

HOUT'HOVE, a town of Flanders: ſix miles north-weſt of Bruges.

HOUTTUYN'IA, *ſ.* [ſo named by Thunberg, in honour of *Mart. Houttuyn*, M. D. of Holland; author of *Natuurlyke Hiſtorie*, in 14 vols. 8vo. Amſt. 1773 to 1783.] In botany, a genus of the claſs monoecia, order monandria, (heptandria, *Giſ.* polyandria polygina, *Thunb.*) natural order of piperitæ, (aroideæ, *Juſſ.*) The generic characters are—I. Male flowers. Calyx: ſpathe? four-leaved; leaflets ovate, concave, obtuſe, coloured; ſpadix oblong, the length of the ſpathe, covered with fructifications. Corolla: none. Stamina: filaments very many, intermixed with the germs (about ſeven round each germ), very ſhort; antheræ twin ovate. II. Females. Calyx: ſpathe and ſpadix common with the males. Corolla: none. Piſtillum: germs very many, intermixed with the ſtamens; (germ three-cornered; ſtyle none; ſtigmas three, oblong, reflex. *Lour.*) Pericarpium: capſule three-cornered, three-celled, three-valved, opening at the top. Seeds: many, ovate, ſmall.—*Eſſential Character.* Calyx four-leaved: corolla none; ſtamina mixed with the piſtils, ſeven about each the germ.

Houttuynia cordata, a ſingle ſpecies. This plant has the habit of polygonum, with ſtipules as that has. Root annual, fibrous; ſtem ſimple, herbaceous, grooved, flexuoſe, upright, a hand, a ſpan, or a foot, in height, ſmooth in all its parts; leaves alternate, petioled, cordate, cuſpidate, entire, pale underneath. It is difficult to determine the number of ſtamens in this genus, becauſe there is no calyx, corolla, or ſcales to ſeparate the germs. It ought, however, to be referred to the claſs polyandria, the ſtamens being ſcattered over an elongated receptacle, among ſeveral germs. Diſcovered by Thunberg in Japan, between Miaco and Jedo, very common in the ditches, and near the towns; flowering in May and June. Loureiro alſo found it, if his polypara be the ſame plant, in the gardens of Cochin-china, where it is eaten in ſalads, and is eſteemed attenuant, and emmenagogue. The leaves are five-nerved in his plant, which they are not in the houttuynia of Thunberg; but they agree ſo nearly in habit, that we may preſume they are the ſame ſpecies.

HOUT'WAEL, a town of Holland: one mile eaſt of Amſterdam.

HOW, *adv.* [from hu, Sax. *hoe*, Dut.] To what degree.—*How* long wilt thou refuſe to humble thyſelf before me? *Exodus.*—*How* much better is it to get wiſdom than gold? and to get underſtanding, rather to be choſen than ſilver? *Proverbs.*—*How* oft is the candle of the wicked put out? And *how* oft cometh their deſtruction upon them? *Job.*—O *how* love I thy law! it is my meditation. *Pſalms.*

*How* many children's plaints and mothers' cries!
*How* many woeful widows left to bow
To ſad diſgrace! *Daniel.*

In what manner.—'Tis much in our power *how* to live, but not at all when or *how* to die. *L'Eſtrange.*

Mark'd you not,
*How* that the guilty kindred of the queen
Look'd pale, when they did hear of Clarence' death?
*Shakeſpeare.*

For what reaſon; from what cauſe:

*How* now my love? Why is your cheek ſo pale?
*How* chance the roſes there do fade ſo faſt? *Shakeſpeare.*

By what means.—Men would have the colours of birds' feathers, if they could tell *how*; or they will have gay ſkins inſtead of gay clothes. *Bacon.*—In what ſtate:

Whence am I forc'd, and whither am I borne?
*How* and with what reproach ſhall I return? *Dryden.*

It is uſed in a ſenſe marking proportion or correſpondence.—Behold, he put no truſt in his ſervants, *how* much leſs in them that dwell in houſes of clay, whoſe foundation is in the duſt? *Job* iv. 19.—It is much uſed in exclamation.—*How* are the mighty fallen! *Sam.*—*How* doth the city ſit ſolitary as a widow! *Lam.* i.—In an affirmative ſenſe, not eaſily explained; that ſo it is; that.—Thick clouds put us in ſome hope of land, knowing *how* that part of the South-ſea was utterly unknown, and might have iſlands or continents. *Bacon.*

HOW'AN SOUND', a ſtrait of the ſea, between the iſlands of Egilſha and Rowſa, two of the Orkney Iſlands.

HOW'ARD, [i. e. *hofward*, the warden of a hall, *Spelman*; or *holdward*, the keeper of a ſtrong hold, *Veſtergen*; of *hoch*, Teut. high, and ƿaꞃꝺ, a warden, *Camden*; or of *hold*, favour, Teut. and *wold*, worthy, *Kilian*; or of holꝺ, hoſpitality, and ƿaꞃꝺ, *Skinner.*] A ſurname.

HOW'ARD, duke of Norfolk. For the hiſtory of this illuſtrious family, and their ſervices to their country, ſee the article HERALDRY, vol. ix. p. 460-462.

HOW'ARD (John), the celebrated philanthropiſt, was the only ſon of a carpet-warehouſeman and upholſterer in London. He was born about 1727, either at Enfield or at Hackney, where his father lived after retiring from buſineſs with a handſome fortune. His education was among the proteſtant diſſenters, of which ſect his father was a member: but more care appears to have been taken to ſecure his moral and religious principles, than to inſtruct him in religious jealouſies and controverſies. His mind was ever pregnant with Chriſtian toleration. In 1756, he ſet out upon a tour to the continent. In this, his leading object was, to view the ruins of Liſbon, lately deſolated by a dreadful earthquake. His intention was, however, prevented by the capture of the veſſel in which he embarked, and his viſit was paid to France in the capacity of a priſoner of war. The ſufferings which he underwent, and was witneſs to, on this occaſion, made an impreſſion upon his mind that probably was a principal cauſe of the philanthropical exertions which afterwards employed ſo great a portion of his life. Their immediate effect was to induce him, upon his liberation, to lay the ſtate of his fellow-ſufferers before the commiſſioners of the ſick and wounded ſeamen, who received his information with thanks. In 1758 he made a very ſuitable alliance with the eldeſt daughter of Mr. Serjeant Leeds, of Croxton, Cambridgeſhire. He was then ſettled at his eſtate at Cardington, near Bedford; but he ſoon after purchaſed a ſeat in the New Foreſt, Hampſhire, where he reſided three or four years. Returning to Cardington, he thenceforth made it the place of his fixed abode, and began to put in practice thoſe ſchemes for the good of his poor neighbours and tenants, in which he ever took peculiar delight. He built upon his eſtate a number of very neat and comfortable cottages, to each of which he annexed a little ground for a garden. Theſe he peopled with ſober and induſtrious tenants, over whoſe welfare he watched with the vigilance of a parent. He eſtabliſhed ſchools, where both ſexes were gratuitouſly taught what would be moſt uſeful in their condition of life. He alſo diſtributed much in private charity to the indigent, and promoted various plans for public benefit, beyond his own immediate vicinity. His own family was diſtinguiſhed for order and regularity, and he was exemplary in attention to religious duties, without any of the bigotry of party. One of his principal amuſements was horticulture, in which he excelled. He was alſo fond of philoſophical experiments and obſervations, and communicated to the Royal Society, of which he was a member, ſome papers in this claſs. In 1765 his domeſtic happineſs was irreparably injured by the death of his beloved wife, ſoon after ſhe had borne her only child. The education of his ſon, and his uſual benevolent occupations, continued to employ him till the year 1773, in which he ſerved the office of high-ſheriff for the county of Bedford. That conſcientious regard to his duty by which he was always actuated, would not permit him to paſs over ſlightly any of the functions of this office; and the ſuperintendance of the priſons ſeemed to him one of the moſt important. Finding many abuſes to prevail, which he did not know how to remedy, he determined to obtain all poſſible information on the ſubject. With this view he began by viſiting moſt of the county gaols in England. On a ſecond journey he extended his reſearches into town gaols and houſes of correction: and ſo diligently did he purſue his object, that he was enabled, in March 1774, to lay before the houſe of commons a large maſs of information, for which he received their public thanks. It was principally upon the credit of his teſtimony, that two bills were paſſed during this ſeſſion: one, "For the relief of acquitted priſoners in matter of fees;" the other, "For preſerving the health of priſoners." Theſe Mr. Howard procured to be printed in a large character, and ſent to every keeper of a county gaol throughout England.

He was now entered upon a new field of philanthropical exertion, in which he diſcerned that much good was to be done; and with that ſteady ardour of temper which always led him to carry to the utmoſt perfection every ſcheme which he adopted, he reſolved to devote his time and fortune to the improvement of this important part of civil polity. He accordingly, in 1775 and 1776, made two tours on the continent; and during their intervals travelled into Scotland and Ireland, and reviſited all the counties of England, ſolely employed, in all theſe places, in collecting every particular relative to the management of priſons. The fruit of theſe elaborate reſearches was given to the public in 1777, in a 4to vol. entitled, "The State of the Priſons in England and Wales; with Preliminary Obſervations, and an Account of ſome foreign Priſons." It was dedicated to the houſe of commons, and enriched with a number of illuſtrative plates. This expenſive publication was in a manner preſented by him to his country; for, beſides a very liberal donation of copies to individuals, he inſiſted upon fixing ſo low a price upon thoſe for ſale, that the purchaſer received gratuitouſly at leaſt the whole value of the plates. And this practice he followed in all his publications. As ſoon as it appeared, the world was aſtoniſhed at the maſs of valuable materials accumulated by a private unaided individual, through a courſe of prodigious labour, and at the conſtant hazard of life, in conſequence of the infectious diſeaſes prevalent in the ſcenes of his enquiries. The cool good ſenſe and moderation of his narrative, contraſted with that enthuſiaſtic ardour which muſt have impelled him to his undertaking, were not leſs admired; and he was immediately regarded as one of the extraordinary characters of the age, and the leader in all plans for meliorating the condition of that wretched part of the community for whom he intereſted himſelf. He had no object more at heart than the correction of their vices, which he thought might be effected by gentle but ſtrict diſcipline, accompanied with that degree of perſonal comfort which was compatible with confinement; and to this end the greater part of his obſervations was directed.

The houſe of commons having laudably ſeconded his zeal by bringing in a bill for the eſtabliſhment of houſes of correction according to his ideas, he thought himſelf obliged to new exertions in order to give all poſſible perfection to this deſign. He therefore, in 1778, repeated his viſit to the continent, in which he included Italy, as well as the nearer countries. After his return in 1779, he made another complete ſurvey of the priſons of England and Wales, and thoſe of Scotland and Ireland. In theſe tours he comprehended another object of importance to humanity, that of hoſpitals. He every where obſerved, and carefully noted down, their ſtructure and regulations, and procured plans and draughts where he thought they might ſuggeſt ſomething uſeful for imitation. Theſe reſearches furniſhed him with a large and intereſting "Appendix" to his former work, printed in 1780, 4to. At the ſame time, he publiſhed an edition in large 8vo. of his "State of the Priſons," containing the additional matter of his Appendix. At this period he accepted the office of one of the three ſuperviſors appointed by the act for eſtabliſhing penitentiary houſes. He made it an indiſpenſable condition of his acceptance, that his friend Dr. Fothergill ſhould be one of his aſſociates, and he reſolved to take no ſalary for his labours. The death of Dr. Fothergill, and difference in opinion with the other ſuperviſor, concerning the ſituation of the firſt of theſe buildings, cauſed him, in January 1781, to reſign his office, but it was only to reſume his far greater exertions in the ſame laudable cauſe. In the courſe of that year he purſued his uſual enquiries in a tour through the northern parts of Europe, compriſing Denmark, Sweden, Ruſſia, and Poland; and he employed the next year in ſurveying the priſons of England, and reviſiting Scotland and Ireland. The Proteſtant charter-ſchools in the latter kingdom were a new object of attention, and he freely expoſed the abuſes to which they had been ſubjected. The year 1783 completed his ſurvey of all the civiliſed parts of Europe, with that of Spain and Portugal; and upon his return, he again travelled into the three Britiſh kingdoms. Materials had now accumulated upon his hands ſufficient for another "Appendix," which he printed in 1784, together with a new edition of his firſt work, compriſing all the additional matter.

Though Mr. Howard had now almoſt exhauſted the objects which firſt engaged his reſearches, yet the habits he had acquired would not ſuffer him to reſign himſelf to repoſe, while any thing remained in which he thought his further labours might ſerve the intereſts of humanity. The progreſs of contagion in priſons and hoſpitals had led him to conſider of all the means uſed for checking it; and he expected to find theſe practiſed in their fulleſt extent in the prevention of that moſt fatal contagious diſeaſe, the plague. He alſo knew that the regulations for quarantine in this country were frivolous, and uſually evaded He therefore thought an examination of all the principal lazarettos in Europe would produce much valuable information; and as perſonal hazard never, in his eſtimation, ſtood in competition with a matter of duty, he did not heſitate to expoſe himſelf to all the dangers which might attend on ſo near an approach to the moſt dreaded peſtilence. He ſet out on this new expedition towards the end of 1785, unaccompanied by a ſervant, ſince he did not think it juſtifiable to expoſe to ſimilar dangers any one not actuated by the ſame motives. He took his way by the ſouth of France, through Italy, to Malta, Zante, Smyrna, and Conſtantinople. From the latter capital he returned to Smyrna, where he knew the plague then to prevail, for the purpoſe of going to Venice with a foul bill of health, that he might be ſubjected to all the rigour of a quarantine in the lazaretto, and by conſequence become acquainted with its rules. On his return by Vienna, the emperor Joſeph expreſſed a deſire of ſeeing him; for Mr. Howard was now a known and reſpected character throughout Europe. The interview paſſed as between an enlightened ſovereign deſirous of information, and a plain independent gentleman above the awe of rank, or the vanity of being noticed. During his abſence on this journey, the admiration of his countrymen ſuggeſted a deſign of doing him honour which proved highly oppreſſive to his feelings. A ſubſcription was entered into for the purpoſe of erecting a ſtatue, and it was ſoon filled with names of the firſt diſtinction. As ſoon as he was informed of the ſcheme, he expreſſed ſuch a decided averſion to what he called being "dragged out in public," that it was reluctantly abandoned. He returned in 1787; and after a ſhort reſt went to Ireland, and came back by Scotland. He reviſited Ireland in 1788, chiefly for the purpoſe of completing a ſurvey of its charter-ſchools, to which he had excited the attention of the parliament of that kingdom. All the county gaols, moſt of the bridewells, the infirmaries and hoſpitals, and the priſon-hulks, of England, were again examined by him, during the courſe of theſe two years. The year 1789 was chiefly devoted by him to the methodiſing and printing the copious and important matter which had accrued from his reſearches ſince the laſt publication. It appeared in that year in a quarto volume, entitled, An "Account of the principal Lazarettos in Europe, with various Papers relative to the Plague; together with further Obſervations on ſome foreign Priſons and Hoſpitals; with additional Remarks on the preſent State of thoſe in Great Britain and Ireland." It was accompanied with many plates, illuſtrative and ornamental, which, as before, were *given* to the readers. This work opened ſeveral new ſources of information to the author's countrymen, and was received with avidity. It concluded with the Draught of a Bill for the better regulation of gaols, particularly with reſpect to the prevention of drunkenneſs in them, a vice which he regarded with particular deteſtation, as the origin of moſt others to which the lower claſſes of people are liable. At the cloſe of this publication he declared his intention of again quitting his native country for the purpoſe of reviſiting Ruſſia and Turkey, and extending his travels in the Eaſt. What were the particular objects which he had in view in this protraction of his almoſt-unequalled labours, at a time when advancing years and declining ſtrength ſeemed to urge him to repoſe, was not clear even to his intimate friends; and it is probable that he was chiefly impelled by the long habit of purſuing a certain courſe of enquiry, joined to the diſquietude of mind he felt at home in conſequence of the unfortunate ſtate of inſanity into which his ſon had fallen. He quitted England in the ſummer of 1789, and proceeded through Germany to Peterſburgh and Moſcow. He found every where the priſons and hoſpitals thrown open to him, as to the general cenſor of that part of the police, whoſe authority was recogniſed in every civiliſed country. Such is the force of pure and exalted virtue! He next proceeded to the new Ruſſian ſettlements on the Black Sea, and took his ſtation at the town of Cherſon. At this place a fever of a malignant kind prevailed, among whoſe victims was a young lady whom he had been requeſted to viſit; for he had been ſo converſant with infectious diſeaſes, that he was thought (and thought himſelf) to poſſeſs medical ſkill in thoſe caſes. From her he probably received a contagion which carried him off on January 20, 1790, about the age of ſixty-three. He was buried in the neighbourhood of Cherſon, and all honours were paid to his memory by prince Potemkin, and other nobles then in office.

The bare recital of what Mr. Howard DID, in the cauſe of humanity, is ſufficient to place him among the greateſt benefactors of mankind, as well as the moſt extraordinary private characters recorded in biography. He was, indeed, ſingularly calculated for the taſk he undertook. Accuſtomed to the moſt rigorous temperance, ſo as to diſcard from his diet animal food and fermented liquors, he found no difficulty to live in the pooreſt countries. In all other reſpects, his mind was equally maſter of his body, and he incurred hardſhips of every kind without repugnance. In temper he was calm and compoſed, but firm and reſolute; proof againſt every allurement or intimidation that might divert him from his purpoſe. Economical in private expences, he knew no bounds in his expenditure on objects of public utility, and regarded money only as an inſtrument of beneficence. In honour, integrity, and attachment to principle, he was not ſurpaſſed by any human being. His talents were rather of the uſeful than the ſhining kind, but peculiarly adapted for that collection of facts and obſervations in which he ſurpaſſed all who have gone before him. The teſtimony of public reſpect which he refuſed when living, has been conferred upon his memory; and his monumental ſtatue was one of the firſt of thoſe by which the chathedral of St. Paul's has been made a receptacle of national worthies.

HOW'BE, or HOWBEI'T, *adv.* Nevertheleſs; notwithſtanding; yet; however. *Not in uſe.*

*Howbe* I am but rude and borrel,
Yet nearer ways I know. *Spenſer.*

There is a knowledge which God hath always revealed unto men in the works of nature; this they honour and eſteem as profound wiſdom, *howbeit* this wiſdom ſaveth them not. *Hooker.*

HOW'DEN, a conſiderable town in the Eaſt Riding of Yorſhire, diſtant 180 miles from London. It ſtands on the north ſide of the Ouſe, has a large market every Saturday, and fairs on the ſecond Tueſday in January, Tueſday before March 25, ſecond Tueſday in July, and October 2; at theſe fairs there is generally a large ſhow of Yorkſhire-bred horſes. The fair, or mart, held here for eight days together, was formerly very conſiderable for inland trade, and ſeveral wholeſale tradeſmen came to it from London; but it has lately much declined. Here was formerly a collegiate church of five prebendaries, erected in the fifteenth century, to which the biſhops of Durham, who have many eſtates hereabouts with a temporal juriſdiction, have a palace adjacent. One of them built a very tall ſteeple to the church, that the inhabitants might retire to it in caſe of inundations; to which the town is very liable, from the great freſhes that come down the Ouſe ſometimes at ebb. The church is an ancient building, ſuppoſed to have been erected about the year 1100.

This part of the county is called Howdenſhire, and is abundantly watered by a conflux of ſeveral large rivers that empty themſelves into the Humber, which, receiving the Aire, the Ouſe, the Don, and the Trent, becomes rather a ſea than a river. The middle of this diviſion of Yorkſhire is very thin of towns and people, being overſpread with wolds, i. e. plains and downs, like thoſe of Saliſbury, which feed great numbers of ſheep, black cattle, and horſes, and produce corn. The northern part eſpecially is more mountainous, which makes part of the North Riding. But the eaſt and weſt parts are populous and rich, and full of towns; the one lying on the ſea-coaſt, and the other upon the river Derwent. The ſea-coaſt, or ſouth-eaſt ſide, is called Holderneſs.

Howden is famous for the birth or reſidence of one of our ancient hiſtorians, Roger of Hoveden, or Howden, a monk of this abbey. Mr. Camden's Continuator miſtakes in ſaying this town ſtands upon the Derwent, for it is above three miles ſouth-eaſt of it. Here is a good free-ſchool, two other charity-ſchools, and two large Sunday-ſchools, one for boys and another for girls. The river Aire runs from the Ouſe, near Booth-ferry, up to Leeds, Halifax, &c. alſo a canal from Thorne to Goole-bridge, and ſo on to Hull, where trading-veſſels paſs. Howden-dike is about a mile and a half from Howden, where goods are ſhipped for, and landed from, the ports of London, Hull, &c. And for the accommodation of travellers there is a ferry over Howden-dike above-mentioned, one at Swinfleet, one at Whitgift, one at Long Drax, each over the river Ouſe, near Howden; one at Loftſome, and one at Menthrope, over the Derwent; and one at Booth, between Howden and Armin.

HOWD'YE. [Contracted from *how do ye.*] In what ſtate is your health? A meſſage of civility.—I now write no letters but of plain buſineſs, or plain *howd'ye's*, to thoſe few I am forced to correſpond with. *Pope.*

HOWE (Richard), earl, an eminent Engliſh naval commander, for an account of whom, ſee the article HERALDRY, vol. ix. p. 662.

HOWE (John), a learned Engliſh nonconformiſt divine, born at Loughborough in Leiceſterſhire, of which place his father was miniſter, in 1630. The latter being afterwards ejected by archbiſhop Laud, on account of his connecting himſelf with the Puritans, removed with his ſon to Ireland, where they continued till the rebellion in that country obliged them to return to England, when they ſettled in Lancaſhire. The ſon was now ſent to Chriſt college, in the univerſity of Cambridge, where he became acquainted with Dr. Henry More, and Dr. Cudworth, both of whom he greatly admired; and it is probable that during his intimacy with them he imbibed that Platonic tincture, which ſo remarkably appears in the writings which he publiſhed, and more or leſs marked the purſuits of his whole life, which was ſpent in religious controverſy, till the time of his death in 1705. He was a perſon of diſtinguiſhed piety and virtue, of eminent intellectual endowments, and of extenſive learning. Dr. Calamy ſays, that "he was one of great abſtractedneſs of thought, a ſtrong reaſoner, and one that had a very penetrating judgment, which carried him as deep into a ſubject as moſt men ever went that handled it. His miniſterial qualifications were ſingular: he could preach off-hand with as much exactneſs as many others upon the cloſeſt ſtudy. He delivered his ſermons without notes, though he did not impoſe that method upon others. He did not look upon religion as a ſyſtem of opinions, or a ſet of forms, ſo much as a divine diſcipline to reform the heart and life. In ſmaller matters he could freely give others the liberty of their own ſentiments; and was as unwilling to impoſe as to be impoſed upon. There is an uncommon depth of thought in ſeveral of his works." He was the author of, 1. The Bleſſedneſs of the Righteous laid open, 1673, 8vo. 2. A Treatiſe of delighting in God, in two parts, 1674, 8vo. 3. The Living Temple; or, a deſigned Improvement of that Notion, that a Good Man is the Temple of God, 1674, 8vo. 4. The Reconcileableneſs of God's Preſcience of the Sins of Men, with the Wiſdom and Sincerity of his Counſels and Exhortations, and whatſoever other Means he uſes to prevent them, 1677, 8vo. 5. A View of Antiquity; preſented in a ſhort, but ſufficient, Account of ſome Fathers, &c. 1677, 8vo. 6. Of Thoughtfulneſs for To-morrow; with an Appendix concerning the immoderate Deſire of foreknowing Things to come, &c. 7. Annotations on the three Epiſtles of St. John, publiſhed in the ſecond volume, or Continuation, of Pool's Annotations. 8. A calm and ſober Enquiry concerning the Poſſibility of a Trinity in the Godhead, &c. 1694, 8vo. 9. The ſecond Part of the Living Temple, containing animadverſions on Spinoſa, and a French writer pretending to refute him, &c. 1702, 8vo. and numerous Sermons, together with ſome controverſial treatiſes in ſupport of his own piece on the Trinity, &c. The whole of his works were printed together, in 2 vols. folio, 1724; with a Life of the author prefixed, drawn up by Dr. Calamy.

HOWE (The), a ſmall iſland in the Engliſh Channel, near the north-weſt coaſt of the iſland of Guernſey.

HOWE's FO'RELAND, a cape on the coaſt of Kerguelenſand, or iſland of Deſolation. Lat. 48. 50. S. lon. 69. 27. E. Greenwich.

HOWE ISLAND, an iſland in the South Pacific Ocean, diſcovered in 1767 by captain Wallis, and according to captain Cook, who ſaw it in the year 1774, compoſed of ſeveral ſmaller iſlands, united by breakers. Some cocoanut trees were ſeen, but not abundant. Lat. 16. 46. S. lon. 154. 7. W. Greenwich.

HOWE's ISLAND, an iſland in the South Pacific Ocean, diſcovered in 1788 by lieutenant Henry Lidgbird Ball, a ſon of the late George Ball, of Irby, in Cheſhire, eſquire, and named by him *Lord Howe's* Iſland. It is but ſmall in extent, in length only ſeven leagues, and in the form of a creſcent. In ſome parts it riſes into lofty craggy hills; one of which, called *Ball's Pyramid*, is very ſingular, formed on one ſide of baſaltic columns; and ſo lofty as to be ſeen at the diſtance of twelve leagues. Another rock is circular at top, ſo as to look like a ſpread fan; the reſt ſo low as to give theſe rocks the form of iſlands. The iſland abounds in cabbage-palms, or areca ſapida, with mangrove-trees, and manchineel, or hippomane mancinella, which ſpread even to the tops of the mountains. Lord Howe's Iſland ſwarms with birds, ſuch as parrots, parroquets, large pigeons, and ſeveral other land birds; alſo gannets in infinite numbers, rails, white gallinules, like thoſe of Norfolk Iſle, and a land fowl of a duſky brown colour, with a bill four inches long, feet like a chicken, very fat, and excellent food. The coaſt ſwarms with fiſh; but what may render this iſland of great uſe to our coloniſts, are the amazing abundance of turtle which frequent its ſhores during ſummer, and may be taken in that ſeaſon in any quantity; but at the approach of winter they all retire northward.

HOWE's POINT, a cape on the north coaſt of the iſland of Egmont: five miles weſt of Hanway's Point.

HOW'ELL, [Camden derives it from Ἡλιος, Gr. the Sun.] A ſurname.

HOW'ELL (James), a copious Engliſh writer, born in 1596. He received his early education at the free-ſchool of Hereford, whence he was removed to Jeſus college, Oxford, of which his elder brother, Thomas, was a fellow. He applied diligently to his ſtudies in the univerſity, and in 1613 commenced bachelor of arts. He left England in the ſpring of 1619, and viſited many commercial towns in Holland, Flanders, France, Spain, and Italy. As he was a perſon of quick parts, and, with a talent for obſervation, he laid in a large ſtock of knowledge, and obtained an acquaintance with modern languages, unuſual at that period. He returned to England in 1621, and ſome time after ſettled at York; and, while he continued there, the corporation of Richmond choſe him for one of their repreſentatives in the parliament of 1627. In 1630 he accompanied Robert earl of Leiceſter, ambaſſador-extraordinary to the court of Denmark, in quality of his ſecretary, and diſplayed his oratorical talents in Latin ſpeeches before the king of Denmark. The favour he enjoyed at Copenhagen rendered him able to procure the grant of ſome privileges to the Eaſtland company, which they had before ſolicited in vain. Mr. Howell now aimed at literary reputation; and in 1639 publiſhed a poem entitled Dodona's Grove, or the Vocal Foreſt, which was well received, and paſſed through ſeveral editions. It was followed by another loyal effuſion, The Vote, preſented to the king on his birth-day; and his purpoſe in theſe efforts was anſwered by the appointment, in 1640, to the clerkſhip of the council, the beſt place he ever enjoyed. The ſupervening troubles, however, rendered it of no long duration. His pen was now his chief ſupport; till the reſtoration of Charles II. by whom he was made the firſt hiſtoriographer-royal in England, which office he enjoyed till his death in 1666. Of the numerous publications of Howell, few are now remembered except his Familiar Letters, entitled *Epiſtolæ Ho-Elianæ*. They were firſt printed in 1645, and are ſaid to be "partly hiſtorical, partly political, partly philoſophical." Others of his letters are found in the papers of lord Strafford, written to that nobleman.

HOWELL DHA', a celebrated prince and legiſlator of Wales, in the tenth century, who rendered himſelf memorable by the code of laws which he enacted, and which ſtill bear his name. He reſided in a houſe formed of white wattles, whither he aſſembled, in the field before it, the principal people from every part of Wales. This field is at the village of Whitland, in Caermarthenſhire. The ſtyle of common building for private perſons muſt have been ſimple indeed, when a ſtructure of ſuch materials was deemed ſufficient for a prince, in the fulleſt exerciſe of his ſovereign authority. When this great work of legiſlation was completed, three copies were written; one of which was to follow the prince's court, for his perſonal guidance, and the other two to be depoſited for the uſe of the provinces, one at the palace of Aberfraw, and the other in that of Dinevower. Neither did this indefatigable prince reſt ſatisfied even with this ſolemn enactment: he went to Rome with a company of biſhops and learned men, for the purpoſe of reciting the proviſions before the pope, who gave them the ſanction of his authority. All cauſes relating to inheritance of land were to be adjudged by the king or prince in perſon, who ſat on an elevated chair, with an elder on each ſide, and the freeholders ranged next to the elders. In another diviſion of the court, before the king, on a lower ſeat, ſat the chief juſtice of the principality, with the prieſt on his right hand, and the ordinary judge of the diſtrict on his left. As ſoon as the court was opened, the plaintiff entered the third diviſion on the left ſide, and took his ſtation facing the ordinary judge, with his ſerjeant at his right hand, his advocate behind him, and his champion in the rear of the advocate. The defendant occupied the right ſide of the court, with his attendants in the ſame order, and ſtood facing the prieſt. The witneſſes were placed at the lower end, between the champions of either party, oppoſite the chief juſtice. The middle ſpace of the third diviſion was kept clear, that the witneſſes might be diſtinctly ſeen by the prince and chief judge while they were giving their evidence. When the depoſitions were concluded, on a ſignal given by the ſerjeants, the chief-juſtice, prieſt, and ordinary judge, retired to frame their verdict for the conſideration of the king or prince, who, on receiving it, conſulted with the elders, and paſſed ſentence if the right was clear, or referred it to be tried by the champions if it was obſcure. This court was not held in any hall or covered building, but in the open air.

HOWEV'ER, *adv.* In whatſoever manner; in whatſoever degree:

> To trace the ways
> Of higheſt agents, deem'd *however* wiſe. *Milton.*

At all events; happen what will; at leaſt.—Our chief end is to be freed from all if it may be, *however* from the greateſt, evils; and to enjoy, if it may be, all good, *however* the chiefeſt. *Tillotſon.*—Nevertheleſs; notwithſtanding; yet.—Few turn their thoughts to examine how thoſe diſeaſes in a ſtate are bred, that haſten its end; which would, *however*, be a very uſeful enquiry. *Swift.*

> In your excuſe your love does little ſay;
> You might *howe'er* have took a fairer way. *Dryden.*

To ſome of theſe meanings this word may be commonly reduced, but its power is ſometimes almoſt evaneſcent.

HOWILEMU'R, a town of Perſia, in the province of Ghilan: thirty leagues north-weſt of Reſhd.

HOW'ITZ, or HOWITZER. See GUN, vol ix p. 97.

HOW'KER, *ſ.* A ſea term; a ſmall kind of ſhip, a hoy.

*To* HOWL, *v. n.* [from *huglen*, Dut. *ululo*, Lat.] To cry as a wolf or dog.—He found him in a deſert land, and in the waſte *howling* wilderneſs. *Deut.* xxxii. 10.

Hard as his native rocks, cold as his ſword,
Fierce as the wolves that *howl'd* around his birth;
He hates the tyrant, and the ſuppliant ſcorns. *Smith.*

To utter cries in diſtreſs.—Therefore I will *howl*, and cry out for all Moab. *Jer.* xlviii.—To ſpeak with a bellowing cry or tone:

Peace, monſter, peace! Go tell thy horrid tale
To ſavages, and *howl* it out in deſerts! *Phillips.*

It is uſed poetically of many noiſes loud and horrid.

HOWL, *ſ.* The cry of a wolf or dog.—Theſe and the like rumours are no more than the laſt *howls* of a dog diſſected alive. *Swift.*—The cry of a human being in horror:

She raves, ſhe runs with a diſtracted pace,
And fills with horrid *howls* the public place. *Dryden.*

HOW'LING, *ſ.* The noiſe of a dog or wolf; the cry of lamentation and miſery:

The noiſe grows louder ſtill:
Rattling of armour, trumpets, drums, and atabelles;
And ſometimes peals of ſhouts that rend the heav'ns,
Like victory: then groans again, and *howlings*
Like thoſe of vanquiſh'd men. *Dryden.*

HOWSOEV'ER, *adv.* In what manner ſoever. See However.—Beroſus, who, after Moſes, was one of the moſt ancient, *howſoever* he hath been ſince corrupted, doth in the ſubſtance of all agree. *Raleigh.*—Although.—The man doth fear God, *howſoever* it ſeems not in him. *Shakeſp.*

*To* HOX, *v. a.* [from haȝ, Sax.] To hough; to hamſtring:

Thou art a coward,
Which *hoxes* honeſty behind, reſtraining
From courſe required. *Shakeſpeare.*

HOX'ING, *ſ.* The act of hamſtringing.

HOX'TER, a town of Germany, in Weſtphalia, belonging to the abbey of Corvey. In the year 1265, the dukes of Brunſwick obtained the right of protection over it, by way of fief from the abbot, but with a reſervation to the latter of certain rights; and in the year 1547, the abbot granted alſo to that houſe the power of life and death. In the year 1634, this town was ſtormed by the Imperialiſts, and the inhabitants, as well as the garriſon, put to the ſword. In 1646, it was taken by the Swedes. There were formerly upwards of one thouſand citizens, but the number is now greatly reduced: one league north-weſt of Corvey.

HOX'TON, [formerly *Hogilſdon*, perhaps for *Haligtun*, i. e. an holy town.] A town in Suſſex, memorable for the martyrdom of St. Edmund the king.—A village near London.

HOY, *ſ.* [from *hou*, old Fr.] A large boat, generally with one deck:

He ſent to Germany, ſtrange aid to rear;
From whence eftſoons arrived here three *hoys*
Of Saxons, whom he for his ſafety employs. *Fairy Queen.*

HOY HEAD, a cape on the weſt coaſt of the iſland of Hoy, one of the Orkneys. Lat. 58. 47. N. lon. 0. 2. weſt of Edinburgh.

HO'YA, one of the larger Orkney iſlands, about eleven miles long, and rather more than three broad, ſeparated from Pamona by a channel about a mile and a half wide; there are ſeveral bays round the coaſt, and good fiſhing: the principal places are Hoy and Southwalls. Lat. 58. 43. N. lon. 0. 5. E. Edinburgh.

HO'YA, a country and principality of Germany, in Weſtphalia, bounded on the north by the county of Delmenhorſt, the territory of Bremen and the Weſer, on the eaſt by the principalities of Luneburg and Calenburg, on the ſouth by the principality of Minden, and on the weſt by the county of Diepholz; about thirty-two miles in length, and twenty-nine in breadth. In this county are ſome large heaths, and the ſoil is, for the moſt part, ſandy; nevertheleſs, it contains ſome good arable lands and good paſtures, producing wheat, rye, barley, oats, flax, and buck-wheat. On the ſides of the rivers are ſome good meadows. The principal rivers are the Weſer and the Aller. The inhabitants apply themſelves partly to agriculture, breeding cattle, and keeping bees, and partly to manufacturing linen, woollen, and ſtockings, &c. Moſt of the peaſants are bond-men. The whole country contains fifty-four pariſhes, all which profeſs the doctrines of Luther. This country was added to the dominions of the electoral houſe of Hanover, in 1705, except a ſmall part, which belongs to Heſſe Caſſel. Hoya contains ſeventeen ſmall towns beſides the capital. The imperial taxation of the electoral houſe, on account of Hoya, was two horſe and ſix foot, or monthly forty-eight florins, and to each chamber term nine rix-dollars. Hoya is the capital.

HO'YA, a town of Germany, in Weſtphalia, in a county of the ſame name, ſituated on the Weſer. This town was burned down in 1758, and ſince handſomely rebuilt. In 1757, this town was taken by the French; and on the 24th February, 1758, it was retaken by the hereditary prince of Brunſwick, after a ſevere battle, in which the French loſt upwards of 700 priſoners: twenty-four miles ſouth-ſouth-eaſt of Bremen. Lat. 52. 49. N. lon. 26. 53. E. Ferro.

HOY'DENING, *ſ.* Romping freedoms.—Primneſs and affectation of ſtyle, like the good-breeding of queen Anne's court, has turned to *hoydening* and rude familiarity. *Gray.*

HO'YER, a town of Denmark, in the duchy of Sleſwick, with an harbour for ſmall veſſels, ſituated off the coaſt of the North Sea, celebrated for its oyſter-fiſhery: four miles weſt of Tondern.

HO'YERSWERDA, a town of Luſatia, on the river Sprehe: two miles north of Witchenau, and thirty-two north-north-eaſt of Dreſden.

HOY'LAND, a town of Norway, in the dioceſe of Drontheim: ninety-two miles north-north-eaſt of Drontheim.

HOY'LE LOUGH, a lake of Ireland, in the county of Weſtmeath: two miles north-weſt of Mullingan.

HOYM, a town of Germany, in Upper Saxony, and duchy of Anhalt Bernburg: ſixteen miles weſt of Bernburg.

HO'ZA, a town of Lithuania, in the palatinate of Troki: eight miles north of Gredno.

HOZARDA'RA, a mountain of Perſia, in the province of Irak: ſeven leagues ſouth of Iſpahan.

*To* HOZE, *v. a.* To law; to take off the balls of a dog's foot to prevent his running.

HO'ZIER (Peter d'), ſeigneur de la Garde in Provence, born at Marſeilles in 1592. After receiving an excellent education, he entered into the army, and ſerved under the count de Crequi, the genealogy of whoſe family he drew up. His ſucceſs in this attempt cauſed him to be employed by ſeveral other noble families in the ſame ſervice. Gaſton, duke of Orleans, made him a gentleman of his train; and in 1628, the king, Louis XIII. conferred upon him the order of St. Michael. A royal penſion of twelve hundred livres was given him the next year, for the expreſs purpoſe of "affording him leiſure for his curious reſearches concerning the illuſtrious families of the kingdom, of which, by his long labours, he had acquired a particular knowledge." In 1642 he was made maitre-d'hotel to his majeſty, and in 1654 was raiſed to the dignity of counſellor of ſtate. He died at Paris in 1660, after having acquired an extraordinary reputation as a herald and genealogiſt. He wrote a Hiſtory of Brittany, folio; and a number of genealogies, ſome printed, and many left in manuſcript.

HO'ZIER (Charles-René d'), ſon of the preceding, born in 1640. He ſucceeded to the office of judge of arms, and was honoured by the duke of Savoy with the knighthood of the order of St. Maurice. He died at Paris in 1732. He diſtinguiſhed himſelf by his heraldic knowledge, and compoſed ſeveral works in this branch by order of Louis XIV. Among theſe is *Le Nobiliare de Champagne*, folio, 1673, drawn up under the direction of Caumartin.

Louis Peter d'Hozier, his nephew and ſucceſſor in office, died in 1767. During the period of his miniſtration appeared *L'Armorial, ou Regiſtres de la Nobleſſe de France*, in 10 vols. folio.

HO'ZING, *ſ.* The act of expeditating.

HOZOW', a town of Poland, in the palatinate of Kiov: thirty miles ſouth-weſt of Bialacerkiew.

HRA'DECK, a town of Bohemia, in Konigingratz: twelve miles ſouth-eaſt of Konigingratz.

HRA'DEK, a town of Bohemia, in Konigingratz: four miles weſt of Konigingratz.

HRA'DISCH, a town of Moravia, and capital of a circle of the ſame name, ſituated on the river Moraw, celebrated for its excellent wine and fruit: thirty miles ſouth of Olmutz, and 120 ſouth of Breſlau.

HRAT'NIZ, a town of Bohemia, in Konigingratz: two miles ſouth-weſt of Geyerſberg.

HREB'NIA, a town of Lithuania, in the palatinate of Minſk: ſixteen miles ſouth-ſouth-eaſt of Minſk.

HRO'CHOW, a town of Bohemia, in Chrudim: four miles eaſt-north-eaſt of Chrudim.

HRO'ZOW, a town of Lithuania, in the palatinate of Novogrodeck: eighteen miles north of Sluck.

HU-CHOUI-LO-TCHUAN, a town of the kingdom of Corea: 600 miles eaſt-north-eaſt of Peking. Lat. 42. 27. N. lon. 146. 37. E. Ferro.

HU'A, or Kahua, a city of Aſia, and capital of Cochin-china.

HUA'CRE-CHU'CO, a town of Peru, in the audience of Lima, and juriſdiction of Guamalies.

HUAHEI'NE, one of the Society Iſlands, in the Southern Pacific Ocean, eight leagues in circumference, ſeparated by a deep gulf into two peninſulas, united by an iſthmus, which is overflowed by the ſea in high tides. The vegetable productions are ſimilar to thoſe of Otaheite. The harbour of Owharra, on the weſt coaſt, has good anchorage, in eighteen fathom water, ſecure from winds. Lat. 16. 43. N. lon. 151. W. Greenwich.

HUAN'CA-VEL'ICA. See Guanca-Velica.

HU'BAUT, a rock in the Engliſh Channel: two miles and a quarter ſouth-weſt of Noirmont Point.

HUB'BUB, *ſ.* [etymology uncertain.] A tumult; a riot:

> An univerſal *hubbub* wild
> Of ſtunning ſounds, and voices all confus'd,
> Borne through the hollow dark, aſſaults his ear,
> With loudeſt vehemence. *Milton.*

HU'BELY, a town of Hindooſtan, in the country of Sanore: eighteen miles ſouth-eaſt of Darwar, and twenty north-weſt of Sanore. Lat. 15. 53. N. lon. 75. 24. E. Greenwich.

HU'BER (Ulric), one of the greateſt civilians in the ſeventeenth century, born at Dockum in 1636. He became profeſſor of law at Franeker; and wrote, 1. A treatiſe *De jure civitatis.* 2. *Juriſprudentia Friſica.* 3. *Specimen philoſophiæ civilis.* 4. *Inſtitutiones hiſtoriæ civilis*; and ſeveral other works, which are eſteemed. He died in 1694.

HU'BER (John-James), a celebrated anatomiſt, born at Baſle in 1707. He laid the grounds of his education in his native city; ſtudied at Berne under the great Haller, and afterwards at Straſburgh; and in 1733 took the degree of doctor of medicine at Baſle. In 1735 he made a tour to Paris, and the ſame year was appointed phyſician to the court of Baden Dourlach. Haller, who removed to Gottingen in 1736, having conceived the idea of publiſhing a deſcription of all the plants of Swiſſerland, and not being able to examine the whole of that country himſelf, Huber explored for him the Graübund mountains, collected the plants which grow in that diſtrict, and tranſmitted them to Haller for the completion of his work, which was publiſhed in 1742 in 2 vols. folio, under the title of *Enumeratio Plantarum Helveticarum.* The author acknowledges the ſervices rendered to him by Huber, whom he invited to Gottingen in 1738, to be diſſector. He was ſoon made extraordinary-profeſſor of anatomy in that city; in 1742 profeſſor in the Caroline college at Caſſel, with the rank of court-phyſician; and in 1748 counſellor of ſtate and body-phyſician to the prince, in which office he died in 1778. In 1741 he was elected a member of the Imperial Academy of the Searchers into Nature, under the name of Aretæus II. The ſame honour was conferred on him by the Royal Society of London, in 1750; by the Medical Society of Baſle, in 1754; and by the Academy of Sciences at Berlin, in 1760. His principal works are, 1. *Commentatio de Medulla Spinali, ſpeciatim de Nervis ab ea provenientibus, cum icon. Goett.* 1741, 4to. 2. *Commentatio de Vaginæ Uteri Structura rugoſa, nec non de Hymene*, 1742, 4to. A letter of his may be ſeen in the forty-ſixth volume of the Philoſophical Tranſactions, *De Cadavere aperto in quo non exiſtit Veſica fellea & de Sterno gibboſo.*

HU'BER (Mary), an ingenious philoſophical and miſcellaneous writer, born at Geneva, and died at Lyons in 1753. She poſſeſſed knowledge and genius; but her writings are ſometimes obſcure, particularly her metaphyſical pieces, owing to the want of ſufficient preciſion and diſtinctneſs in the development of her ideas. The following are the titles of ſome of her principal productions: 1. *Le Monde fou, préféré au Monde ſage*, 1731–1744, 12mo. 2. *Le Syſtême des Theologiens anciens & modernes, ſur l'Etat des Ames ſéparées des Corps*, 1731–1739, 12mo. 3. *Suite du même Ouvrage, ſervant de Réponſe à M. Ruchat*, 1733–1739, 12mo. 4. *Lettres ſur la Religion eſſentielle à la Homme*, 1739 and 1754, in 6 vols. 12mo. 5. *Reduction du Spectateur Anglois*, in 6 vols. 12mo.

HU'BERT, [of hepe, colour, and beoꞃꞇ, clear, Sax.] A proper name.

HU'BERT (Matthew), a French writer and divine, was born at Châtillon, in 1640. He received his education at the college of the fathers of the oratory at Mans, where for ſome time he filled the office of claſſical inſtructor with applauſe. Being admitted into holy orders, his fame for pulpit eloquence ſoon ſpread abroad, and he met with numerous admirers as he preached ſucceſſively in the provinces, at Paris, and before the court. He died in 1717, at the age of ſeventy-ſeven. Six volumes of his Sermons were publiſhed by father Monteuil, in 1725; in 12mo. which by perſons of piety and taſte were as much approved in the cloſet, as they had been formerly admired from the pulpit.

HU'BERTSBERG, a town of Germany, in Upper Saxony, with a magnificent hunting-ſeat, built by Auguſtus III. then electoral prince; remarkable for a peace made here between the kings of Pruſſia and Poland and the empreſs queen: three miles north-eaſt of Mutſchen.

HUB'KOW, a town of Poland, in the palatinate of Volhynia: ſixty-four miles north-weſt of Zytomiers.

HUB'NER (John), a learned geographer of Germany, taught geography at Leipſic and Hamburgh with extraordinary reputation, and died at Hamburgh in 1732, aged ſixty-three. His principal work is A Geographical Treatiſe, printed at Baſil in 1746, in 6 vols. 12mo.

HUCK'ABACK, *ſ.* A kind of linen on which the figures are raiſed.

HUCK'ESWAGEN, a town of Germany, in Weſtphalia, and duchy of Berg: twenty-four miles eaſt-ſouth-eaſt of Duſſeldorp.

HUCK'LEBACKED, *adj.* [*hocker*, Germ.] Crooked in the ſhoulders.

HUCK'LEBONE, *ſ.* [from *huckeu*, Dut. to ſit down.] The hipbone.

HUCK'STER, or Huck'sterer, *ſ.* [*hock*, Ger. a pedlar; *hockſter*, a ſhe pedlar.] One who ſells goods by retail, or in ſmall quantities; a pedlar.—There cannot be a more ignominious trade than the being *huckſters* to ſuch vile merchandiſe. *Government of the Tongue.*—God deliver the world from ſuch guides, or rather ſuch *huckſters* of ſouls, the very ſhame of religion. *South.*—A trickiſh mean fellow.—Now the ape wanted his *huckſter* man. *Hubberd's Tale.*

*To* HUCK'STER, *v. n.* To deal in petty bargains.—They muſt pay a ſhilling for changing their piece into ſilver, to ſome *huckſtering* fellow who follows that trade. *Swift.*

HUCK'STERING, *ſ.* The act or trade of dealing in petty articles.

HUCQUELIE'RES, a town of France, in the department of the Straits of Calais, and chief place of a canton, in the diſtrict of Boulogne: three leagues north-eaſt of Montreuil.

HUD-SJE'RA, a town of Arabia Felix, in the province of Yemen: thirty-ſix miles weſt-north-weſt of Sana.

HUD'DE (John), a burgomaſter of Amſterdam, who died in 1704. He was eminent in his character of a magiſtrate, and poſſeſſed a genius for mathematical ſtudies, from which high expectations might have been entertained, had he not been diverted from their purſuit by political affairs. He was the author of excellent little pieces On the Reduction of Equations, and *De Maximis et Minimis*, inſerted by Francis Schooten in his Commentary on the Geometry of Deſcartes.

HUD'DERSFIELD, one of the five market-towns in the Weſt Riding of Yorkſhire, eminent for the woollen manufacture. It has improved conſiderably within the laſt few years in buildings, trade, and population. The neighbourhood of Huddersfield is remarkably populous, and is chiefly occupied in the manufacture of woollen cloth, as far as the diſtrict of Saddleworth, which lies from twelve to ſixteen miles weſt of Huddersfield, amongſt a chain of hills which divide Yorkſhire from Lancaſhire. The manufacture of this part of the Weſt Riding principally conſiſts of narrow cloths, fine and coarſe; but many fine broad cloths are alſo now manufactured here, as well as ſerges, kerſeymeres, fine coatings, thick kerſeys, frizes, and various other kinds, both of woollen and worſted goods. The market is held on Tueſdays, when the cloth is expoſed to ſale in a large hall, built at the expence of ſir John Ramſden, bart. of Byram, near Ferry Bridge. The building is of a circular form, two ſtories high; for better ſecurity, there are no windows on the outſide, but the light is admitted by windows in the inner wall. A middle row of one ſtory in height, and ſupported by pillars, opens into the other part, and divides the area into two courts. Above the door is a handſome cupola, in which is a clock, and a bell uſed for the purpoſe of opening and ſhutting the market. The hall is opened early in the morning, and is ſhut at half paſt twelve at noon. The reſort to this market of manufacturers from a large circuit in the neighbourhood, and of merchants and woolſtaplers from the towns of Leeds, Wakefield, Halifax, &c. is amazingly numerous, and the average return of the goods ſold is ſuppoſed to be greater than that of any other market in the kingdom, though the amount cannot be particularly aſcertained. There are three annual fairs, on March 31, May 14, and October 4, for cattle, horſes, &c. but that on May 14 is the principal one. The church is an ancient plain building, very large, but has nothing particularly ornamental or curious in it. Huddersfield is diſtant from Halifax, ſeven miles and a half; Leeds fifteen and a half; Wakefield thirteen and a half; Sheffield, twenty-ſix; Mancheſter, twenty-five; and 189 from London.

*To* HUD'DLE, *v. a.* [probably from *hood.*] To dreſs up cloſe ſo as not to be diſcovered; to mobble. To put on careleſsly in a hurry:

At twelve ſhe roſe with much ado;
Her clothes were *huddled* on by two. *Prior.*

To cover up in haſte. To perform in a hurry:

When continu'd rain
The lab'ring huſband in his houſe reſtrain,
Let him forecaſt his work with timely care,
Which elſe is *huddled* when the ſkies are fair. *Dryden.*

To throw together in confuſion.—Our adverſary *huddling* ſeveral ſuppoſitions together, and that in doubtful and general terms, makes a medley and confuſion. *Locke.*

*To* HUD'DLE, *v. n.* To come in a crowd or hurry:

Thyrſis, whoſe artful ſtrains have oft delay'd
The *huddling* brook to hear his madrigal,
And ſweeten'd every muſkroſe of the dale. *Milton.*

HUD'DLE, *ſ.* Crowd; tumult; confuſion; with obſcurity.—Nature doth nothing in a *huddle. L'Eſtrange.*—The underſtanding ſees nothing diſtinctly in things remote, and in a *huddle. Locke.*—A perſon of confuſed underſtanding.—It was ſport enough for me to ſee theſe old *huddles* hit home. *Lilly.*—How does thy young wife, old *huddle? Marſton.*

HUD'DLING, *ſ.* The act of dreſſing up cloſely, or of doing any thing in a hurry or confuſedly.

HUDE, a river of England, which runs into the Tees ſeven miles above Barnard Caſtle, in the county of Durham.

HU'DEMUHLEN, a town of Germany, in Lower Saxony, and principality of Luneburg Zell, on the Aller: twenty miles north of Hanover, and nineteen weſt of Zell.

HU'DICKSWALL, a ſeaport town of Sweden, in the province of Helſing-land, with a good harbour ſurrounded on three ſides by the ſea. The inhabitants carry on an advantageous trade, in timber, wooden chairs, flax, linen, butter, fiſh, &c. In 1670, it was deſtroyed by fire, and in 1721 it was burned by the Ruſſians: at preſent it is in a flouriſhing ſtate. Lat. 61. 48. N. lon. 18. 36. E. Greenwich.

HUDISMENIL', a town of France, in the department of the Channel: five miles eaſt of Grandville.

HUD'SON (Henry), the celebrated diſcoverer of Hudſon's Bay. Nothing is known of him till, in 1607, he was fitted out by ſome London merchants in a ſmall veſſel for exploring a north-eaſt paſſage to Japan and China. He ſailed on May the 1ſt, and proceeded beyond the eightieth degree of latitude in the North Sea; when, being ſtopt by the ice, he returned, and arrived in England in September. In a ſecond voyage, the next year, he landed in Nova Zembla, but was unable to advance further to the eaſt, and returned in Auguſt. He was fitted out in 1609 for a third voyage by the Dutch Eaſt-India company. After another unſucceſsful attempt to the eaſtward, he ſteered for the American coaſt, and went down as far as Cheſapeak-bay. A mutinous crew prevented him from endeavouring to find a weſterly paſſage through Davis's ſtrait, and he returned in November. The knowledge he had acquired in theſe three voyages increaſed his hopes of diſcovery; and in 1610, he was fitted out by ſir Thomas Smith, ſir Dudley Digges, and ſome of his friends. He ſailed on April 17, in a bark named the Diſcovery, with a crew of twenty-three men, and came within ſight of Greenland on June 4. Proceeding weſtward, he reached, in ſixty degrees of latitude, the mouth of the ſtrait bearing his name. Through this he advanced along the coaſt of Labrador, to which he gave the name of Nova Britannia, till it iſſued in the vaſt bay, which perpetuates the memory of this navigator. Here he congratulated himſelf that he had diſcovered the long-ſought paſſage to the north-weſt. At length, however, he found he was only in a bay, and reſolved to winter in the ſouthern part of it. The crew drew up the ſhip in a ſmall creek, and, as well as they were able, confronted the ſeverity of that dreary climate. Seaſonable ſupplies of fowl ſuſtained them through the winter months, but at the approach of ſpring they were reduced to great neceſſity for proviſion. Hudſon, however, fitted out his ſhallop for further diſcoveries; but, not being able to eſtabliſh any communication with the natives, or revictual his ſhip, he prepared to return. Diſtreſs had rendered the crew mutinous, and he had imprudently dropt threats of ſetting ſome of the men on ſhore. The mutineers anticipated him by entering his cabin in the night, tying his hands behind him, and putting him on ſhore at the weſt end of the ſtraits, in his ſhallop, with eight of thoſe moſt attached to him, who were in general ſick and infirm. One of theſe was his own ſon. As they were never more heard of, there is no doubt that they were either ſwallowed up by the waves, or periſhed through hardſhip. Had they been preſerved by the natives, there is little doubt but a remnant might have lived, or their children's children, to have given an account of their ſubſequent diſtreſſes.

HUD'SON (John), a learned philologiſt, born in 1662, at Widehope, near Cockermouth. After a preparatory education in his own neighbourhood, he was admitted, at the age of fourteen, into Queen's college, Oxford. He took the degree of M.A. in 1684, and ſoon after removed to Univerſity college, of which he was choſen a fellow in 1686. In 1701, he was elected head keeper of the Bodleian library, againſt the competition of the learned Wallis, afterwards Arabic profeſſor. In the ſame year he received the degree of D. D. In 1712 he was made principal of St. Mary-hall; and now he meritoriouſly employed the advantages of his ſituation in editing ſeveral of the moſt valuable authors of antiquity. Of theſe the following liſt is given: 1. *Velleius Paterculus*, 8vo. 1693. 2. *Thucydides*, folio, 1696. 3. *Geographiæ Veteris Scriptores Græci Min.* 4 vols. 8vo. 1703–1712. 4. *Dionyſius Halicarnaſſ.* 2 vols. folio, 1704. 5. *Longinus*, 4to. 1710, 8vo. 1718. 6. *Mœris Atticiſta de Vocibus Atticis.* 7. *Gregorius Martinus de Græc. Pronunt.* 8vo. 1712. 8. *Fabularum Æſopicarum Collect.* 8vo. 1718. 9. *Joſephi Oper*, 2 vols. folio, 1720, a poſthumous work, publiſhed by his friend Antony Hall. Theſe editions are valued for their elegance and correctneſs. He alſo aſſiſted Hearne in ſeveral of his editions, and contributed his aid to other learned works at Oxford. Dr. Hudſon never poſſeſſed any eccleſiaſtical preferment, and died at St. Mary-hall, in November 1719.

HUD'SON (William), an eminent Engliſh botaniſt, native of Weſtmoreland, born about 1730. He had an appointment in the Britiſh Muſeum; and was a fellow of the Royal Society. He died of a paralytic diſorder in May 1793. His *Flora Anglica* firſt appeared in 1762, in one volume octavo. The Latin preface was written by his friend Mr. Stillingfleet. The work was received with great applauſe, and principally contributed to the prevalence of the ſexual ſyſtem of botany in England. A ſecond edition in two volumes octavo, was publiſhed in 1778.

HUDSON's BAY, a large bay of North America, lying between fifty-one and ſixty-nine degrees of latitude, diſcovered by the intrepid navigator Henry Hudſon, as noticed above; extending from lat. 42. 20. N. lon. 78. 95. W. Greenwich. After the unfortunate and hard fate of Mr. Hudſon, other attempts towards further diſcoveries were made in 1612 and 1667; and a patent for planting the country, with a charter for a company, was obtained in the year 1670. In 1746 captain Ellis wintered as far north as fifty-ſeven degrees and a half; and captain Chriſtopher attempted a more extenſive voyage in 1761. But beſides theſe, and later voyages, which ſatisfy us that we muſt not look for a paſſage on this ſide of the latitude ſixty-ſeven degrees north, we are indebted to the Hudſon's Bay Company for a journey by land; which throws much additional light on this matter, by affording what may be called demonſtration, how much farther north, at leaſt in ſome parts of their voyage, ſhips muſt go, before they can paſs from one ſide of America to the other. The northern Indians, who come down to the company's factories to trade, had brought to the knowledge of our people a river, which, on account of much copper being found near it, had obtained the name of the Copper-mine river; and Mr. Hearne, a young gentleman in the company's ſervice, had orders to ſurvey it, if poſſible, quite down to its exit into the ſea; and, to make obſervations for fixing the latitudes and longitudes. See the article COPPER-MINE RIVER, vol. v. p. 178.

Mr. Hearne's journey back from the Copper-mine river to Churchill, the company's factory at Hudſon's Bay, laſted till June 30, 1772; ſo that he was abſent almoſt a year and ſeven months. The unparalleled hardſhips he ſuffered, and the eſſential ſervice he performed, met with a ſuitable reward from his employers, and he was made governor of Prince of Wales's Fort on Churchill-river. But, though the adventurers failed in the original purpoſe for which they navigated this bay, their project has been of great commercial advantage to this country by the fur-trade. See the article FUR, vol. viii. p. 124–128.

The country lying round Hudſon's Bay is called *New Britain*, or the country of the Eſquimaux; comprehending *Labrador*, now New North and South Wales. The entrance of the bay from the ocean, after leaving to the north Cape Farewell and Davis's Srraits, is between Reſolution iſles on the north, and Button's iſles on the Labrador coaſt to the ſouth, forming the eaſtern extremity of the ſtraits diſtinguiſhed by the name of its great diſcoverer. The coaſts are very high, rocky, and rugged, in ſome places precipitous, but ſometimes exhibit large beaches. The iſles of Saliſbury, Nottingham, and Digges, are alſo very lofty and naked. The depth of water in the middle of the bay is a hundred and forty fathoms. From Cape Churchill to the ſouth end of Hudſon's bay are regular ſoundings; near the ſhore ſhallow, with muddy or ſandy bottom. To the north of Churchill the ſoundings are irregular, the bottom rocky, and in ſome parts the rocks appear above the ſurface at low water. From Mooſe river at the bottom of the bay to Cape Churchill the land is flat, marſhy, and wooded with pines, birch, larch, and willows. From Cape Churchill to Wager's Water the coaſts are high and rocky to the very ſea, and woodleſs, except the mouths of Pockerekeſo and Seal rivers. The hills on their back are naked, nor are there any trees for a great diſtance inland. The mouths of all the rivers are filled with ſhoals; except that of Churchill, in which the largeſt ſhips may lie; but ten miles higher, the channel is obſtructed with ſand-banks; and all their rivers, as far as has been navigated, are full of rapids and cataracts from ten to ſixty feet in perpendicular height. Down theſe rivers the Indian traders find a quick paſſage; but their return is a labour of many months. As far inland as the company have ſettlements, which is ſix hundred miles to the weſt, at a place called *Hudſon Houſe*, is flat country; nor is it known how far to the eaſtward the great chain ſeen by our navigators from the Pacific Ocean branches off.

The climate even about Hayes's river, in only lat. 57, is during winter exceſſively cold. The ſnows begin to fall in October, and continue falling by intervals the whole winter; and when the froſt is moſt rigorous, in form of the fineſt ſand. The ice on the rivers is eight feet thick. Port-wine freezes into a ſolid maſs; brandy coagulates. The very breath fell on the blankets of the beds in the form of a hoar froſt, and the bed-clothes often were found frozen to the wall. The ſun riſes in the ſhorteſt day at five minutes paſt nine, and ſets five minutes before three. In the longeſt day the ſun riſes at three, and ſets about nine. The ice begins to diſappear in May, and hot weather commences about the middle of June, which at times is ſo violent as to ſcorch the face of hunters. Thunder is not frequent, but very violent. But there muſt be great difference of heat and cold in this vaſt extent, which reaches from lat. 50 40. to lat. 63. north. During winter the firmament is not without its beauties. Mock ſuns and halos are not unfrequent; they are very bright, and richly tinged with all the colours of the rainbow. The ſun riſes and ſets with a large golden cone of bright light. The night is enlivened with the Aurora Borealis, which ſpreads a thouſand different lights and colours over the whole concave of the ſky, not to be defaced even by the ſplendour of the full moon; while the ſtars are of a fiery redneſs.

The eaſtern boundary of the bay is Terra di Labrador; the northern part has a ſtraight coaſt facing the bay, guarded with a line of iſles innumerable. A vaſt bay, called the *Archiwinnipy Sea*, lies within it, and opens into Hudſon's Bay by means of Gulf Hazard, through which the beluga whales dart in great numbers. Here the company had a ſettlement for the ſake of the fiſhery, and for trading with the Eſquimaux: but deſerted it as unprofitable about the year 1758. See the article Labrador. The eaſtern coaſt is barren paſt the efforts of cultivation. The ſurface is every where uneven, and covered with maſſes of ſtone of an amazing ſize. It is a country of fruitleſs valleys and frightful mountains, ſome of an aſtoniſhing height; the firſt watered by a chain of lakes, formed not from ſprings but rain and ſnow, ſo chilly as to be productive of only a few ſmall trout. The mountains have here and there a blighted ſhrub, or a little moſs. The valleys are full of crooked ſtunted trees, pines, fir, birch, and cedars, or rather a ſpecies of juniper. In lat. 60. on this coaſt, vegetation ceaſes. The whole ſhore, like that on the weſt, is faced with iſlands at ſome diſtance from land. The inhabitants among the mountains are Indians; along the coaſts Eſquimaux. The dogs of the former are very ſmall; of the latter large, and headed like a fox. Notwithſtanding they have rein-deer, they never train them for the ſledge; but apply the dogs to that uſe. Walruſes viſit a place called *Nuchvünk*, in lat. 60. during winter; from thence the natives purchaſe the teeth with which they head their darts. Davis ſuſpected that he had found a paſſage on this coaſt, in 1586, to the Weſtern Ocean; but it proves no more than a deep bay.

The laudable zeal of the Moravian clergy induced them to ſend, in 1752, miſſionaries from Greenland to this country. They fixed on Niſbet's harbour for their ſettlement; but the firſt party was either killed, or driven away. In 1764, under the protection of our government, another attempt was made. The miſſionaries were well received by the Eſquimaux, and we hear from ſome very recent accounts, that the miſſion now goes on with ſucceſs.

The animals of theſe countries are, the mooſe-deer, ſtags, rein-deer, bears, tigers, buffaloes, wolves, foxes, beavers, otters, lynxes, martins, ſquirrels, ermines, wild cats, and hares. The rein-deer paſs in vaſt herds towards the north in October, ſeeking the extreme cold. The male polar bears rove out at ſea, on the floating ice, moſt of the winter, and till June; the females lie concealed in the woods, or beneath the banks of rivers, till March, when they come abroad with their twin cubs, and bend their courſe to the ſea in ſearch of their conſorts. Numbers are killed in their paſſage; and thoſe which are wounded ſhow vaſt fury, roar hideouſly, and bite and throw up into the air even their own progeny. The females and the young, when not interrupted, continue their way to the ſea. In June the males return to ſhore, and by Auguſt are joined by their conſorts, with the cubs, by that time of a conſiderable ſize. The feathered races are, geeſe, buſtards, ducks, and all manner of wild-fowls. Indeed, multitudes of birds retire to this remote country, to Labrador and Newfoundland, from places moſt remotely ſouth, perhaps from the Antilles; and ſome even of the moſt delicate little ſpecies. Moſt of them, with numbers of aquatic fowls, are ſeen returning ſouthward with their young broods, to more favourable climates. The ſavages in ſome reſpects regulate their months by the appearance of theſe birds; and have their gooſe-month from the vernal appearance of geeſe from the ſouth. All the grous kind, ravens, cinereous crows, titmouſe, and Lapland finch, brave the ſevereſt winter; and ſeveral of the falcons and owls ſeek ſhelter in the woods. Of fiſh, there are whales, morſes, ſeals, cod-fiſh, and a white fiſh preferable to herrings; and, in their rivers and freſh waters, pike, perch, carp, and trout.

All the quadrupeds of theſe countries are clothed with a cloſe, ſoft, warm fur. In ſummer there is here, as in other places, a variety in the colours of the ſeveral animals; when that ſeaſon is over, which holds only for three months, they all aſſume the livery of winter, and every ſort of beaſts, and moſt of their fowls, are of the colour of the ſnow; every thing animate and inanimate is white. This is a ſurpriſing phenomenon. But what is yet more ſurpriſing, is, that the dogs and cats from Britain that have been carried into Hudſon's Bay, on the approach of winter, have entirely changed their appearance, and acquired a much longer, ſofter, and thicker, coat of hair, than they had originally.

HUD'SON's BAY COM'PANY. See the article Company, vol. iv. p. 883.

HUD'SON CIT'Y, a port of entry and poſt-town of the American States, ſituated in Columbia county, New York, on the eaſt ſide of Hudſon's river, thirty miles ſouth by eaſt of Albany, and 132 north of New York city. The limits of the corporation include a ſquare mile, and its privileges as a port of entry extend no farther. The city is laid out into large ſquares, bordering on the river, with ſpacious ſteeets croſſing each other at right angles. The inhabitants are plentifully and conveniently ſupplied with water, brought to their cellars in wooden pipes, from a ſpring two miles from the town. It has a large bay to the ſouthward, and ſtands on an eminence, from which are extenſive and delightful views to the north-weſt, north, and round to the ſouth-eaſt, conſiſting of hills and valleys, variegated with woods and orchards, corn-fields and meadows, with the river, which is in moſt places a mile over, and may be ſeen at a conſiderable diſtance to the northward, forming a number of bays and creeks. From the ſouth-eaſt to the ſouth-weſt the city is ſcreened with hills, at different diſtances; and weſt afar off, over the river and a large valley, the proſpect is bounded by a chain of ſtupendous mountains, called the Katts Kill, running to the weſt-north-weſt, which adds magnificence and ſublimity to the whole ſcene. Hudſon city is governed by a mayor, recorder, four aldermen, four aſſiſtants, and other officers. The number of inhabitants in Hudſon's townſhip, by the cenſus of 1790, amounted to 2584; and it appears by the ſtate cenſus of 1796, that 338 of the inhabitants are electors: four miles ſouth-weſt of Claverack; forty-ſeven north of Poughkeepſie; and forty-three ſouth of Lanſinburg.

HUD'SON's POINT, a cape of the iſland of Antigua, on the ſouth-eaſt coaſt. Lat. 17. 10. N. lon. 61. 23. W. Greenwich.

HUD'SON RIV'ER, a river of the American States, which paſſes its whole courſe in the ſtate of New York, and is one of the largeſt and fineſt rivers in the United States. It riſes in a mountainous country, between the lakes Ontario and Champlain. In its courſe ſouth-eaſterly it approaches within ſix or eight miles of lake George; then, after a ſhort courſe eaſt turns ſoutherly, and receives the Sacondaga from the ſouth-weſt which heads in the neighbourhood of Mohawk river. The courſe of the river thence to New York, where it empties into York Bay, is very uniformly twelve ſouth or fifteen weſt. Its whole length is about 250 miles. From Albany to lake George is ſixty-five miles. This diſtance, the river is navigable only for batteaux, and has two portages, occaſioned by falls, of half a mile each. The banks of Hudſon's river, eſpecially on the weſtern ſide, as far as the highlands extend, are chiefly rocky cliffs. The paſſage through the highlands, which is ſixteen or eighteen miles, affords a wild romantic ſcene. In this narrow paſs, on each ſide of which the mountains tower to a great height, the wind, if there be any, is collected and compreſſed, and blows continually as through a bellows; veſſels, in paſſing through it, are often obliged to lower their ſails. The bed of this river, which is deep and ſmooth to an aſtoniſhing diſtance, through a hilly rocky country, and even through ridges of ſome of the higheſt mountains in the United States, muſt undoubtedly have been produced by ſome mighty convulſion in nature. The tide flows a few miles above Albany, which is 160 miles from New York. It is navigable for ſloops of eighty tons to Albany, and for ſhips to Hudſon. Ship-navigation to Albany is interrupted by a number of iſlands, and ſhoals ſix or eight miles below the city, called the Overſlaugh. It has been in contemplation to confine the river to one channel, by which means it will be deepened, and the difficulty of approaching Albany with veſſels of a larger ſize be removed. About ſixty miles above New York the water becomes freſh. The river is ſtored with a variety of fiſh, which renders a ſummer paſſage to Albany delightful and amuſing to thoſe who are fond of angling. The advantages of this river for carrying on the fur-trade with Canada, by means of the lakes, are very great. Its conveniences for internal commerce are alſo ſingularly happy. The produce of the remoteſt ſettlements is eaſily and ſpeedily conveyed to a certain and profitable market, and at the loweſt expence. In this reſpect, New York has greatly the advantage of Philadelphia. The increaſing population of the fertile lands upon the northern branches of Hudſon, muſt annually increaſe the amazing wealth that is conveyed by its waters to New York. The northern and weſtern canals, when completed, will be of incalculable advantage to the trade of this ſtate.

HUD'SON's RIV'ER, a broad but ſhort river of the American States, emptying into Cheſapeak Bay, in Dorcheſter county, Maryland. Hill's Point, north-eaſt of it, ſhapes the broad mouth of the river.

HUD'SON's STRAITS, or FROBISHER's-MISTAKEN-STRAITS, the narrow ſea, between the Atlantic Ocean and Hudſon's Bay, north of Labrador.

HUDSO'NIA, *ſ.* [ſo named by Linnæus, in honour of *William Hudſon*, apothecary of London, F. R. S. and author of Flora Anglica, noticed at p. 440.] In botany, a genus of the claſs dodecandria, order monogynia, natural order of bicornes? (ericæ, *Juſſ.*) The generic characters are—Calyx: perianthium three-leaved, tubular, cylindric, with a patulous mouth; leaflets lanceolate-linear, blunt. Corolla: filaments fifteen, capillary, ſhorter than the calyx; antheræ roundiſh. Piſtillum: germ ſuperior, ovate; ſtyle filiform, the length of the calyx; ſtigma blunt. Pericarpium: capſule cylindric, ſhorter by half than the calyx, one-celled, three-valved. Seeds: three, rounded on one ſide, angular on the other.—*Eſſential Character.* Calyx five-leaved, (three-leaved above, three-parted, *Juſſ.*) tubular; corolla none; (petals five, very ſmall, *Berg.*) ſtamina fifteen; capſule one-celled, three-valved, three-ſeeded.

Hudſonia ericoides, a ſingle ſpecies. It is a ſhrub with the appearance and habit of Erica, or heath. Branchlets filiform, ſcattered, imbricate; leaves ſubulate-aceroſe, hirſute. Native of Virginia.

HUE, [from hiepe, Sax.] Colour; die.—Flow'rs of all *hue*, and without thorn the roſe. *Milton.*

Your's is much of the camelion *hue*,
To change the die with diſtant view. *Dryden.*

HUE AND CRY, [*huteſium et clamor*; from the French words *huer* and *crier*, to ſhout, or cry aloud.] Manwood, in his Foreſt Law, c. 19, ſays that *hue* in Latin is *vox dolentis*, as ſignifying the *complaint* of the party; and *cry* is the *purſuit* of the felon upon the highway upon that complaint; for if the party robbed, or any in the company of one robbed or murdered, come to the conſtable of the next town, and deſire him to raiſe the hue and cry, that is, make the complaint known, and follow the purſuit after the offender, deſcribing the party, and ſhowing as near as he can which way he went; the conſtable is forthwith to call upon the pariſh for aid in ſeeking the felon, and, if he be not found there, then to give the next conſtable notice, and the next, until the offender be apprehended, or at leaſt until he be thus purſued unto the ſeaſide. See *Bracton, lib.* 3. *c.* 5; *and the ſtat. of Wincheſter,* 13 *Edw.* I. 1, 4. 28 *Edw.* III. 11. 27 *Eliz.* 13.

Hue and cry, (ſays Blackſtone,) is the old common-law proceſs, of purſuing, with horn and with voice, all felons, and ſuch as have dangerouſly wounded another. The principal ſtatute relative to this matter, is that of Wincheſter, 13 Edw. I. c. 1, 4, which directs, that from henceforth every county ſhall be ſo well kept, that immediately upon robberies and felonies committed, freſh ſuit ſhall be made from town to town, and from county to county; and that hue and cry ſhall be raiſed upon the felons, and they that keep the town ſhall follow with hue and cry, with all the town and the towns near; and ſo hue and cry ſhall be made from town to town, until they be taken and delivered to the ſheriff. And, that ſuch hue and cry may more effectually be made, the hundred is bound by the ſame ſtatute, c. 3, to anſwer for all robberies therein committed, unleſs they take the felon; which is the foundation of an action againſt the hundred in caſe of any loſs by robbery. By ſtat. 27 Eliz. c. 13, no hue and cry is ſufficient, unleſs made with both horſemen and footmen. And by ſtat. 8 Geo. II. c. 16, the conſtable or like officer refuſing or neglecting to make hue and cry, forfeits five pounds, half to the king and half to the proſecutor, with full coſts; and the whole vill or diſtrict is ſtill in ſtrictneſs liable to be amerced, according to the law of Alfred, if any felony be committed therein, and the felon eſcapes. Hue and cry may be raiſed either by precept of a juſtice of the peace, or by a peace-officer, or by any private man that knows of a felony. 2 *Hal. P. C.* 104. The party raiſing it muſt acquaint the conſtable of the vill with all the circumſtances which he knows of the felony, and the perſon of the felon; and thereupon the conſtable is to ſearch his own town, and raiſe all the neighbouring vills, and make purſuit with horſe and foot; and in the proſecution of ſuch hue and cry the conſtable and his attendants have the ſame powers, protection, and indemnification, as if acting under the warrant of a juſtice of peace. But if a man wantonly or maliciouſly raiſes a hue and cry, without cauſe, he ſhall be ſeverely puniſhed as a diſturber of the public peace. 1 *Hawk. P. C. c.* 12.

It is incumbent upon conſtables to purſue hue and cry when called upon, and they are ſeverely puniſhable if they neglect it; and it prevents many inconveniences if they be there; for it gives a greater authority to their purſuit, and enables the purſuant, in his aſſiſtance, to plead the general iſſue upon the ſtatutes 7 Jac. I. c. 5. 21 Jac. I. c. 12. without being driven to ſpecial pleading; therefore, to prevent inconveniences which may happen by unrulineſs, it is moſt adviſeable that the conſtable be called; yet upon a robbery, or other felony committed, hue and cry may be raiſed by the country in the abſence of the conſtable; and in this there is no inconvenience, for, if hue and cry be raiſed without cauſe, they that raiſe it are puniſhable by fine and impriſonment.

The regular method of levying hue and cry is for the party to go to the conſtable of the next town, and declare the fact, and deſcribe the offender, and the way he is gone; whereupon the conſtable ought immediately, whether it be *night* or *day*, to raiſe his own town, and make ſearch for the offender; and, upon the not finding him, to ſend the like notice, with the utmoſt expedition, to the conſtables of all the neighbouring towns, who ought in like manner to ſearch for the offender, and alſo to give notice to their neighbouring conſtables, and they to the next, till the offender be found. 2 *Hawk. P. C.* 75. If a perſon purſued by hue and cry be in a houſe, and the doors are ſhut, and refuſed to be opened upon demand of the conſtable, and notice given of his buſineſs, he may break open the doors; for it is for the king and commonwealth, and therefore a virtual *non omittas* is in the caſe; and the ſame law is upon a dangerous wound given, and a hue and cry levied upon the offender. 7 *Edw.* III. c. 16. But the conſtable cannot break open the doors barely to *ſearch*, unleſs the perſon againſt whom the hue and cry is levied be there, and then it is true he may; therefore, in caſe of ſuch a ſearch, the breaking open the door is at his peril, viz. juſtifiable if he be there; but it muſt be always remembered,

membered, that in caſe of breaking open a door, there muſt be a firſt notice given to them within of his buſineſs; and a demand of entrance, and a refuſal, before doors can be broken. 2 *Hal. P. C.* 103.

If the hue and cry be not againſt a perſon certain, but by the deſcription of his ſtature, perſon, clothes, horſe, &c. the hue and cry doth juſtify the conſtable, or other perſon, following it, in apprehending the perſon ſo deſcribed, whether innocent or guilty, for that is his warrant; it is a kind of proceſs that the law allows, (not uſual in other caſes,) viz. to arreſt a perſon by deſcription. 2 *Hal. P. C.* 103. But if the hue and cry be upon a robbery, burglary, manſlaughter, or other felony committed, but the perſon that did the fact is neither known nor deſcribed by perſon, clothes, or the like; yet ſuch a hue and cry is good, and muſt be purſued, though no perſon certain be named or deſcribed. 2 *Hal. P. C.* 103. And therefore in this caſe, all that can be done is, for thoſe who purſue the hue and cry, to take ſuch perſons as they have probable cauſe to ſuſpect; as for inſtance, ſuch perſons as are vagrants, that cannot give an account where they live, whence they are, or ſuch ſuſpicious perſons as come late into their inn or lodgings, and give no reaſonable account where they had been, and the like. 2 *Edw.* IV. *c.* 8. Both by the common-law, as alſo by the ſeveral ſtatutes which enjoin the levying of hue and cry, thoſe who neglect to levy one, (whether officers of juſtice or others,) or who neglect to purſue it when rightly levied, are puniſhable by indictment, and may be fined and impriſoned for ſuch neglect. 2 *Hal. P. C.* 104.

By ſtat. 27 Eliz. c. 13, it is enacted, "That the inhabitants and reſiants of every hundred (with the franchiſes within the precinct thereof) wherein negligence, fault or defect of purſuit, and freſh ſuit after hue and cry made, ſhall happen to be, ſhall anſwer and ſatisfy the one moiety of all ſuch money and damages as ſhall be recovered againſt the hundred, with the franchiſes therein, in which any robbery or felony ſhall be committed, to be recovered by action of debt, &c. by and in the name of the clerk of the peace for the time being, of or in every ſuch county; and recovery by the party or parties robbed ſhall be, without naming the chriſtian name or ſurname of the ſaid clerk of the peace; which moiety ſo recovered ſhall be to the uſe of the inhabitants of the hundred where any ſuch robbery, &c. ſhall be committed."

It ſeems to be admitted, that no kind of robbery will make the hundred liable, but that which is done openly, and with force and violence; and that therefore the private ſtealing, or taking any thing from the party, does not come within the ſtatutes which make the hundred liable, becauſe the hundred is not liable for not preventing the robbery, but becauſe they did not apprehend the robbers, which in private felonies, and of which they had no notice, it would be difficult, if not impoſſible, for them to do. 2 *Salk.* 614. Alſo it has been adjudged, and is admitted, in all the books which ſpeak of this matter, that a robbery in a houſe, whether it be by day or by night, does not make the hundred liable. The reaſons whereof are, that every man's houſe is in law eſteemed his caſtle, which he himſelf is obliged to defend, and into which no man can enter, to ſee what is doing there, without his leave; alſo, being done in a houſe, the inhabitants of the hundred cannot be preſumed to have notice of it, ſo as to be able to apprehend the offenders. 7 *Co.* 6. *Sendil's caſe.*

But if a perſon be aſſaulted in the highway, and carried into a houſe, and there robbed, it ſeems the hundred ſhall be liable; for otherwiſe the proviſion made by the ſtatute would be eluded. 1 *Salk.* 614. Alſo it does not ſeem neceſſary, that the robbery ſhould be committed in the highway, nor alleged to have been ſo by the plaintiff in his declaration. 7 *Mod.* 159. It may be in a private way, or in a coppice; and in both caſes the hundred ſhall be chargeable. 2 *Salk.* 614. It is clearly agreed that for a robbery committed *in the night* the hundred is not chargeable, becauſe they cannot be preſumed to have notice thereof, ſo as to be able to apprehend the robbers. 2 *Inſt.* 569. But yet it is not neceſſary that the robbery ſhould be committed *after* ſun-riſe, or *before* ſun-ſet; for if there be as much day-light at the time, that a man's countenance may be diſcerned thereby, though it be before ſun-riſe or after ſun-ſet, the hundred ſhall be liable. *Cro. Jac.* 106. It hath alſo been held, that if robbers drive or oblige the waggoner to drive his waggon from the highway by day, but do not rob or take any thing till night, that yet this is a robbery in the day-time ſo as to charge the hundred. 1 *Sid.* 263.

If he that is robbed, after hue and cry, make no further purſuit after the robbers, action lies againſt the hundred. 4 *Leon.* 180. The party robbed is not bound to purſue the robbers himſelf, or to lend his horſe for that purpoſe; but ſtill has his remedy againſt the hundred, if they are not taken; though if any of them are taken, either within forty days after the robbery, or before the plaintiff recovers, the hundred is diſcharged. *Sid.* 11. When a man is robbed on a Sunday, on which day perſons are ſuppoſed to be at church, and none ought to travel, the hundred is not liable. 27 *Eliz. c.* 13. But where a robbery is done on a Sunday, though the hundred is not chargeable, hue and cry ſhall be made by ſtat. 29 Car. II. c. 7. And if a perſon be robbed going to church in a country town or village, on a Sunday, which is a religious duty required by law, it has been held an action lies againſt the hundred; but not if one be robbed on that day in travelling for pleaſure, &c. which is prohibited by ſtatute. 6 *Geo.* I. *C. B.* per King, chief juſtice. And it was formerly ruled by three judges on the ſtat. of Winton, where a man was robbed on a Sunday, in time of divine ſervice, and made hue and cry, that the hundred ſhould be charged; for many perſons are neceſſitated to travel on this day; as phyſicians, &c. 2 *Nelſ. Abr.* 937. A robbery muſt be an open robbery, that the country may take notice of it, to make the hundred anſwerable. 7 *Rep.* 6.

A man is ſet upon and aſſaulted by robbers in one hundred, and carried into a wood, &c. in another hundred, near the highway, and there robbed: the action ſhall be brought againſt the hundred where the robbery was done, as particularly expreſſed in the ſtatute, and not the hundred where the man was taken or aſſaulted; becauſe the aſſault is not the efficient cauſe of the robbery, as a ſtroke is the cauſe of murder. 2 *Salk.* 614. But where goods are taken from a man in one hundred, and opened in another; where they are firſt taken or ſeized, they are ſtolen, and the robbery is committed. 2 *Lill. Abr.* 27. By ſtat. 8 Geo. II. c. 16, no proceſs for appearance is to be ſerved againſt the hundred, for a robbery committed, but on the high conſtable, who ſhall give notice of it in one of the principal market-towns, and then enter an appearance, and defend the action. By ſtat. 22 Geo. II. c. 24, no perſon ſhall recover on any of the ſtatutes of hue and cry above two hundred pounds, unleſs the perſon or perſons ſo robbed ſhall at the time of ſuch robbery be together in company, and be in number *two* at the leaſt, to atteſt the truth of his or their being ſo robbed. And by ſtat. 30 Geo. II. c. 3, and 4 Geo. III. c. 2, no receiver general of the land-tax, or his agents, can ſue the hundred for a robbery, unleſs the perſons carrying the money be *three* in company.

Where a robbery is done on the highway in the day-time, notice is to be given of it, with convenient ſpeed, to ſome of the inhabitants of the next village, to the intent that they may make hue and cry for the apprehending of the robbers, or no action will lie againſt the hundred; and if any of the robbers are taken within forty days, and convicted, the hundred ſhall be excuſed.

If a ſervant be robbed, in the abſence of his maſter, of his maſter's money, it is clear that the maſter may maintain an action for it againſt the hundred, but then the ſervant muſt make oath that he knew not any of the robbers. *Cro. Car.* 37. Alſo the ſervant, being robbed in his maſter's abſence, may himſelf maintain an action againſt the hundred, and may declare that he was poſſeſſed *ut de* *bonis ſuis propriis*, &c. And, though the jury find that he was robbed of his maſter's money, yet ſhall he recover; for the ſervant is poſſeſſed *ut de bonis ſuis propriis*, againſt all, and in reſpect of all, but him that hath the very right. 2 *Salk*. 613–4. But, if a ſervant be robbed in the preſence of the maſter, the maſter muſt ſue; and the oath of the maſter is ſufficient. 2 *Salk*. 613.

By ſtat. 8 Geo. II. c. 16, it is further enacted, "That no perſon ſhall maintain any action againſt the hundred, unleſs he ſhall, (beſides the notice already required by the ſtat. 27 Eliz. c. 13,) with as much convenient ſpeed as may be, after any robbery committed, give notice thereof to one of the conſtables of the hundred, or to ſome conſtable, borſholder, headborough, or tithingman, of ſome town, pariſh, village, hamlet, or tithing, near unto the place where ſuch robbery ſhall happen, or ſhall leave notice in writing of ſuch robbery at the dwelling-houſe of ſuch conſtable, &c. deſcribing, ſo far as the nature and circumſtances of the caſe will admit, the felon, and the time and place of the robbery, and alſo ſhall, within the ſpace of twenty days next after the robbery committed, cauſe public notice to be given thereof in the London Gazette, therein likewiſe deſcribing, ſo far as the nature and circumſtances of the caſe will admit, the felon, and the time and place of ſuch robbery, together with the goods and effects whereof he was robbed."

By ſtat. 27 Eliz. c. 13, it is enacted, "That the party robbed ſhall not have any action, except he ſhall firſt, within twenty days next before ſuch action to be brought, be examined upon his corporal oath, before ſome juſtice of the peace of the county where the robbery was committed, whether he knows the parties that committed the robbery, or any of them; and if, upon examination, it be confeſſed that he knows the parties, or any of them, that then he ſhall, before the action be commenced, enter into ſufficient bond by recognizance before the ſaid juſtice, effectually to proſecute the ſame perſon and perſons."

By ſtat. 27 Eliz. c. 13, it is enacted, "That where any robbery is committed by two or a greater number of malefactors, and that it happen any one of the ſaid offenders to be apprehended by purſuit, to be made according to the ſtatutes, that then, no hundred or franchiſe ſhall in any wiſe incur the penalty, loſs, or forfeiture, mentioned in the ſtatutes, although the reſidue of the malefactors ſhall happen to eſcape." And by ſtat. 8 Geo. II. c. 16, it is enacted, "That no hundred, or franchiſe therein, ſhall be chargeable by virtue of any of the ſtatutes, if any one or more of the felons, by whom ſuch robbery ſhall be committed, be apprehended within the ſpace of forty days next after public notice given in the London Gazette, as by the ſtatute is provided."

By ſtat. 27 Eliz. c. 13, it is enacted, "That after execution of damages by the party or parties ſo robbed had, it ſhall be lawful (upon complaint made by the party charged) to and for two juſtices of the peace (whereof one to be of the *quorum*) of the ſame county, inhabiting within the hundred, or near unto the ſame where any ſuch execution ſhall be had, to aſſeſs and tax rateably and proportionably, according to their diſcretions, all and every the towns, pariſhes, villages, and hamlets, as well of the ſaid hundred where any ſuch robbery ſhall be committed, as of the liberties within the ſaid hundred, to and towards an equal contribution, to be had and made for the relief of the inhabitants, againſt whom the party or parties robbed before that time had execution."

By ſtat. 8 Geo. II. c. 16, above referred to, after judgment againſt the hundred, no proceſs ſhall be ſerved on the high conſtable or any inhabitant; but the ſheriff on receipt of the writ of execution ſhall ſhow it gratis to two juſtices of the peace in or near the hundred, who ſhall ſpeedily cauſe an aſſeſſment to be levied purſuant to the ſtat. 27 Eliz. c. 13, and alſo for the neceſſary expences of the high conſtable above the coſts, and damages recovered, of which, on notice from the two juſtices, he ſhall give an account and proof on oath to their ſatisfaction. The ſheriff ſhall pay the money levied to the parties without fee, and indorſe the day of receiving the writ of execution, and not to be called upon for a return till ſixty days after.

HUELA'MO, a town of Spain, in New Caſtile: twenty-two miles north-north-eaſt of Cuença.

HUEL'BA, or HUEL'VA, a town of Spain, in the province of Seville, ſituated on the coaſt of the Atlantic, near the mouths of the Odiel and Tinto: three miles weſt of Moguer.

HUELGOE'T (Le), a town of France, in the department of the Finiſterre, and chief place of a canton, in the diſtrict of Carhaix: three leagues north-weſt of Carhaix, and four ſouth of Morlaix.

HUEL'MA, a town of Spain, in Granada: thirteen miles ſouth-weſt of Granada.

HU'EN. See HWEN.

HU'ER, *ſ.* [from *huer*, Fr. to cry.] One whoſe buſineſs is to call out to others.—They lie hovering upon the coaſt, and are directed by a balker or *huer*, who ſtandeth on the cliff-ſide, and from thence diſcerneth the courſe of the pilchard. *Carew*.

HUERMO'CES, a town of Spain, in New Caſtile: five miles weſt of Siguença.

HUES'CA, a town of Spain, in the kingdom of Arragon, on the Iſuela, the ſee of a biſhop, ſuffragan of Saragoſſa; it contains four pariſhes, five convents, and an univerſity founded in the year 1354: twenty-ſeven miles north-north-eaſt of Saragoſſa, and ſeventy-three ſouth-weſt of Pampiona. Lat. 42. 7. N. lon. 16. 19. E. Peak of Teneriffe.

HUES'CAR, a town of Spain, in Granada, containing two pariſhes and four convents: ſeven miles weſt-north-weſt of Carthagena, and ſixty-five north-eaſt of Teneriffe. Lat. 37. 47. N. lon. 14. 13. E. Peak of Teneriffe.

HUES'SEN, a town of the duchy of Guelderland: two miles ſouth of Arnhem.

HU'ET, [dimin. of *Hugh*.] A ſurname.

HU'ET (Peter-Daniel), a learned French prelate, born at Caen in 1630. His father was a convert from Calviniſm, and was zealous in the new religion he had adopted. He died while this ſon was an infant, and his wife did not long ſurvive. At an early age he was placed in the Jeſuits' college at Caen, where his aſſiduity in ſtudy and amiable diſpoſition gained him the affection of his maſters. In 1652, he accompanied Bochart in a journey to Sweden, whither that learned man had been invited by queen Chriſtina, whoſe ambition it was to aſſemble at her court all the perſons moſt diſtinguiſhed for their erudition throughout Europe. On reviſiting his native city, he found that a literary academy had been inſtituted there during his abſence, of which he was elected a member. In 1661, he publiſhed his firſt work *De Interpretatione*, the purpoſe of which was to confine within due limits the licence of tranſlators, eſpecially thoſe of the Scriptures. It was elegantly written, and exhibited much critical and philological knowledge. His regard to the purſuits of natural philoſophy was diſplayed in 1662 by the inſtitution of an academy of phyſics at Caen, the members of which aſſembled weekly at his houſe, where they read memoirs, and conducted experimental enquiries. Through the means of Colbert, the royal munificence was extended to this uſeful inſtitution, and Huet himſelf was put upon the liſt of learned men upon whom penſions were conferred. An edition of Origen's Commentaries on the Scriptures, upon which he had been many years employed, appeared at Rouen in 1667. And at the requeſt of Segrais he drew up a treatiſe On the Origin of Romances, in which he diſplayed a great deal of reading on that topic. This piece was prefixed to the *Zayde* of Mad. la Fayette.

In 1670, when Boſſuet was made preceptor to the dauphin, Huet was called to the office of ſub-preceptor. One of his employments in this poſt was to ſuperintend that edition of the Latin claſſics called the *Delphin*, which was primarily the plan of the duke de Montauſier; and Huet was the adviſer of the formation of thoſe verbal indexes which render theſe editions peculiarly valuable. In 1674, he was made a member of the French Academy. Prieſt's orders were conferred upon him in 1676; with the preſentation to the abbacy of Aunai in Normandy. In 1679 appeared the firſt edition of his *Demonſtratio Evangelica*, folio, a work acknowleged to contain a vaſt fund of erudition. He was preſented, in 1665, to the biſhopric of Soiſſons; but, the court of France being at that time at variance with that of Rome, he never obtained his bulls or took poſſeſſion of the ſee. In 1689 he made an exchange of his nomination with M. Brulart de Sillery, for that of Avranches, which was in his native province; he, however, was not conſecrated to the latter ſee till 1692. Finding now that the burthen of his ſituation was too great for his comfort, he obtained permiſſion in 1699 to reſign his biſhopric, and was preſented by the king, as a pecuniary compenſation, with the abbacy of Fontenai near Caen. Here he was peſtered with law-ſuits and other inconveniences, which at length drove him to a retreat in the college of the Jeſuits at Paris, to which he had bequeathed his library. There he remained, abſorbed in his ſtudies, and in intercourſe with a few men of learning, till his deceaſe, in January 1721, at the advanced age of ninety-one. Of his works, beſides thoſe already enumerated, the principal are, 1. *Cenſura Philoſophiæ Carteſianæ.* 2. *Hiſtoire du Commerce & de la Navigation des Anciens.* 3. *De la Situation du Paradis terreſtre.* 4. *Carmina Latina & Græca.* 5. *Origines de Caen.* 6. *Diane de Caſtro.* 7. *Commentarius de Rebus ad eum pertinentibus*; this is a very entertaining account of his life down to his final retreat, interſperſed with anecdotes of all the eminent ſcholars with whom he was connected. After his death appeared a *Huetiana*, a collection of miſcellaneous thoughts and obſervations.

HUE'TA. See GUETA.

HUETERN', a town of Germany, in Bavaria, and biſhopric of Paſſau: ſix miles north of Paſſau.

HUE'TINBERG, a town of Germany, in the duchy of Carinthia: eight miles eaſt of Frieſach, and eight ſouth-weſt of Reichenfels.

HUFF, *ſ.* [from *hove*, or *hoven*, ſwelled; he is *hoved up by diſtempers.* So in ſome provinces we ſay the bread *huffs up*, when it begins to *heave*, or ferment: *huff*, therefore, may be ferment. To be in a *huff*, is to be in a *ferment*, as we now ſpeak.] Swell or ſudden anger or arrogance.—We have the apprehenſions of a change to keep a check upon us in the very *huff* of our greatneſs. *L'Eſtrange.*—A Spaniard was wonderfully upon the *huff* about his extraction. *L'Eſtrange.*

His frowns kept multitudes in awe,
Before the bluſter of whoſe *huff*
All hats, as in a ſtorm, flew off. *Hudibras.*

A wretch ſwelled with a falſe opinion of his own value.—Lewd ſhallow-brained *huffs* make atheiſm and contempt of religion the ſole badge and character of wit. *South.*

*To* HUFF, *v. a.* To ſwell; to puff.—In many wild birds the diaphragm may eaſily be *huffed* up with air, and blown in at the wind-pipe. *Grew.*—To hector; to treat with inſolence and arrogance, or brutality.—The commiſſioner at Magdalen college ſaid to Dr. Hough, You muſt not preſume to *huff* us. *Echard.*

*To* HUFF, *v. n.* To bluſter; to ſtorm; to bounce; to ſwell with indignation or pride:

A *huffing*, ſhining, flatt'ring, cringing, coward,
A cankerworm of peace, was raiſ'd above him. *Otway.*

*Huffing* to cowards, fawning to the brave,
To knaves a fool, to cred'lous fools a knave. *Roſcommon.*

HUFF'ER, *ſ.* A bluſterer; a bully:

Nor have I hazarded my art
To be expoſ'd i' th' end to ſuffer
By ſuch a braggadocio *huffer.* *Hudibras.*

HUFF'ING, *ſ.* The act of bluſtering, or of ſwelling with paſſion.

HUFF'INGEN, or HUIFFENGEN, a town of Germany, in Swabia, belonging to the prince of Furſtenberg: four miles north-north-weſt of Furſtenberg, and ſeventeen north-north-weſt of Schaffhauſen.

HUFF'ISH, *adj.* Arrogant; inſolent; hectoring.

HUFF'ISHLY, *adv.* With arrogant petulance; with bullying bluſter.

HUFF'ISHNESS, *ſ.* Petulance; arrogance; noiſy bluſter.

*To* HUG, *v. a.* [heȝian, Sax. to hedge; to incloſe.] To preſs cloſe in an embrace.—King Xerxes was enamoured upon an oak, which he would *hug* and kiſs. *Harvey.*

Ev'n in that urn their brother they confeſs,
And *hug* it in their arms, and to their boſom preſs. *Dryden.*

To fondle; to treat with tenderneſs.—We *hug* deformities, if they bear our names. *Glanville.*

Admire yourſelf,
And, without rival, *hug* your darling book. *Roſcommon.*

To hold faſt.—Age makes us moſt fondly *hug* and retain the good things of life, when we have the leaſt proſpect of enjoying them. *Atterbury.*—To gripe in wreſtling.

HUG, *ſ.* Cloſe embrace.—Why theſe cloſe *hugs?* I owe my ſhame to him. *Gay.*—A particular gripe in wreſtling, called a *Corniſh hug.*

HUGE, *adj.* [from *hoogh*, Dut. high; or from *hooch*, Welſh, a hog.] Vaſt; immenſe.—This ſpace of earth is ſo *huge*, as that it equalleth in greatneſs not only Aſia, Europe, and Africa, but America. *Abbot.*—Very great:

There leviathan,
*Hugeſt* of living creatures, in the deep
Stretch'd like a promontory, ſleeps or ſwims,
And ſeems a moving land. *Milton.*

Great even to deformity or terribleneſs:

Through foreſts *huge*, and long untravell'd heaths,
With deſolation brown, he wanders waſte. *Thomſon.*

HU'GELY, *adv.* Immenſely; enormouſly:

Who cries out on pride,
That can therein tax any private party?
Doth it not flow as *hugely* as the ſea? *Shakeſpeare.*

Greatly; very much.—I am *hugely* bent to believe, that whenever you concern yourſelves in our affairs, it is for our good. *Swift.*

HU'GENESS, *ſ.* Enormous bulk; greatneſs. Utmoſt extent. *Not in uſe.*—My miſtreſs exceeds in goodneſs the *hugeneſs* of your unworthy thinking. *Shakeſpeare.*

HUG'GER-MUGGER, *ſ.* [corrupted perhaps from *huger mocker*, or hug in the dark. *Morcker* in Daniſh is darkneſs, whence our *murky.* It is written by ſir Thomas Moore, *hoker moker.* *Hôker*, in Chaucer, is peeviſh, croſs-grained, of which *moker* may only be a ludicrous reduplication. *Hooke* is likewiſe in German a corner, and *moky* is in Engliſh *dark.*] Secrecy; bye-place.—There's a diſtinction betwixt what's done openly and bare-faced, and a thing that's done in *hugger-mugger*, under the ſeal of ſecrecy and concealment. *L'Eſtrange.*

But if I can but find them out,
Where'er th' in *hugger-mugger* lurk,
I'll make them rue their handy work. *Hudibras.*

HUG'GING, *ſ.* The act of embracing; a fond embrace.

HUGH, [from *hawen*, Teut. to cleave; or *hooch*, Belg. high.] A Chriſtian name.

HUGH, abbot of Flavigny, an eminent eccleſiaſtical hiſtorian, born in 1065. When young, he embraced the monaſtic life in the abbey of St. Vannes, at Verdun; and in 1085, when the partiſans of the anti-pope Guibert and the emperor diſperſed the members of that community, together with other monks, he took refuge at the monaſtery of Flavigny, in the dioceſe of Autun. Here he acquired ſo much eſteem and reſpect, that upon the death of the abbot, in 1097, he was elected to that dignity. He was the author of *Chronicon Verdunenſe*, divided into two parts; the firſt of which contains an eccleſiaſtical hiſtory from the birth of Chriſt to the cloſe of the tenth century; and the ſecond a continuation of the ſame from the year 1002 to 1102.

HUGH de FLEURY, a learned French monk, who flouriſhed about the year 1120. He embraced the eccleſiaſtical life in the abbey of Fleury, and rendered himſelf celebrated by his writings, which are held in much eſteem. He was the author of *Chronicon Libris VI. ad Ivonem Carnotenſem*, commencing with the reign of Ninus king of the Aſſyrians, and terminating with the death of the emperor Louis the Pious, in 840. It was firſt publiſhed, in part, by Bernard Rottendorp, at Munſter, in 1638; and was inſerted entire in the *Bibliotheca Cæſarea*. Part of it, compriſing the events from the year 923 to 1034, have been publiſhed by Andrew du Cheſne, in the third and fourth volumes of his *Scriptor. de Rebus Franc.* He was alſo the author of *Lib. II. de regia Poteſtate et ſacerdotali Dignitate, ad Henricum Angliæ Regem*, which M. Baluze has inſerted in the fourth volume of his *Miſcellanea*.

HUGH of AMIENS, a learned French prelate, born at Amiens, educated at Laon, and made prior of Cluny. Afterwards he came to England, where he was made abbot of Reading; from which ſituation he was removed to his native country, in 1130, in order to fill the archiepiſcopal ſee of Rouen; over which he preſided till his death, in 1164. He was the author of Three Books of Inſtruction to his clergy againſt the heretics of his day, which, with two of his Letters, were publiſhed by father d'Achery, at the end of The Works of Guibert de Nogent. He was alſo the author of Seven Dialogues on theological queſtions, which fathers Martenne and Durand have inſerted in the fifth volume of their *Theſaurus Anecdotum*; and of An Explanation of the Apoſtle's Creed and the Lord's Prayer, and other pieces, printed in the ninth volume of their *Veterum Scriptorum ampliſſima Collectio*.

HUGH of ST. VICTOR, a learned eccleſiaſtical writer, born near Ypres, in Flanders, about the year 1097. When he was eighteen years of age, he entered into the congregation of the canons regular of St. Auguſtine, at the monaſtery of St. Victor, in Paris, where he ſpent the remainder of his life, and roſe to the office of prior. In 1130 he was appointed to the theological chair, which he filled with diſtinguiſhed reputation, and died in 1140, when only in the forty-fourth year of his age. He was the author of a vaſt number of Commentaries on the different parts of Scripture, Moral Homilies, Dogmatical Treatiſes, Philoſophical and Theological Diſſertations, Sermons, Dialogues, Divine Offices, Miſcellaneous Pieces, &c. They were collected and publiſhed in 3 vols. folio, at Paris, in 1526; and afterwards at Venice, in 1588; at Cologne, in 1617; and at Rouen, in 1648.

HUGH of ST. CHARUS, a learned French cardinal, born in the vicinity of Vienne, in Dauphiné, where his pariſh church was dedicated to St. Charus. In 1225 he entered into the Dominican order of preaching friars, of which, within two years, he was appointed provincial. Afterwards he was created doctor by the faculty of the Sorbonne, and was ſent by pope Gregory IX. on a miſſion to Conſtantinople, to attempt bringing about an union between the eaſtern and the weſtern churches. After his return home, pope Innocent IV. created him a cardinal of the Roman church, under the title of St. Sabina, and employed him in many important and difficult negociations; as did likewiſe his ſucceſſor, pope Alexander IV. He died at Orvieto, in 1263; whence, in the following year, his remains were transferred to Lyons. He wrote, 1. Commentaries and notes on the whole of the ſacred Scriptures, entitled *Poſtillæ, ſeu Commentariola juxta quadruplicem Senſum in totum Vetus ac Novum Teſtamentum*, publiſhed in five, ſix, and eight, volumes folio, at Baſil, in 1487, 1498, and 1504; at Venice, in 1487, and in 1600; at Paris, in 1508, 1538, and 1548; and at Cologne, in 1621. 2. A Commentary on the Pſalms, publiſhed at Venice in 1496, but under the borrowed name of Alexander de Hales. 3. A Commentary on the Epiſtles and Goſpels read in the Church, printed at Paris in 1506, in 3 vols. 4to. 4. A treatiſe entitled *Speculum Sacerdotum & Eccleſiæ*, publiſhed at Lyons in 1554. 5. Sermons, publiſhed at Zwol, in 1479, 4to. His moſt uſeful work, however, and which will ſerve to eternize his memory, is the Concordance of the Bible, of which he was the inventor, and in drawing up which he employed many monks of his order. It was entitled *Concordantia major Latinorum Bibliorum, pro omnibus vocibus declinabilibus in tota S. Scriptura repertis*; to which Conrad of Halberſtadt added the indeclinable words about the year 1290. This work was printed at Cologne in 1684. He alſo left behind him a copy of the whole Bible, with marginal notes, and a multitude of various readings from Hebrew, Greek, and ancient Latin, manuſcripts. A complete copy of theſe various readings was lodged in the library of the Sorbonne, at Paris, and known by the title of *Correctorium Sorbonicum*.

HUGH CAPET, firſt king of France of the third dynaſty. See the article FRANCE, vol. vii. p. 663.

HUGHES (John), an Engliſh poetical writer, born in 1677, at Marlborough, in Wiltſhire. He received his education in London, and was a ſtudent in the academy of Mr. Thomas Rowe, a diſſenting miniſter, at the ſame time with Dr. Watts, Mr. Say, and others who arrived at eminence. He obtained a place in the office of ordnance, and was ſecretary to various commiſſions for purchaſing lands for the uſe of the royal docks. His employments under government induced him to exerciſe his poetic talent upon public topics; and he publiſhed, in 1697, a Poem on the Treaty of Ryſwick; in 1699 his Court of Neptune, a poem on the return of king William from Holland; and in 1702, at the death of that king, a Pindaric ode, entitled Of the Houſe of Naſſau. Theſe pieces gave him reputation; while his ſentiments rendered him acceptable to the whig party, and connected him with Addiſon, Steele, and other perſons of diſtinction. He employed his pen likewiſe in various proſe tranſlations, and was one of the writers in the periodical papers of the Tatler, Spectator, and Guardian. His pure morality and literary taſte made him worthy to take a part in theſe works, though he had not the humour and vivacity which are requiſite for ſtanding prominent among eſſayiſts. His taſte for muſic introduced him to the acquaintance of ſeveral eminent compoſers, and led him to write many pieces for muſical accompaniment. Of theſe, were an ode performed at Stationers'-hall; ſix cantatas ſet by Dr. Pepuſch; and an opera entitled Calypſo and Telemachus, ſet by Galliard, and intended to prove that the Engliſh language was as capable as the Italian of being allied to muſic. This laſt was much ſuperior in the poetry to the Italian operas; but, for want of being ſupported by the firſt ſingers, it had little ſucceſs on the ſtage. He alſo wrote a maſque entitled Apollo and Daphne, which was ſet by Dr. Pepuſch, and performed at Drury-lane. In 1715, he publiſhed, by ſubſcription, an edition of Spenſer, by which he gained credit as an elegant critic, though he diſplayed no great compaſs of antiquarian knowledge. Soon after this period he obtained the patronage of lord-chancellor Cowper, who raiſed him to an eaſy competence by the appointment, in 1717, to the place of ſecretary to the commiſſions of the peace. A decline in his health interrupted the enjoyment of his good fortune, but did not preclude his literary exertions. Under great bodily languor, but with unabated mental faculties, he compoſed his tragedy of The Siege of Damaſcus, which was brought on the ſtage on February 17, 1719-20, on which very night the author expired, at the early age of forty-three. His poems were collected ſoon after his death by his brother Jabez, alſo a poet and a ſcholar. In 1735, a complete collection of his poems and dramatic pieces, with an account of his life, was publiſhed in 2 vols. 12mo. by his brother-in-law William Duncombe, eſq. A Collection of Letters between ſeveral Perſons of Eminence, in 2 vols. 12mo. was publiſhed in 1772, to which the celebrity of Hughes's name gave the leading title, though his letters are compriſed within the firſt volume. A conſiderable proportion of them are written to earl Cowper.

HU'GHESBURG, a town of the American States, in Northumberland county, Pennſylvania, called alſo *Cataweſſy*, being ſituated at the mouth of Cataweſſy creek, twenty-five miles north-eaſt of Sunbury; 144 miles north-weſt of Philadelphia.

HU'GO (Charles-Louis), a learned French writer, canon-regular of the order of Prémontré, at the abbey of Jovilliers; and coadjutor of the abbot of Etival, in 1710. Afterwards he was appointed by the pope abbot of Fontaine-André. In 1722 he quitted this abbey, and returned to that of Etival, to ſucceed the abbot Godin. As he maintained that his church was exempt from epiſcopal juriſdiction, and dependent only on the holy ſee, he became involved in conteſts with the biſhop of Toul; and he gloried in the perſeverance and ſpirit with which he defended himſelf, in Lorrain and at Rome, orally and by writing, and in having been repeatedly proſcribed and exiled, from 1725 to 1728, without being ſhaken by the menaces of the great, or in the leaſt degree ſacrificing his privileges. In the year laſt mentioned the pope, by way of compenſating him for his ſufferings, honoured him with the epiſcopal character, by nominating him biſhop of Ptolemais. He died at his abbey in 1739, in a very advanced age. He was the author of, 1. A Refutation of the Syſtem of the Abbé Faydit relative to the Doctrine of the Trinity, 1699, 8vo. 2. A Criticiſm on The Hiſtory of the Canons-regular, a work written by father Chaponel, 1699, 12mo. 3. The Life of St. Norbert, founder of the Order of Prémontré, 1704, 4to. 4. An hiſtorical and critical Treatiſe on the Houſe of Lorrain, &c. 1711, 8vo. which was publiſhed under the borrowed name of Baleicourt, and pretendedly printed at Berlin. 5. The Hiſtory of Moſes, 1698, 8vo. 6. *Sacræ Antiquitatis Monumenta hiſtorica, dogmatica, diplomatica, &c. Notis illuſtrata*, 1725 and 1731, in 2 vols. folio. 6. *Sacri & Canonici Ordinis Præmonſtratenſis Annales, in duas Partes diviſi, Pars prima, Monaſteriologiam, ſive ſingulorum Ordinis Monaſteriorum ſingularem hiſtoriam complectens*, 1734 and 1736, in 2 vols. folio, &c.

HUGO'NIA, *ſ.* [ſo named by Linnæus, in memory of *Auguſtus Johannes de Hugo*, who travelled in Swiſſerland with Haller in 1732, and aſſiſted him with his Herbarium.] In botany, a genus of the claſs monadelphia, order decandria, natural order of columniferæ, (malvaceæ, *Juſſ.*) The generic characters are—Calyx: perianthium one-leafed; ſegments ovate, acute, concave, coriaceous, permanent; the two outer ones larger, (five-leaved, *Gærtner.*) Corolla: petals five, roundiſh, large, emarginate, ſpreading, narrowed at the baſe, fixed at the baſe by ſlender claws to the little pitcher of ſtamens. Stamina: filaments ten, awl-ſhaped, equal, ſhorter than the corolla, connected at the bottom into a little pitcher; antheræ roundiſh, furrowed, incumbent. Piſtillum: germ roundiſh; ſtyles five, filiform, longer than the ſtamens; ſtigmas capitate, orbicular, flat. Pericarpium: drupe globular, one-celled; (a berried drupe, *G.*) Seed: nut globular, deeply ſtriated, ten-celled; kernels oblong, compreſſed, bowed at the back.—*Eſſential Character.* Five-ſtyled; corolla five-petalled; drupe with a ſtriated nut.

Hugonia myſtax, a ſingle ſpecies. It is a tree with an irregular bark. Branchlets ſhort, alternate, ſpreading, leafy at the end. Leaves oval, quite entire, ſmooth, petioled, cluſtered. Flowers ſeveral, from the ends of the branches, in cluſters, white. Tendrils or ſpines two on each of the branchlets, ſhort, rigid, parallel to the branches, below the leaves. Perianthium five-leaved. Antheræ twin. Germ ovate, within the little pitcher formed by the lower part of the filaments. The fruit is a berried, ſpherical, ſucculent, drupe; the ſkin is very thin, papery, tough, white, with a very poliſhed ſhining ſurface; the pulp is ſucculent, but diſappears in time; the ſhell is bony, ſpherical, deeply ſtriated, and ten-celled. There is a ſingle oblong ſeed in each cell, drawn to a point at both ends, arched on the back, thickiſh, flat on the ſides, wedge-form, compreſſed, pale. It is a native of the Eaſt Indies.

HUGUENO'TE, *ſ.* [French.] A kind of kettle for a ſtove, or an earthen ſtove for a pot to boil on. Hence

A LA HUGUENOTE, in cookery, a particular way of dreſſing eggs with gravy.

HU'GUENOTISM, *ſ.* The profeſſion or principles of an Huguenot.

HU'GUENOTS, [either from *Hoc nos venimus*, the beginning of the firſt proteſtation of the apologetical oration made before cardinal Lotharingius, in the time of Francis II. of France; or from *Hugon*, a gate in the city of Tours where they aſſembled when they firſt ſtirred; or *les Guenots de Huſſe*, i. e. John Huſs's imps.] A nickname given by the papiſts in France to the proteſtants. The perſecution which they underwent has ſcarcely its parallel in the hiſtory of religion: though they obtained a peace from Henry III. in 1576, it was only of ſhort continuance; and their ſufferings, mitigated by the famous edict of Nantes, granted to them in 1598 by Henry IV. were again renewed, after the revocation of this edict, by Louis XIV. in 1685.

HU'GY, *adj.* Vaſt; great; huge. *Not in uſe.*—This *hugy* rock one finger's force apparently will move. *Carew's Survey of Cornwall.*

HUI-YAO, a town of China, of the third rank, in the province of Tche-kiang: twenty-two miles weſt-north-weſt of Ning-po.

HUI'DE, a town of Norway, in the dioceſe of Chriſtianſand: twenty miles eaſt of Skeen.

HUI'DINGS, a ſmall iſland in the North Sea, near the weſt coaſt of Norway: ten miles weſt of Stavanger. Lat. 59. 3. N. lon. 5. 42. E. Greenwich.

HUIL'LECOURT, a town of France, in the department of the Upper Marne, and chief place of a canton, in the diſtrict of Bourmont: three miles ſouth-ſouth-weſt of Bourmont.

HUIS (L'), a town of France, in the department of the Ain, and chief place of a canton, in the diſtrict of Belley: two leagues weſt of Belley.

HUI'SNE, a river of France, which runs into the Sarte, near le Mans.

HUISSEAU', a town of France, in the department of the Loiret, and chief place of a canton, in the diſtrict of Beaugency: three leagues weſt of Orleans.

HUIS'SEN, a town of Germany, in Weſtphālia, and duchy of Cleves: ten miles north-north-weſt of Cleves.

HUKE, *ſ.* [*huque*, Fr.] A cloak.—As we were thus in conference, there came one that ſeemed to be a meſſenger, in a rich *huke*. *Bacon.*

HUK'KOK, a city of Paleſtine, belonging to the tribe of Naphtali; ſituated upon the boundary of that province. *Joſh.* xix. 34.

HU'KOK, or HEL'KATH. See HELKATH.

HUL'DAH, [Heb. the world.] The name of a woman.

HUL'DRICH (John-James), a learned Swiſs proteſtant divine, born at Zurich in 1683. After receiving a liberal education in his native city, he went to Bremen, where he attended the lectures of M. Haſe the elder, and particularly applied himſelf to the ſtudy of Hebrew, and the rabbinical writings. From Bremen he went to Holland, and publiſhed there, in 1705, a work entitled *Sepher Toledot Jeſco*, i. e. The Hiſtory of Jeſus the Nazarene. It is a volume in quarto, written in Hebrew, accompanied with a Latin verſion and notes by the editor. The original is a life of Jeſus Chriſt, drawn up by a Jew, and replete with the moſt atrocious calumnies. Theſe the editor has abundantly refuted in his notes, and ſpared no terms of obloquy in order to hold out the author to deteſtation. Upon his return to Zurich, in 1706, he was made chaplain of the orphan-houſe; and four years afterwards appointed profeſſor of moral Chriſtianity in the leſſer college. With this appointment was afterwards connected the profeſſorſhip of natural law, which led the author to draw up A

Commentary on the Book of Puffendorf concerning the Duties of a Man and a Citizen. He died in 1731, aged forty-eight. Beſides the articles above-mentioned, he was the author of *Miſcellanea Tigurina*, in 3 vols. 8vo. and a number of Sermons in the German language.

HU'LET, [from *hulette*, Fr. a ſhepherd's crook.] A ſurname.

HUL'FENBERG, a town of Germany, on the Lower Rhine, and territory of Eichsfeld: eight miles ſouth of Duderſtadt.

HU'LIN ROCKS, or The Maids, rocks in the north channel of the Iriſh Sea, ſix miles from the coaſt of Antrim. Lat. 54. 57. N. lon. 5. 37. W. Greenwich.

HULK, *ſ.* [*hulcke*, Dut. hulc, Sax.] The body of a ſhip.—There's a whole merchant's venture of Bourdeaux ſtuff in him: you have not ſeen a *hulk* better ſtuffed in the hold. *Shakeſpeare.*—Any thing bulky and unwieldy. This ſenſe is ſtill retained in the north:

And Harry Monmouth's brawn, the *hulk* ſir John,
Is priſoner to your ſon. *Shakeſpeare.*

*To* HULK, *v. n.* To exenterate; as, to *hulk* a hare. *Ainſworth.*

HUL'KY, *adj.* Big; bulky; clumſy.

HULL, *ſ.* [*hulgan*, Goth. to cover.] The huſk or integument of any thing; the outer covering: as, the *hull* of a nut covers the ſhell. [*Hule*, Scottiſh.] The body of a ſhip; the hulk. *Hull* and *hulk* are now confounded; but *hulk* ſeems originally to have meant not merely the body or hull, but a whole ſhip of burden, heavy and bulky:

Deep in their *hulls* our deadly bullets light,
And through the yielding planks a paſſage find. *Dryden.*

*To* HULL, *v. n.* To float; to drive to and fro upon the water without ſails or rudder.—He look'd, and ſaw the ark *hull* on the flood. *Milton.*

HULL, or Kingston-upon-Hull, [*heulen*, Teut. to howl, from the noiſe the river makes when it meets with the ſea.] A large commercial town and ſea-port in the county of York, diſtant ninety-ſeven miles eaſt from Mancheſter, forty from York, and 173 north from London. It is of a triangular form, the longeſt ſide of which is irregular, and compoſed of the rivers Hull and Humber, from which the town is called Hull. It is moſt admirably calculated for a place of ſtrength, and was juſtly eſteemed one of the keys of the kingdom, being defended on the north-eaſt by the Hull, and on the ſouth by the Humber; the progreſſion and confluence of the two rivers ſweeping round to the extremities of the ſhorteſt ſides of the triangle, which were formerly defended by a ſtrong wall, town-ditch, rampart, half-moons, and ſecond ditch. In 1296, Edward I. on his return from his famous Scotch expedition (in which he had acted as the arbitrator between Bruce and Baliol), was ſo ſtruck with its ſituation, that he built the town, and granted a charter replete with many privileges, making it a free-borough under the juriſdiction of a warden, who had the power of gaol-delivery, with judgment of life and death, fairs, markets, &c. In the latter end of the reign of Edward II. the government was changed to that of a grand bailiff, as a more honourable juriſdiction. In the reign of Edward III. flouriſhed William de la Pole, head of the family of the earls and dukes of Suffolk, ſo famous in our hiſtory, when the government was again changed to a mayor and four bailiffs: de la Pole was knighted, and made the firſt mayor of Hull, in 1332. In 1399, when Henry IV. landed at Ravenſpurn (now loſt by the encroachment of the ſea), he was denied entrance into the town. In 1440 (Henry VI.) the town was erected into a county, compriſing nine villages in the environs; the government was again changed, from a mayor and bailiffs, to a mayor and twelve aldermen, with a ſheriff and two chamberlains, as it continues at this day; ſo that it is now called The town and county of the town of Hull. Soon after this, the town was divided into wards. In 1448, Henry VI. viſited Hull; and, in 1460, the mayor, Richard Hanſon, was ſlain at the battle of Wakefield, fighting for the houſe of Lancaſter. In 1463, the town was viſited and garriſoned by Edward IV. being encumbered with heavy debts by the civil wars, inſomuch that they were conſtrained to ſell the lead off the market-croſs. In 1472 the plague ſwept off numbers of the inhabitants; the place was abandoned, and graſs grew in the ſtreets. In 1536, Hull was taken by the rebel Aſke; alſo by another party of rebels in 1537; and again by ſir Robert Conſtable, in whoſe poſſeſſion it remained a month, when it was retaken, and he was hanged at one of the gates of the town. In 1637, it was again afflicted by the plague, and the inhabitants were in the greateſt danger of being ſtarved to death. In 1639, Charles I. made his firſt viſit to Hull, and met with a loyal reception; and the next year his governor was received, but reſigned to the mayor ſoon after. In 1642, the attention of the king and parliament was engaged on the acquiſition of Hull. It was eſteemed of great conſequence, and it was the opinion of many, that if Charles had ſecured it (as he had the Tower of London and garriſon of Portſmouth), being then in poſſeſſion of the keys of the kingdom and the principal magazines, he would never have been ſubdued; but, Hotham being ſoon after received from the parliament, he abandoned all hopes of it; and, on St. George's day the ſame year, ſuffered that diſgraceful excluſion at Beverley-gate. After a variety of letters, memorials, and meſſages, between the king and parliament, it was blockaded by the former, the ſluices were pulled up, the country flooded to annoy the royal army, by which immenſe damage was done to the inhabitants and the ſuburbs, and various attempts to gain the place by negociation were made by the royaliſts. On Saturday September 2, 1643, the royal army, under the command of William Cavendiſh duke of Newcaſtle (then marquis), ſat down before Hull and inveſted it, and the ſiege was carried on with various ſucceſs till the 12th of October following (five weeks and four days), when it was raiſed, after being defended with great bravery by lord Fairfax. In 1645 the Common Prayer was burnt in the market-place, ſoon after which the plague again appeared.

In the war, ended by the peace of Utrecht, the fleets from Hull to London were frequently one hundred ſail; ſometimes, including the other creeks in the Humber, one hundred and ſixty ſail at a time; and to Holland their trade was ſo conſiderable, that the Dutch always employed two men-of-war to convoy the merchant-ſhips to and from Hull, and thoſe were as many as they ſent to London. In a word, moſt of the trade of Leeds, Wakefield, Hudderſfield, and Halifax, is negociated here. All the lead-trade of Derbyſhire and Nottinghamſhire, from Bawtry wharf; the butter of the Eaſt and North Ridings brought down the Ouſe from York; the cheeſe down the Trent from Stafford, Warwick, and Cheſhire; and the corn from all the counties adjacent, are ſhipped off from this port. By the Ouſe it trades to York, Boroughbridge, and Rippon. By the Trent, Idle, Witham, Don, and Derwent, a great trade is carried on to Bawtry, Gainſborough, Newark, Nottingham, Derby, and Lichfield. By the new inland navigation it has communication with the rivers Merſey, Dee, Ribble, Severn, Thames, Avon, &c. which navigation, including its windings, extends above five hundred miles in the counties of Lancaſter, Weſtmoreland, Leiceſter, Oxford, Worceſter, &c. The firſt trade that enriched the town of Hull was in Iceland fiſh, dried and hardened, the ſame that is called *ſtock-fiſh*, becauſe it was carried on by a joint ſtock. This town was famous for its good government; and thence aroſe this ſaying, called the beggars and vagrants' litany, From Hell, Hull, and Hallifax, good Lord deliver us. Hull, for the ſevere chaſtiſement they met with there; Hallifax, for a law inſtantly beheading with an engine thoſe who were taken in the fact of ſtealing cloth, without any further legal proceedings, being probably more terrible to them than Hell itſelf.

The improvements made within the laſt fifty years have entirely altered the face of Hull, particularly the conſtruction of a dock of ſuch extent that eighty ſhips may ride in it conveniently and ſafely: to complete ſo great an undertaking, an act of parliament was obtained in 1774. By an overſight, occaſioned by a combination of cauſes, the ſole property and management of the dock is veſted in an incorporated company, wherein the corporation have no particular juriſdiction. The dock is under the care and inſpection of a dock-maſter and other officers. The town is regularly built, well paved, and the ſtreets broad and handſome. There are but two churches, Trinity and St. Mary's: the former is very large, in which is a fine altar-piece by Parmentier. The town lies very low; and was formerly ſubject to great inundations; but, by proper drains, is now rendered dry and healthy. Here is a very handſome exchange, where the merchants from foreign countries, and others from different parts of the kingdom, meet as at London. The town has a fine free-ſchool, founded by John Alcock biſhop of Worceſter, afterwards of Ely, who was born at Beverley, but choſe to extend his liberalities to this place. Over the ſchool is the merchants'-hall. Here is likewiſe a very handſome infirmary, ſupported by voluntary ſubſcription. But the Trinity-houſe is the principal glory of the town. It is a corporation of itſelf, compoſed of a ſociety of merchants. It was begun by voluntary contribution for the relief of diſtreſſed and aged ſeamen, and their wives and widows; but was afterwards improved by the government, and incorporated. They have a good revenue, which increaſes conſtantly by charities. They maintain thirty ſiſters now actually in the houſe, widows of ſeamen. Hull ſends two members to parliament. Charles II. in 1667, granted the town two marts a-year, viz. July 10, and December 10, and five days after each; its other fair is October 10. It has capital markets on Tueſdays and Saturdays.

HULL, a river of England, in the county of York, which runs into the Humber at Hull.

HULL, a town of the American States, in Suffolk county, on the ſouth ſide of Boſton harbour, Maſſachuſetts.

HULL'ING, *ſ.* The act of ſtripping off hulls or huſks.

HUL'LOCK, *ſ.* A ſea term; an additional ſail to keep the ſhip's head to the ſea in a ſtorm.

HUL'LY, *adj.* Siliquoſe; huſky. *Ainſworth.*

HULS, a town of Germany, on the Lower Rhine, and archbiſhopric of Cologn: two miles ſouth-eaſt of Kempen, and thirty-five north-weſt of Cologn.

HUL'SEMANN (John), a learned Lutheran divine, born at Eſſen, in Frieſland, in 1602. After paſſing through different preparatory ſchools, he was ſent to purſue his academical ſtudies at Roſtock in 1621; and in the following year was removed to Wittemberg, where he cloſely attended the ableſt profeſſors till 1627. The firſt public poſt in which we find him, is that of the theological chair in the univerſity of Wittemberg, which he occupied for ſeveral years, with diſtinguiſhed reputation. In 1645, he was placed at the head of the Lutheran doctors who were ſent to the celebrated conference at Thorn, called the *charitable conference*, as its object was to attempt a re-union between the Romiſh, Lutheran, and Reformed perſuaſions: but which ended, like many ſimilar meetings, in widening the differences between the parties, inſtead of terminating them. In 1651, he was nominated provoſt, and ſenior member of the chapter of Naumburg; in 1653 received into the decemvirate of the academy at Leipſic; and in 1657 made canon of Meiſſen. His laſt promotion was to the ſuperintendency of the churches at Leipſic. He died in 1661, when about fifty-nine years of age. His principal works are, 1. *Collegium publicum Anti-papiſticum.* 2. *Breviarium Theologicum.* 3. *Manuale Confeſſionis Auguſtanæ.* 4. *Calviniſmus irreconciliabilis.* 5. *Methodus Concionandi.* 6. *De Auxiliis Gratiæ.* 7. *Extenſio Breviarii Theologici.* 8. A Relation of what took Place in the Conference at Thorn, in the German language.

HUL'SIUS (Anthony), a learned proteſtant divine, born in the duchy of Berg in 1615. He purſued his ſtudies at Weſel, and afterwards at Deventer, where he diſtinguiſhed himſelf by the extraordinary proficiency which he made in oriental literature. For the purpoſe of further improvement, he viſited England and France, and made a conſiderable ſtay at Geneva. In 1640 he returned to Holland, and four years afterwards was choſen miniſter of Breda, where he diligently diſcharged the duties of the paſtoral office for twenty-five years. In 1669 he was nominated regent of the Flemiſh college at Leyden; which ſituation he retained in connection with the profeſſorſhips of divinity and the oriental tongues, to which he was appointed in 1676. He died in 1685, in the ſeventieth year of his age. He was the author of three learned works, entitled, 1. *Theologia Judaica*, 1653, 4to. 2. *Opus Catecheticum didactico-polemicum*, 1676. 3. *Non Ens Præ-adamiticum*, 1656, &c.

HUL'SIUS (Henry), ſon of the preceding, born at Breda in 1654. He commenced his academical ſtudies at Duiſburg in 1667, and after ſix years removed to the univerſity of Marpurg. From Marpurg he went to Leyden, and thence to Harderwick, where, in 1679, he was admitted to the degree of doctor of divinity. In 1681 he was appointed profeſſor of divinity at Duiſburg, and retained that ſituation till his death in 1723, when about the age of ſixty-nine. He was the author of, 1. *Sulamith*, 1683. 2. *Summa Theologiæ*, 1689. 3. *De Principio Credendi*, 1688. 4. *Somnium*, 1684. 5. *De Vallibus Prophetarum Sacril.* 1693. 6. *Jura Wilhelmi III. M. Britan. Regis.* 7. *Verba Ithiel, Vchal, & Lemuel*, 1693. 8. *Commentarius in Iſraelis priſci prærogativas ac Bona*, 1713. 9. *Cauſa Dei*, 1717. 10. *Melchiſedecus*, 1706. 11. Various Diſſertations, &c.

HUL'SIUS (Levinus), a native of Ghent, and by profeſſion an imperial notary. We have no account of the time either of his birth or death, and only learn concerning him, that he reſided during the greater part of his life at Nuremberg, and acquired conſiderable eſtimation by the following works: 1. *Tranſilvaniæ, Moldaviæ, & Walachia, Deſcriptio*, 1595, 4to. 2. *Chronologia Rerum memorabilium in Hungaria, Tranſilvania, &c. Geſtarum. uſque ad Annum* 1597; 1597. 3. *Deſcriptio uſus Viatoris & Horologii Solaris.* 4. *De Uſu Quadrati & Quadrantis Geometrici ac Chronologici.* 5. *Inſtrumenta Mathematica*, 4to. 6. *Emblemata Aniverſaria Academia Altdorfinæ*, 1597, 4to. 7. *Duodecim Cæſarum, at LXIV. ipſorum Uxorum ac Parentum Effigies, ex antiquis numiſmatibus Æri inciſæ*, 1596, 4to. 8. *Series numiſmatum Imperatorum Romanorum, a Caio Julio Cæſare ad Rudolphum II.* 1603, 8vo. The two laſt-mentioned works are exceedingly ſcarce.

HULST, a town of Flanders, the capital of four offices, with twelve dependent villages, ſituated on a canal, which communicates with the Scheld: it is ſmall, but ancient, and very ſtrong, by its ſituation among marſhes, and its fortifications. It was ſeveral times taken and retaken by the Dutch and Spaniards, during their wars in the ſixteenth century; and finally given up by the latter at the peace of Munſter, concluded in 1648. In the year 1702, the marquis of Bedmar, commander-general of the Netherlands, in the abſence of the elector of Bavaria, reſolved to attack it, and gave the command to M. de Vauban, lieutenant-general, and afterwards mareſchal of France: but the ſtates, having received advice of the expedition, ſent in a number of troops, and ordered the country to be laid under water; which, with the gallant conduct of the governor, major-general Dedem, obliged the marquis to retire with the loſs of a thouſand men. In 1747, it was taken by the French, under the command of comte Lowendahl, being ſhamefully given up by la Roque, the Dutch governor, though he knew that a reinforcement of nine battalions was coming to his relief: ſixteen miles weſt of Antwerp, and ſixteen north-north-eaſt of Ghent. Lat. 51. 15. N. lon. 21. 34. E. Ferro.

HUL'TROP, a town of Germany, on the Lower Rhine, and kingdom of Weſtphalia: ſix miles north-north-eaſt of Wels.

HULT'SCHIN, a town of Sileſia, in the principality of

Oppau: eleven miles eaſt of Troppau, and ſix weſt of Oderberg.

HULT'SIO, a town of Sweden, in the province of Smaland: twenty-ſix miles north of Wexio.

HUL'VER, *ſ.* A provincial term for holly.—Save *hulver* and thorn, thereof flail for to make. *Tuſſer.*

*To* HUM, *v. a.* [*homelan*, Dut.] To make the noiſe of bees:

An airy nation flew,
Thick as the *humming* bees that hunt the golden dew
In ſummer's heat. *Dryden.*

To make an inarticulate and buzzing ſound:

I think he'll hear me: yet to bite his lip,
And *hum* at good Cominius, much unhearts me. *Shakeſp.*

To pauſe in ſpeaking, and ſupply the interval with an audible emiſſion of breath:

Having pump'd up all his wit,
And *humm'd* upon it, thus he writ:
I ſtill acquieſt,
And never *humm'd* and haw'd ſedition,
Nor ſnuffled treaſon. *Hudibras.*

To make a dull heavy noiſe.—The muſical accents of the Indians to us are but inarticulate *hummings*; as are ours to their otherwiſe-tuned organs. *Glanville.*

Still *humming* on, their drowſy courſe they keep,
And laſh'd ſo long, like tops, are laſh'd aſleep. *Pope.*

To ſing low.—*Hum* half a tune. *Pope.*—To applaud. Approbation was formerly expreſſed in public aſſemblies by a hum.

HUM, *ſ.* The noiſe of bees or inſects:

Nor undelightful is the ceaſeleſs *hum*
To him who muſes through the woods at noon. *Thomſon.*

A low confuſed noiſe, as of buſtling crowds at a diſtance:

From camp to camp, thro' the foul womb of night,
The *hum* of either army ſtill reſounds. *Shakeſpeare.*

Any low dull noiſe:

Who ſat the neareſt, by the words o'ercome,
Slept faſt: the diſtant nodded to the *hum.* *Pope.*

A pauſe with an inarticulate ſound.—Your excuſes want ſome grains to make 'em current; *hum* and ha will not do the buſineſs. *Dryden.*—In *Hudibras* it ſeems uſed for *ham*:

And though his countrymen the Huns
Did ſtew their meat between their *hums*
And the horſes' backs on which they ſtraddle,
And ev'ry man ate up his ſaddle. *Hudibras.*

An expreſſion of applauſe.—You hear a *hum* in the right place. *Spectator.*

HUM, *interject.* A ſound implying doubt and deliberation:

Let not your ears deſpiſe the heavieſt ſound
That ever yet they heard.
*Hum!* I gueſs at it. *Shakeſpeare.*

HU'MAN, *adj.* [from *humanus*, Lat. *humain*, Fr.] Having the qualities of a man.—To err is *human*—to forgive divine.—It will never be aſked whether he be a gentleman born, but whether he be a *human* creature? *Swift.*—Belonging to a man.—The king is but a man as I am; the violet ſmells to him as it doth to me; all his ſenſes have but *human* conditions. *Shakeſpeare.*

For man to tell how *human* life began
Is hard; for who himſelf beginning knew? *Milton.*

HU'MAN, a town of Poland, in the palatinate of Braclau: fifty-ſix miles eaſt-ſouth-eaſt of Braclau.

HU'MAN, a town of Perſia, in the province of Segeſtan: ſeventy-four leagues ſouth-eaſt of Zareng.

HUMA'NA DE TOMPIE'RES, a town of North America, in the province of New Mexico: thirty-one leagues ſouth-ſouth-eaſt of Santa Fe.

HUMA'NE, *adj.* [from *humaine*, Fr.] Kind; civil; benevolent; good-natured.—Love of others, if it be not ſpent upon a few, doth naturally ſpread itſelf towards many, and maketh men become *humane* and charitable. *Bacon.*

HUMA'NELY, *adv.* Kindly; with good-nature.—If they would yield us the ſuperfluity, while it were wholeſome, we might gueſs they relieved us *humanely*. *Shakeſp.*

HU'MANIST, *ſ.* [from *humaniſte*, Fr.] A philologer; a grammarian; a term uſed in the ſchools of Scotland. One verſed in human nature.—A juſt naturaliſt, or *humaniſt*, who knows the creature Man, and judges of his growth and improvement in ſociety. *Shaftſbury.*

HUMAN'ITY, *ſ* [*humanité*, Fr. from *humanitas*, Lat.] The nature of man.—Look to thyſelf; reach not beyond *humanity*. *Sidney.*—Human kind; the collective body of mankind.—If he can untie thoſe knots, he is able to teach all *humanity*, and will do well to oblige mankind by his information. *Glanville.*—Benevolence; tenderneſs.—All men ought to maintain peace and the common offices of *humanity* and friendſhip in diverſity of opinions. *Locke.*

How few, like thee, enquire the wretched out,
And court the offices of ſoft *humanity?*
Like thee reſerve their raiment for the naked,
Reach out their bread to feed the crying orphan,
Or mix their pitying tears with thoſe that weep! *Rowe.*

Philology; grammatical ſtudies. In Scotland, *humaniores literæ*.—If then we may ſpend ſome of yong yeares in ſtudies of *humanity*; what better and more ſweet ſtudy is there for a young man than poetrie? *Harrington.*

We ſometimes find examples of *Humanity* among people in the humbler walks of life, that would reflect honour on perſons of the moſt exalted rank. The following affords an inſtance of filial duty, and of humanity, that is both pleaſing and pre-eminent: A free negro in the neighbourhood of Chriſtianburg, being involved in a debt which he was unable to pay, acknowledged to his creditor that he had nothing left to ſatiſfy his demand, except his own perſon, of which he might diſpoſe as he thought fit; the latter took the poor fellow at his word, and ſold him to the Danes. During his confinement at the fort, where he was ſhut up with other ſlaves, till a ſhip ſhould ſail for the plantations in the Weſt Indies, his ſon formed the affectionate and noble reſolution of delivering him from ſlavery. The parental tenderneſs of the old man, who choſe rather to forfeit his own liberty and endure the hardſhips of perpetual ſlavery than to ſell his child, which, by the laws of his country, he might have done, prompted the latter to this heroic exertion of filial duty; he came to the fort, accompanied by ſome of his relations, and inſiſted on being accepted inſtead of his father; this was granted, and the ſcene, which took place on their meeting, was ſuch as muſt have melted any heart excepting that of a dealer in ſlaves; it was the conteſt of the nobleſt and moſt benevolent affections; the father, with grief and reluctance, accepted the freedom which was forced on him, and the generous youth ſurrendered his limbs to the chain, with apparent pleaſure. This intereſting ſcene being repreſented to the Daniſh governor, he generouſly and humanely advanced the money to pay the debt; on which the young man was releaſed, and happineſs was reſtored to this worthy negro family.

*To* HU'MANIZE, *v. a.* [from *humaniſer*, Fr.] To ſoften; to make ſuſceptible of tenderneſs or benevolence:

Here will I paint the characters of woe,
And here my faithful tears in ſhow'rs ſhall flow,
To *humanize* the flints whereon I tread. *Wotton.*

HUMANKI'ND, *ſ.* The race of man; mankind:

Bleſt with a taſte exact, yet unconfin'd;
A knowledge both of books and *humankind.* *Pope.*

HU'MANLY, *adv.* After the notions of men; according to the power of men.—Thus the preſent happy proſpect of our affairs, *humanly* ſpeaking, may ſeem to promiſe. *Atterbury.*—Kindly; with good-nature. This is now written *humanely*:

Though learn'd, well bred; and though well bred, ſincere;
Modeſtly bold, and *humanly* ſevere. *Pope.*

HU'MANNESS, *ſ.* Humanity.

HUMAR', a ſmall iſland of Arabia, in the Red Sea: one league north-weſt of Loheia.

HU'MAS, an American Indian village, on the eaſt ſide of Miſſiſſippi river in Louiſiana, ſixty miles above New Orleans. The Humas were formerly a conſiderable nation, but about the year 1770 were reduced to only twenty-five warriors. The Alabamas, whoſe villages are near thoſe of the Humas, had, at the above period, about thirty warriors, and followed the French here when they abandoned the poſt on Alabama river in 1762. The Chetimachas have about twenty-ſeven warriors.

HUM'BER, [humbꞃe, Sax. ſo called from its humming, becauſe its waters make a great humming at the flowing and ebbing of the tide, *Somner*; or of *hamm* and *aber*, which in the C. Br. ſignifies the mouth of a river, *Leland.*] A river of England, formed by the Trent, Ouſe, Derwent, and ſeveral other ſtreams. By the late inland navigation, it has a communication with the rivers Merſey, Dee, Ribble, Severn, Thames, Avon, &c. which navigation, including its windings, extends above five hundred miles, in the counties of Lincoln, Nottingham, York, Lancaſter, Weſtmoreland, Cheſter, Stafford, Warwick, Leiceſter, Oxford, Worceſter. It divides Yorkſhire from Lincolnſhire, and falls into the German ocean near Holderneſs. See CANAL NAVIGATION, vol. iii.

HUM'BER, a river of Newfoundland, which empties into the gulf of St. Lawrence through the Bay of Iſlands.

HUM'BERT, an eminent cardinal of the Roman church in the eleventh century, born in Lorrain, and embraced the monaſtic life at the abbey of Moyenmoutier, in the dioceſe of Toul, in 1015. Here he acquired ſuch reputation for talents and learning, that pope Leo IX. ſent for him into Italy, where he promoted him to the biſhopric of the White Foreſt. About the year 1049 the ſame pope raiſed him to the purple, and ſent him his legate to Conſtantinople in 1054. He died about the year 1064. He far ſurpaſſed all the Latins both in the vehemence and learning which appeared in his controverſial writings againſt the Greeks. They conſiſt of, 1. *Liber adverſus Calumnias Michaelis Cerularii, & Leonis Achridani de Azymo, & Jejunio Sabbatorum.* 2. *Refutatio Tractatus editi contra Latinos a Niceta Pectorato.* 3. *Commemoratio eorum, quæ contra Michaelem Cerularium geſſerunt Apocriſtarii Apoſtolicæ Sedis Anno* 1054. 4. *Epiſtola ad omnes Eccleſiæ Catholicæ Filios.* The above are inſerted in the ſixth volume of *Caniſius Antiqua Lectiones*; and alſo in the eighteenth volume of the *Bibl. Patr.*

HUM'BIRD, *ſ.* The humming bird.—We call the wren the leaſt of birds, yet our own plantations have ſhowed one far leſs; that is, the *humbird*, not much exceeding a beetle. *Brown.*—See the article TROCHILUS.

HUM'BLE, *adj.* [*humble*, Fr. from *humilis*, Lat.] Not proud; modeſt; not arrogant.—We ſhould be as *humble* in our imperfections and ſins, as Chriſt was in the fullneſs of the ſpirit, great wiſdom, and perfect life. *Taylor.*

Ten thouſand trifles light as theſe,
Nor can my rage nor anger move:
She ſhould be *humble* who would pleaſe;
And ſhe muſt ſuffer, who can love. *Prior.*

Low; not high; not great:

Ah! prince, had'ſt thou but known the joys which dwell
With *humbler* fortunes, thou wouldſt curſe thy royalty! *Rowe.*

*To* HUM'BLE, *v. a.* To make humble; to make ſubmiſſive; to make to bow down with humility.—*Humble* yourſelves under the mighty hand of God, that he may exalt you. 1 *Pet.* v. 6.—Hezekiah *humbled* himſelf for the pride of his heart. 2 *Chron.*—To cruſh; to break; to ſubdue: to mortify.—Men that make a kind of inſult upon ſociety, ought to be *humbled* as diſturbers of the public tranquillity. *Freeholder.*

Fortune not much of *humbling* me can boaſt;
Though double tax'd, how little have I loſt! *Pope.*

To make to condeſcend.—This would not be to condeſcend to their capacities, when he *humbles* himſelf to ſpeak to them, but to loſe his deſign in ſpeaking. *Locke.*—To bring down from an height.—In proceſs of time the higheſt mountains may be *humbled* into valleys; and again, the loweſt valleys exalted into mountains. *Hakewill.*

HUM'BLE-BEE, *ſ.* A buzzing wild bee. See BOMBYLIUS, vol. iii. p. 165.

HUM'BLE-MOUTHED, *adj.* Mild; meek:

You're meek and *humble-mouthed*; but your heart
Is cramm'd with arrogancy, ſpleen, and pride. *Shakeſpeare.*

HUM'BLE PLANT, *ſ.* in botany. See MIMOSA.

HUM'BLENESS, *ſ.* Humility; abſence of pride:

A grain of glory, mixed with *humbleneſs*,
Cures both a fever and lethargicneſs. *Herbert.*

HUM'BLER, *ſ.* One that humbles or ſubdues himſelf or others.

HUM'BLES, *ſ.* Entrails of a deer. See UMBLES.

HUM'BLESS, *ſ.* Humbleneſs; humility. *Obſolete.*

And with meek *humbleſs*, and afflicted mood,
Pardon for thee, and grace for me, intreat. *Spenſer.*

HUM'BLING, *ſ.* The act of making humble, or of mortifying; an act of ſubmiſſion.

HUM'BLY, *adv.* Without pride; with humility; modeſtly; with timorous modeſty:

In midſt of dangers, fears, and death,
Thy goodneſs I'll adore,
And praiſe thee for thy mercies paſt,
And *humbly* hope for more. *Addiſon.*

Without height; without elevation.

HUM'DRUM, *adj.* [from *hum drone*, or *humming drone.*] Dull; droniſh; ſtupid:

Shall we, quoth ſhe, ſtand ſtill, *humdrum*,
And ſee ſtout Bruin all alone,
By numbers baſely overthrown? *Hudibras.*

HUMBOLD'TIA, *ſ.* [from *Humbold*, a learned chemiſt.] In botany, a genus of the claſs pentandria, order monogynia. Generic eſſential characters—Calyx fourparted; petals five; legume oblong, compreſſed.

Humboldtia laurifolia, a ſingle ſpecies. It is a tree with jointed flexuous branches; leaves pinnate; ſtipules double; racemes axillary, ſolitary, or in pairs, many-flowered. Inhabits Ceylon.

HUME (David,) a much-celebrated hiſtorian and philoſopher, born at Edinburgh in 1711. He was the youngeſt ſon of a gentleman of good family, but not opulent; and, loſing his father in his infancy, was brought up under the care of his mother. He early diſplayed a great love for literature, which became his predominant paſſion; but he could not confine himſelf to the purſuits of any particular profeſſion, and ſpent his time in the ſtudies of philoſophy and general learning. As his ſlender patrimony did not permit him to follow his inclinations with freedom at home, he went to France with the intention of proſecuting his literary purſuits in an unknown retreat, reſolving to ſupply by economy his pecuniary deficiencies. He reſided firſt at Rheims, but chiefly at La Fleche in Anjou, and paſſed three years very agreeably in that kingdom. In 1737 he came to London, and in the end of the following year publiſhed his Treatiſe on Human Nature, which he had compoſed during his reſidence in France. Immediately afterwards, he went to Scotland to his mother and elder brother, who was reſiding upon and improving his paternal eſtate. His literary fame, however, received a ſevere mortification from the neglect attending his firſt publication, which excited not the ſmalleſt notice. He was not, however, diſcouraged, but proceeded in his courſe of ſtudies, and in 1742 printed at Edinburgh, Eſſays, moral, political, and literary. The more popular and familiar form of this work, with the elegance of its ſtyle, cauſed it to be favourably received, and made him amends for his former diſappointment. In 1745 he received an invitation from the marquis of Annandale to come and live with him in England. The family of that nobleman were alſo deſirous that he ſhould be put under Mr. Hume's direction, and the connection laſted for a twelvemonth. At the end of that time he ſtood candidate for the profeſſorſhip of moral philoſophy in the univerſity of Edinburgh, and was powerfully ſupported by the intereſt of ſome perſons of rank. The preſbytery, however, exerciſed their authority againſt him, as one whoſe principles they thought inimical to the eſtabliſhed religion.

In 1746, general St. Clair nominated him his ſecretary in an expedition deſigned for Canada, but which ended in an attack only upon the French coaſt. In 1747 he attended the general, in the ſame ſtation, upon a military embaſſy to the courts of Vienna and Turin. Theſe two years paſſed away agreeably, and increaſed his knowledge of the world, as well as his little ſtock of fortune. On his return he went into Scotland, and lived two years with his brother in the country, occupied in preparing new matter for the preſs. But, finding a metropolis the ſcene for a proper man of letters, he removed in 1751 from his brother's houſe to Edinburgh; and there, in 1752, publiſhed his Political Diſcourſes, which were received with approbation. In the ſame year his Enquiry concerning the Principles of Morals was publiſhed in London, a work which he has pronounced to be, in his own opinion, of all his writings of every kind "incomparably the beſt." It had, however, the fate of moſt ingenious ſpeculations which do not point to practical utility; it met with little notice. He obtained, in 1752, the agreeable appointment of librarian to the faculty of advocates in Edinburgh, a place of little pecuniary emolument, but affording the command of a large and curious collection of books. It was this circumſtance which ſeems firſt to have inſpired him with the idea of becoming an hiſtorical writer, as it was probably his local ſituation which ſuggeſted as his firſt ſubject the "Hiſtory of England under the Houſe of Stuart." A quarto volume of this work, containing the reigns of James I. and Charles I. appeared in 1754; and, contrary to his ſanguine expectations, was aſſailed by all parties with one "cry of reproach, diſapprobation, and even deteſtation." The reaſon that he aſſigns for this reception, that "he had preſumed to ſhed a generous tear for the fate of Charles I. and the earl of Strafford," could not have operated upon all the claſſes of his cenſurers; but his undiſguiſed contempt for all religion, of which he recogniſes but two ſpecies, ſuperſtition and enthuſiaſm, together with that impartiality which made him freely expoſe the faults of all parties, would naturally unite againſt him perſons of the moſt oppoſite principles. His conſtitutional tranquillity, however, returned, and he proceeded in his taſk. In the interval, he publiſhed his Natural Hiſtory of Religion, with ſome other pieces, which did not excite the attention he ſeems to have expected.

The ſecond volume of his Hiſtory of England, compriſing the period from the death of Charles I. to the revolution, appeared in 1756, and was better received than the firſt had been. He was now encouraged to take a wider range of Engliſh hiſtory, and in 1759 he publiſhed his Hiſtory of the Houſe of Tudor. This, he ſays, excited a clamour againſt him almoſt equal to that attending the firſt volume. His reputation as an hiſtorian, however, continued to gain ground; ſo that he was induced to go back to the earlier periods, and write down to the point of time at which his laſt work had commenced. Theſe two additional volumes appeared in 1761, and his Hiſtory of England thenceforth became a ſtandard book, read by all, at home and abroad, who wiſhed to take a compendious and intereſting view of Engliſh affairs. It is generally allowed, that his reſearches into the origin of the Engliſh conſtitution are not remarkable for depth or accuracy, and that he has too readily admitted the idea that the liberties of the country are of modern date, and were ſo many forced conceſſions from the ſovereigns. His ſtyle, however, is clear, lively, eloquent, always agreeable, but ſometimes careleſs and incorrect. The copy-money obtained for theſe works, joined to a conſiderable penſion granted him by the crown as a literary man, through the influence of lord Bute, had now ſecured him an independence, with which it was his intention to live retired in his native country; but in 1763 he received an unexpected invitation from the earl of Hertford, to attend him on his embaſſy to Paris, with the near proſpect of the ſecretaryſhip to the embaſſy. This was an offer too flattering to be reſiſted. He accompanied that nobleman, and received the expected appointment at Paris. His character as a writer and a philoſopher was well known in that capital, and procured him an exceſs of attention and civility, which might have turned the head of a leſs ſedate perſon. Not only the men of letters, but men of rank, and eſpecially ladies of quality, vied with each other in the compliments paid him. This ſituation could not fail of being delightful to one who was fond of refined ſociety, and ſomewhat vain of literary reputation. He remained as *chargé d'affaires* after the departure of lord Hertford in 1765, and did not return to England till the beginning of 1766.

Mr. Hume had now acquired a reliſh for public life and its advantages, that cauſed him, in 1767, to accept the poſt of under-ſecretary of ſtate, offered to him by general Conway, which he held till the reſignation of that miniſter in 1769. He then made a final retreat to Edinburgh, expecting to enjoy a comfortable old age by means of the friends, reputation, and opulence, he now poſſeſſed. In that literary metropolis he drew round himſelf a choſen circle of ſuitable aſſociates, with whom he lived upon eaſy and familiar terms, generally admired and reſpected, even by thoſe whoſe profeſſion neceſſarily occaſioned a reſerve in their communication with him. In the ſpring of 1775 he was attacked with a diſorder in his bowels, which at firſt cauſed no alarm, but which, by its continuance, at length declared itſelf incurable. This is the idea he himſelf gives of it in a ſketch of his life, written April, 1776; and with ſuch tranquillity did he ſurvey his approaching end, that his habitual gaiety was not in the leaſt impaired by the proſpect. With little bodily pain, and no mental decline, he gradually ſunk into a ſtate of exhauſtion, which carried him off on Auguſt 25, 1776, in his ſixty-fifth year. "He died," ſays his phyſician, Dr. Black, "in ſuch a happy compoſure of mind, that nothing could exceed it." His intimate friend, the celebrated Dr. Adam Smith, thus ſums up his character. Hume was one "concerning whoſe philoſophical opinions men will, no doubt, judge variouſly, every one approving or condemning them, according as they happen to coincide or diſagree with his own; but concerning whoſe character and conduct there can ſcarcely be a difference of opinion. His temper, indeed, ſeemed to be more happily balanced, if I may be allowed ſuch an expreſſion, than that perhaps of any other man I have ever known. Even in the loweſt ſtate of his fortune, his great and neceſſary frugality never hindered him from exerciſing, upon proper occaſions, acts both of charity and generoſity. It was a frugality founded, not upon avarice, but upon the love of independence. His conſtant pleaſantry was the genuine effuſion of good-nature and good-humour, tempered with delicacy and modeſty, and without even the ſlighteſt tincture of malignity. That gaiety of temper, ſo agreeable in ſociety, but which is ſo often accompanied with frivolous and ſuperficial qualities, was in him certainly attended with the moſt ſevere application, the moſt extenſive learning, the greateſt depth of thought, and a capacity in every reſpect the moſt comprehenſive. Upon the whole, I have always conſidered him, both in his life-time and ſince his death, as approaching as nearly to the idea of a perfectly wiſe and virtuous man, as perhaps the nature of human frailty will permit."

After his death, in 1779, were publiſhed his Dialogues concerning Natural Religion, 8vo. a performance at leaſt equal in elegance, acuteneſs, and ingenuity, to any of his preceding works. Its general tendency is to favour ſcepticiſm, though an apparent preponderance is given to the arguments for pure theiſm. In 1783 appeared Eſſays on Suicide, in his name, which contain ſome of his moſt obnoxious principles in the groſſeſt form.

Of his Hiſtory of England, we have the following genuine character, given by the author of "Hints for a young Princeſs," publiſhed in 1805. "Hume's finely-painted characters of Alfred and Elizabeth ſhould be engraved on the heart of every ſovereign. His political prejudices do not ſtrikingly appear till the eſtabliſhment of the houſe of Stuart, nor his religious antipathies till about the diſtant dawn of the reformation under Henry V. From that period to its full eſtabliſhment, he is perhaps more dangerous, becauſe leſs oſtenſibly daring, than ſome other infidel hiſtorians. It is a ſerpent under a bed of roſes. He does not (in his *Hiſtory* at leaſt) ſo much ridicule religion himſelf, as invite others to ridicule it. There is a ſedateneſs in his manner which impoſes; a ſly gravity in his ſcepticiſm, which puts the reader more off his guard, than the vehemence of cenſure, or the levity of wit; for we are always leſs diſpoſed to ſuſpect a man who is too wiſe to appear angry. That ſame wiſdom makes him too correct to *invent* calumnies, but it does not preſerve him from doing what is ſcarcely leſs diſingenuous. He implicitly adopts the injurious relations of thoſe annaliſts who were moſt hoſtile to the reformed faith; though he muſt have known their accounts to be aggravated and diſcoloured, if not abſolutely invented. He thus makes others reſponſible for the worſt things he aſſerts, and ſpreads the miſchief, without avowing the malignity. When he ſpeaks from himſelf, the ſneer is ſo cool, the irony ſo ſober, the contempt ſo diſcreet, the moderation ſo inſidious, the difference between Popiſh bigotry and Proteſtant firmneſs, between the fury of the perſecutor and the reſolution of the martyr, ſo little marked; the diſtinctions between intolerant phrenſy and heroic zeal ſo melted into each other, that, though he contrives to make the reader feel ſome indignation at the tyrant, he never leads him to feel any reverence for the ſufferer. He aſcribes ſuch a ſlender ſuperiority to one religious ſyſtem above another, that the young reader, who does not come to the peruſal with his principles formed, will be in danger of thinking that the reformation was really not worth contending for. But, in nothing is the ſkill of this accompliſhed ſophiſt more apparent than in the artful way in which he piques his readers into a conformity with his own views concerning religion. Human pride, he knew, naturally likes to range itſelf on the ſide of ability. He, therefore, ſkilfully works on this paſſion, by treating with a ſort of contemptuous ſuperiority, as weak and credulous men, all whom he repreſents as being under the religious deluſion."

HUME, a town of the American States, in the ſtate of South Carolina: twelve miles ſouth-ſouth-weſt of George Town.

*To* HUMECT′, or HUMECT′ATE, *v. a.* [*humecto*, Lat. from *humecter*, Fr.] To wet; to moiſten.—The Nile and Niger do not only moiſten and contemperate the air by their exhalations, but refreſh and *humectate* the earth by their annual inundations. *Brown.*

HUMECTAN′TICS, *ſ.* [from *humecto*, to make moiſt.] Medicines which ſoften and make moiſt the ſolids of the body.

HUMECTA′TION, *ſ.* [*humectation*, Fr. from *humectate.*] The act of wetting; moiſtening.—That which is concreted by exſiccations or expreſſion of humidity, will be reſolved by *humectation*, as earth and clay. *Brown.*

HU′MERAL, *adj.* [*humeral*, Fr. from *humerus*, Lat.] Belonging to the ſhoulder.—The largeſt crooked needle ſhould be uſed, with a ligature, in taking up the *humeral* arteries in amputation. *Sharp.*

HU′MERUS, [from ωμος, Gr. or אמה *hamah*, Heb. quaſi *hamerus.*] The ſhoulder; the part which connects the arm to the body.

HUMES, a town of France, in the department of the Upper Marne, and chief place of a canton, in the diſtrict of Langres: one league north of Langres.

HUM′FRE, a cape on the eaſt coaſt of the iſland of Guernſey: half a mile ſouth of Cornet-caſtle.

HUM′FREY, [of *home*, and ꝼꞃaꝺe, Sax. peace; one who makes peace at home.] A Chriſtian name.

HUMICUBA′TION, *ſ.* [*humi* and *cubo*, Lat.] The act of lying on the ground.—Faſting and ſackcloth, and aſhes and tears, and *humicubations*, uſed to be companions of repentance. *Bramhall.*

HU′MID, *adj.* [*humide*, Fr. *humidus*, Lat.] Wet; moiſt; watery:

Iris there, with *humid* bow,
Waters the odorous banks that blow
Flowers of more mingled hue
Than her purpled ſcarf can ſhow. *Milton.*

HUMID′ITY, *ſ.* [*humidité*, Fr. from *humid.*] That quality which we call moiſture, or the power of wetting other bodies. It differs very much from fluidity, depending altogether on the congruity of the component particles of any liquor to the pores or ſurfaces of ſuch particular bodies as it is capable of adhering to. Thus quickſilver is not a moiſt liquor, in reſpect to our hands or clothes, and many other things it will not ſtick to; but it may be called ſo in reference to gold, tin, or lead, to whoſe ſurfaces it will preſently adhere. And even water itſelf, that wets almoſt every thing, and is the great ſtandard of *humidity*, is not capable of wetting every thing; for it ſtands and runs eaſily off in globular drops on the leaves of cabbages and many other plants; and it will not wet the feathers of ducks, ſwans, or other water-fowl.

HUMIF′EROUS, *adj.* [from *humus*, Lat. the moiſt earth, and *fero*, to bring.] Producing moiſture. *Bailey.*

HUMIF′IC, *adj.* [*humus*, Lat. moiſt ground, and *facio*, to make.] Moiſtening, cauſing dampneſs. *Scott.*

HUMILIA′TION, *ſ.* [French.] Deſcent from greatneſs; act of humility:

Thy *humiliation* ſhall exalt.
With thee thy manhood alſo to this throne. *Milton.*

Mortification; external expreſſion of ſin and unworthineſs.—The doctrine John preached was *humiliation* and repentance. *Brown.*—Abatement of pride.—It may ſerve for a leſſon of *humiliation*, to behold the habits and paſſions of men trampling over intereſt, friendſhip, honour, and their own perſonal ſafety, as well as that of their country. *Swift.*

HUMILIA′TI, a congregation of religions in the church of Rome, eſtabliſhed by ſome Milaneſe on their releaſe from priſon, where they had been confined under the emperor Conrad, or, as others ſay, under Frederic I. in 1162. This order, which acquired great wealth, and had no leſs than ninety monaſteries, was aboliſhed by pope Pius V. in 1570.

HUMIL′ITY, *ſ.* [*humilité*, Fr.] Freedom from pride; modeſty; not arrogance.—When we make profeſſion of our faith, we ſtand; when we acknowledge our ſins, or ſeek unto God for favour, we fall down; becauſe the geſture of conſtancy becometh us beſt in the one, in the other the behaviour of *humility*. *Hooker.*—What the height of a king tempteth to revenge, the *humility* of a Chriſtian teacheth to forgive. *King Charles.*

There are ſome that uſe
*Humility* to ſerve their pride, and ſeem
Humble upon their way, to be the prouder
At their wiſh'd journey's end. *Denham.*

Act of ſubmiſſion.—With theſe *humilities* they ſatisfied the young king, and by their bowing and bending avoided the preſent ſtorm. *Davies.*

Humility is that habit of mind which inclines to think of ourſelves not more highly than we ought to think, but to think ſoberly. It excludes not a proper ſenſe of our own right, whether by this be underſtood what belongs to us by claims ſtrictly legal, or what we are entitled to expect in conſequence of the ſituation we poſſeſs in ſociety, or of thoſe becoming decencies which humanity and civilization have eſtabliſhed, as due in different degrees from one man to another. Humility is by no means to be confounded with that meanneſs of ſpirit which ſubmits to indignity for fear of incurring the reſentment of the perſon by whom it is offered, or abandons duty when perſonal detriment ſtands in oppoſition to the conſcientious and vigorous diſcharge of it. On the contrary, this virtue will induce us to prefer duty to every perſonal conſideration, and reſiſt, in a becoming and temperate manner, every degradation which tends to obſtruct our utility by diminiſhing our influence.

Humility, directing the mind to God, perceives and acknowledges the inſignificance, the baſeneſs, and the aggravated guilt, of every human being, before his Creator. Turning our view towards our fellow-men, it recogniſes that equality of right and obligation, which, according to the diverſity of relations and circumſtances, ſubſiſts among all mankind; but alſo admits and reſpects every occurring inſtance of merit, in any individual. As often as our own qualities and virtues are the ſubjects of conſideration, humility diſpoſes us rather to cheriſh the ſuggeſtions of modeſt diffidence, and the feelings of conſcious defect, than to entertain the ſelf-flattery of preſumption and the audacity of arrogance.

From this general deſcription of the virtue in queſtion, we already perceive, that it implies a juſtneſs and elevation of ſentiment, and a certain tone of magnanimity, that dignify the ſoul in which they exiſt. It evinces enlargement of conception, and freedom from the fetters of ſelfiſhneſs. It proves that its poſſeſſor can expatiate beyond the contracted circle of his own qualities, can view with the diſcrimination of impartiality the merits of others, weigh them in the ſame balance with his own, and allow the former their full value, even when the latter muſt ſuffer by the compariſon; and has fixed, in his mind, ſuch a ſtandard of excellence, as far ſurpaſſes any human attainment. Real worth is the object of his regard, and, wherever he finds it, he honours it, though in the loweſt condition, and in circumſtances the moſt unproſperous. Hence, the humble man thinks meanly of his own qualifications, not becauſe his ideas flow in a ſhallow ſtream, and in a narrow channel, but becauſe his conceptions ſwell to ſuch a height, and are capable of ſuch expanſion, that his own importance is ſunk, as it were, and loſt amidſt greater conſiderations. Such a perſon is, therefore, poſſeſſed of real dignity, and greatneſs of mind, to which the proud man is an entire ſtranger. It requires both a ſound judgment, and no common degree of moderation and firmneſs, to repreſs the impulſes of ſelf-love, in ſuch a manner as to give to our own qualities no more value than they ought in reaſon to poſſeſs. So difficult is this attainment, that it is doubtful whether it has ever been completely found in any character merely human. To yield to the ſuggeſtions of pride, to ſuffer the imagination to be filled with her fantaſtic images, and the underſtanding blinded by her faſcination, requires no exertion, no ability whatever. The weaker, the more ignorant and vicious, a perſon is, the more eaſily and completely he runs the courſe which this paſſion preſcribes. But the cultivation of humility is a work that demands great diſcernment of the reſpective claims of thoſe that ſurround us, the faculty of comparing them with our own, a judicious eſtimation of merit, and reſolution to bend the violence and obſtinacy of ſelfiſh paſſions to the nature and reaſon of things. Theſe energies of mind, and their effects on conduct, command eſteem, enſure benevolence and attachment, and evince a character, not only amiable in itſelf, but uſeful to mankind. Every thing ſocial, generous, and exalted, is much more to be expected from this, than from the oppoſite diſpoſition. Is any perſonal hardſhip to be ſuffered, any ſacrifice made, for the public good? The perſon who conſiders himſelf as unimportant, in compariſon of the ſocial body, will be more ready to exhibit ſuch inſtances of magnanimity, than he whoſe chief object is his own exaltation. Is it neceſſary, for the peace of ſociety, to relinquiſh a favourite ſcheme or tenet, or, at leaſt, not to preſs it with a dogmatical ſpirit of contention? He, who is diffident of his own judgment is much more likely to adopt ſuch a meaſure, than the man who ſuppoſes his own opinions to be ſtamped with the mark of infallibility, and who is impelled to maintain them by the intolerant ſpirit of bigotry and pride. Is it deſirable, for the common intereſt, to accompliſh a reconciliation between contending parties? He, who is not inflamed with that reſentment which wounded ſelf-ſufficiency inſpires, will more readily ſtep forward to meet his opponent, in the temper of pacification, than the man who conſiders the rejection of exorbitant claims as atrocious injuſtice, and reſiſtance to inſolence as an unpardonable crime.

While the humble man thus poſſeſſes ſo much internal by not fooliſhly graſping at external dignity, he is alſo exempt from thoſe meanneſſes which are inſeparable from the purſuits of pride. He is not obliged to have recourſe to thoſe deſpicable devices which are often practiſed in order to obtain oſtentatious advancement, nor is he ſubject to thoſe debaſing emotions which are the reſult of diſappointed ambition. He is free from the bondage of adulation, equally degrading to the flatterer, and the perſon who is pleaſed with flattery; between whom there is ſuch mutual dependence, that it is difficult to determine who of the two is the greateſt ſlave. In ſhort, in whatever light we conſider the humble diſpoſition of meek-eyed humility, we find it productive of the nobleſt ſuperiority, and the moſt ſolid independence.

HUMMATU', *ſ.* in botany. See Datura Metel.

HUM'MEL's TOWN, a town of the American States, in Dauphine county, Pennſylvania, ſituated on the ſouth ſide of Swetara creek: ſix miles north of Middletown, ten eaſt-by-north of Harriſburg, and one hundred weſt-north-weſt of Philadelphia.

HUMME'LIUS (John), an eminent German mathematician, born at Memmingen in 1518. He received his early education in his native place, and, as he ſoon diſcovered a partiality for mathematical purſuits, he was ſent to the univerſity of Straſburg, where he diſtinguiſhed himſelf ſo much by his application and proficiency, that the ableſt maſters in that ſeminary took delight in communicating to him their information. In 1544 he returned to Memmingen, and was appointed miniſter of Bleſſe, a town in the neighbourhood of that city. Here he continued his favourite purſuits with all the ardour which a proper attention to his miniſterial duties permitted. When the *Interim* was enforced by the emperor Charles V. Hummelius refuſed to ſubſcribe to it, and was baniſhed; but afterwards his ſkill in the mathematics recommended him to the favour of that prince, who beſtowed on him high marks of his eſteem. In 1553, the emperor raiſed him to the dignity of count palatine, at the time when he filled the chair of mathematical profeſſor at Leipſic. Some time before, he had preſented to that prince, at Bruſſels, a clock of his invention, conſtructed in a ſingular and ingenious manner. Hummelius alſo invented ſeveral uſeful mathematical inſtruments, and added valuable improvements to others known before his time. He died in 1562, when only forty-four years of age, leaving behind him many ingenious mathematical works.

HUM'MER, *ſ.* That which hums; an applauder. *Ainſworth.*

HUM'MET (The), a ſmall iſland in the Engliſh

Channel, near the north-eaſt coaſt of the iſland of Guernſey.

HUM'MING, ſ. A low protracted noiſe; the act of making ſuch a kind of noiſe.

HUM'MING-BIRD, in ornithology. See TROCHILUS.

HUM'MOCK, a ſmall iſland in the Eaſtern Indian Sea: five leagues ſouth from Mindanao.

HUM'MOCK, ſ. A ſea-term for a little hill.—Point Poſſeſſion bore north-north-eaſt about three miles diſtance, and ſome remarkable *hummocks* on the north. *Hawkeſworth's Voyages.*

HUM'MUMS, ſ. A ſweating-houſe; a bagnio:

And then there's the *Hummums* ſo nice and ſo neat,
Where they does not admit of no ladies. *Beggars' Song.*

HU'MORAL, *adj.* Proceeding from the humours.—This ſort of fever is comprehended unto continual *humoral* fevers. *Harvey.*

HU'MORIST, ſ. [*humoriſto*, Ital. *humoriſte*, Fr.] One who conducts himſelf by his own fancy; one who gratifies his own humour.—The notion of a *humoriſt* is one that is greatly pleaſed, or greatly diſpleaſed, with little things; his actions ſeldom directed by the reaſon and nature of things. *Watts.*—One who has odd conceits.—The wit ſinks imperceptibly into an *humoriſt*. *Spectator.*—One who has violent and peculiar paſſions.—By a wiſe and timeous inquiſition the peccant humours and *humoriſts* muſt be diſcovered and purged, or cut off; mercy, in ſuch a caſe, in a king, is true cruelty. *Bacon.*

HUMORIS'TI and HUMORO'SI, the names of two academies of learned men in Italy.

HUMOROS'ITY, ſ. Moiſtneſs, a fullneſs of humours. *Cole.*

HU'MOROUS, *adj.* Full of groteſque or odd images.—Some of the commentators tell us, that Marſya was a lawyer who had loſt his cauſe; others that this paſſage alludes to the ſtory of the ſatyr Marſyas, who contended with Apollo, which I think is more *humorous*. *Addiſon.*—Capricious; irregular; without any rule but the preſent whim.—He that would learn to paſs a juſt ſentence on perſons and things, muſt take heed of a fanciful temper of mind, and a *humorous* conduct in his affairs. *Watts.*

Vaſt is his courage, boundleſs in his mind,
Rough as a ſtorm, and *humorous* as the wind. *Dryden.*

Pleaſant; jocular:

Thy *humorous* vein, thy pleaſing folly,
Lies all neglected, all forgot;
And penſive, wav'ring, melancholy,
Thou dread'ſt and hop'ſt thou know'ſt not what. *Prior.*

HU'MOROUSLY, *adj.* Merrily; jocoſely.—A cabinet of medals Juvenal calls very *humorouſly*, *conciſum argentum in titulos facieſque minutas*. *Addiſon.*—Capriciouſly; whimſically.—We reſolve by halves, and unadviſedly; we reſolve raſhly, ſillily, or *humorouſly*, upon no reaſons that will hold. *Calamy.*

HU'MOROUSNESS, ſ. Fickleneſs; capricious levity. Jocularity; oddneſs of conceit.

HU'MOURSOME, *adj.* Peeviſh; petulant.—The commons do not abet *humourſome* factious arms; they aver them to be rebellious. *Burke.*—Odd; humorous. In this ſenſe it is leſs uſed.—Our ſcience cannot be much improved by maſquerades, where the wit of both ſexes is altogether taken up in continuing ſingular and *humourſome* diſguiſes. *Swift.*

HU'MOURSOMELY, *adv.* Peeviſhly; petulantly.

HU'MOURSOMENESS, ſ. The ſtate or quality of being humourſome.

HU'MOUR, ſ. [*humeur*, Fr. *humor*, Lat.] Moiſture.—The aqueous *humour* of the eye will not freeze, which is very admirable, ſeeing it hath the perſpicuity and fluidity of common water. *Ray.*—The different kind of moiſture in man's body, reckoned by the old phyſicians to be phlegm, blood, choler, and melancholy, which, as they predominated, were ſuppoſed to determine the temper of mind:

Believe not theſe ſuggeſtions, which proceed
From anguiſh of the mind and *humours* black,
That mingle with thy fancy. *Milton.*

General turn or temper of mind.—In caſes where it is neceſſary to make examples, it is the *humour* of the multitude to forget the crime, and to remember the puniſhment. *Addiſon.*

Examine how your *humour* is inclin'd,
And which the ruling paſſion of your mind. *Roſcommon.*
Good *humour* only teaches charms to laſt,
Still makes new conqueſts, and maintains the paſt. *Pope.*

Preſent diſpoſition:

Tempt not his heavy hand;
But one ſubmiſſive word which you let fall
Will make him in good *humour* with us all. *Dryden.*

Groteſque imagery; jocularity; merriment.—In converſation *humour* is more than wit, eaſineſs more than knowledge. *Temple.*—Tendency to diſeaſe; morbid diſpoſition.—He denied himſelf nothing that he had a mind to eat or drink, which gave him a body full of *humours*, and made his fits of the gout frequent and violent. *Temple.*—Petulance; peeviſhneſs.—Is my friend all perfection, all virtue and diſcretion? has he not *humours* to be endured, as well as kindneſſes to be enjoyed? *South.*—A trick; a practice.—I like not the *humour* of lying: he hath wronged me in ſome *humours*: I ſhould have borne the humour'd letter to her. *Shakeſpeare.*—Caprice; whim; predominant inclination.—In private, men are more bold in their own *humours*; and in conſort, men are more obnoxious to other's *humours*; therefore it is good to take both. *Bacon.*

*To* HU'MOUR, *v. a.* To gratify; to ſooth by compliance.—Children are fond of ſomething which ſtrikes their fancy moſt, and ſullen and regardleſs of every thing elſe, if they are not *humoured* in that fancy. *Watts.*

You *humour* me when I am ſick;
Why not when I am ſplenetic? *Pope.*

To fit; to comply with.—'Tis my part to invent, and the muſicians to *humour* that invention. *Dryden.*

To after-age thou ſhalt be writ the man
That with ſmooth air could *humour* beſt our tongue. *Milton.*

HU'MOURING, ſ. The act of complying with any one's humour; the act of ſoothing by compliance.

HUMP, ſ. [corrupted perhaps from *bump*. See BUMP.] The protuberance formed by a crooked back.—Theſe defects were mended by matches; the eyes were opened in the next generation, and the *hump* fell. *Tatler.*

HUMP-BACK, ſ. Crooked back; high ſhoulders.—The chief of the family was born with a *hump-back* and very high noſe. *Tatler.*

HUMP'-BACKED, *adj.* Having a crooked back.

HUMP'-SHOULDERED, *adj.* Having high ſhoulders. *Scott.*

HUM'PHREYS (Laurence), a learned Engliſh divine, born at Newport-Pagnell, in Buckinghamſhire, about the year 1527. He was entered at Cambridge; but, being afterwards removed to Oxford, in 1547 he was choſen a demy of Magdalen college in that univerſity. In 1549, he was admitted to the degree of B. A. and was alſo elected a fellow of his college. Having proceeded M. A. in 1552, he was made Greek reader of his college. In 1560, he was conſtituted by queen Elizabeth profeſſor of divinity at Oxford; and in the following year was elected preſident of his college. In 1562, he firſt took his degree of bachelor, and afterwards that of doctor of divinity. In 1570, he was created dean of Glouceſter; and in 1580, he was removed to the deanery of Wincheſter. The greateſt part of his time he ſpent in a ſtudious and retired manner, and died in 1589, aged ſixty-three years. He was the author of, 1. *Epiſtola de Græcis Literis, & Homeri Lectione & Imitatione*, prefixed to a book of Hadrian Junius, entitled, *Copiæ-Cornu*, printed at Baſil in 1558, folio. 2. *De Religionis Conſervatione & Reformatione, deque Primatu Regum*, printed at Baſil in 1559, 8vo. 3. *De Ratione Interpretandi Auctores*, printed at the ſame place in 1559, 8vo. 4. *Obadias Propheta, Hebraicè & Latinè, & Philo de Judice, Græcè & Latine*, printed with the preceding. 5. *Optimates, ſive de Nobilitate, ejuſque antiqua Origine, Natura, Officiis, Diſciplina, &c. Libritres*, printed at Baſil in 1560, 8vo. 6. *Philo Judæus de Nobilitate, Interprete Laurentio Humphrede*, ſubjoined to the preceding. 7. *Johannes Juelli, Angli, Epiſcopi Sariſburienſis, Vita & Mors, ejuſque veræ Doctrinæ Defenſio*, 1563, 8vo. 8. *De Fermento vitando: concio in Mat.* 16, *Marc.* 8, *Luc.* 12, *&c.* 1582, 8vo. 9. *Jeſuitiſmi Pars prima; ſive praxis Romanæ Curiæ contra Reſpublicas & Principes*, 1582, 8vo. 10. *Jeſuitiſmi Pars ſecunda; Puritano-Papiſmi ſeu Doctrinæ Jeſuiticæ aliquot Rationibus ab Edmund Campiano comprehenſæ, &c. Confutatio*, 1584, 8vo. 11. Two Orations in Latin, delivered before queen Elizabeth. 12. Seven Sermons againſt Treaſon, 1588, 8vo. 13. *Concio in Die Cinerum.* And he alſo reviſed and corrected *Joannis Shepreve Summa & Synopſis Novi Teſtamenti Diſtichis ducentis Sexaginta comprehenſa*, firſt printed at Straſburg about the year 1586, 8vo. &c.

HUMTAH', a city of Paleſtine, belonging to the tribe of Judah; ſituated in the mountains of that province. *Joſh.* xv. 54.

HU'MULUS, *ſ.* [from *humus*, moiſt earth or ground.] The Hop; in botany, a genus of the claſs dioecia, order pentandria, natural order of ſcabridæ, (urticæ, *Juſſ.*) The generic characters are—I. Male. Calyx: perianthium five-leaved; leaflets oblong, concave, blunt. Corolla: none. Stamina: filaments five, capillary, very ſhort; antheræ oblong. II. Female. Calyx: involucre univerſal, four-parted, ſharp; partial four-leaved, ovate, eight-flowered; to each flower a perianthium one-leafed, ovate, very large, outwardly flat on one ſide, converging at the baſe. Corolla: none. Piſtillum: germ very ſmall; ſtyles two, ſubulate, patulous; ſtigmas ſharp. Pericarpium: none. Calyx incloſing the ſeed at the baſe. Seed: roundiſh, covered with a coat.—*Eſſential Character.* Male. Calyx five-leaved; corolla none. Female. Calyx one-leafed, ſpreading obliquely, entire; corolla none; ſtyles two; ſeed one, within a leafed calyx.

Humulus lupulus, a ſingle ſpecies. Root perennial. Stems weak and twining, not climbing by tendrils, but aſcending a prop, trees, or ſhrubs, in a ſpiral, always with the ſun, that is from right to left, or from eaſt to weſt by the ſouth; this direction it has in common with Tamus or black bryony, Lonicera or honeyſuckle, and ſeveral others; but more turn the contrary way, or from left to right, as Phaſcolus or kidney-beans, and ſeveral other leguminous plants, convolvulus, &c. &c. Theſe ſtems are angular, ſtriated, and rugged, with very minute prickles. The ſtem of the hop is ſhown on the Botany Plate III. fig. 13. vol. iii. p. 239. and the leaf Plate V. fig. 84. Leaves oppoſite in pairs, (or ſometimes in threes,) the upper ones heart-ſhaped, the lower three-lobed, (or ſometimes five-lobed,) ſerrate, dark-green above, pale-green beneath, on long petioles; which, as well as the leaves themſelves, are rugged with minute prickles. Flowers greeniſh yellow; the males on branched peduncles; the females on a diſtinct plant, peduncled, in pairs, in the form of a cone or ſtrobile, compoſed of ovate membranaceous ſcales, tubular from being rolled in at the baſe, and two-flowered, each containing one (ſometimes two) ſeed, of a brown bay colour, of a globular form a little flatted, ſurrounded with a ſharp rim, and compreſſed at the tip. It is covered with three coats; the outer membranaccous and wrinkled, the middle cruſtaceous and thin, the inner membranaceous. The embryo is ſpiral and inverted. Native of moſt parts of Europe, in hedges; alſo of Japan; flowering with us in June. Hops in German are called *hopfen*; in Dutch, *hoppe*; in Daniſh and Swediſh, *humle*; in French, *houblon*; in Italian, *lupulo*; in Spaniſh, *hombrecillo, hoblon, lupulo, vidarria*; in Portugueze, *lupulo, hombrezilho, ſinoura, ſeba*; in Ruſſian, and all the Sclavonian dialects, *chmel*; in the Tartarian, *kumula, umula*; in Perſian, *hymel.*

The young ſhoots are eaten early in the ſpring as aſparagus, and are ſold under the name of hop-tops; they are ſaid to be diuretic, and to be good againſt the ſcurvy, taken in an infuſion. The herb will dye wool yellow. From the ſtalks a ſtrong cloth is made in Sweden; for this purpoſe they muſt be gathered in autumn, ſoaked in water all winter; and in March, after being dried in a ſtove, they are dreſſed like flax. They require a longer time to rot than flax; and, if not completely macerated, the woody part will not ſeparate, nor the cloth prove white or fine.

The Society for Encouragement of Arts, Manufactures, and Commerce, at London, offered premiums, in the year 1760, for cloth made from hop-ſtalks, or binds. The year following Mr. Cookſey produced ſome ſpecimens of cloth, and was of opinion that it would anſwer very well the purpoſe of fine ſacking, and coarſe bagging for hops. He had kept the material too long under water; and found, at the end of ſix weeks or two months, the binds afforded filaments ſufficiently fine and ſtrong for any purpoſe. In 1791, Mr. John Lockett, of Donnington near Newbury in Berkſhire, had the premium adjudged to him for cloth made from theſe ſtalks, or hop-vines as they are here called. They were cut in lengths of about two or three feet; put into a furnace, in which was ſome lie that linen had been boiled in for bleaching; and then boiled, till the rind ſeparated from the ſtalk eaſily. When cool, they ſtript ſo freely, that children might do it; and the yield was great in proportion to the quantity of ſtalks. The ſame method was then followed as in working hemp or flax; but it is much more ſtubborn than either, and therefore not ſo well adapted to making fine cloth; the fibres alſo are ſo united with a very adherent matter, that they do not eaſily ſeparate; but for ſacks, cordage, &c. it may be of great ſervice. Some of it was hackled while it was wet, ſoon after it was taken off, but it did not ſeparate the fibres. Carding ſeems to work it beſt, and to make it like cotton. Of the piece of cloth ſent, the warp was hackled, and the woof carded.

A decoction of the roots of hops, from one to two ounces, or an extract from them to the quantity of twenty or thirty grains, is ſaid to be ſudorific, and to anſwer the purpoſes of ſarſaparilla. Both theſe and the ſtrobiles have a balſamic principle, and are thought to be ſerviceable in removing obſtructions, correcting the viſcidity of the lymph, opening the pores of the ſkin, cleanſing the kidneys, &c. But the principal uſe of the latter in Britain and other northern countries, is in brewing beer, to prevent it from turning ſour. Haller, from Iſidorus, ſays that the firſt experiment for this purpoſe was made in Italy.

The uſe of hops for preſerving beer, and the culture of the plant, were introduced into England from Flanders. The year aſſigned is 1524, the 15th of Henry VIII. Fitzherbert, in 1534, makes no mention of them; but Tuſſer, in 1562, gives many directions for their culture, which was new in his time; for, although they probably began to be uſed after the expedition of king Henry VIII. againſt Tournay, yet, like moſt novelties, they were at firſt much oppoſed, and were doubtleſs for ſome time chiefly imported; for, ſo late as the year 1695, they were imported from Flanders and Holland.

The firſt treatiſe written expreſsly on the culture of hops in Engliſh was by Reynolde Scott, printed in 1574, and a ſecond time in 1576; it is entitled, A perfite Platforme of a Hoppe Garden. He complains, that "the Flemmings envie our practiſe herin, who altogither tende their owne profite, ſeeking to impownde us in the ignoraunce of our commodities, to cramme us with the wares and fruites of their countrie, and to doe anye thing that myght put impediment to this purpoſe, dazeling us with the diſcommendation of our ſoyle, obſcuring and falſifying

ing the order of this myſterie, ſending us into Flaunders, as farre as Poppering, for that which we may finde at home in our owne backſides."

It appears from our old herbaliſts, Gerarde and Parkinſon, that ale and beer were different liquors; the firſt being malt-liquor without, and the ſecond with, hops.—"The ale," ſays the latter of theſe authors (1640,) "which our forefathers were accuſtomed only to drink, being a kind of thicker drink than beere, is now almoſt quite left off to be made, the uſe of hoppes to be put therein altering the quality thereof to be much more healthfull, or rather phyſicall, to preſerve the body from the repletion of groſſe humours, which the ale engendered."

Walter Blith, in his Engliſh Improver improved, 1649; third edition, 1653, p. 240, has a chapter upon improvement by plantations of hops, &c. He obſerves, that "Hops were then grown to be a nationall commodity; but that it was not many years ſince the famous city of London petitioned the parliament of England againſt two anuſancies; and theſe were Newcaſtle coals, in regard of their ſtench, &c. and hops, in regard they would ſpoyl the taſt of drink, and endanger the people; and, had the parliament been no wiſer than they, we had been in a meaſure pined, and in a greater meaſure ſtarved, which is juſt anſwerable to the principles of thoſe men who cry down all devices or ingenious diſcoveries, as projects, and thereby ſtifle and choak improvements." He has eight pages in quarto upon the land beſt for hops, and the beſt ſets for planting; the manner of planting and cultivating them; and the profit accruing from them.

Samuel Hartlib, eſq. in the Compleat Huſbandman, 1659, ſays that in queen Elizabeth's time we had hops from the Low Countries; and that "the Frenchman who writes the Treaſure Politick ſaith, that it's one of the great deficiencies of England, that hops will not grow; whereas now it is known that they are the beſt in the world."

Mr. Worlidge, in his *Syſtema Agriculturæ*, or Myſtery of Huſbandry diſcovered, 1668, folio, is very copious in his directions for the tillage of hops. He ſays, we had not then enough planted to ſerve the kingdom, but yearly made uſe of Flemiſh hops, nothing near ſo good as our own. Mortimer, in his Whole Art of Huſbandry, 1706, 8vo. gives ample directions for the planting, culture, picking, drying, and bagging, of hops. The beſt inſtructions relative to brewing are alſo to be found in this work.

The authors above mentioned bring down the culture of hops to the time of Mr. Miller, who has confined himſelf chiefly to the method which is followed in the county of Kent, where they were firſt adopted, with moſt of our improvements in huſbandry, from Flanders.

Ground-ivy, called alſo ale-hoof, or tun-hoof, (glechoma hederacea,) was generally uſed for preſerving beer, before the introduction of hops. And, ſince they have been introduced, many plants are ſaid to ſerve as ſuccedaneums when hops are dear; as the roots of ginger and gentian; the ſeeds of coloquintida; and the herbs of horehound, wormwood, broom, carduus benedictus, centaurea calcitrapa or ſtar-thiſtle, marſh-trefoil or buckbean (menyanthes trifoliata), &c. The laſt particularly is much recommended, as a much more wholeſome bitter than hops, in the proportion of two ounces, where a pound of the latter is uſed. But all public brewers are enjoined, under a ſevere penalty, to uſe no other bitter than hops for their malt-liquors.

It is a general opinion among the hop-planters, that the plants which bear the male flowers, or the wild hops as they call them, are of no ſervice in ſecuring or increaſing the crop; they are therefore commonly caſt out. It would be well, however, if ſome accurate experiments were made on this ſubject.

*Propagation and Culture.* There being the greateſt plantation of hops in Kent that are in any county of England, it is very probable, that their method of planting and ordering them ſhould be the beſt.

As for the choice of their hop-grounds, they eſteem the richeſt and ſtrongeſt grounds as the moſt proper; they chuſe a warm dry ſoil, that has a good depth of hazel mould; and, if it be rocky within two or three feet of the ſurface, the hops will proſper well; but they will by no means thrive on a ſtiff clay, or ſpongy wet land. If it may be, chooſe a piece of meadow or lay ground to plant hops on, ſuch as has not been tilled or ſown with other crops for many years, or an old decayed orchard; for land that is worn out by long bearing of corn will require abundance of dung to bring it into any tolerable condition to bear a crop of hops. The Kentiſh planters accounting new land beſt for hops, they plant their hop-gardens with apple-trees at a large diſtance, and with cherry-trees between; and when the land has done its beſt for hops, which they reckon it will in about ten years, the trees may begin to bear. The cherry-trees laſt about thirty years; and, by the time the apple-trees are large, they cut down the cherry-trees. The Eſſex planters account a moory land the propereſt for hops, though there are ſeveral other ſorts of ſoil that are eſteemed very good. Some account that land which has a roſſelly top, and a brick-earth bottom, the beſt; a true roſſel, or light ſand, is what they generally plant in, whether it be white or black.

Moory land is of different ſorts, ſome being ſtrong and heavy, ſo as to crack in ſummer; and ſome ſo light, that in dry ſeaſons it will blow away with the wind; and ſome are of a middle conſiſtence, being compoſed of both. Theſe moors, for goodneſs and value, are according to the nature and goodneſs of the ſoil that is underneath them; which, being flung up upon the ſurface, will make a very good mixture, it being beſt to fling the under-ſoil downward for hops, becauſe they naturally root downwards, ſometimes four or five yards deep; and therefore the deepeſt and richeſt ſoil is beſt for them. Few are acquainted with the value of moors, becauſe they do not ſearch into the bottom of them, by reaſon of the expenſiveneſs of doing it, and the difficulty of carrying off the water.

If the land be moiſt, it ought to be laid up in high ridges, and to be well drained, and the drains kept clear and open, eſpecially in winter, that the water do not rot or too much chill the roots. If the land be ſour or cold, it will be very much helped by burning it; and if the haulm and ſtrings of the hops be burnt every year, and ſome of the paring or ſides of the garden or other earth be laid on them as they burn, and then more haulm be laid over that, and ſo continued layer upon layer, it will make an excellent compoſt to make the hills with.

As to the *ſituation* of a hop-ground, one that inclines to the ſouth or weſt is the moſt eligible; if it be expoſed to the north-eaſt or ſouth-weſt winds, there ſhould be a ſhelter of ſome trees at a diſtance; becauſe the north-eaſt winds are apt to nip the tender ſhoots in the ſpring, and the ſouth-weſt frequently break and blow the poles at the latter end of the ſummer, and very much endanger the hops. Hops require to be planted in an open ſituation, that the air may freely paſs round and between them to dry up and diſſipate the moiſture, whereby they will not be ſo ſubject to fire-blaſts, which often deſtroy the middles of large plantations, while the outſides remain unhurt.

As for the preparation of the ground for planting, it ſhould, the winter before, be ploughed and harrowed even; and then lay upon it in heaps a good quantity of freſh rich earth, or well-rotted dung and earth mixed together, ſufficient to put half a buſhel in every hole to plant the hops in, unleſs the natural ground be very freſh and good. Then lay a line acroſs it, from the hedge, in which knots have been tied, at the diſtance you deſign your hop-hills to be at, about eight or nine feet diſtance the whole length of the ground, and place a ſharp-pointed ſtick at every knot; then lay aſide the line, and, with two forked ſticks of about eight or nine feet long, you may from the firſt row ſet out the whole ground, by applying the two forks or two of the ſticks which were firſt ſet up, and placing another row at the ends, where the forked ſticks meet triangularwiſe; then you ſhould dig a hole at every ſtick about a foot and a half wide, and fill it full of the good earth you brought in. If you plough the ground with horſes between the hills, it will be beſt to plant them in ſquares chequerwiſe; but the quincunx form is the moſt beautiful, and it will alſo be better for the hop; but, if the ground is intended to be cultivated by the breaſt-plough, it will be beſt to plant them in ſquares; which way ſoever you make uſe of, a ſtake ſhould be ſtuck down at all the places where the hills are to be made.

Perſons ought to be very curious in the choice of the plants and ſets, as to the *kind* of the hop; for, if the hop-garden be planted with a mixture of two or three ſorts of hops that ripen at different times, it will cauſe a great deal of trouble, and be a great detriment to the owner. The two beſt ſorts are the white and the grey bind; the latter is a large ſquare hop, more hardy, and is the more plentiful bearer, but ripens later than the former. There is alſo another ſort of the white bind, which ripens in a week or ten days before the common; this is tenderer, and a leſs plentiful bearer; but it has this advantage, it comes firſt to market. But, if three grounds, or three diſtant parts of one ground, be planted with theſe three ſorts, there will be this convenience, that they may be picked ſucceſſively as they become ripe. The ſets ought to be procured out of grounds that are entirely of the ſame ſorts you would have; they ſhould be five or ſix inches long, with three or more joints or buds on them, all the old bind and hollow part of the ſet being cut off.

Some have tried to raiſe a hop-ground by ſowing ſeeds; but that turns to no account, becauſe that way is not only tedious, but the hops ſo produced are commonly of different kinds, and many of them wild and barren.

As to the *ſeaſons* of planting hops, the Kentiſh planters beſt approve the months of October and March, both which ſucceed very well; but the common ſets are not to be had in October, unleſs from ſome ground that is to be digged up and deſtroyed; and likewiſe there is ſome danger that the ſets may be rotted, if the winter prove very wet; but the moſt uſual time of procuring them is in March, when the hops are cut and dreſſed. As to the manner of planting the ſets, you ſhould put two or three good ſets in every hole with a ſetting-ſtick, at about four inches diſtance, placing them ſloping; they muſt ſtand even with the ſurface of the ground; let them be preſſed cloſe with the hand, and covered with fine earth, and a ſtick ſhould be placed on each ſide the hill to ſecure it.

The ground being thus planted, all that is to be done more that ſummer, is to keep the hills clear from weeds, and to horſe-hoe the ground about the month of May, gathering up the ſtones, if more are turned up by ploughing, and to raiſe a ſmall hill round about the plants; and in June you muſt twiſt the young binds or branches together in a bunch or knot; for, if they are tied up to ſmall poles the firſt year, in order to have a few hops from them, it will not countervail the weakening the plants. A mixture of compoſt or dung being prepared for your hop-ground, the beſt time for laying it on, if the weather prove dry, is about Michaelmas, that the wheels of the dung-cart may not injure the hops, nor furrow the ground; if this be not done then, you muſt be obliged to wait till the froſt has hardened the ground, ſo that it will bear the dung-cart; and this is alſo the time to carry on your new poles, to recruit thoſe that are decayed, and to be caſt out every year. If you have good ſtore of dung, the beſt way will be to ſpread it in the alleys all over the ground, and to dig or plough it in the winter following. The quantity they will require will be forty loads to an acre, reckoning about thirty buſhels to the load. If you have not dung enough to cover all the ground in one year, you may lay it on one part one year, and on the reſt in another, or a third; for there is no occaſion to dung the ground, after this manner, oftener than once in two or three years. Thoſe who have but a ſmall quantity of dung, uſually content themſelves with laying on about twenty loads upon an acre every year; this they lay only on the hills, either about November, or in the ſpring; which laſt ſome account the beſt time, when the hops are dreſſed, to cover them after they are cut; but, if it be done at this time, the compoſt or dung ought to be very well rotted and fine.

As to the *dreſſing* of the hops, when the hop-ground is dug or ploughed in January or February, the earth about the hills and very near them ought to be taken away with a ſpade, that you may come the more conveniently at the ſtock to cut it. About the end of February, if the hops were planted the ſpring before, or if the ground be weak, they ought to be dreſſed in dry weather; but elſe, if the ground be ſtrong and in perfection, the middle of March will be a good time; and the latter end of March, if it be apt to produce over-rank binds, or the beginning of April, may be ſoon enough. Then having with an iron picker cleared away all the earth out of the hills, ſo as to make the ſtock bare to the principal roots, with a ſharp knife you muſt cut off all the ſhoots which grew up with the binds the laſt year; and alſo the young ſuckers, that none be left to run in the alley and weaken the hill. It will be proper to cut one part of the ſtock lower than the other, and alſo to cut that part low, that was left higheſt the preceding year. By purſuing this method, you may expect to have ſtronger buds, and alſo keep the hill in good order. In dreſſing thoſe hops that have been planted the year before, you ought to cut off both the dead tops, and the young ſuckers which have ſprung up from the ſets, and alſo to cover the ſtocks with fine earth a finger's length in thickneſs.

About the middle of April the hops are to be *poled*, when the ſhoots begin to ſprout up; the poles muſt be ſet to the hills deep into the ground, with a ſquare iron pitcher or crow, that they may the better endure the wind; three poles are ſufficient for one hill. Theſe ſhould be placed as near the hills as may be, with their bending tops turned outwards from the hill, to prevent the binds from entangling; and a ſpace between two poles ought to be left open to the ſouth, to admit the ſun-beams. The poles ought to be in length ſixteen or twenty feet, more or leſs, according as the ground is in ſtrength; and great care is to be taken not to overpole a young or weak ground, for that will draw the ſtock too much, and weaken it. If a ground be overpoled, you are not to expect a good crop from it; for the branches which bear the hops will grow very little till the binds have overreached the poles, which they cannot do when the poles are too long. Two ſmall poles are ſufficient for a ground that is young. If you wait till the ſprouts or young binds are grown to the length of a foot, you will be able to make a better judgment where to place the largeſt poles; but, if you ſtay till they are ſo long as to fall into the alleys, it will be injurious to them, becauſe they will entangle one with another, and will not claſp about the pole ſo readily. Maple or aſpen poles are accounted the beſt for hops, on which they are thought to proſper beſt, becauſe of their warmth, or elſe becauſe the climbing of the hop is furthered by means of the roughneſs of the bark. For laſtingneſs, aſhen or willow poles are preferable; but cheſnut poles are the moſt durable of all. If, after the hops are grown up, you find any of them have been under-poled, taller poles may be placed near thoſe that are too ſhort, to receive the binds from them.

As to the *tying* of hops, the buds that do not claſp of themſelves to the neareſt pole when they are grown to three or four feet high, muſt be guided to it by the hand, turning them to the ſun, whoſe courſe they will always follow. They muſt be bound with withered ruſhes, but not ſo cloſe as to hinder them from climbing up the pole. This you muſt continue to do till all the poles are furniſhed with binds, of which two or three are enough for a pole; and all the ſprouts and binds that you have no occaſion for, are to be plucked up; but, if the ground be young, then none of theſe uſeleſs binds ſhould be plucked up, but ſhould be wrapt up together in the middle of the hill. When the binds are grown beyond the reach of your hands, if they forſake the poles, you ſhould make uſe of a ſtand-ladder in tying them up. Some adviſe, that if the binds be very ſtrong, and overgrow the poles very much, you ſtrike off their heads with a long ſwitch, to increaſe their branching below. Towards the latter end of May, when you have made an end of tying them, the ground muſt have the ſummer ploughing or digging, which is done by caſting up with the ſpade ſome fine earth into every hill, and a month after it muſt be again repeated, and the hills made up to a convenient bigneſs.

It is not at all to be doubted, but that a thorough watering would be of very great advantage to hops in a hot dry ſummer; but it is ſo much charge and trouble to do this, that, unleſs you have a ſtream at hand to flow the ground, it is ſcarcely practicable. When the hops blow, you ſhould obſerve if there be any wild barren hills among them, and mark them, by driving a ſharpened ſtick into every ſuch hill, that they may be digged up and replanted.

Hops, as well as other vegetables, are liable to diſtempers and diſaſters, and among the reſt to the fen. The Rev. Dr. Hales, in his excellent Treatiſe of Vegetable Statics, treating of Hops, gives us the following account of the ſtate of hops in Kent in the year 1725, that he received from Mr. Auſten of Canterbury, which is as follows: "In mid April not half the ſhoots appeared above ground, ſo that the planters knew not how to pole them to the beſt advantage. This defect of the ſhoot, upon opening the hills, was found to be owing to the multitude and variety of vermin that lay preying upon the roots; the increaſe of which was imputed to the long and almoſt uninterruped ſeries of dry weather for three months before. Towards the end of April many of the hop-vines were infeſted with flies. About the 20th of May there was a very unequal appearance, ſome vines being run ſeven feet, others not above three or four; ſome juſt tied to the poles, and ſome not viſible; and this diſproportionate inequality in their ſize continued through the whole time of their growth. The flies now appeared upon the leaves of the forwardeſt vines, but not in ſuch numbers here as they did in moſt other places. About the middle of June the flies increaſed, yet not ſo as to endanger the crop; but in diſtant plantations they were exceedingly multiplied, ſo as to ſwarm towards the end of the month. June the 27th ſome ſpecks of fen appeared. From this time to the 9th of July was very dry weather. At this time, when it was ſaid that the hops in moſt parts of the kingdom looked black and ſickly, and ſeemed paſt recovery, ours held it out pretty well, in the opinion of the moſt ſkilful planters. The great leaves were indeed diſcoloured, and a little withered, and the fen was ſomewhat increaſed. From the 9th of July to the 23d, the fen increaſed a great deal; but the flies and lice decreaſed, it raining much daily. In a week more, the fen, which ſeemed to be almoſt at a ſtand, was conſiderably increaſed, eſpecially in thoſe grounds where it firſt appeared. About the middle of Auguſt the vines had done growing both in ſtem and branch, and the forwardeſt began to be in the hop, the reſt in bloom; the fen continued ſpreading where it was not before perceived, and not only the leaves, but many of the burs, were alſo tainted with it. About the 20th of Auguſt ſome of the hops were infected with the fen, and whole branches corrupted by it. Half the plantations had pretty well eſcaped hitherto, and from this time the fen increaſed but little; but ſeveral days wind and rain the following week ſo diſtorted them, that many of them began to dwindle, and at laſt came to nothing; and of thoſe that then remained in bloom, ſome never turned to hops; and of the reſt which did, many of them were ſo ſmall, that they very little exceeded the bigneſs of a good thriving bur. We did not begin to pick till the 8th of September, which is eighteen days later than we began the year before; the crop was little above two hundred on an acre round, and not good. The beſt hops ſold this year, at Way-hill, for 16l. the hundred."

Dr. Hales gives us an account of the following experiment that he made on hop-vines. He tells us, that in July he cut off two thriving hop-vines near the ground, in a thick ſhady part of the garden, the pole ſtill ſtanding; he ſtripped the leaves off from one of theſe vines, and ſet their ſtems in known quantities of water in little bottles; that with leaves imbibed in a twelve-hours day four ounces, and that without leaves three-fourths of an ounce. He took another hop-pole with its vines on it, and carried it out of the hop-ground into a free and open expoſure; theſe imbibed and perſpired as much more as the former in the hop-ground, which is, doubtleſs, the reaſon why the hop-vines on the outſides of plantations, where they are moſt expoſed to the air, are ſhort and poor, in compariſon of thoſe in the middle of the ground, viz. becauſe, being much dried, their fibres harden ſooner, and therefore they cannot grow ſo kindly as thoſe in the middle of the ground, which, by ſhade, are always kept moiſter, and more ductile.

The ſame curious author proceeds as follows: There being 1000 hills in an acre of hop-ground, and each hill having three poles, and each pole three vines, the number of vines will be 9000, each of which perſpiring four ounces, the ſum of all the ounces perſpired by an acre in a twelve-hours day will be 36000 ounces = 1575000 grains = 62007 cubic inches, or 220 gallons, which divided by 6272640, the number of ſquare inches in an acre, it will be found, that the quantity of liquor perſpired by all the hop-vines will be equal to an area of liquor as broad as an acre, and $\frac{1}{101}$ part of an inch deep, beſides what evaporated from the earth. And this quantity of moiſture, in a kindly ſtate of the air, if daily carried off, is a ſufficient quantity to keep the hops in a healthy ſtate; but in a rainy moiſt ſtate of air, without a due mixture of dry weather, too much moiſture hovers about the hops, ſo as to hinder, in ſome meaſure, the kindly perſpiration of the leaves, whereby the ſtagnating ſap corrupts, and breeds mouldy fen, which often ſpoils vaſt quantities of flouriſhing hop-grounds. This was the caſe in the year 1723, when for ten or fourteen days almoſt continual rains fell, about the latter half of July, after four months dry weather, upon which the moſt flouriſhing and promiſing hops were all infected with mould, or fen, in their leaves and fruit, while the then poor and unpromiſing hops eſcaped, and produced plenty, becauſe they, being ſmall, did not perſpire ſo great a quantity as others, nor did they confine the perſpired vapour ſo much as the large thriving vines did in their ſhady thickets.

The planters obſerve, that when a mould, or fen, has once ſeized any part of the ground, it ſoon runs over the whole; and that the graſs, and other herbs, under the hops, are infected with it, probably, becauſe the ſmall ſeeds of this quick-growing mould, which ſoon come to maturity, are blown over the whole ground; which ſpreading of the ſeed may be the reaſon why ſome grounds are infected with fen for ſeveral years ſucceſſively, viz. from the ſeeds of the laſt year's fen. Might it not then be adviſed to burn the fenny hop-vines, as ſoon as the hops are picked, in hopes thereby to deſtroy ſome of the feed of the mould? Mr. Auſten, of Canterbury, obſerves fen to be more fatal to thoſe grounds that are low and ſheltered, than to the high and open grounds; to thoſe that are ſhelving to the north, than to thoſe ſhelving to the ſouth; to the middle of grounds than to the outſides; to the dry and gentle grounds, than to the moiſt and ſtiff grounds. This was very apparent throughout the plantations where the land had the ſame workmanſhip and help beſtowed upon it, and was wrought at the ſame time. But, if in either of theſe caſes there was a difference, it had a different effect, and the low and gentle grounds, that lay neglected, were then ſeen leſs diſtempered than the open and moiſt, which were carefully managed and looked after. The honey-dews are obſerved to come about the 11th of June, which, by the middle of July, turn the leaves black, and make them ſtink.

Dr. Hales relates, that in the month of July (the ſeaſon for fire-blaſts, as the planters call them) he has ſeen the vines in the middle of the hop-ground ſcorched up almoſt from one end of a large ground to the other, when a hot gleam of ſun-ſhine has come immediately after a ſhower of rain, at which time vapours are all ſeen with the naked eye, but eſpecially with reflecting teleſcopes, to aſcend ſo plentifully as to make a clear and diſtinct object become immediately very dim and tremulous.

The learned Boerhaave, in his Theory of Chymiſtry, p. 245, Shaw's edition, obſerves, that "thoſe white clouds which appear in ſummer-time, are, as it were, ſo many mirrors, and occaſion exceſſive heat. Theſe cloudy mirrors are ſometimes round, ſometimes concave, polygonous, &c. When the face of heaven is covered with ſuch white clouds, the ſun, ſhining among them, muſt, of neceſſity, produce a vehement heat, ſince many of his rays, which would otherwiſe, perhaps, never touch our earth, are hereby reflected to us. Thus, if the ſun be on one ſide, and the clouds on the oppoſite one, they will be perfect burning-glaſſes. I have ſometimes (continues he) obſerved a kind of hollow clouds full of hail and ſnow, during the continuance of which the heat was extreme, ſince, by ſuch condenſation, they were enabled to reflect more ſtrongly. After this came a ſharp cold, and then the clouds diſcharged their hail in great quantity, to which ſucceeded a moderate warmth. Frozen concave clouds, therefore, by their great reflexions, produce a vigorous heat, and the ſame, when reſolved, exceſſive cold." From which Dr. Hales obſerves as follows: "Hence we ſee, that blaſts may be occaſioned by the reflexions of the clouds, as well as by the above-mentioned refraction of denſe tranſparent vapours."

About the middle of July hops begin to blow, and will be ready to gather about Bartholomew-tide. A judgment may be made of their ripeneſs, by their ſtrong ſcent, their hardneſs, and the browniſh colour of their ſeed. When by theſe tokens they appear to be ripe, they muſt be picked with all the expedition poſſible; for, if at this time a ſtorm of wind ſhould come, it would do them great damage, by breaking the branches, and bruiſing and diſcolouring the hops; and it is very well known, that hops, being picked green and bright, will ſell for a third part more than thoſe which are diſcoloured and brown.

The moſt convenient way of *picking* them is into a long ſquare frame of wood, called a bin, with a cloth hanging on tenter-hooks within it, to receive the hops as they are picked. The frame is compoſed of four pieces of wood joined together, ſupported by four legs, with a prop at each end to bear up another long piece of wood, placed at a convenient height over the middle of the bin; this ſerves to lay the poles upon which are to be picked. This bin is commonly eight feet long, and three feet broad; two poles may be laid on it at a time, and ſix or eight perſons may work at it, three or four on each ſide.

It will be beſt to begin to pick the hops on the eaſt or north ſide of your ground, if you can do it conveniently; this will prevent the ſouth-weſt wind from breaking into the garden. Having made choice of a plot of the ground containing eleven hills ſquare, place the bin upon the hill which is in the centre, having five hills on each ſide; and, when theſe hills are picked, remove the bin into another piece of ground of the ſame extent, and ſo proceed till the whole hop-ground is finiſhed. When the poles are drawn up to be picked, you muſt take great care not to cut the binds too near the hills, eſpecially when the hops are green, becauſe it will make the ſap to flow exceſſively. And, if the poles do not come up without difficulty, they ſhould be raiſed by a piece of wood in the nature of a lever, having a forked piece of iron, with teeth on the inſide, faſtened within two feet of the end. The hops muſt be picked very clean, i. e. free from leaves and ſtalks, and, as there ſhall be occaſion, two or three times in a day the bin muſt be emptied into a hop-bag made of coarſe linen cloth, and carried immediately to the oaſt, or kiln, in order to be dried; for, if they ſhould be long in the bin, or bag, they will be apt to heat, and be diſcoloured. If the weather be hot, there ſhould no more poles be drawn than can be picked in an hour, and they ſhould be gathered in fair weather, if it can be, and when the hops are dry; this will ſave ſome expence in firing, and preſerve their colour better when they are dried.

The beſt method of *drying* hops is with charcoal on an oaſt, or kiln, covered with hair-cloth, of the ſame form and faſhion that is uſed for drying malt. The kiln ought to be ſquare, and may be of ten, twelve, fourteen, or ſixteen, feet, over at the top, where the hops are laid, as your plantation requires, and your room will allow. There ought to be a due proportion between the height and breadth of the kiln, and the beguels of the ſteddle where the fire is kept: viz. if the kiln be twelve feet ſquare on the top, it ought to be nine feet high from the fire, and the ſteddle ought to be ſix feet and a half ſquare, and ſo proportionably in other dimenſions. The hops muſt be ſpread even upon the oaſt a foot thick or more, if the depth of the curb will allow it, but care is to be taken not to overload the oaſt, if the hops be green or wet. The oaſt ought to be warmed with a fire before the hops are laid on, and then an even ſteady fire muſt be kept under them; it muſt not be too fierce at firſt, leſt it ſcorch the hops; nor muſt it be ſuffered to ſink or ſlacken, but rather be increaſed till the hops be near dried, leſt the moiſture, or ſweat, which the fire has raiſed, fall back, and diſcolour them. When they have lain about nine hours, they may be turned, and in two or three hours more they may be taken off the oaſt. It may be known when they are well dried by the brittleneſs of the ſtalks, and the eaſy falling off of the hop-leaves.

The Dutch and Flemings have another method of drying their hops: they make a ſquare kiln, or room, about eight or ten feet wide, built of brick or ſtone, having a door at one ſide, and a fire-place in the middle of the room, on the floor, about thirteen inches wide within, and thirteen inches high in length from the mouth of it, almoſt to the back part of the kiln, a paſſage being left juſt enough for a man to go round the end of it; this they call a horſe, ſuch as is commonly made in malt-kilns, the fire paſſing out at the holes at each ſide, and at the end of it. The bed, or floor, on which the hops lie to be dried, is placed about five feet high above; about that is a wall near four feet high, to keep the hops from falling. A window is made at one ſide of the upper bed, to ſhove off the dry hops down into a room prepared to receive them. The beds are made of laths, or rails, ſown very even, lying a quarter of an inch diſtant from one another, with a croſs-beam in the middle to ſupport them; the laths are let in even with the top of the beam, and this keeps them even in their places; this they call an oaſt. The hops are laid on this bed by baſkets-full, without any oaſt-cloth, beginning at one end, and ſo going on till all is covered half a yard thick, without treading them: then they even them with a rake, that they may lie of equal thickneſs. This being done, they kindle the fire below, either of wood or charcoal, but the latter is accounted the better fuel for hops; this fire is kept as much as may be at an equal or conſtant heat, and only at the mouth of the furnace, for the air will ſufficiently diſperſe it. They do not ſtir them till they are thoroughly dried, i. e. till the top is as fully dried as the bottom; but, if they find any place not to be ſo dry as the reſt, (which may be known by reaching over them with a ſtick or wand, and touching them in ſeveral places,) they obſerve where they do not rattle, and where they do; and where they do not rattle, they abate them there, and diſpoſe of them where the places were firſt dry. They know when they are thoroughly dry, by the brittleneſs of the inner ſtalk, if it be ſhort when it is rubbed; which when they find, they take out the fire, and ſhove out the hops at the window that is made for that purpoſe, into the room made to receive them, with a coal-rake made with a board at the end of a pole, and then go in at a door below, and ſweep up the hops and ſeeds that fall through, and put them to the other hops; then they lay another bed of green hops, and renew the fire, and proceed as before.

This method is diſapproved by ſome, becauſe (they ſay) the hops lying ſo thick, and not being turned, the under part of them muſt needs dry before the upper; and the fire, paſſing through the whole bed to dry the uppermoſt, muſt neceſſarily over-dry and much prejudice the greateſt part of the hops, both in ſtrength and weight, beſides the unneceſſary expence of firing, which muſt be long continued to dry thoroughly ſo many together. Therefore ſome have improved on this method, and adviſed to make the kiln much as is before directed as to the Dutch way. Firſt to make a bed of flat ledges about an inch thick, and two or three inches broad, ſawn, and laid acroſs one another the flat way, chequerwiſe, at about three or four inches diſtance one from the other, the edges being ſo entered one into the other, that the floor may be even and ſmooth; this bed may be made to reſt on two or three joiſts, ſet edgewiſe to ſupport it from ſinking. This bed is to be covered with large double tin, ſoldered together at each joint, and the ledges muſt be ſo ordered, before they are laid, that the joints of the tin may always lie over the middle of the ledge, the bed being wholly covered over with tin; boards muſt be fitted about the edges of the kiln, to keep up the hops, but one ſide muſt be made to remove, that the hops may be ſhoved off as before. On this bed, or floor of tin, the hops may be turned without ſuch hazard or loſs as upon the hair-cloth; and alſo it will require a leſs expence of fuel; and, beſides, any ſort of fuel will ſerve in this kiln as well as charcoal, becauſe the ſmoke does not paſs through the hops as it does the former ways; but then care is to be taken, that there be paſſages made for it at the ſeveral corners and ſides of the kiln.

It is found by experience, that the turning of hops, though it be after the moſt eaſy and beſt manner, is not only an injury and waſte to the hops, but alſo an expence of fuel and time, becauſe they require as much fuel, and as long a time, to dry a ſmall quantity, by turning them, as a large one. Now, this may be prevented, by having a cover (to be let down and raiſed at pleaſure) to the upper bed whereon the hops lie. This cover may alſo be tinned, by nailing ſingle tin plates over the face of it, ſo that when the hops begin to dry, and are ready to burn, i. e. when the greateſt part of their moiſture is evaporated, then the cover may be let down within a foot, or leſs, of the hops (like a reverbatory), and will reflect the heat upon them; ſo that the top will ſoon be as dry as the lowermoſt, and every hop be equally dried.

As ſoon as the hops are taken off the kiln, lay them in a room for three weeks or a month to cool, give, and toughen; for, if they are bagged immediately, they will powder, but, if they lie a while, (and the longer they lie the better, provided they be covered cloſe with blankets to ſecure them from the air,) they may be bagged with more ſafety, as not being liable to be broken to powder in treading, and this will make them bear treading the better, and the harder they are trodden, the better they will keep.

The common method of *bagging* is as follows: They have a hole made in an upper floor, either round or ſquare, large enough to receive a hop-bag, (which conſiſts of four ells and a half of ell-wide cloth, and alſo contains ordinarily two hundred and a half of hops;) they tie a handful of hops in each lower corner of the bag, to ſerve as handles to it, and they faſten the mouth of the hole, ſo placed that the hoop may reſt upon the edges of the hole. Then he that is to tread the hops down into the bag, treads the hops on every ſide, another perſon continually putting them in as he treads them, till the bag is full, which being well filled and trodden, they unrip the faſtening of the bag to the hoops, and let it down, and cloſe up the mouth of the bag, tying up a handful of hops in each corner of the mouth, as was done in the lower part. Hops being thus packed, if they have been well dried, and laid up in a dry place, they will keep good ſeveral years; but care muſt be taken that they be neither deſtroyed nor ſpoiled by mice making their neſts in them.

The crop of hops being thus beſtowed, you are to provide for another, firſt by taking care of the poles againſt another year, which are beſt to be laid up in a ſhed, having firſt ſtripped off the haulm from them; but, if you have not that conveniency, ſet up three poles in the form of a triangle, or ſix poles (as you pleaſe) wide at the bottom, and having ſet them into the ground with an iron pitcher, and bound them together at top, ſet the reſt of your poles about them; and, being thus diſpoſed, none but thoſe on the outſide will be ſubject to the injuries of the weather, for all the inner poles will be kept dry, unleſs at the top; whereas, if they were on the ground, they would receive more damage in a fortnight than by their ſtanding all the reſt of the year.

In the winter-time provide your ſoil and manure for the hop-ground againſt the following ſpring. If the dung be rotten, mix it with two or three parts of common earth, and let it incorporate together till you have occaſion to uſe it in making your hop-hills; but, if it be new dung, then let it be mixed as before, till the ſpring-twelvemonth, for new dung is very injurious to hops. Dung of all ſorts was formerly more commonly made uſe of than now it is, eſpecially when rotted and turned to mould, and they who have no other manure muſt uſe it; which, if they do, cows or hogs dung, or human ordure mixed with mud, may be a proper compoſt, becauſe hops delight moſt in a manure that is cool and moiſt. Some recommend chalk, or lime, as the beſt manure, except in cold lands, and in ſuch, pigeons dung will do beſt; a little of which laid to a hill, and ſo mixed, that it may not be too hot in a place, is of great advantage.

The principal part of the plantations of Eaſt Kent are on a good deep rich loamy ſurface, with a deep ſubſoil of loamy brick-earth. There are however ſome good grounds, where the ſurface is very flinty, and ſome of a gravelly nature; but theſe are very inferior. The hops growing about Canterbury and in Eaſt Kent are of a very fine rich quality, and, if well managed, of a good colour. Middle Kent alſo, or the country round Maidſtone, the original ſpot where hops were firſt planted, grows a great quantity, moſt of which is likewiſe of a very good quality; though ſome, being planted on land not fit for hops, is coarſe.

When a piece of land is intended to be planted, plough the land as deep as poſſible early in October, and harrow it level; they mete or meaſure it each way with a four-rod chain, placing pieces of reed or ſtick at every tenth link, to mark the place of the hills, which makes one thouſand to an acre. Some few grounds are planted eight hundred, and ſome twelve hundred, to an acre. Some are planted wider one way than the other, to admit ploughing between the hills; but this practice, although it has been tried many years, does not ſeem to increaſe, on account of the difficulty of digging along the rows where the plough cannot go; that part, being much trodden with the horſes in ploughing, digs ſo much the worſe, that an extraordinary expence is incurred, which in ſome meaſure defeats the economy of the plan. When the hills are marked out, holes are dug about the ſize of a gallon, which are filled with fine mould, and the nurſery-plants placed in them.

Some put three plants, others two, and ſome only one good one, to each hole. If cuttings be planted, the holes are dug in the ſpring, as ſoon as cutting-time commences; ſome fine mould is provided to fill up the holes, in which four or five cuttings are placed, each three or four inches in length; they are covered an inch deep with the fine mould, and preſſed down cloſe with the hand. Cuttings do not require any ſticks; but nurſery-plants muſt have ſticks or ſmall poles, ſix or ſeven feet high, the firſt year; in both caſes the land is kept clean during the ſummer by horſe and hand hoeing; the next winter it is dug, and early in the ſpring the old binds are cut off ſmooth, about an inch below the ſurface; a little fine mould is then drawn over the crown of the hills. As ſoon as the young ſhoots appear, ſo that the hills may be ſeen, they are ſtuck with ſmall poles, from ſeven to ten feet long, in proportion to the length it is expected the bind will run; theſe poles are called ſeconds, and are generally bought in the woods at from five ſhillings to eight ſhillings the hundred, and three of them are placed to each hill. As ſoon as the binds are about two feet in length, women are employed to tie them to the poles; and the land is kept clean during the ſummer with horſe and hand hoeing as before. The proper time for gathering them is known by the hop rubbing freely to pieces, and the ſeed beginning to turn brown. They are picked in baſkets containing five buſhels each, and are carried to the oaſt in bags, at noon and evening, for drying.

The ſecond year after planting, full-ſized poles, from fifteen to twenty feet in length, according to the ſtrength of the land, coſting from ſixteen ſhillings to thirty-ſix ſhillings the hundred, are placed to the hills inſtead of the ſeconds, which are removed to younger grounds. Here great care is neceſſary not to over-pole, for thus young grounds are often much weakened; and, it is equally neceſſary not to over-dung them, as that will make them mouldy. Fifty cart-loads of well-rotted farm-yard dung and mould, once in three years, are generally eſteemed ſufficient for an acre of land.

In order to have hops of a good quality: 1ſt. They ought to be ripe before they are gathered; and, in getting ſo, they paſs from a green to a rich yellow colour. 2dly. They ought to grow on a ſoil, that, inſtead of enlarging the ſize of the hop, grows them full of farina, (provincially *condition.*) 3dly. They ought to be very much but ſlowly dried, and then packed for market in the thickeſt covering that can be found, to preſerve their ſtrength. The colour of hops that hang till they are ripe can never be ſo beautiful as if they were gathered green, for they are generally bruiſed by the equinoctial winds. But the quality of their bitter is ſuperior in flavour, goes farther, and will never deceive in brewing; they will alſo keep good, when full dried, many years.

The implements neceſſary to a hop-ground are, 1. An oaſt (to every plantation of four or five acres) about ſixteen feet ſquare, which, built ſubſtantially with the requiſite ſtowage-room, coſts from 150l. to 200l. 2. A ſet of picking-baſkets, about twelve in number, which coſt about 5s. 6d. each. Alſo a good ſcale-beam with weights and ſcales, which together coſt about 5l. 3. A ſkim made with a frame like a wheel-barrow, which coſts about two guineas. This implement is very uſeful for tearing up weeds on ſummer-fallows. 4. A harrow to be drawn by one horſe, with a ſmall wheel in front, to go round at the ends of the plantation, and a pair of handles to be holden by the man who follows it, in order to keep it from bruiſing the binds. It coſts 1l. 15s. 5. An iron peeler to make holes in the land for the poles, coſting 6s. or 7s. and a hop-dog to wrench them up, coſting 5s.

Mr. Miller mentions only three varieties of the hop. In Surrey they have what they call the orchard-hop, which bears a long ſquare ſtrobile, and is perhaps the ſame with Mr. Miller's firſt; the ſtreaked bind; two or three varieties of white bind; ſmooth and rough red bind. The moſt eſteemed are the ſtreaked and the white bind. The ſmooth red is of little value; and, as to the laſt, it is generally eradicated whenever it appears. The white Canterbury bind is moſtly in uſe. The golden hop with a white bind, which is probably the ſame with Mr. Miller's oval hop, ripens later than the other, and therefore on that account may be uſeful to the planter. There is alſo the cluſter-hop, produced from a white bind, but having the hops growing more in cluſters than the others. The ſtreaked bind is a deſirable hop for a part at leaſt of a plantation, being early, of a pleaſant flavour, and generally of a good ſize. As to the term *garlic*, it is not appropriate to any one variety; for they will all acquire that ſort of ſmell from diſtemper.

The hop-grower has many enemies to dread. A fly, ſimilar to that which is ſo injurious to turnips, attacks hops on their firſt appearance in the ſpring, and ſometimes deſtroys the firſt ſhoot entirely; it is a very ſmall animal, and, on going near to touch it, retreats into the ground with the nimbleneſs of a bed-flea. A handful of aſhes ſcattered over every hill, is very ſerviceable in driving them away. The next enemy is the fly mentioned by Mr. Miller, by which he means the long-winged fly, as it is here called. The appearance of theſe animals is dreaded by the planter as a peſtilence; they are the forerunners of lice, and in the end generally prove fatal to the crop. It is an opinion with many, that rain will waſh them off, but in this they miſtake, for they moſtly ſhelter themſelves on the under ſide of the leaf, where no rain can touch them. Lightning ſeems to be their greateſt enemy. Honey-dews are likewiſe very injurious to hops; cauſing their leaves to turn black, ſhrink, and at length fall off. They are ſometimes ſo affected with this diſtemper and the lice united, as to periſh entirely, and require to be planted anew for many hills together. Another calamity to which hops are liable is the red blight. This ſeldom attacks them until the time of their coming to maturity; cauſing the hops to turn reddiſh, or rather of deep-yellow, and the leaves frequently to grow pale and ſickly. When this is the caſe, they acquire a garlic-like ſmell, and ought to be picked with the greateſt expedition. This diſorder being incident to particular lands, thoſe eſpecially of a light and weak nature, it appears rather to be a natural decay than a blight.

Experience will beſt teach the planter when his hops are fit for picking. It is however the more prudent way to begin too ſoon than too late, as the high winds which prevail towards the equinox many times produce more injury to the planter than he would ſuſtain by beginning a day or two before his hops were thoroughly ripe. A buſhel of green hops, in a favourable year, when they are well conditioned, will yield about a pound and a half in weight when dry.

Hops are occaſionally very profitable, but they are very uncertain in their produce, and are ſure to be very expenſive. To leſſen the expence of poling, and the trouble of picking, it has been ſuggeſted that planting hops in form of an eſpalier might probably anſwer; for it is obſerved, that when a pole falls, and another is obliged to be fixed in a lateral poſition, the hops always bear more by being thus trained horizontally; and hops in an eſpalier might be picked as forward as the planter choſe without cutting the vines. If hops alſo were only planted in ſuch ſoils and ſituations as are well adapted to them, there would be a much greater probability of an efficient crop; and thus, though the expence would not be diminiſhed, the average profit would be increaſed.

The quantity of hops produced on different ſoils in different years, varies from almoſt nothing, or perhaps two hundred-weight, to twenty and even twenty-four hundred-weight on an acre; but, the average produce on middling ſoils may be eſtimated at ſix, and on ſuch as are better at ſeven or eight, hundred-weight; ſome ſpeak of nine, and a good ſoil, with a run of favourable years, may yield ſuch a produce, or even more, but it ought not to be looked upon as general. The expence on an acre of hops may be eſtimated at about thirty pounds, including rent, taxes, &c. Taking then ſeven hundred-weight to be the average produce, the planters muſt evidently be loſers when they ſell for four guineas; yet, the average price of hops has been eſtimated in different places, and by ſeveral perſons in the ſame places, at three guineas, at 4l. at 4l. 10s. at 5l. and at 6l. 2s.

Though in very favourable ſoils, hops may be continued on the ſame ſpot at pleaſure, yet it is generally adviſeable to break up the hop-yard entirely in twenty or thirty years; and then the ground is in high order for almoſt any crops for ſome years after, particularly for potatoes, of which an immenſe burden may be produced from ſuch ground.

*Laws relating to Hops.* By 9 Anne, c. 121, an additional duty of 3d. a pound is laid on all hops imported, over and above all other duties; and hops landed before entry and payment of duty, or without warrant for landing, ſhall be forfeited and burnt: the ſhip alſo ſhall be forfeited, and the perſon concerned in importing or landing ſhall forfeit 5l. a hundred-weight. 7 *Geo.* II. *c.* 19. By 9 Anne, c. 12, there ſhall be paid a duty of 1d. for every pound of hops grown in Great Britain, and made fit for uſe, within ſix months after they are cured and bagged; and hop-grounds are required to be entered, on pain of 40s. an acre. Places of curing and keeping are alſo to be entered, on pain of 50l. which may be viſited by an officer at any time without obſtruction, under the penalty of 20l. All hops ſhall, within ſix weeks after gathering, be brought to ſuch places to be cured and bagged, on pain of 5s. a pound. The re-bagging of foreign hops in Britiſh bagging for ſale or exportation, incurs a forfeiture of 10l. a hundred-weight; and defrauding the king of his duty by uſing twice or oftener the ſame bag, with the officer's mark upon it, is liable to a penalty of 40l. The removal of hops before they have been bagged and weighed, incurs a penalty of 50l. Concealment of hops ſubjects to the forfeiture of 20l. and the concealed hops; and any perſon who ſhall privately convey away any hops with intent to defraud the king and owner, ſhall forfeit 5s. a pound. And the duties are required to be paid within ſix months after curing, bagging, and weighing, on pain of double duty, two-thirds to the king, and one-third to the informer. No common brewer, &c. ſhall uſe any bitter ingredient inſtead of hops, on pain of 20l. Hops which have paid the duty may be exported to Ireland; but by 6 Geo. II. c. 11, there ſhall be no drawback; and by 7 Geo. II. c. 19, no foreign hops ſhall be landed in Ireland. Notice of bagging and weighing ſhall be ſent in writing to the officer, on pain of 50l. 6 *Geo. c.* 21. And by 14 Geo. III. c. 68, the officer ſhall, on pain of 5l. weigh the bags or pockets, and mark on them the true weight or tare, the planter's name and place of abode, and the date of the year in which ſuch hops were grown; and the altering, or forging, or obliterating, ſuch mark, incurs a forfeiture of 10l. The owners of hops ſhall keep at their oaſts, &c. juſt weights and ſcales, and permit the officer to uſe them, on pain of 20l. 6 *Geo. c.* 21. And by 10 Geo. III. c. 44, a penalty of 100l. is inflicted for falſe ſcales and weights. The owners are allowed to uſe caſks inſtead of bags, under the ſame regulations. 6 *Geo. c.* 21. If any perſon ſhall mix with hops any drug to alter the colour or ſcent, he ſhall forfeit 5l. a hundred-weight. If any perſon ſhall unlawfully and maliciouſly cut hop-binds growing on poles in any plantation, he ſhall be guilty of felony without benefit of clergy. 6 *Geo.* II. *c.* 37. By a late act, five per cent. is added to the duties on hops.

HU'MUS, *ſ.* [Lat. moiſt earth.] Mould; in mineralogy, a genus of the order of calcareous earths. Generic characters—Conſiſting of carbonat of lime, with a ſmall proportion of ſilex, hydrogen and carbonic acid gas, and oxyd of iron; formed by the decayed remains of animal and vegetable ſubſtances; light, friable, imbibing but not retaining water, meagre, rough, humid, of a dull colour; efferveſcing with nitric acid, becoming cinereous in a ſmaller heat, in a ſtronger running into a frothy kind of glaſs.

1. Humus animalis, or animal mould: impalpable, greedily imbibing water, hardly efferveſcing with nitric acid in its rude ſtate, but ſenſibly ſo when burnt. This is the ſpecies found in church-yards, and other places abounding with putrid animal matter; white or cinereous, very light and fertile.

2. Humus dædalea, or vegetable mould: brown in a very ſubtile duſt. Found in all inhabited places, principally originating from animal manure and depoſitions, ſo very fine as when mixed with water to paſs through a coarſe cloth or filtering paper; it affords the beſt and richeſt garden-mould.

3 Humus ruralis, or black mould: black when moiſtened, cinereous when dry. Found in all places where there is decayed vegetable matter, eſpecially in dry ſituations; and produces an excellent ſoil.

4. Humus pauperata, or heath-mould: ſoon parting with its moiſture, and when dry becoming farinaceous. Found on heaths, and produces a poor ſoil; becauſe its particles are ſo minute and impalpable, as in dry ſeaſons to be blown about by the leaſt breath of wind.

5. Humus alpina, or alpine mould: brown with larger particles. Very common in alpine ſituations.

6. Humus efferveſcens, or ſpongy mould: ſwelling after having abſorbed and retained water ſome time. Common in ſpongy places, and may probably have its origin in the rotten roots of plants; it takes a long time in drying, and is a bad ſoil for the farmer or gardener, becauſe in the ſpring ſeaſon it intumeſces by the froſt at night and the heat by day, and lifts up and eradicates the ſmaller plants.

7. Humus lutum, or bog-mould: very light, not combuſtible, black when moiſt. Found in ſwamps and marſhes under water, and is produced by the gradual corruption of bog-plants; it is ſo light as to remain ſome time ſuſpended in water, and is ſerviceable in ſandy ſoils.

8. Humus martialis, or iron-mould: with a metallic tinge. Found in various parts of Britain, Sweden, Germany, Syria, &c. in ſwamps and marſhes; yellow-brown, reddiſh, purpliſh, or black, which colour it receives from its contamination with oxyd of iron.

9. Humus picea, or pitchy mould: black, becoming ſolid as it dries. It is found in Scania, often in the cultivated lands, and requires a peculiar method of agriculture.

10. Humus muriatica, ſalt or holy mould: brown, of a ſaltiſh taſte. Found in the deſerts on the confines of the Red Sea, Egypt, and Syria.

HU'NARY, two ſmall iſlands near the weſt coaſt of Hindooſtan: fifteen miles ſouth of Bombay. Lat. 18. 47. N. lon. 72. 38. E. Greenwich.

HU'NAULD (Francis-Joſeph), an eminent anatomiſt, born at Chateau-Briant in 1701. He ſtudied at Rennes and Angers, viſited Paris at the age of eighteen, and took the degree of M. D. at Rheims in 1722. Fixing himſelf at Paris, he ſtudied anatomy with great aſſiduity under Winſlow and Du Verney, and was admitted into the Academy of Sciences in 1724. He accompanied the duke of Richelieu in his embaſſy to Vienna, as his phyſician; and ever after retained his confidence, and poſſeſſed apartments in his houſe. On the death of Du Verney, in 1730, Hunauld was appointed anatomical profeſſor in the royal garden in his ſtead, and ſoon obtained a very numerous audience. He lectured with fluency, and diſſected with great nicety: his anatomical preparations were numerous and delicate, and particularly rich in the branch of oſteology. Having become a member of the faculty of Paris, he practiſed as a phyſician with ſucceſs and reputation. A journey to Holland procured him the acquaintance and eſteem of the illuſtrious Boerhaave. In 1735 he viſited London; and read before the Royal Society (of which he was made a member) Reflexions on the Operation for the Fiſtula Lacrymalis, printed in the Tranſactions. As he was advancing rapidly to profeſſional fame, he was carried off by a putrid fever, in December 1742, in the forty-ſecond year of his age. Several papers of this anatomiſt are contained in the Memoirs of the Academy of Sciences from 1729 to 1742. Some of the moſt curious of his obſervations relate to the formation of the bones of the ſkull, and to the lymphatics of the lungs. He publiſhed anonymouſly in 1726 a critique, in form of letters, on Petit's book on the diſeaſes of the bones. One of his laſt works was a Diſputation on Anchyloſis, 1742.

*To* HUNCH, *v. a.* [*huſch*, Ger.] To ſtrike or punch with the fiſts.—Jack's friends began to *hunch* and puſh one another: why don't you go and cut the poor fellow down? *Arbuthnot.*—[*Hocker*, a crooked back, Ger.] To crook the back:

Thy crooked mind within *hunch'd* out thy back;
And wander'd in thy limbs. *Dryden.*

HUNCH, *ſ.* A protuberance, a pretty large irregular piece; a blow with the elbow or fiſt.

HUNCH-BACK'ED, *adj.* Having a crooked back.—His perſon deformed to the higheſt degree, flat-noſed, and *hunch-backed. L'Eſtrange.*

HUND'BERG, a town of Denmark, in North Jutland: eight miles ſouth-weſt of Aalbork.

HUN'DERSRUCK, a town of Germany, in Lower Saxony, and biſhopric of Hildeſheim, ſituated between the Weſer and the Leine, near Eimbeck.

HUN'DERTBUHL, a town of Tranſilvania: twelve miles ſouth of Scheſburgh.

HUN'DRED, *adj.* [hunꝺ, and hunꝺꞃeꝺ, Sax. *honderd*, Dut.] The number conſiſting of ten multiplied by ten:

A *hundred* altars in her temple ſmoke,
A thouſand bleeding hearts her pow'r invoke. *Dryden.*

HUN'DRED, *ſ.* A company, body, or collection conſiſting of a hundred.—Lands, taken from the enemy, were divided into centuries or *hundreds*, and diſtributed amongſt the ſoldiers. *Arbuthnot.*

HUN'DRED, an ancient part or diviſion of a ſhire; ſo called, either becauſe of old each hundred found one hundred fidejuſſors of the king's peace, or a hundred able men for his wars. But more probably it is ſo called, becauſe it was compoſed of a hundred families. It is true, Brompton tells us, that a hundred contains *centum villas*; and Giraldus Cambrenſis writes, that the Iſle of Man hath 343 villas. But in theſe places the word *villa* muſt be taken for a country family; for it cannot mean a village, becauſe there are not above forty villages in that iſland. So where Lambard ſays, that a hundred is ſo called, *à numero centum hominum*, it muſt be underſtood of a hundred men who are heads or chiefs of ſo many families. Theſe were firſt ordained by king Alfred, the twenty-ninth king of the Weſt Saxons. This dividing counties into hundreds, for better government, king Alfred brought from Germany: for there *centa*, or *centena*, is a juriſdiction over a hundred towns. 1 *Blackſt. Comm.* 115.

In ancient times, it was ordained for the more ſure keeping of the peace, that all free-born men ſhould caſt themſelves into ſeveral companies by ten in each company, and that every of theſe ten men ſhould be ſurety and pledge for the forth-coming of his fellows. For which cauſe theſe companies in ſome places were called tithings; and, as ten times ten makes a hundred, ſo, becauſe it was alſo appointed that ten of theſe tithings ſhould at certain times meet together for matters of greater weight, therefore that general aſſembly was called a *hundred. Lamb. Conſt.* The hundred is governed by a high conſtable or bailiff; and formerly there was regularly held in it the hundred-court, for the trial of cauſes, though now fallen into diſuſe. In ſome of the more northern counties theſe hundreds are called wapentakes. 4 *Blackſt. Comm. c.* 33.

This is the original of hundreds, which ſtill retain the name, but the juriſdiction is devolved to the county-court, ſome few excepted, which have been by privilege annexed to the crown, or granted to ſome great ſubject, and ſo remain ſtill in the nature of a franchiſe. This has been ever ſince the ſtat. 14 Edw. III. c. 9, whereby theſe hundred-courts, formerly farmed out by the ſheriff to other men, were all, or the moſt part, reduced to the county-court. But now, by *hundred-courts*, we underſtand ſeveral franchiſes, wherein the ſheriff has nothing to do by his ordinary authority, except they of the hundred refuſe to do their office. Every ward in London is a hundred in a county, and every pariſh in London is a vill in a hundred. 9 *Rep.* 66.

Hundreds are liable to penalty on exportation of wool, 7 and 8 Will. III. c. 28. Liable to damages ſuſtained by riotouſly pulling down buildings, 1 Geo. I. ſt. 2. c. 5. By killing cattle, cutting down trees, burning houſes, &c. 9 Geo. I. c. 22. 29 Geo. II. c. 36. By deſtroying turnpikes, or works on navigable rivers, 8 Geo. II. c. 20. By cutting hop-binds, 10 Geo. II. c. 32. By deſtroying corn to prevent exportation, 11 Geo. II. c. 22. By wounding officers of the cuſtoms, 19 Geo. II. c. 34. By deſtroying woods, &c. 29 Geo. II. c. 36. So in caſes of robbery; and for the deſtruction of mines or pits of coal. See Hue and Cry.

HUN'DRED-COURT, a kind of court-baron, held for all the inhabitants of a particular hundred inſtead of a manor. The free ſuitors are here the judges, and the ſteward the regiſter, as in the caſe of a court-baron. It is not a court of record, and it reſembles a court-baron in all points, except that in point of territory it is of a greater juriſdiction. According to Blackſtone, its inſtitution was probably coeval with that of hundreds themſelves, introduced, though not invented, by Alfred, being derived from the policy of the ancient Germans.

HUN'DRED-FEC'TA, *ſ.* An old law term, the performance of ſuit and ſervice at the hundred-court.

HUNDRED-FETE'NA, *ſ.* An old law term, the conſtitution of a hundred, the inhabitants of a hundred.

HUNDRED-PEN'NY, *ſ.* A tax formerly raiſed in the hundred by the ſheriff.

HUN'DRED-WEIGHT, *ſ.* A weight conſiſting of one hundred and twelve pounds.

HUN'DREDORS, perſons ſerving on juries, or fit to be impanelled thereon for trials, dwelling within the hundred where the land in queſtion lies. Stat. 35 *Hen.* VIII. c. 6. And default of hundredors was a challenge or exception to panels of ſheriffs, by our law, till the ſtat. 4 and 5 Anne, c. 16. ordained, that, to prevent delays by reaſon of challenges to panels of jurors for default of hundredors, &c. writs of *venire facias* for trial of any action in the courts at Weſtminſter ſhall be awarded of the body of the proper county where the iſſue is triable. Hundredor alſo ſignifies him that hath the juriſdiction of the hundred, and is in ſome places applied to the bailiff of the hundred. 13 *Edw.* I. c. 38. 9 *Edw.* II. 2 *Edw.* III.

HUN'DREDLAGH, or Hundred-law, *ſ.* an old law term. The hundred-court.

HUN'DREDTH, *adj.* [hunꝺꞃeonꞇeoᵹoꞃa, Sax.] The ordinal of a hundred; the tenth ten times told.—We ſhall not need to uſe the *hundredth* part of that time, which themſelves beſtow in making invectives. *Hooker.*

HUN'DREDUS, *ſ.* in old records, a hundred, a diviſion of a county.

HUNDS'FELD, a town of Sileſia, in the principality of the Oels: eleven miles weſt-ſouth-weſt of Oels.

HUND'SHAIM, a town of Germany, in the archduchy of Auſtria: two miles ſouth of Hamburg.

HUND'SHUBEL, a town of Germany, in Upper Saxony, and territory of Erzgeburg: ſeven miles weſt of Schwarzenberg.

HUNDS'MARCK, a town of Germany, in the duchy of Stiria, on the Muehr. A battle was fought near this town between the Auſtrians and the troops of the French republic, on the 3d of April, 1797, in which the latter were victorious; the Auſtrians loſt about 300 killed, and 600 priſoners. Fourteen miles weſt-ſouth-weſt of Judenburg, and eighteen eaſt-north-eaſt of Muhrau.

HUNDS'RUCK, or Hunds-Ruck, a diſtrict of Germany, in the Upper Rhine, ſituated between the Rhine, the Moſelle, and the Nahe, belonging partly to the elector of Treves, the elector Palatine, and the prince of Heſſe.

HUNE (La), a bay on the ſouth coaſt of Newfoundland: ninety miles eaſt of Cape Ray.

HU'NEFELD, a town of Germany, in the Upper Rhine, and biſhopric of Fulda: eight miles north-north-eaſt of Fulda, and twenty-ſix ſouth-weſt of Eiſenach.

HU'NERWASSER, a town of Bohemia, in Boleſlau: ten miles north of Jung Buntzel.

HUNG, the *preterite* and *part. paſſ.* of *hang*.—A room that is richly adorned, and *hung* round with a great variety of pictures, ſtrikes the eye at once. *Watts.*

A wife ſo *hung* with virtues, ſuch a freight,
What mortal ſhoulders can ſupport? *Dryden.*

HUNGA'RIAN, *adj.* Belonging to the kingdom of Hungary.

HUNGA'RIAN, *ſ.* A native of the kingdom of Hungary.

HUN'GARY, a country ſo denominated from the ancient Huns, now forming a conſiderable part of the Auſtrian Empire; bounded on the north by Poland, from which it is ſeparated by the Carpathian mountains; on the eaſt by Tranſilvania and Walachia; on the ſouth by Sclavonia, from which it is ſeparated by the Drave and Servia; and on the weſt by Moravia, Auſtria Proper, and Stiria. In a more extenſive ſenſe, Sclavonia, Dalmatia, Boſnia, Servia, Tranſilvania, Moldavia, and Walachia, are comprehended under the general name of Hungary. It appears that the moſt ancient inhabitants of the weſtern parts of Hungary, were Pannonians; of the northern, Jazygians. The Romans reduced Pannonia, and kept it almoſt four hundred years, till, in the fourth century, the Vandals drove them out of it, and held it forty years; but, in 395, when they advanced towards Gaul, the Goths took poſſeſſion of their ſettlements; but theſe were alſo, in their turn, obliged to reſign their new poſſeſſions to the Huns, who had likewiſe, in their turn, driven them from their ancient habitation. In the beginning of the fifth century, when headed by Attila, not to mention the more extenſive progreſs of their arms, the Huns ſubdued all Pannonia, the two Thracias, part of Niſa, and the country of the Metanaſtic Jazygians. After the death of Attila, the Gepideri and the Goths, with the aſſiſtance of the Romans, among other advantages, wreſted Dacia and Pannonia out of the hands of the Huns. In the year 888, the Huns, under the name of Hungarians, made another irruption into Pannonia, as auxiliaries to Arnulph emperor of the Weſt, and Leo emperor of the Eaſt, againſt the Bulgarians and Sclavonians, whom they reduced. They had ſeven commanders; and Germany and Italy afterwards felt the terrible effect of their ferocity. By degrees their manners took a more civilized turn, and eſpecially when, in the latter part of the tenth century their prince Geyſa embraced the Chriſtian religion. His ſon Stephen, in 997, became the firſt native king of Hungary, completed the eſtabliſhment of the Chriſtian religion, erected biſhoprics, abbeys, and churches, annexed Tranſilvania as a province to Hungary, and at his death was canonized. After him followed a ſucceſſion of twenty kings, natives of the country, of whom the ſecond, by name Peter, put himſelf and kingdom under the protection of the emperor, Henry III. The eighth, Ladiſlaus the Pious, enlarged his dominions with Sclavonia, Croatia, and Dalmatia, and was greatly eſteemed by his people. The tenth, named Stephen III. by his marriage with a Poliſh princeſs, added the diſtrict of Zip. The twelfth, Geyſa II. in the year 1154, invited the Saxons into Tranſilvania. The ſeventeenth, Andrew II. conferred great privileges on the nobility, and even empowered them to oppoſe the king, if he ſhould attempt any thing againſt the laws of the kingdom. And this was not repealed till the year 1688. The nineteenth, Stephen, compelled the Bulgarians to pay him tribute: and the laſt, Andrew III. died in 1301. On this followed a ſucceſſion of twelve foreign kings, of whom Louis I. in 1356, reunited to the kingdom the whole province of Dalmatia, which had been often attacked by the Venetians. In 1390, Sigiſmund rendered Walachia and Moldavia, tributary to him. Matthias conquered Sileſia and Moravia from the Bohemians. Under Uladiſlaus II. the jus conſuetudinarium, called tripartitum, took place; and Louis II. the laſt of theſe kings, in 1526, fell in an unſucceſsful battle againſt the Turks, near Mohats.

After the extermination of theſe two dynaſties of kings, Hungary devolved to the houſe of Auſtria, in which it continues to this day. In 1722, in a diet held at Preſburg, the hereditary ſucceſſion in Hungary was ſo ſecured to the houſe of Auſtria, that, in caſe of failure of male heirs, females ſhould be capable of holding the crown. The country, towards the north, is mountainous and barren; the air is cold, but very healthy. Near the Danube the ſoil is level and ſandy, the climate temperate, and the air moiſt. Farther to the ſouth are extenſive plains, exceedingly fertile; the climate is hot, and the air from the marſhes rendered moiſt and unwholeſome. Hot days, with cold nights and intemperance, occaſion diſeaſes, particularly what is emphatically called the Hungarian fever; and the plague is frequently brought from Turkey. Nevertheleſs, the country is altogether ſuch as to have given riſe to a proverb, which imports that life can only be enjoyed in Hungary; this proverb is exaggerated, but not altogether without foundation. The level country produces, abundantly, corn of every kind, excellent fruit, wines celebrated for their ſtrength and goodneſs, legumes, hemp, aſparagus, melons, ſaffron, tobacco, &c. The foreſts are beautiful, and the meadows feed numerous herds of cattle, of which the inhabitants yearly export more than 100,000 head. Horſes, buffaloes, aſſes, mules, ſheep, goats, and ſwine, are bred, not only ſufficient to ſupply the wants of the inhabitants, but form objects of commerce; chamois and deer are found in the foreſts and mountains, and in ſome places bears The rivers and ponds are well ſupplied with fiſh, and the woods with game. The ſides of the mountains produce excellent wine, and within them are found gold, ſilver, iron, lead, quickſilver, antimony, orpiment, ſulphur, vitriol, marcaſite, ſalt, ſalt-petre, load-ſtone, different kinds of marble, alabaſter, precious ſtones, but inferior to thoſe of the Eaſt, a metal hardly known elſewhere, called by the Hungarians *zinnopel*, &c. There are many mineral ſprings, both warm and cold. The principal mountains are the Carpathian and Crapack. The chief rivers are the Danube, Waag, Gran, Theiſſe, Temes, Drave, Raab, and Leitha. This kingdom, long waſted by war, is beginning to be populous. It has few large towns; all are ill built, and more or leſs filled with ruins. The inhabitants are of various origin, Jazigians, Bohemians, Croats, Raſcians, Ruſſians, Walachians, Vandals, Greeks, Jews, but the number of theſe is diminiſhed, and Turks, which are principally a people wandering about as ſmiths or muſicians. Hungarians and Sclavonians are conſidered as the only native inhabitants.

The doctrine of the reformation was at firſt preached here with ſucceſs; but, in 1681, the Proteſtants were interdicted from having more than two churches in a county, ſome of which include a hundred towns, and yet their number is greatly ſuperior to the Roman catholics. The ſtates of Hungary are divided into four claſſes: to the firſt belong the prelates, as the archbiſhops, biſhops, abbots, and probſts; to the ſecond claſs belong the great barons, waywodes, bans, or viceroys; to the third claſs belong the gentry, and to the fourth, the royal free cities. The public revenues conſiſt of contributions, cuſtoms, mines and minerals, ſalt-works, which belong to the crown, royal demeſnes, and eſcheats. Theſe abundantly anſwer the expences of the court, and defence of the frontiers. The kingdom of Hungary can eaſily raiſe an army of 100,000 men, of which 50,000 are in pay, and a like number is furniſhed by the provinces. The infantry are called *heyducks*, and the cavalry *huſſars*: from theſe laſt the dreſs of the Engliſh huſſar is exactly taken.

Few countries poſſeſs either more forcible or more varied claims on curioſity than Hungary, notwithſtanding it is ſo inaccurately known to the generality of Engliſh readers. Our countryman, Dr. Townſon, however, perceiving it to be untrodden ground, has recently made the tour of it, and publiſhed the reſults thereof, much to the entertainment and information of the public. He ſet out from Vienna to the palace of Schoenbrun, where Napoleon Bonaparte, after his two conqueſts of the Auſtrian capital, took up his temporary reſidence. Here Dr. Townſon enlarges on the grand imperial gardens, where the rareſt palms, and ſhrubs peculiar to the tropics, grow in their native pride, in hot-houſes of prodigious magnitude, erected by the preſent emperor Joſeph II. What adds greatly to the pleaſure of walking in theſe houſes is, the ſight of a variety of rare birds flying about as in full liberty, and the hearing them ſing, perched on the very trees which afforded them food or ſhelter in their native country. Theſe birds deſtroy the ants, and other inſects, which are ſo noxious in hot-houſes.

At Oedinburgh, Dr. Townſon received a *foreſpan*, or order from the magiſtrates to the judges of the peaſants, to ſupply the perſon who obtains it with horſes to tranſport him to the next ſtation, which is generally from fifteen to twenty Engliſh miles, for which fifteen kreutzers, that is, about ſixpence, is paid for each horſe. Sometimes you are allowed to travel with only two horſes; but in general you muſt have four: which is ſtill very cheap, being only two ſhillings for fifteen or twenty miles. In the more diſtant parts of Hungary it is the moſt common way of travelling, and, except in particular ſeaſons of the year, is no very great hardſhip, as it is treble the price of a day's labour of a peaſant and a pair of horſes, as fixed in the *Urbarium*, which is twenty kreutzers, that is about eight-pence; and if he brings, as he generally does, four horſes, to make the work lighter to them, his day's work is ſtill valued at only twenty kreutzers. Sixty kreutzers make about two ſhillings.

At Bude, the capital of Hungary, Dr. Townſon informed himſelf of the principal ſcene of political tranſactions, and of the conſtitution of the country. After Bude, Preſburg is the next principal city. But Caſchan is the capital of Upper Hungary. The two greateſt privileges of the people, thoſe of legiſlation and taxation, are ſtill in their hands; and the ſovereign has only a *veto* in the legiſlation. The choice of the palatine, a kind of viceroy, from four candidates preſented by the ſovereign, and the reception of ſtrangers as denizens, are privileges likewiſe belonging to the people. But the emperor has the unqueſtioned right of deciding on war and peace; he has a *veto* in the legiſlation; the gift of the great offices in the church and ſtate, thoſe of the palatine, and keepers of the crown, excepted: it is he who creates nobility; and coining, and pardoning criminals, are his prerogatives. In this country, as in others where ſociety is in its childhood, the *nation*, alas! is only the great ariſtocratic body of nobles and clergy; and the productive part of the community, the citizens and peaſants, have few or no rights, and no interference in public affairs; yet muſt ſubmiſſively bear *all* the burthens of the ſtate. As the peaſants were, till 1785, under the *glebæ adſcriptio*, or in the ſtate of villanage, they could never be conſidered as forming a part of the nation; and, the deputies of the free towns being conſidered almoſt as intruders, it was, and ſtill is, the ariſtocratic body which checks the power of the crown; and it is this body that, according to the ſpirit of the Hungarian conſtitution, the ſovereign ſhould conſult with, upon all important ſtate-affairs, by calling them together in a diet.

This aſſembly is compoſed of magnates, archbiſhops and biſhops, lord-lieutenants of the counties, abbots, prelates, deputies of the chapters, deputies from the counties, and deputies from the royal free towns. The magnates were originally only the great officers of the crown, as the palatine, the ſupreme judge, the lord marſhal, the great cup-bearer, the ſteward of the houſehold, the maſter of the horſe, &c. but now the princes, counts, and barons, are conſidered as ſuch. Thoſe who pretend to be acquainted with the true ſpirit of the conſtitution, regard the reception of the princes, counts, and barons, amongſt the magnates, as an innovation. The eldeſt ſons of this great nobility, with the two archbiſhops, dioceſan and titular biſhops, with the lord-lieutenants of the counties, and keepers of the crown, conſtitute the firſt table, or upper houſe; and the lower houſe, or ſecond table, is compoſed of the abbots and prelates, the deputies of the chapters, from each at leaſt two; two or three deputies from each of the two-and-fifty counties in which this kingdom is divided, and a deputy from each of the royal free towns. If the free towns ſend more than one deputy, they have only one vote; it is ſo likewiſe with the deputies of the chapters; and, if the members of the upper houſe cannot attend in perſon, their deputies ſit in the lower houſe.

The nobility, which is compoſed of titled and untitled, the former of which may be conſidered as the real nobility, and the latter only as gentlemen, have the excluſive privilege of enjoying all the poſts of honour, and of filling all the public offices, and are the excluſive owners of the ſoil, except what lies within the precincts of the free towns; and a burgher or a peaſant may as well think of poſſeſſing the throne, as of poſſeſſing one inch of land, without being firſt ennobled. Their perſons likewiſe are privileged, except in a few caſes, as high treaſon, murder, &c. They cannot be arreſted, till they have been legally tried and convicted. And the ſimpleſt kind of knight-ſervice is the only duty they owe the ſtate. When ſummoned by their ſovereign, they muſt defend their country. Their taking the field is called an *inſurrectio*, and the high clergy are not exempt. This ſervice, from the frequent wars in which Hungary was long engaged againſt the Turks, was a ſevere obligation; for they ſerved as a kind of barrier to the reſt of Europe againſt this ferocious people. As long as the war continued within the limits of their country, they were obliged to maintain themſelves; but when the war was carried on abroad, they were maintained by the ſovereign. The number of combatants each brought into the field was proportioned to his eſtate. The archbiſhop of Gran and the biſhop of Erlau brought each two ſtands of colours, and under each ſtand a thouſand men; the archbiſhop of Collotza and ſeveral biſhops a thouſand each. In the fatal battle of Mohatch, ſeven biſhops were left dead on the field.

Their charter of privileges is called *Urbarium*, to which Maria Thereſa added an edict, in order to fix bounds to the rapacity of the landlord, by determining the dues of the peaſant: by this ordinance the reciprocal rights of the peaſants and their landlords are determined; and it appears, that the Hungarian peaſant pays to his lord, for twenty-five acres of arable land (each acre containing about twelve hundred ſquare fathoms), and twelve days mowing of meadow land, a ninth of the produce of the ſoil, of the lambs, kids, and bees, and about one hundred and eleven days' labour, two ſhillings for rent, and three ſhillings for fowls, butter, &c. This is no hard contract for the peaſant; for it does not amount to more than equal to a gulden, or about two ſhillings Engliſh, for an acre. The hardſhip lies chiefly in the nature of the contract: this is a reciprocal hardſhip, as inconvenient for the landlord as for the peaſant. It chiefly ariſes from receiving labour for payment; yet this kind of payment is always uſed in ſimilar caſes, in the firſt ſtages of improvement. This compels the landlord to keep a great part of his lands in his own hands, to employ the labour of his peaſants, however he may diſlike rural œconomy.

By a *reſolution* of Thereſa, in 1749, it was ordered, that thoſe who ſhould leave the catholic perſuaſion ſhould be impriſoned for two years; and, if within this time they ſhould not return to the church, they ſhould be ſent to hard labour! But let it be known, for the honour of Hungary, that in the diet of 1791, when the rights of the proteſtants were confirmed, excluſive of the clergy there were only eighty-four members who voted againſt them; though two hundred and ninety-one for them, of whom one hundred and eighty-one were magnates, and the greateſt part of them catholics. How great an honour is this ſpirit of toleration to the Hungarian nation!

Dr. Townſon offers ſome computations of the number of inhabitants in Hungary; whence it appears that they do not fall far ſhort of ſeven or eight millions. The population is compoſed of ſeveral originally-diſtinct tribes. Theſe different people do not live promiſcuouſly together, but ſeparate; and in one diſtrict the traveller only meets with Hungarians, and in another diſtrict only with Sclavonians. According to the beſt eſtimates, the Hungarian revenue is about one-fifth of the whole Auſtrian revenue, while its population is nearly one-third.

Commerce and manufactures give now pre-eminence to nations; and a fertile ſoil and mines of gold, without national induſtry, with difficulty bear the burthens of a ſtate. Commercial induſtry is here very low, and the patriots lay this to the charge of the court of Vienna: and it is true that the court of Vienna, not being able to draw the ſame reſources in men and money, the two great requiſites of war, which now conſtitute the greateſt part of the expences of governments, from this part of its dominions as from its other leſs privileged, is little inclined to favour its commerce; particularly in articles which come in competition with thoſe of its other provinces. This is no doubt a principal cauſe of the public inactivity; but the Auſtrian government ought not to bear all the blame. Would it not be unreaſonable to expect to find agriculture, manufactures, and commerce, in a flouriſhing ſtate, in a country ſo backward in its political inſtitutions? But the Hungarians will not advert to this, nor reflect that national induſtry is the aſſociate only of a particular ſtage of ſociety, to which they are not yet advanced: which they may haſten or retard, by laying aſide, or rigidly adhering to, inſtitutions calculated only for infant ſocieties.

The local ſituation of Hungary is unfavourable; it is chiefly ſurrounded with countries which ſtand in no need of its produce. It has fine rivers, but theſe run in a different direction from the courſe of its commerce, the Auſtrian provinces, which are the markets for four-fifths of its exportation; whilſt they run toward Turkey. And land-carriage is rendered very expenſive by the badneſs of the roads, and territorial tolls; a thing ſeverely felt upon raw produce. An Hungarian writer ſays, that good wine, which is bought for ſix ſhillings, has an additional expence upon it of eight ſhillings when it reaches the port of Trieſte; and that corn, which is bought for two ſhillings, an expence of ſix; tobacco, that coſts twelve ſhillings a hundred weight, likewiſe an addition of ſix. The annual exports are above ſixteen millions of guldens, or 1,600,000l. ſterling; and its imports eleven millions, or 1,100,000l. ſterling; which gives a balance in favour of Hungary of half a million ſterling.

The inns in Hungary, as in ſome other countries, are on a quite different ſyſtem from our's. They belong either to the corporations of towns, or to the proprietors of the towns and villages, who draw from them a great revenue by letting them out on the condition of the innkeeper taking their wine and beer; or they give him a fixed ſalary for his trouble, and receive all the profits. From theſe monopolies it ariſes, that in Hungary, a country famous for its wine, the traveller can never get a glaſs of good wine but in private houſes.

In their commons and extenſive waſtes they feed immenſe quantities of cattle. Their hardy keepers ſtay out with them, covered with their rough ſheep-ſkin clothing, for weeks together. It is chiefly amongſt theſe herdſmen that the cuſtom of beſmearing their ſhirts with hog's lard, and the fat of bacon, with a *view to cleanlineſs*, prevails. Thus anointed they can wear them a whole ſummer without waſhing, and it is ſaid by this means they are kept free from thoſe creatures "whoſe hourly food is human gore."

In Hungary they produce excellent bread without yeaſt. The ferment is thus made: Two handfuls of hops are boiled in four quarts of water; this is poured upon as much wheaten bran as can be well moiſtened by it; to this are added four or five pounds of leaven: when this is only warm, the maſs is well worked together to mix the different parts. This maſs is then put in a warm place for twenty-four hours, and after that it is divided into ſmall pieces about the ſize of a hen's egg, or a ſmall orange, which are dried by being placed upon a board and expoſed to a dry air, but not to the ſun: when dry they are laid by for uſe, and may be kept half a year. This is the ferment, and it is to be uſed in the following manner: For a baking of ſix large loaves, ſix handfuls of theſe balls are taken, and diſſolved in ſeven or eight quarts of warm water. This is poured through a ſieve into one end of the bread-trough, and three quarts more of warm water are poured through the ſieve after it, and what remains in the ſieve is well preſſed out: this liquor is mixed up with ſo much flour as to form a maſs of the ſize of a large loaf: this is ſtrewed over with flour, the ſieve with its contents is put upon it, and then the whole is covered up warm, and left till it has riſen enough, and its ſurface has begun to crack: this forms the leaven. Then fifteen quarts of warm water, in which ſix handfuls of ſalt have been diſſolved, are poured through the ſieve upon it, and the neceſſary quantity of flour is added, and mixed and kneaded with the leaven; this is covered up warm, and left for about an hour. It is then formed into loaves, which are kept in a warm room half an hour; and after that they are put in the oven, where they remain two or three hours according to the ſize. The great advantage of this ferment is, that it may be made in great quantities at a time, and kept for uſe.

When Dr. Townſon arrived at Tokay, he had an opportunity of ſurveying the extenſive vineyards ſo celebrated at that place. Imperial Tokay, ſays this traveller, is no doubt a fine wine, but by no means adequate to its price; and there are few Engliſhmen who, except for its ſcarceneſs, would not prefer good claret or burgundy.

On the Carpathian and other mountainous tracts, vaſt quantities of ſheep are maintained. The hovel of the ſhepherd family is called a *koſchar*, which is a ſmall wooden hut, built in the Swediſh manner; that is, with balks whoſe ends are let into one another, ſomething in the manner of what carpenters call dove-tail work: it is only about ſix yards long, and three broad, and divided into two apartments. In the firſt apartment the head ſhepherd lives, and makes the cheeſe; the other is the magazine where it is kept till it is ſent to Keſmark, which is every week. The buſineſs of the dairy is very ſimple; the ſheep are driven home thrice a-day to be milked, and each milking is immediately made into cheeſe, for no butter is made. The runnet is poured upon the milk whilſt it is warm, which is preſently after beaten together, and ſoon after this the head ſhepherd ſqueezes together with both his hands all the curds, which then form one great maſs, and are taken out together, and put into a cloth, and hung up, but no preſſure is uſed. The whey which remains is boiled, and acquires ſome conſiſtence, and this forms the food of the ſhepherds, and their only food for the whole ſeaſon; they have not even bread. After the ſhepherd and his men have eaten their ſupper, the men, of whom there are four or five, leave the hut to ſleep under ſheds which ſurround the fold. In the night the head ſhepherd gets up two or three times, to ſee whether his men are upon the watch. Great vigilance is requiſite againſt the wolves; for with all theſe precautions many ſheep are carried off during the ſummer.

HUNGARY WATER, ſpirit of wine diſtilled upon roſemary; and which thence contains its oily and ſtrong-ſcented eſſence. The name *eau de la reine d'Hongrie*, ſeems to ſignify that this water, ſo celebrated for its medicinal virtues, is an Hungarian invention; and we read in many books that the receipt for preparing it was given to a queen of Hungary by a hermit. By often waſhing with this ſpirit of roſemary, when in the ſeventieth year of her age, ſhe was cured, as we are told, of the gout, and an univerſal lameneſs; ſo that ſhe not only lived to paſs eighty, but became ſo lively and beautiful, that ſhe was courted by the king of Poland, who was then a widower, and who wiſhed to make her his ſecond wife. *Beckmann.*

HUN'GEN, a town of Germany, in the Upper Rhine, and county of Solms-Braunfels: nineteen miles eaſt-ſouth-eaſt of Braunfels, and fourteen ſouth-eaſt of Wetzlar.

HUN'GER, *ſ.* [hunȝeꞃ, Sax. *honger*, Dut.] Deſire of food; the pain felt from faſting.—An uneaſy ſenſation at the ſtomach for food. When the ſtomach is empty, and the fibres in their natural tenſion, they draw up ſo cloſe as to rub againſt each other, ſo as to make that ſenſation: but when they are diſtended with food, it is again removed; unleſs when a perſon faſteth ſo long as for want of ſpirits, or nervous fluid, to have thoſe fibres grow too flaccid to corrugate, and then we ſay a perſon has faſted away his ſtomach. *Quincy.*—Thou ſhalt ſerve thine enemies in *hunger* and in thirſt. *Deut.* xxvii. 48.—The ſub-acid part of the animal ſpirits, being caſt off by the lower nerves upon the coats of the ſtomach, vellicates the fibres, and thereby produces the ſenſe we call *hunger*. *Grew.*—Any violent deſire.—The immaterial felicities we expect, do naturally ſuggeſt the neceſſity of preparing our appetites and *hungers* for them, without which heaven can be no heaven to us. *Decay of Piety.*

Hunger, according to Willis, is occaſioned by acid effluvia, and vapours, affecting the animal ſpirits in the left orifice of the ſtomach, and its nerves; and, by conſent of continuity, excited further by the internal coat of the ſtomach and the throat; an impreſſion communicated to the brain, by which the animal ſpirits are in like manner affected. Thus, when the ſtomach is empty, or when we faſt longer than ordinary, it is common to ſay that the ſtomach pinches us. But, as the liver is not at that time ſuſtained by the ſtomach and inteſtines, it deſcends by its own weight; and, principally by means of its middle ligament, pulls the diaphragm along with it; it is in that place, therefore, that we have this uneaſy ſenſation, and not at the ſuperior orifice of the ſtomach, as has been generally thought. Some phyſiologiſts have attributed hunger to the ſtimulus of the gaſtric juice; but their opinions have little foundation. The theory of Willis is purely hypothetical; and the ſecond reſts on an erroneous idea of the anatomy of the parts. The third is the moſt plauſible; but we have had reaſon to think, that this ſuppoſed powerful agent is only the remains of former meals. Dr. Cullen, with more reaſon, attributes hunger to the uneaſy contraction of this viſcus, when no longer diſtended. It is evidently a ſenſation peculiarly nervous, ſince the greateſt deſire of food at once vaniſhes, if any cauſe of grief, or of the other depreſſing paſſions, ſhould ſupervene. The firſt effect of fever, which we ſhall find to proceed from a ſudden debility of the ſenſorial power, has a ſimilar effect. When animals die for want of food, their death is not directly the conſequence of hunger, but a putrid fever, which is excited by the blood's loſing its bland gelatinous conſiſtence, for want of the uſual neceſſary ſupplies.

Many caſes of hunger, or rather of a canine appetite, aſtoniſh us with the quantity of food which ſuch perſons are capable of conſuming. In the year 1700, there lived at Stanton, ſeven miles from Bury, a labouring man, who for many days together had ſuch an inordinate appetite, that he would eat up an ordinary leg of veal, roaſted, at a meal. He would eat ſow-thiſtles, and various other herbs, as greedily as cattle are wont to do; and all he could get was little enough to ſatiſfy his hunger. This caſe is related by Dr. Boroughs, in the twenty-ſecond volume of the Philoſophical Tranſactions. But the moſt extraordinary inſtance of hunger or canine appetite, which perhaps ever occurred, is that recorded in the third volume of the Medical and Phyſical Journal, communicated by Dr. Johnſon, commiſſioner of ſick and wounded ſeamen, to Dr. Blane, formerly phyſician to the navy. This hungry man was a Poliſh ſoldier, named Charles Domery, in the ſervice of the French, on-board the Hoche frigate, which was captured by ſir J. Borlaſe Warren, off Ireland, in 1799. He was twenty-one years of age, and ſtated that his father and brothers had been remarkable for their voracious appetites. His began when he was about thirteen years of age. He would devour raw and even live cats, rats, and dogs, beſides bullock's liver, tallow-candles, and the entrails of animals. On September 7, 1799, an experiment was made of how much this man could eat in one day. This experiment was made in the preſence of the before-mentioned Dr. Johnſon, admiral Child, and Mr. Foſter, agent for priſoners at Liverpool, and ſeveral other gentlemen. He had breakfaſted at four o'clock in the morning on four pounds of raw cow's udder; at half paſt nine o'clock there were ſet before him five pounds of raw beef, and twelve tallow candles of one pound weight, together with one bottle of porter; theſe he finiſhed by half paſt ten o'clock. At one o'clock there were put before him five pounds more of beef, one pound of candles, and three bottles of porter. He was then locked up in the room, and ſentries were placed at the windows to prevent his throwing away any of his proviſions. At two o'clock he had nearly finiſhed the whole of the candles, and great part of the beef; but without having had any evacuations by vomiting, ſtool, or urine; his ſkin was cool, pulſe regular, and ſpirits good. At a quarter paſt ſix he had devoured the whole, and declared he could have eaten more. Thus the whole of what he ate in one day was ſixteen pounds, beſides five bottles of porter. The eagerneſs with which this man attacked his beef when his ſtomach was not gorged, reſembled the voracity of a hungry wolf; he would tear off large pieces with his teeth, roll them about his mouth, and then gulp them down. When his throat became dry from continued exerciſe, he would lubricate it by ſtripping the greaſe off a candle between his teeth; and then, wrapping up the wick like a ball, would ſend it after the other part at a ſwallow. He could make ſhift to dine on immenſe quantities of raw potatoes or turnips, but by choice would never taſte bread or vegetables. He was in every reſpect healthy, ſix feet three inches high, of a pale complexion, grey eyes, long brown hair, well made but thin, his countenance rather pleaſant, and he was good tempered. His evacuation by the bowels was by no means proportioned to the quantity of food he devoured; but his perſpirations were profuſe, not only when in bed, but alſo when up and eating. To the profuſeneſs of this evacuation, Dr. Johnſon and the other medical gentlemen have aſcribed the rapid diſſipation of the ingeſta, and his inceſſant craving for freſh ſupplies of food. From the diſſection of ſome perſons who have died under the influence of a canine appetite, it appeared that a preternatural enlargement of the pylorus had allowed the aliment to paſs into the inteſtines almoſt as ſoon as ſwallowed, and before the work of deglutition could be performed; hence a conſtant craving for more food.

*To* HUN'GER, *v. n.* To feel the pain of hunger:

Widely they gape, and to the eye they roar,
As if they *hunger'd* for the food they bore. *Cowley*

To deſire with great eagerneſs; to long:

Doſt thou ſo *hunger* for my empty chair,
That thou wilt needs inveſt thee with my honours,
Before thy hour be ripe? O fooliſh youth,
Thou ſeek'ſt the greatneſs that will overwhelm thee!
Stay but a little. *Shakeſpeare.*

HUN'GERBIT, or HUNGERBITTEN, *adj.* Pained or weakened with hunger.—His ſtrength ſhall be *hunger-bitten. Job* xviii. 12.

Bred up in poverty and ſtraits at home;
Loſt in a deſert here, and *hungerbit*. *Milton.*

HUN'GER CREEK, a navigation which carries the various water-machinery in the new and thriving manufacturing town of Hamilton, between Albany and Schenectady, New York.

HUN'GER-STARVED, *adv.* Starved with hunger; pinched by want of food:

As to ſome holy houſe th' afflicted came,
The *hunger-ſtarv'd*, the naked, and the lame:
Want and diſeaſes fled before her name. *Dryden.*

HUN'GERFORD, [formerly called *Ingleford*, Enȝlaꝼoꞃd, Sax. the ford of the Engliſh.] A town of Berkſhire, ſituated on the river Kennet, ſaid by Camden to have been anciently called Ingleford Charnham-ſtreet. It is a ſmall clean town, ſituated near, though not directly on, the great Bath road, between Newbury and Marlborough, ſixty-five miles from Hyde-park corner, nine from Newbury, and ten from Marlborough; has a weekly market every Wedneſday, and a ſtatute fair on the 10th of Auguſt, and one for cattle the laſt Wedneſday in April. The town is governed by a chief conſtable, who is aſſiſted in the execution of his office by twelve feoffees and burgeſſes, a portreeve, ſteward, town-clerk, and ſome other inferior officers.

HUN'GERFORD, a townſhip of the American States, in Franklin county, Vermont: ſeven miles ſouth of the Canada line, and fourteen eaſt of Lake Champlain.

HUN'GERING, *ſ.* The act of craving after food.

HUN'GERLY, *adj.* Hungry; in want of nouriſhment:

His head
Grew thin and *hungerly*, and ſeem'd to aſk
His ſops as he was drinking. *Shakeſpeare.*

HUN'GERLY, *adv.* With keen appetite:

You have ſav'd my longing, and I feed
Moſt *hungerly* on your ſight. *Shakeſpeare.*

HUN'GRED, *adj.* Pinched by want of food.—Odours do in a ſmall degree nouriſh, and we ſee men a-*hungred* love to ſmell hot bread. *Bacon.*

HUN'GRILY, *adv.* With keen appetite:

Thus much to the kind rural gods we owe,
Who pity'd ſuffering mortals long ago;
When on harſh acorns *hungrily* they fed,
And gave 'em nicer palates, better bread. *Dryden.*

HUN'GRINESS, *ſ.* The want of food, keenneſs of deſire.

HUN'GRY, *adj.* Feeling pain from want of food.—They that talk thus may ſay that a man is always *hungry*, but that he does not always feel it; whereas hunger conſiſts in that very ſenſation. *Locke.*—Not fat; not fruitful; not prolific; more diſpoſed to draw from other ſubſtances than to impart to them.—To the great day of retribution our Saviour refers us, for reaping the fruits that we here ſow in the moſt *hungry* and barren ſoil. *Smalridge.*

HUN'GRY E'VIL, *ſ.* A diſeaſe incident to horſes, a greedineſs to devour without chewing.

HUN'GRY POINT, a cape on the eaſt coaſt of the iſland of St. Vincent. Lat. 13. 28. N. lon. 61. 11. W. Greenwich.

HUNIN'GUE, or Hu'ningen, a town of France, in the department of the Upper Rhine, and chief place of a canton, in the diſtrict of Altkirch, ſituated on the Rhine. The town is ſmall, but handſome, and regularly fortified by M. Vauban. In November 1796, the Auſtrians made an attempt upon this town, but were repulſed, with the loſs of 1800 men. Two miles north of Bâle, and fourteen eaſt of Altkirch.

HUNKS, *ſ.* [*hunſker*, ſordid, Iſlandic.] A covetous ſordid wretch; a miſer; a curmudgeon.—The old *hunks* was well ſerved, to be tricked out of a whole hog for the ſecuring of his puddings. *L'Eſtrange.*

HUN'MANBY, a town of the Eaſt Riding of Yorkſhire, ſituated about two miles from the German ocean, or Filey bay. It ſtands upon a riſing ground; is covered with a fine hanging wood on the north-weſt, where has formerly been a caſtle, and the weſt ſide commands a fine proſpect of the ſea. Hunmanby is diſtant eleven miles from Scarborough, eight from Bridlington, and 209 from London. The market it on Tueſdays. Fairs, May 6 and October 29.

HUN'NARYD, a town of Sweden, in the province of Smaland: eighteen miles ſouth-weſt of Johnkioping.

HUN'NIUS (Giles), a celebrated German lutheran divine, born at Winenda in Wirtemberg, in 1550. He was ſent to the univerſity of Tubingen, where he applied with commendable aſſiduity to his ſtudies, and took his degree of M. A. with ſuch applauſe, that at only twenty-ſix years of age he was recommended to the landgrave of Heſſe, as a proper perſon to fill the vacant theological chair at Marpurg; ſoon after which he was admitted to the degree of doctor of divinity at Tubingen. Hunnius now rendered himſelf ſo famous among the Lutherans, that in 1592 he was invited into Saxony, to reform that electorate. Having accepted the invitation, he was appointed principal profeſſor of divinity at Wittemberg, firſt miniſter of the church at the caſtle, and a member of the eccleſiaſtical conſiſtory. In 1595, he was made ſuperintendant of the church of Wittemberg; and in the ſame year was engaged in his celebrated controverſy with Samuel Huber, on the ſubject of election and predeſtination. He was one of the chief opponents of Gretſer and Tanner the Jeſuits, in the conference between the Lutherans and Roman-catholics at Ratiſbon, in 1602; and he died in the following year, in the fifty-ſecond year of his age. His works conſiſt of 1. Commentaries on Matthew, John, and almoſt all the canonical epiſtles, in Latin. 2. Short German notes on the goſpels and epiſtles. 3. Homilies on ſix of the Prophets, &c. 4. Orations. 5. Theſes. 6. A Catechiſm, polemical tracts, &c. An edition of the whole has been publiſhed, in five volumes folio.

HUN'NIUS (Nicholas), ſon of the preceding, and like him a lutheran divine, born at Marpurg in 1585. He went through his courſes of philoſophy and theology at the univerſity of Wittemberg, and was appointed to the profeſſorſhip of the former faculty, with permiſſion at the ſame time to deliver lectures on theology. Afterwards he was appointed ſuperintendant of Eilenburg; was admitted to the degree of doctor of divinity; and nominated one of the theological profeſſors at Wittemberg. He died in his fifty-eighth year. He was the author of numerous publications; the principal of which were, 1. *Harmonia Evangeliorum Dominicalium cum Hiſtoriis Vet. Teſt.* 2. *Epitome Credendorum.* 3. *Examen Errorum Photinianorum*; and a variety of treatiſes in controverſy with the Catholics and Calviniſts.

HUN'NOLD (Francis), a German Jeſuit, native of Naſſau. His ſermons are repreſented to be ſome of the beſt that appeared in Germany at the period when he flouriſhed, and fill ſix folio volumes, which were firſt publiſhed at Cologne and Augſburg. Afterwards editions of them were multiplied in the different provinces of Germany.

HU'NOLSTEIN, a town of Germany, in the Lower Rhine, and archbiſhopric of Treves: five miles ſouth of Berncaſtel, and eighteen eaſt of Treves.

HUNS, or Hunns, one of thoſe ancient paſtoral or ſhepherd tribes, who, becoming too numerous for any moderate diſtrict to contain, burſt from their original ſeats with the impetuous violence of a torrent, and overwhelmed the faireſt portions of the Aſiatic and European continents. The beſt account of this formidable people is to be gleaned from the hiſtoric pages of the celebrated Gibbon, in his "Decline and Fall of the Roman Empire."

The Huns, in a very early period of their hiſtory, appear to have been highly formidable to the empire of China. Their ancient, perhaps their original, ſeat, was an extenſive, though dry and barren, tract of country, immediately on the north ſide of the great Chineſe wall. Their place is at preſent occupied by the forty-nine hords or banners of the Mongoys, alſo a paſtoral nation, which conſiſts of about two hundred thouſand families. But the valour of the Huns ſoon extended the narrow limits of their dominions; and their ruſtic chiefs, who aſſumed the appellation of *Tanjou*, gradually became the conquerors, and the ſovereigns, of a formidable empire. Towards the eaſt, their victorious arms were ſtopped only by the ocean; and the tribes, which are thinly ſcattered between the Amoor and the extreme peninſula of Corea, adhered with reluctance to the ſtandard of the Huns. On the weſt, near the head of the Irtiſh, and in the valleys of Imaus, they found a more ample ſpace, and more numerous enemies. One of the lieutenants of the Tanjou ſubdued in a ſingle expedition twenty-ſix nations; the Igours, diſtinguiſhed above the Tartar race by the uſe of letters, were in the number of his vaſſals: and, by the ſtrange connection of human events, the flight of one of thoſe vagrant tribes recalled the victorious Parthians from the invaſion of Syria. On the ſide of the north, the ocean was aſſigned as the limit of the power of the Huns. Without enemies to reſiſt their progreſs, or witneſſes to contradict their vanity, they might ſecurely achieve a real, or imaginary, conqueſt of the frozen regions of Siberia. The Northern Sea was fixed as the remote boundary of their empire. But the name of that ſea, on whoſe ſhores the Chineſe patriot Sovou embraced the life of a ſhepherd and an exile, may be transferred with much more probability to the Baikal. The ſubmiſſion of ſo many diſtant nations might flatter the pride of the Tanjou; but the valour of the Huns could be rewarded only by the enjoyment of the wealth and luxury of the empire of the ſouth. In the third century before the Chriſtian æra, the Chineſe wall of fifteen hundred miles in length was conſtructed, to defend their frontiers againſt the inroads of their enemies; but this ſtupendous work has never contributed to the ſafety of that unwarlike people. See the article CHINA, vol. iv. p. 480, and the correſpondent Engraving of the Chineſe Wall. The cavalry of the Huns frequently conſiſted of two or three hundred thouſand men, formidable by the matchleſs dexterity with which they managed their bows and their horſes; by their hardy patience in ſupporting the inclemency of the weather; and by the incredible ſpeed of their march, which was ſeldom checked by torrents or precipices, by the deepeſt rivers or by the moſt lofty mountains. They ſpread themſelves at once over the face of the country; and their rapid impetuoſity ſurpriſed, aſtoniſhed, and diſconcerted, the grave and elaborate tactics of a Chineſe army. The emperor Kaoti, a ſoldier of fortune, whoſe perſonal merit had raiſed him to the throne, marched againſt the Huns with thoſe veteran troops which had been trained in the civil wars of China. But he was ſoon ſurrounded by the Huns, and after a ſiege of ſeven days, the monarch, hopeleſs of relief, was reduced to purchaſe his deliverance by an ignominious capitulation. The ſucceſſors of Kaoti, whoſe lives were dedicated to the arts of peace or the luxury of the palace, ſubmitted to a more permanent diſgrace. They too haſtily confeſſed the inſufficiency of arms and fortification. They were too eaſily convinced, that, while the blazing ſignals announced on every ſide the approach of the Huns, the Chineſe troops, who ſlept with the helmet on their head and the cuiraſs on their back, were deſtroyed by the inceſſant labour of ineffectual marches. A regular payment of money and ſilk was ſtipulated as the condition of a temporary and precarious peace; and the wretched expedient of diſguiſing a real tribute, under the names of a gift or ſubſidy, was practiſed by the emperors of China. But there ſtill remained a more diſgraceful article of tribute, which violated the ſacred feelings of humanity and nature. The hardſhips of the ſavage life, which deſtroy in their infancy the children who are born with a leſs healthy and robuſt conſtitution, introduce a remarkable diſproportion between the numbers of the two ſexes. The Tartars are an ugly, and even deformed, race; and, while they conſider their own women as the inſtruments of domeſtic labour, their deſires, or rather their appetites, are directed to the enjoyment of more elegant beauty. A ſelect band of the faireſt maidens of China was annually devoted to the rude embraces of the Huns; and the alliance of the haughty Tanjous was ſecured by their marriage with the genuine or adopted daughters of the imperial family, which vainly attempted to eſcape the ſacrilegious pollution. The ſituation of theſe unhappy victims, is deſcribed in the verſes of a Chineſe princeſs, who laments that ſhe had been condemned by her parents to a diſtant exile, under a barbarian huſband; who complains that ſour milk was her only drink, raw fleſh her only food, a tent her only palace; and who expreſſes, in a ſtrain of pathetic ſimplicity, the natural wiſh, that ſhe were transformed into a bird, to fly back to her dear country, the object of her tender and perpetual regret.

The conqueſt of China has been twice achieved by the paſtoral tribes of the north: the forces of the Huns were not inferior to thoſe of the Moguls or of the Manchoos; and their ambition might entertain the moſt ſanguine hopes of ſucceſs. But their pride was humbled, and their progreſs was checked, by the arms and policy of Vouti, the fifth emperor of the powerful dynaſty of the Han. In his long reign of fifty-four years, the barbarians of the ſouthern provinces ſubmitted to the laws and manners of China, and the ancient limits of the monarchy were enlarged, from the great river of Kiang to the port of Canton. Inſtead of confining himſelf to the timid operations of a defenſive war, his lieutenants penetrated many hundred miles into the country of the Huns. In thoſe boundleſs deſerts, where it is impoſſible to form magazines, and difficult to tranſport a ſufficient ſupply of proviſions, the armies of Vouti were repeatedly expoſed to intolerable hardſhips; and, of one hundred and forty thouſand ſoldiers, who marched againſt the barbarians, thirty thouſand only returned in ſafety to the feet of their maſter. Theſe loſſes, however, were compenſated by ſplendid and deciſive ſucceſs. The Chineſe generals improved the ſuperiority which they derived from the temper of their arms, their chariots of war, and the ſervice of their Tartar auxiliaries. The camp of the Tanjou was ſurpriſed in the midſt of ſleep and intemperance: and, though the monarch of the Huns bravely cut his way through the ranks of the enemy, he left above fifteen thouſand of his ſubjects on the field of battle. Yet this ſignal victory, which was preceded and followed by many bloody engagements, contributed much leſs to the deſtruction of the power of the Huns, than the effectual policy which was employed to detach the tributary nations from their obedience. Intimidated by the arms, or allured by the promiſes, of Vouti and his ſucceſſors, the moſt conſiderable tribes, both of the eaſt and of the weſt, diſclaimed the authority of the Tanjou. While ſome acknowledged themſelves the allies or vaſſals of the empire, they all became the implacable enemies of the Huns: and the numbers of that haughty people, as ſoon as they were reduced to their native ſtrength, might perhaps have been contained within the walls of one of the great and populous cities of China. The deſertion of his ſubjects, and the perplexity of a civil war, at length compelled the Tanjou himſelf to renounce the dignity of an independent ſovereign, and the freedom of a warlike and high-ſpirited nation. He was received at Sigan, the capital of the monarchy, by the troops, the mandarins, and the emperor himſelf, with all the honours that could adorn and diſguiſe the triumph of Chineſe vanity. A magnificent palace was prepared for his reception; his place was aſſigned above all the princes of the royal family;

and the patience of the barbarian king was exhauſted by the ceremonies of a banquet, which conſiſted of eight courſes of meat, and of nine ſolemn pieces of muſic. But he performed, on his knees, the duty of a reſpectful homage to the emperor of China; pronounced in his own name, and in the name of his ſucceſſors, a perpetual oath of fidelity; and gratefully accepted a ſeal, which was beſtowed as the emblem of his regal dependance. After this humiliating ſubmiſſion, the Tanjous ſometimes departed from their allegiance, and ſeized the favourable moments of war and rapine; but the monarchy of the Huns gradually declined, till, in the year of Chriſt 48, it was broken, by civil diſſenſion, into two hoſtile and ſeparate kingdoms. One of the princes of the nation was urged, by fear and ambition, to retire towards the ſouth with eight hords, which compoſed between forty and fifty thouſand families. He obtained, with the title of Tanjou, a convenient territory on the verge of the Chineſe provinces; and his conſtant attachment to the ſervice of the empire, was ſecured by weakneſs, and the deſire of revenge. From the time of this fatal ſchiſm, the Huns of the north continued to languiſh about fifty years, till they were oppreſſed on every ſide by their foreign and domeſtic enemies. The proud inſcription of a column, erected on a lofty mountain, announced to poſterity, that a Chineſe army had marched ſeven hundred miles into the heart of their country. The Sienpi, a tribe of oriental Tartars, retaliated the injuries which they had formerly ſuſtained; and the power of the Tanjous, after a reign of thirteen hundred years, was utterly deſtroyed before the end of the firſt century of the Chriſtian æra.

The fate of the vanquiſhed Huns was diverſified by the various influence of character and ſituation. Above one hundred thouſand perſons, the pooreſt indeed, and the moſt puſillanimous of the people, were contented to remain in their native country, to renounce their peculiar name and origin, and to mingle with the victorious nation of the Sienpi. Fifty-eight hords, about two hundred thouſand men, ambitious of a more honourable ſervitude, retired towards the ſouth; implored the protection of the emperors of China; and were permitted to inhabit, and to guard, the extreme frontiers of the province of Chanſi and the territory of Ortous. But the moſt warlike and powerful tribes of the Huns maintained, in their adverſe fortune, the undaunted ſpirit of their anceſtors. The weſtern world was open to their valour; and they reſolved, under the conduct of their hereditary chieftains, to diſcover and ſubdue ſome remote country, which was ſtill inacceſſible to the arms of the Sienpi, and to the laws of China. The courſe of their emigration ſoon carried them beyond the mountains of Imaus, and the limits of the Chineſe geography; but we are able to diſtinguiſh the two great diviſions of theſe formidable exiles, which directed their march towards the Oxus, and towards the Volga. The firſt of theſe colonies eſtabliſhed their dominion in the fruitful and extenſive plains of Sogdiana, on the eaſtern ſide of the Caſpian, where they preſerved the name of Huns, with the epithet of Euthalites, or Nepthalites. Their manners were ſoftened, and even their features were inſenſibly improved, by the mildneſs of the climate, and their long reſidence in a flouriſhing province, which might ſtill retain a faint impreſſion of the arts of Greece. The *white* Huns, a name which they derived from the change of their complexions, ſoon abandoned the paſtoral life of Scythia. Gorgo, which, under the appellation of Carizme, has ſince enjoyed a temporary ſplendour, was the reſidence of the king, who exerciſed a legal authority over an obedient people. Their luxury was maintained by the labour of the Sogdians; and the only veſtige of their ancient barbariſm, was the cuſtom which obliged all the companions, perhaps to the number of twenty, who had ſhared the liberality of a wealthy lord, to be buried alive in the ſame grave. The vicinity of the Huns to the provinces of Perſia, involved them in frequent and bloody conteſts with the power of that monarchy. But they reſpected, in peace, the faith of treaties; in war, the dictates of humanity; and their memorable victory over Peroſes, or Firuz, diſplayed the moderation, as well as the valour, of the barbarians. The *ſecond* diviſion of their countrymen, the Huns, who gradually advanced towards the north-weſt, were exerciſed by the hardſhips of a colder climate, and a more laborious march. Neceſſity compelled them to exchange the ſilks of China for the furs and country of Siberia. Their independent ſpirit ſoon rejected the hereditary ſucceſſion of the Tanjous; and, while each hord was governed by its peculiar murſa, their tumultuary council directed the public meaſures of the whole nation. As late as the thirteenth century, their tranſient reſidence on the eaſtern banks of the Volga, was atteſted by the name of Great Hungary. In the winter, they deſcended with their flocks and herds towards the mouth of that mighty river; and their ſummer excurſions reached as high as the latitude of Saratoff, or perhaps the conflux of the Kama. Such at leaſt were the recent limits of the black Calmucks, who remained about a century under the protection of Ruſſia; and who have ſince returned to their native ſeats on the frontiers of the Chineſe empire. The march and the return of thoſe wandering Tartars, whoſe united camp conſiſts of fifty thouſand tents or families, illuſtrate the diſtant emigrations of the ancient Huns.

It is impoſſible to fill the dark interval of time which elapſed, after the Huns of the Volga were loſt in the eyes of the Chineſe, and before they ſhowed themſelves to thoſe of the Romans. There is ſome reaſon, however, to apprehend, that the ſame force which had driven them from their native ſeats ſtill continued to impel their march towards the frontiers of Europe. The power of the Sienpi, their implacable enemies, which extended above three thouſand miles from eaſt to weſt, muſt have gradually oppreſſed them by the weight and terror of a formidable neighbourhood; and the flight of the tribes of Scythia would inevitably tend to increaſe the ſtrength, or to contract the territories, of the Huns. The harſh and obſcure appellations of thoſe tribes would offend the ear, without informing the underſtanding, of the reader; but it is natural to ſuppoſe that the Huns of the north derived a conſiderable reinforcement from the ruin of the dynaſty of the ſouth, which, in the courſe of the third century, ſubmitted to the dominion of China; that the braveſt warriors marched away in ſearch of their free and adventurous countrymen; and that, as they had been divided by proſperity, they were eaſily re-united by the common hardſhips of their adverſe fortune. The Huns, with their flocks and herds, their wives and children, their dependents and allies, were tranſported to the weſt of the Volga; and they boldly advanced to invade the country of the Alani, a paſtoral people who occupied an extenſive tract of the deſerts of Scythia. The plains between the Volga and the Tanais were covered with the tents of the Alani, but their name and manners were diffuſed over the wide extent of their conqueſts; and the painted tribes of the Agathyrſi and Geloni were confounded among their vaſſals. Towards the north, they penetrated into the frozen regions of Siberia, among the ſavages who were accuſtomed, in their rage or hunger, to the taſte of human fleſh; and their ſouthern inroads were puſhed as far as the confines of Perſia and India. The mixture of Sarmatic and German blood had contributed to improve the features of the Alani, to whiten their ſwarthy complexions, and to tinge their hair with a yellowiſh caſt, which is ſeldom found in the Tartar race. They were leſs deformed in their perſons, leſs brutiſh in their manners, than the Huns; but they did not yield to thoſe formidable barbarians in their martial and independent ſpirit; in the love of freedom, which rejected even the uſe of domeſtic ſlaves; and in the love of arms, which conſidered war and rapine as the pleaſure and the glory of mankind. A naked cimeter, fixed in the ground, was the only object of their religious worſhip; the ſcalps of their enemies formed the coſtly trappings of their horſes; and they viewed with pity and contempt the puſillanimous warriors, who patiently expected the infirmities of age, and the tortures of lingering diſeaſe. On the banks of the Tanais, the military power of the Huns and the Alani encountered each other with equal valour, but with unequal ſucceſs. The Huns prevailed in the bloody conteſt; the king of the Alani was ſlain; and the remains of the vanquiſhed nation were diſperſed by the ordinary alternative of flight or ſubmiſſion. A colony of exiles found a ſecure refuge in the mountains of Caucaſus, between the Euxine and the Caſpian; where they ſtill preſerve their name and their independence. Another colony advanced, with more intrepid courage, towards the ſhores of the Baltic; aſſociated themſelves with the northern tribes of Germany, and ſhared the ſpoil of the Roman provinces of Gaul and Spain. But the greateſt part of the nation of the Alani embraced the offers of an honourable and advantageous union; and the Huns, who eſteemed the valour of their leſs fortunate enemies, proceeded, with an increaſe of numbers and confidence, in the year of Chriſt 375, to invade the limits of the Gothic empire. Of this invaſion a full and ample account is given under the article GOTHS, vol. viii. p. 711. to which we beg to refer the reader.

After the dreadful colliſion of theſe northern hords, the Goths and Vandals fled before the Huns; but the achievements of the Huns at length became inadequate to their power and proſperity. Their victorious hords had ſpread from the Volga to the Danube; but the public force was exhauſted by the diſcord of independent chieftains; their valour was idly conſumed in predatory excurſions; and they often degraded their national dignity by condeſcending, for the hopes of ſpoil, to enliſt under the banners of their fugitive enemies. But in the reign of Attila, the Huns again became the terror of the Roman empire, and the ſcourge of the world. The Hungarians, who are proud to inſert the name of Attila among their native kings, may affirm with truth, that the hords, which were ſubject to his uncle Roas, or Rugilas, had early formed their encampments within the limits of modern Hungary, in a fertile country, which liberally ſupplied the wants of ſuch a nation of hunters and ſhepherds. In this advantageous ſituation, Rugilas, and his valiant brothers, who continually added to their power and reputation, commanded the alternative of peace or war with the then two great empires of the world. His alliance with the Romans of the weſt was cemented by his perſonal friendſhip for the great Ætius; who was always ſecure of finding in the barbarian camp a hoſpitable reception, and a powerful ſupport. At his ſolicitation, ſixty thouſand Huns advanced to the confines of Italy; and the policy of Ætius abandoned the poſſeſſion of Pannonia to his faithful confederates. The Romans of the eaſt were not leſs apprehenſive of the arms of Rugilas, which threatened the provinces, and even the capital. Some eccleſiaſtical hiſtorians have deſtroyed the barbarians with lightning and peſtilence; but Theodoſius, emperor of the eaſt, was reduced to the more humble expedient of ſtipulating an annual payment of three hundred and fifty pounds of gold, and of diſguiſing this diſhonourable tribute by the title of *general*, which the king of the Huns condeſcended to accept. The public tranquillity was frequently interrupted by the fierce impatience of the barbarians, and the perfidious intrigues of the Byzantine court. Four dependent nations, among whom we may diſtinguiſh the Bavarians, diſclaimed the ſovereignty of the Huns; and their revolt was encouraged by a Roman alliance; till the juſt claims, and formidable power, of Rugilas, were effectually urged by the voice of Eſlaw his ambaſſador. Peace was the unanimous wiſh of the ſenate; their decree was ratified by the emperor; and two ambaſſadors were named, Plinthas, of conſular rank, and the quæſtor Epigenes, a wiſe and experienced ſtateſman.

The death of Rugilas, in the year of Chriſt 433, ſuſpended the progreſs of the treaty. His two nephews, Attila and Bleda, who ſucceeded to the throne of their uncle, conſented to a perſonal interview with the ambaſſadors of Conſtantinople; but, as they proudly refuſed to diſmount, the buſineſs was tranſacted on horſeback, in a ſpacious plain near the city of Margus, in Upper Mæſia. The kings of the Huns aſſumed the ſolid benefits, as well as the vain honours, of the negociation. They dictated the conditions of peace, and each condition was an inſult to the majeſty of the eaſtern Roman empire. Beſides the freedom of a ſafe and plentiful market on the banks of the Danube, they required that the annual contribution ſhould be augmented from three hundred and fifty to ſeven hundred pounds of gold; that a fine or ranſom of eight pieces of gold ſhould be paid for every Roman captive who had eſcaped from his barbarian maſter; that the emperor ſhould renounce all treaties and engagements with the enemies of the Huns; and that all the fugitives, who had taken refuge in the court or provinces of Theodoſius, ſhould be delivered to the juſtice of their offended ſovereign. This juſtice was rigorouſly inflicted on ſome unfortunate youths of a royal race. They were crucified on the territories of the empire, by the command of Attila; and, as ſoon as the king of the Huns had impreſſed the Romans with the terror of his name, he indulged them in a ſhort and arbitrary reſpite, whilſt he ſubdued the rebellious nations of Scythia and Germany.

Attila, the ſon of Mundzuk, deduced his regal deſcent from the ancient Huns, who had formerly contended with the monarchs of China. His features ſtrongly bore the ſtamp of his national origin; and he was poſſeſſed of great nervous ſtength, though of a diſproportioned form. His religious arts not leſs were ſkilfully applied than his arms. It was natural that the Scythians ſhould worſhip with peculiar devotion the god of war; but, as they were incapable of forming either an abſtract idea or a corporeal repreſentation, they worſhipped their tutelar deity under the ſymbol of an iron cimeter. One of the ſhepherds of the Huns perceived, that a heifer who was grazing had wounded herſelf in the foot, and carefully followed the track of the blood, till he diſcovered, among the long graſs, the point of an ancient ſword, which he dug out of the ground, and preſented to Attila. That artful prince accepted, with pious gratitude, this celeſtial favour; and, as the rightful poſſeſſor of the *ſword of Mars*, he aſſerted his divine and indefeaſible claim to the dominion of the earth. In the rites of Scythia, a lofty pile of faggots, three hundred yards in length and in breadth, was raiſed in a ſpacious plain; and the ſword of Mars was placed erect on the ſummit of this ruſtic altar, which was annually conſecrated by the blood of ſheep, horſes, and of the hundreth captive. Whether human ſacrifices formed any part of the worſhip of Attila, or whether he propitiated the god of war with the victims which he continually offered in the field of battle, the favourite of Mars ſoon acquired a ſacred character; which rendered his conqueſts more eaſy and more permanent; and the barbarian princes confeſſed, in the language of devotion or flattery, that they could not preſume to gaze, with a ſteady eye, on the divine majeſty of the king of the Huns. His brother Bleda, who reigned over a conſiderable part of the nation, was compelled to reſign his ſceptre and his life. Yet even this cruel act was attributed to a ſupernatural impulſe; and the vigour with which Attila wielded the ſword of Mars, convinced the world that it had been reſerved alone for his invincible arm. But the extent of his empire affords the only permanent evidence of the number and importance of his victories; and the Scythian monarch, however ignorant of the value of ſcience and philoſophy, might perhaps lament that his illiterate ſubjects were deſtitute of the art which could perpetuate the memory of his exploits

The ambaſſadors of the Huns now awakened the attention of Theodoſius, by reminding him, that they were his neighbours both in Europe and Aſia; ſince they touched

J. Chapman, Sculp.

ATTILA, *King of the* HUNS.

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the Danube on one hand, and reached, with the other, as far as the Tanais. In the reign of his father the emperor Arcadius, a band of adventurous Huns had ravaged the provinces of the eaſt; from whence they brought away rich ſpoils and innumerable captives. They advanced by a ſecret path along the ſhores of the Caſpian ſea; traverſed the ſnowy mountains of Armenia; paſſed the Tigris, the Euphrates, and the Halys; recruited their weary cavalry with the generous breed of Cappadocian horſes; occupied the hilly country of Cilicia, and diſturbed the feſtal ſongs and dances of the citizens of Antioch. Egypt trembled at their approach; and the pilgrims of the Holy Land prepared to eſcape their fury by a ſpeedy embarkation. The memory of this invaſion was ſtill recent in the minds of the Orientals. The ſubjects of Attila might execute with ſuperior forces the deſign which theſe adventurers had ſo boldly attempted; and it ſoon became the ſubject of anxious conjecture, whether the tempeſt would fall on the dominions of Rome or of Perſia. Some of the great vaſſals of the king of the Huns, who were themſelves in the rank of powerful princes, had been ſent to ratify an alliance and ſociety of arms with the emperor, or rather with the general of the Weſt. They related, during their reſidence at Rome, the circumſtances of an expedition which they had lately made into the eaſt. After paſſing a deſert and a moraſs, ſuppoſed by the Romans to be the lake Mœotis, they penetrated through the mountains, and arrived, at the end of fifteen days march, on the confines of Media; where they advanced as far as the unknown cities of Baſic and Curſic. They encountered the Perſian army in the plains of Media; and the air, according to their own expreſſion, was darkened by a cloud of arrows. But the Huns were obliged to retire before the numbers of the enemy. Their laborious retreat was effected by a different road; they loſt the greateſt part of their booty; and at length returned to the royal camp, with ſome knowledge of the country, and an impatient deſire of revenge.

While the powers of Europe and Aſia were alike ſolicitous to avert the impending danger, the alliance of Attila maintained the Vandals in the poſſeſſion of Africa. An enterpriſe had been concerted between the courts of Ravenna and Conſtantinople for the recovery of that valuable province; and the ports of Sicily were already filled with the military and naval forces of Theodoſius. But the ſubtle Genſeric, who ſpread his negociations round the world, prevented their deſigns by exciting the king of the Huns to invade the eaſtern empire; and a trifling incident ſoon became the motive or pretence of a deſtructive war. Under the faith of the treaty of Margus, a free market was held on the northern ſide of the Danube, which was protected by a Roman fortreſs, ſurnamed Conſtantia. A troop of barbarians violated the commercial ſecurity, killed or diſperſed the unſuſpecting traders, and levelled the fortreſs with the ground. The Huns juſtified this outrage as an act of repriſal; alleged that the biſhop of Margus had entered their territories to diſcover and ſteal a ſecret treaſure of their kings; and ſternly demanded the guilty prelate, the ſacrilegious ſpoil, and the fugitive ſubjects who had eſcaped from the juſtice of Attila. The refuſal of the Byzantine court, in the year 441, was the ſignal of war; and the Mæſians at firſt applauded the generous firmneſs of their ſovereign. But they were ſoon intimidated by the deſtruction of Viminiacum and the adjacent towns; and the people was perſuaded to adopt the convenient maxim, that a private citizen, however innocent or reſpectable, may be juſtly ſacrificed to the ſafety of his country. The biſhop of Margus, who did not poſſeſs the ſpirit of a martyr, reſolved to prevent the deſigns which he ſuſpected. He boldly treated with the princes of the Huns; ſecured, by ſolemn oaths, his pardon and reward; poſted a numerous detachment of barbarians, in ſilent ambuſh, on the banks of the Danube; and, at the appointed hour, opened, with his own hand, the gates of his epiſcopal city. This advantage, which had been obtained by treachery, ſerved as a prelude to more honourable and deciſive victories. The Illyrian frontier was covered by a line of caſtles and fortreſſes; and though the greateſt part of them conſiſted only of a ſingle tower with a ſmall garriſon, they were commonly ſufficient to repel or to intercept the inroads of an enemy who was ignorant of the art, and impatient of the delay, of a regular ſiege. But theſe ſlight obſtacles were inſtantly ſwept away by the inundation of the Huns. They deſtroyed with fire and ſword the populous cities of Sirmium and Singidunum, of Ratiaria and Marcianapolis, of Naiſſus and Sardica; where every circumſtance, in the diſcipline of the people, and the conſtruction of the buildings, had been gradually adapted to the ſole purpoſe of defence. The whole breadth of Europe, as it extends above five hundred miles from the Euxine to the Adriatic, was at once invaded and occupied and deſolated by the myriads of barbarians whom Attila let into the field. The public danger and diſtreſs could not, however, provoke Theodoſius to interrupt his amuſements, or to appear in perſon at the head of the Roman legions. But the troops which had been ſent againſt Genſeric were haſtily recalled from Sicily; the garriſons on the ſide of Perſia were exhauſted; and a military force was collected in Europe, formidable by their arms and numbers, if the generals had underſtood the ſcience of command, and their ſoldiers the duty of obedience. The armies of the eaſtern empire were vanquiſhed in three ſucceſſive engagements; and the progreſs of Attila may be traced by the fields of battle. The two former, on the banks of the Utus, and under the walls of Marcianapolis, were fought in the extenſive plains between the Danube and Mount Hæmus. As the Romans were preſſed by a victorious enemy, they gradually and unſkilfully retired towards the Cherſoneſus of Thrace; and that narrow peninſula, the laſt extremity of the land, was marked by their third and irreparable defeat. By the deſtruction of this army, Attila acquired the indiſputable poſſeſſion of the field. From the Helleſpont to Thermopylæ, and the ſuburbs of Conſtantinople, he ravaged without reſiſtance and without mercy the provinces of Thrace and Macedonia. Heraclea and Adrianople might, perhaps, eſcape this dreadful irruption of the Huns; but the words, the moſt expreſſive of total extirpation and eraſure, are applied to the calamities which they inflicted on ſeventy cities of the eaſtern empire. Theodoſius, his court, and the unwarlike people, were protected by the walls of Conſtantinople; but thoſe walls had been ſhaken by a recent earthquake, and the fall of fifty-eight towers had opened a large and tremendous breach. The damage indeed was ſpeedily repaired; but this accident was aggravaed by a ſuperſtitious fear, that Heaven itſelf had delivered the imperial city to the ſhepherds of Scythia, who were ſtrangers to the laws, the language, and the religion, of the Romans.

Theodoſius was now reduced to ſolicit the clemency of Attila, who imperiouſly dictated theſe harſh and humiliating conditions of peace. 1. The emperor of the eaſt reſigned, by an expreſs convention, an extenſive and important territory, which ſtretched along the ſouthern banks of the Danube, from Singidunum or Belgrade, as far as Novæ, in the dioceſe of Thraee. The breadth was defined by the vague computation of fifteen days journey; but, from the propoſal of Attila, to remove the ſituation of the national market, it ſoon appeared that he comprehended the ruined city of Naiſſus within the limits of his dominions. 2. The king of the Huns required and obtained, that his tribute or ſubſidy ſhould be augmented from ſeven hundred pounds of gold to the annual ſum of two thouſand one hundred; and he ſtipulated the immediate payment of ſix thouſand pounds of gold to defray the expences, or to expiate the guilt, of the war. 3. The king of the Huns appears to have eſtabliſhed, as a principle of national juriſprudence, that he could never loſe the property which he had once acquired, in the perſons who had yielded either a voluntary or reluctant ſubmiſſion to his authority. From this principle he concluded, and the concluſions of Attila were irrevocable laws, that the Huns who had been taken priſoners in war ſhould be releaſed without delay, and without ranſom; that every Roman captive who had preſumed to eſcape, ſhould purchaſe his right to freedom at the price of twelve pieces of gold; and that all the barbarians who had deſerted the ſtandard of Attila ſhould be delivered up without any promiſe or ſtipulation of pardon. In the execution of this cruel and ignominious treaty, the imperial officers were forced to maſſacre ſeveral loyal and noble deſerters who refuſed to devote themſelves to certain death; and the Romans forfeited all reaſonable claims to the friendſhip of any Scythian people by this public confeſſion, that they were deſtitute either of faith or power to protect the ſuppliants who had embraced the throne of Theodoſius.

The Byzantine court was now to be inſulted by five or ſix ſucceſſive embaſſies, and the fears and alarms of Theodoſius kept conſtantly awake by the dread of further hoſtilities. The miniſters of Attila were uniformly inſtructed to preſs the immediate execution of the laſt treaty; to produce the names of fugitives and deſerters who were ſtill protected by the empire; and to declare, with ſeeming moderation, that, unleſs their ſovereign obtained complete ſatiſfaction, it would be impoſſible for him, were it even his wiſh, to check the reſentment of his warlike tribes. Beſides the motives of pride and intereſt which might prompt the king of the Huns to continue this train of negociation, he was influenced by the leſs honourable view of enriching his favourites at the expence of his enemies. The imperial treaſury was exhauſted to procure the friendly offices of the ambaſſadors and their principal attendants, whoſe favourable report might conduce to the maintenance of peace. The barbarian monarch was flattered by the liberal reception of his miniſters; and he condeſcended to promiſe that he would advance as far as Sardica to receive any miniſters to adjuſt their differences, who had been inveſted with the conſular dignity. Maximin, whoſe abilities had been long exerciſed in civil and military employments, accepted with reluctance the troubleſome commiſſion. His friend, the hiſtorian Priſcus, alſo embraced the opportunity of obſerving the barbarian hero in the domeſtic ſcenes of life; but the ſecret of the embaſſy, a fatal and guilty ſecret, was entruſted only to the interpreter Vigilius. The two laſt ambaſſadors of the Huns, Oreſtes, a noble ſubject of the Pannonian province, and Edecon, a valiant chieftain of the tribe of the Scyrii, returned at the ſame time from Conſtantinople to the royal camp. Their obſcure names were afterwards illuſtrated by the extraordinary fortune and the contraſt of their ſons; the two ſervants of Attila became the fathers of the laſt Roman emperor of the Weſt, and of the firſt barbarian king of Italy.

The ambaſſadors of Theodoſius entered upon their embaſſy A. D. 448, and made their firſt halt at Sardica, at the diſtance of three hundred and fifty miles, or thirteen days journey, from Conſtantinople; but the king of the Huns condeſcended not to meet them. They travelled next about one hundred miles, from Sardica to Naiſſus. That flouriſhing city, which had given birth to the great Conſtantine, was levelled with the ground, the inhabitants were deſtroyed or diſperſed, and the appearance of ſome ſick perſons, who were ſtill permitted to exiſt among the ruins of the churches, ſerved only to increaſe the horror of the proſpect. The ſurface of the country was covered with the bones of the ſlain; and the ambaſſadors, who directed their courſe to the north-weſt, were obliged to paſs the hills of modern Servia before they deſcended into the flat and marſhy grounds which are terminated by the Danube. The miniſters of Theodoſius were ſafely landed on the oppoſite bank; and their barbarian aſſociates immediately haſtened to the camp of Attila, which was equally prepared for the amuſements of hunting or of war. No ſooner had Maximin advanced about two miles from the Danube, than he began to experience the faſtidious inſolence of the conqueror. He was ſternly forbid to pitch his tents in a pleaſant valley, leſt he ſhould infringe the diſtant awe that was due to the royal manſion. The miniſters of Attila preſſed him to communicate the buſineſs and the inſtructions which he reſerved for the ear of their ſovereign. When Maximin temperately urged the contrary practice of nations, he was ſtill more confounded to find that the reſolutions of the ſacred conſiſtory at Conſtantinople had been treacherouſly diſcloſed to the public enemy. On his refuſal to comply with ſuch ignominious terms, the imperial envoy was commanded inſtantly to depart; the order was recalled; it was again repeated; and the Huns renewed their ineffectual attempts to ſubdue the patient firmneſs of Maximin. At length, by the interceſſion of Scotta the brother of Onegeſius, whoſe friendſhip had been purchaſed by a liberal gift, he was admitted to the royal preſence; but, inſtead of obtaining a deciſive anſwer, he was compelled to undertake a remote journey towards the north, that Attila might enjoy the proud ſatiſfaction of receiving in the ſame camp the ambaſſadors of the eaſtern and weſtern empires. His journey was regulated by the guides, who obliged him to halt, to haſten his march, or to deviate from the common road, as it beſt ſuited the conveninence of the king. The Romans, who thus traverſed the plains of Hungary, ſuppoſe that they paſſed ſeveral navigable rivers either in canoes or portable boats; but there is reaſon to ſuſpect that the winding ſtream of the Teyſs, or Tibiſcus, might preſent itſelf in different places under different names. From the contiguous villages they received a plentiful and regular ſupply of proviſions, and were relieved by the gentleneſs and hoſpitality of the ſame barbarians ſo terrible and ſo mercileſs in war. The ambaſſadors had encamped on the edge of a large moraſs. A violent tempeſt of wind and rain, of thunder and lightning, overturned their tents, immerſed their baggage and furniture in the water, and ſcattered their retinue, who wandered in the darkneſs of the night, uncertain of their road, and apprehenſive of ſome unknown danger, till they awakened by their cries the inhabitants of a neighbouring village, the property of the widow of the late king Bleda. A bright illumination, and, in a few moments, a comfortable fire of reeds, was kindled by their officious benevolence; the wants and even the deſires of the Romans were liberally ſatisfied; and they ſeem to have been embarraſſed by the ſingular politeneſs of Bleda's widow, who added to her other favours the gift, or at leaſt the loan, of a ſufficient number of beautiful and obſequious damſels. The ſunſhine of the ſucceeding day was dedicated to repoſe; to collect and dry the baggage, and to the refreſhment of the men and horſes; but, in the evening before they purſued their journey, the ambaſſadors expreſſed their gratitude to the bounteous lady of the village by a very acceptable preſent of ſilver cups, red fleeces, dried fruits, and Indian pepper. Soon after this adventure, they rejoined the march of Attila, from whom they had been ſeparated about ſix days; and ſlowly proceeded to the capital of an empire which did not contain, in the ſpace of ſeveral thouſand miles, a ſingle city.

As far as we may aſcertain the vague and obſcure geography of Priſcus, this capital appears to have been ſeated between the Danube, the Teyſs, and the Carpathian hills, in the plains of Upper Hungary, and moſt probably in the neighbourhood of Jazberin, Agria, or Tokay. In its origin it could be no more than an accidental camp, which, by the long and frequent reſidence of Attila, had inſenſibly ſwelled into a huge village for the reception of his court, of the troops who followed his perſon, and of the various multitude of idle or induſtrious ſlaves and retainers. The baths were the only edifices of ſtone; the materials had been tranſported from Pannonia; and, ſince the adjacent country was deſtitute even of large timber, it may be preſumed that the meaner habitations of the royal village conſiſted of ſtraw, of mud, or of canvas. The wooden houſes of the more illuſtrious Huns were built and adorned with rude magnificence, according to the rank, the fortune, or the taſte, of the proprietors. They ſeem to have been diſtributed with ſome degree of order and ſymmetry; and each ſpot became more honourable as it approached the perſon of the ſovereign. The palace of Attila, which ſurpaſſed all other houſes in his dominions, was built entirely of wood, and covered an ample ſpace of ground. The outward encloſure was a lofty wall or palliſade of ſmooth ſquare timber, interſected with high towers, but intended rather for ornament than defence. This wall, which ſeems to have encircled the declivity of a hill, comprehended a great variety of wooden edifices adapted to the uſes of royalty. A ſeparate houſe was aſſigned to each of the numerous wives of Attila; and, inſtead of the rigid and illiberal confinement impoſed by Aſiatic jealouſy, they politely admitted the Roman ambaſſadors to their preſence, their table, and even to the freedom of an innocent embrace. When Maximin offered his preſents to Cerca, the principal queen, he admired the ſingular architecture of her manſion, the height of the round columns, the ſize and beauty of the wood, which was curiouſly ſhaped, or turned, or poliſhed, or carved; and his attentive eye was able to diſcover ſome taſte in the ornaments, and ſome regularity in the proportions. After paſſing through the guards who watched before the gate, the ambaſſadors were introduced into the private apartment of Cerca. The wife of Attila received their viſit ſitting, or rather lying, on a ſoft couch; the floor was covered with a carpet; the domeſtics formed a circle round the queen; and her damſels, ſeated on the ground, were employed in working the variegated embroidery which adorned the dreſs of the barbaric warriors. The Huns were ambitious of diſplaying thoſe riches which were the fruit and evidence of their victories; the trappings of their horſes, their ſwords, and even their ſhoes, were ſtudded with gold and precious ſtones; and their tables were profuſely ſpread with plates, and goblets, and vaſes, of gold and ſilver, which had been faſhioned by the labour of Grecian artiſts. The monarch alone aſſumed the ſuperior pride of ſtill adhering to the ſimplicity of his Scythian anceſtors. The dreſs of Attila, his arms, and the furniture of his horſe, were plain, without ornament, and of a ſingle colour. The royal table was ſerved in wooden cups and platters; fleſh was his only food; and the conqueror of the north never taſted the luxury of bread.

When Attila firſt gave audience to the Roman ambaſſadors on the banks of the Danube, his tent was encompaſſed with a formidable guard. The monarch himſelf was ſeated in a wooden chair. His ſtern countenance, angry geſtures, and impatient tone, aſtoniſhed the firmneſs of Maximin; but Vigilius had more reaſon to tremble, ſince he diſtinctly underſtood the menace, that, if Attila did not reſpect the law of nations, he would nail the deceitful interpreter to a croſs, and leave his body to the vultures. The barbarian condeſcended, by producing an accurate liſt, to expoſe the bold falſehood of Vigilius, who had affirmed that no more than ſeventeen deſerters could be found. But he arrogantly declared, that he apprehended only the diſgrace of contending with his fugitive ſlaves; ſince he deſpiſed their impotent efforts to defend the provinces which Theodoſius had entruſted to their arms. For what fortreſs (added Attila), "what city in the wide extent of the Roman empire, can hope to exiſt ſecure and impregnable, if it is our pleaſure that it ſhould be erazed from the earth?" He diſmiſſed, however, the interpreter, who returned to Conſtantinople with his peremptory demand of more complete reſtitution and a more ſplendid embaſſy. His anger gradually ſubſided; and his domeſtic ſatisfaction, in a marriage which he celebrated on the road with the daughter of Eſlam, might perhaps contribute to mollify the native fierceneſs of his temper. The entrance of Attila into the royal village was marked by a very ſingular ceremony. A numerous troop of women came out to meet their hero and their king. They marched before him, diſtributed into long and regular files; the intervals between the files were filled by white veils of thin linen, which the women on either ſide bore aloft in their hands, and which formed a canopy for a chorus of young virgins, who chaunted hymns and ſongs in the Scythian language. The wife of his favourite Onegeſius, with a train of female attendants, ſaluted Attila at the door of her own houſe on his way to the palace; and offered, according to the cuſtom of the country, her reſpectful homage by intreating him to taſte the wine and meat which ſhe had prepared for his reception. As ſoon as the monarch had graciouſly accepted her hoſpitable gift, his domeſtics lifted a ſmall ſilver table to a convenient height as he ſat on horſeback; and Attila, when he had touched the goblet with his lips, again ſaluted the wife of Onegeſius, and continued his march. During his reſidence at the ſeat of empire, his hours were not waſted in the recluſe idleneſs of a ſeraglio; and the king of the Huns could maintain his ſuperior dignity without concealing his perſon from the public view. He frequently aſſembled his council, and gave audience to the ambaſſadors of the nations; and his people might appeal to the ſupreme tribunal which he held at ſtated times, and according to the eaſtern cuſtom, before the principal gate of his wooden palace.

The Romans, both of the eaſt and weſt, were twice invited to the banquets where Attila feaſted with the princes and nobles of Scythia. Maximin and his colleagues were ſtopped on the threſhold, till they had made a devout libation to the health and proſperity of the king of the Huns; and were conducted after this ceremony to their reſpective ſeats in a ſpacious hall. The royal table and couch, covered with carpets and fine linen, was raiſed by ſeveral ſteps in the midſt of the hall; and a ſon, an uncle, or perhaps a favourite king, were admitted to ſhare the ſimple and homely repaſt of Attila. Two lines of ſmall tables, each of which contained three or four gueſts, were ranged in order on either hand: the right was eſteemed the moſt honourable, but the Romans ingenuouſly confeſs that they were placed on the left; and that Beric, an unknown chieftain, moſt probably of the Gothic race, preceded the repreſentatives of Theodoſius and Valentinian. The barbarian monarch received from his cup-bearer a goblet filled with wine, and courteouſly drank to the health of the moſt diſtinguiſhed gueſt, who roſe from his ſeat, and expreſſed in the ſame manner his loyal and reſpectful vows. This ceremony was ſucceſſively performed for all, or at leaſt for the illuſtrious perſons of the aſſembly; and a conſiderable time muſt have been conſumed, ſince it was repeated as each courſe of ſervice was placed on the table. But the wine ſtill remained after the meat had been removed; and the Huns continued to indulge their intemperance long after the ſober and decent ambaſſadors of the two empires had withdrawn themſelves from the nocturnal banquet. Yet before they retired they enjoyed a ſingular opportunity of obſerving the manners of the nation in their convivial amuſements. Two Scythians ſtood before the couch of Attila, and recited the verſes which they had compoſed to celebrate his valour and his victories. A profound ſilence prevailed in the hall; and the attention of the gueſts was captivated by the vocal harmony which revived and perpetuated the memory of their own exploits; a martial ardour flaſhed from the eyes of the warriors, who were impatient for battle; and the tears of the old men expreſſed their generous deſpair that they could no longer partake the danger and glory of the field. This entertainment, which might be conſidered as a ſchool of military virtue, was ſucceeded by a farce that debaſed the dignity of human nature. A Mooriſh and a Scythian buffoon ſucceſſively excited the mirth of the rude ſpectators by their deformed figure, ridiculous dreſs, antic geſtures, abſurd ſpeeches, and the ſtrange unintelligible confuſion of the Latin, the Gothic, and Hunnic, languages; and the hall reſounded with loud aud licentious peals of laughter. In the midſt of this intemperate riot, Attila alone, without a change of countenance, maintained his ſtedfaſt and inflexible gravity; which was never relaxed except on the entrance of Irnac, the youngeſt of his ſons; he embraced the boy with a ſmile of paternal tenderneſs, gently pinched him by the cheek, and betrayed a partial affection, which was juſtified by the aſſurance of his prophets that Irnac would be the future ſupport of his family and empire. Two days afterwards, the ambaſſadors received a ſecond invitation; and they had reaſon to praiſe the politeneſs as well as the hoſpitality of Attila. On the third day the ambaſſadors were diſmiſſed; the freedom of ſeveral captives was granted for a moderate ranſom to their preſſing entreaties; and, beſides the royal preſents, they were permitted to accept from each of the Scythian nobles, the uſeful gift of a horſe. Maximin returned by the ſame road to Conſtantinople; and, though he was involved in an accidental diſpute with Beric, the new ambaſſador of Attila, he flattered himſelf that he had contributed, by the laborious journey, to confirm the peace and alliance of the two nations.

But the Roman ambaſſador was ignorant of the treacherous deſign which had been concealed under the maſk of the public faith. The ſurpriſe and ſatisfaction of Edecon, when he contemplated the ſplendour of Conſtantinople, had encouraged the interpreter Vigilius to procure for him a ſecret interview with the eunuch Chryſaphius, who governed the emperor and the empire. After ſome previous converſation, and a mutual oath of ſecrecy, the eunuch, who had not from his own feelings or experience imbibed any exalted notions of miniſterial virtue, ventured to propoſe the death of Attila as an important ſervice, by which Edecon might deſerve a liberal ſhare of the wealth and luxury which he had admired. The ambaſſador of the Huns liſtened to the tempting offer; and profeſſed with apparent zeal his ability as well as readineſs to execute the bloody deed: the deſign was communicated to the maſter of the offices, and the devout Theodoſius conſented to the aſſaſſination of his invincible enemy. But this perfidious conſpiracy was defeated by the diſſimulation or the repentance of Edecon; and, though he might exaggerate his inward abhorrence for the treaſon which he ſeemed to approve, he dexterouſly aſſumed the merit of an early and voluntary confeſſion. If we now review the embaſſy of Maximin, and the behaviour of Attila, we muſt applaud the barbarian who reſpected the laws of hoſpitality, and generouſly entertained and diſmiſſed the miniſter of a prince who had conſpired againſt his life. But the raſhneſs of Vigilius will appear ſtill more extraordinary, ſince he returned conſcious of his guilt and danger to the royal camp, accompanied by his ſon, and carrying with him a weighty purſe of gold, which the favourite eunuch had furniſhed to ſatiſfy the demands of Edecon, and to corrupt the fidelity of the guards. The interpreter was inſtantly ſeized and dragged before the tribunal of Attila, where he aſſerted his innocence with ſpecious firmneſs, till the threat of inflicting inſtant death on his ſon extorted from him a ſincere diſcovery of the criminal tranſaction. Under the name of ranſom or confiſcation, the rapacious king of the Huns accepted two hundred pounds of gold for the life of a traitor whom he diſdained to puniſh. He pointed his juſt indignation againſt a nobler object. His ambaſſadors Eſlaw and Oreſtes were immediately diſpatched to Conſtantinople, with a peremptory inſtruction which it was much ſafer for them to execute than to diſobey. They boldly entered the imperial preſence, with the fatal purſe hanging down from the neck of Oreſtes; who interrogated the eunuch Chryſaphius, as he ſtood beſide the throne, whether he recogniſed the evidence of his guilt. But the office of reproof was reſerved for the ſuperior dignity of his colleague Eſlaw, who gravely addreſſed the emperor of the eaſt in the following words: "Theodoſius is the ſon of an illuſtrious and reſpectable parent; Attila likewiſe is deſcended from a noble race; and *he* has ſupported by his actions the dignity which he inherited from his father Mundzuk. But Theodoſius has forfeited his paternal honours; and, by conſenting to pay tribute has degraded himſelf to the condition of a ſlave. It is therefore juſt that he ſhould reverence the man whom fortune and merit have placed above him, inſtead of attempting like a wicked ſlave clandeſtinely to conſpire againſt his maſter." The ſon of Arcadius, who was accuſtomed only to the voice of flattery, heard with aſtoniſhment the ſevere language of truth; he bluſhed and trembled; nor did he preſume directly to refuſe the head of Chryſaphius, which Eſlaw and Oreſtes were inſtructed to demand. A ſolemn embaſſy, armed with full powers and magnificent gifts, was haſtily ſent to deprecate the wrath of Attila, and his pride was gratified by the choice of Nomius and Anatolius, two miniſters of conſular or patrician rank, of whom the one was great treaſurer, and the other was maſter-general of the armies of the eaſt. He condeſcended to meet theſe ambaſſadors on the banks of the river Drenco; and, though he at firſt affected a ſtern and haughty demeanor, his anger was inſenſibly mollified by their eloquence and liberality. He condeſcended to pardon the emperor, the eunuch, and the interpreter, bound himſelf by an oath to obſerve the conditions of the peace, releaſed a great number of captives, abandoned the fugitives and deſerters to their fate, and reſigned a large territory to the ſouth of the Danube, which he had exhauſted of its wealth and inhabitants. The emperor Theodoſius did not long ſurvive this humiliating event, but being thrown from his horſe as he was hunting near Conſtantinople, July 28, 450, he died in conſequence of the fall.

Upon the advancement of Marcian to the imperial throne of the eaſtern Roman empire, Attila diſpatched to him his ambaſſadors, to preſs in a peremptory manner the payment of the annual tribute. The new emperor ſignified to the barbarians, that they they muſt no longer inſult the majeſty of Rome by the mention of a tribute, that he was diſpoſed to reward with liberality the friendſhip of his allies, but that if they preſumed to violate the public peace they ſhould feel that he poſſeſſed troops and arms and reſolution to repel their attacks. The ſame language even in the camp of the Huns was uſed by his ambaſſador Apollonius, whoſe bold refuſal to deliver the preſents till he had been admitted to a perſonal interview, diſplayed a ſenſe of dignity and a contempt of danger which Attila was not prepared to expect from the degenerate Romans. He threatened to chaſtiſe the raſh ſucceſſor of Theodoſius, but he heſitated whether he ſhould firſt direct his invincible arms againſt the eaſtern or the weſtern empire. While mankind awaited his deciſion with awful ſuſpenſe, he ſent an equal defiance to the courts of Ravenna and Conſtantinople, and his miniſters ſaluted the two emperors with the ſame haughty declaration. "Attila, *my* lord and *thy* lord, commands thee to provide a palace for his immediate reception." But as the barbarian deſpiſed, or affected to deſpiſe, the Romans of the eaſt, whom he had ſo often vanquiſhed, he declared his reſolution of ſuſpending the eaſy conqueſt till he had achieved a more glorious and important enterpriſe. In the memorable invaſions of Gaul and Italy, the Huns were naturally attracted by the wealth and fertility of thoſe provinces; but the particular motives of Attila can only be explained by the ſtate of the weſtern empire under the reign of Valentinian and the adminiſtration of Ætius.

From a principle of intereſt as well as gratitude, Ætius had aſſiduouſly cultivated the alliance of the Huns, among whom he had reſided as a hoſtage, and had familiarly converſed with Attila himſelf. Thus theſe two famous antagoniſts appear to have been connected by a perſonal and military friendſhip, which had been confirmed by mutual gifts, frequent embaſſies, and the education of Carpillo, the ſon of Ætius, in the camp of Attila.

Under ſuch circumſtances theſe two hoſtile generals prepared to meet in the plains of Gaul, and the face of the country was ſoon covered by the adverſe armies. The kings and nations of Germany and Scythia, from the Volga to the Danube, obeyed the warlike ſummons of Attila. From the royal reſidence in the plains of Hungary, his ſtandard moved towards the weſt; and, after a march of ſeven or eight hundred miles, he reached the conflux of the Rhine and the Necker, where he was joined by the Franks who adhered to his ally, the elder of the ſons of Clodion. A troop of light barbarians, who roamed in queſt of plunder, might chuſe the winter for the convenience of paſſing the river on the ice; but the innumerable cavalry of the Huns required ſuch plenty of forage and proviſions, as could be procured only in a milder ſeaſon; the Hercynian foreſt ſupplied materials for a bridge of boats; and the hoſtile myriads were poured with reſiſtleſs violence into the Belgic provinces. The conſternation of Gaul was univerſal; and its devoted cities were beſieged and ſtormed by the Huns, who practiſed, in the example of Metz, their inexorable maxims of war. They involved in a promiſcuous maſſacre the prieſts who ſerved at the altar, and the infants who, in the hour of danger, had been providently baptized by the biſhop; the flouriſhing city was delivered to the flames, and a ſolitary chapel of St. Stephen marked the place where it formerly ſtood. From the Rhine and the Moſelle, Attila advanced into the heart of Gaul; croſſed the Seine at Auxerre; and, after a long and laborious march, fixed his camp under the walls of Orleans. He was deſirous of ſecuring his conqueſts by the poſſeſſion of an advantageous poſt, which commanded the paſſage of the Loire; and he depended on the ſecret invitation of Sangiban, king of the Alani, who had promiſed to betray the city and to revolt from the ſervice of the empire. But this treacherous conſpiracy was detected and diſappointed; Orleans had been ſtrengthened with recent fortifications; and the aſſaults of the Huns were vigorouſly repelled by the faithful valour of the ſoldiers who defended the place. The paſtoral diligence of Anianus, a biſhop of conſummate prudence, exhauſted every art of religious policy to ſupport their courage till the arrival of the expected ſuccours. After an obſtinate ſiege the walls were ſhaken by the battering-rams; the Huns had already occupied the ſuburbs; and the people who were incapable of bearing arms lay proſtrate in prayer. Anianus, who anxiouſly counted the days and hours, diſpatched a truſty meſſenger to obſerve from the rampart the face of the diſtant country. He returned twice without any intelligence that could inſpire hope or comfort; but in his third report he mentioned a ſmall cloud which he had faintly deſcried at the extremity of the horizon. "It is the aid of God," exclaimed the biſhop in a tone of pious confidence; and the whole multitude repeated after him, "It is the aid of God." The remote object on which every eye was fixed became each moment larger, and more diſtinct; the Roman and Gothic banners were gradually perceived; and a favourable wind, blowing aſide the duſt, diſcovered in deep array the impatient Roman legions under Ætius, and the undaunted Viſigoths under their king Theodoric, with their independent allies, the Læti, the Armoricans, the Breones, the Saxons, the Burgundians, the Sarmatians, or Alani, the Ripuarians, and the Franks, who followed Meroveus as their lawful prince. Such was the various army which, under the conduct of Ætius and Theodoric, advanced by rapid marches to relieve Orleans, and to give battle to the innumerable hoſt of Attila. On their approach the king of the Huns immediately raiſed the ſiege, repaſſed the Seine, and expected the enemy in the plains of Châlons, where that bloody and ever-memorable battle took place in which Attila was defeated, as already recited under the article GOTHS, vol. viii. p. 723, to which we beg to refer the reader.

But neither the ſpirit nor the forces nor the reputation of Attila, were impaired by the failure of the Gallic expedition. He had on a former occaſion demanded the princeſs Honoria in marriage as a pledge of future friendſhip and good underſtanding; but this unnatural alliance was eluded by the innocent artifice of pretended indiſpoſition. Now however he imperiouſly repeated his demand of the royal princeſs and her patrimonial treaſures. The demand was again rejected or eluded; and the indignant lover immediately took the field, paſſed the Alps, invaded Italy, and beſieged Aquileia with an innumerable hoſt, A. D. 452. The walls of the city were aſſaulted by a formidable train of battering-rams, moveable turrets, and engines that threw ſtones, darts, and fire; and the monarch of the Huns employed the forcible impulſe of hope, fear, emulation, and intereſt, to ſubvert the only barrier which delayed the conqueſt of Italy. Aquileia was at that period one of the richeſt, the moſt populous, and the ſtrongeſt, of the maritime cities of the Adriatic coaſt. Three months were conſumed without effect in the ſiege, till the want of proviſions and the clamours of his army compelled Attila to relinquiſh the enterpriſe, and reluctantly to iſſue his orders that the troops ſhould ſtrike their tents the next morning and begin their retreat. But, as he rode round the walls, penſive, angry, and diſappointed, he obſerved a ſtork preparing to leave her neſt in one of the towers, and to fly with her infant family towards the country. He ſeized with the ready penetration of a ſtateſman this trifling incident which chance had offered to ſuperſtition; and exclaimed, in a loud and cheerful tone, that ſuch a domeſtic bird, ſo conſtantly attached to human ſociety, would never have abandoned her ancient ſeats unleſs thoſe towers had been devoted to impending ruin. The favourable omen inſpired an aſſurance of victory; the ſiege was proſecuted with freſh vigour; a large breach was made in the part of the wall from whence the ſtork had taken her flight; the Huns mounted to the aſſault with irreſiſtible fury; and the ſucceeding generation could ſcarcely diſcover the ruins of Aquileia.

After this dreadful chaſtiſement, Attila purſued his march; and, as he paſſed, the cities of Altinum, Corcordia, and Padua, were reduced into heaps of ſtones and aſhes. The inland towns, Vicenza, Verona, and Bergamo, were expoſed to the rapacious cruelty of the Huns. Milan and Pavia ſubmitted without reſiſtance to the loſs of their wealth, and applauded the unuſual clemency which preſerved from the flames the public as well as private buildings, and ſpared the lives of the captive multitude. The popular traditions of Comum, Turin, or Modena, may juſtly be ſuſpected; yet they concur with more authentic evidence to prove that Attila ſpread his ravages over the plains of modern Lombardy, which are divided by the Po, and bounded by the Alps and Apennine. When he took poſſeſſion of the royal palace of Milan, he was ſurpriſed and offended at the ſight of a picture which repreſented the Cæſars ſeated on their throne, and the princes of Scythia proſtrate at their feet. The revenge which Attila inflicted on this monument of Roman vanity was harmleſs and ingenious. He commanded a painter to reverſe the figures and the attitudes; and the emperors were delineated on the ſame canvas approaching in a ſuppliant poſture to empty their bags of tributary gold before the throne of the Scythian monarch.

It is a ſaying worthy of the ferocious pride of Attila, that the graſs never grew on the ſpot where his horſe had trod. Yet the ſavage deſtroyer undeſignedly laid the foundations of a republic, which revived in the feudal ſtate of Europe the art and ſpirit of commercial induſtry. The celebrated name of Venice, or Venetia, was formerly diffuſed over a large and fertile province of Italy, from the confines of Pannonia to the river Addua, and from the Po to the Rhætian and Julian Alps. Before the irruption of the Huns, fifty Venetian cities flouriſhed in peace and proſperity. Aquileia was placed in the moſt conſpicuous ſtation: but the ancient dignity of Padua was ſupported by agriculture and manufactures; and the property of five hundred citizens, who were entitled to the equeſtrian rank, muſt have amounted at the ſtricteſt computation to one million ſeven hundred thouſand pounds. Many families of Aquileia, Padua, and the adjacent towns, who fled from the ſword of the Huns, found a ſafe though obſcure refuge in the neighbouring iſlands. At the extremity of the Gulf where the Adriatic feebly imitates the tides of the ocean, near a hundred ſmall iſlands are ſeparated by ſhallow water from the continent, and protected from the waves by ſeveral long ſlips of land which admit the entrance of veſſels through ſome ſecret and narrow channels. Till the middle of the fifth century theſe ſequeſtered ſpots remained without cultivation, and almoſt without a name. But the manners of the Venetian fugitives, their arts and their government, were gradually formed by their new ſituation; from which they were compared to water-fowl who had fixed their neſts on the boſom of the waves. Thus was formed the once-famous republic of Venice, during the period of the Oſtrogoth kingdom of Italy.

Amidſt the general conſternation Ætius alone was incapable of fear; but it was impoſſible that he ſhould achieve alone and unaſſiſted any military exploits worthy of his former renown. The barbarians who had aſſiſted him in defending Gaul refuſed to march to the relief of Italy; and the ſuccours promiſed by the eaſtern emperor were diſtant and doubtful. Since Ætius at the head of his domeſtic troops ſtill maintained the field, and haraſſed or retarded the march of Attila, he never ſhowed himſelf more truly great than at the time when his conduct was blamed by an ignorant and ungrateful people. If the mind of the emperor Valentinian had been ſuſceptible of any generous ſentiments, he would have choſen ſuch a general for his example and his guide But the timid grandſon of Theodoſius, inſtead of ſharing the dangers, eſcaped from the ſound, of war: and his haſty retreat from Ravenna to Rome, from an impregnable fortreſs to an open capital, betrayed his ſecret intention of abandoning Italy as ſoon as the danger ſhould approach his imperial perſon. This ſhameful abdication was ſuſpended however by the ſpirit of doubt and delay, which commonly adheres to puſillanimous counſels, and ſometimes corrects their pernicious tendency. The weſtern emperor, with the ſenate and people of Rome, embraced the more ſalutary reſolution of deprecating, by a ſolemn and ſuppliant embaſſy, the wrath of Attila. This important commiſſion was accepted by Avienus, who from his birth and riches, his conſular dignity, and perſonal abilities, held the firſt rank in the Roman ſenate. The ſpecious character of Avienus was admirably qualified to conduct a negociation either of public or private intereſt; his colleague Trigetius had exerciſed the Prætorian præfecture of Italy; and Leo, biſhop of Rome, conſented to expoſe his life for the ſafety of his flock. The Roman ambaſſadors were introduced to the tent of Attila as he lay encamped at the place where the ſlow-winding Mincius is loſt in the foaming waves of the lake Benacus, and trampled with his Scythian cavalry the farms of Catullus and Virgil. The barbarian monarch liſtened with favourable and even reſpectful attention; and the deliverance of Italy was purchaſed by the immenſe ranſom or dowry of the princeſs Honoria. The ſtate of his army might facilitate the treaty, and haſten his retreat. Their martial ſpirit was relaxed by the wealth and indolence of a warm climate. The ſhepherds of the north, whoſe ordinary food conſiſted of milk and raw fleſh, indulged themſelves too freely in the uſe of wine; and the progreſs of diſeaſe revenged in ſome meaſure the injuries of the Italians. When Attila declared his reſolution of carrying his victorious arms to the gates of Rome, he was admoniſhed by his friends, as well as by his enemies, that Alaric had not long ſurvived the conqueſt of the eternal city. His mind, ſuperior to real danger, was aſſaulted by imaginary terrors; nor could he eſcape the influence of ſuperſtition, which had ſo often been ſubſervient to his deſigns. The preſſing eloquence of Leo, his majeſtic aſpect, and ſacerdotal robes, excited the veneration of Attila for the ſpiritual father of the Chriſtians. But, before the king of the Huns evacuated Italy, he threatened to return more dreadful and more implacable, if his bride, the princeſs Honoria, were not delivered to his ambaſſadors within the term ſtipulated by the treaty. Yet in the mean while Attila relieved his tender anxiety by adding a beautiful maid, whoſe name was Ildico, to the liſt of his innumerable wives. Their marriage was celebrated with barbaric pomp and feſtivity at his wooden palace beyond the Danube; and the monarch, oppreſſed with wine and ſleep, retired at a late hour from the banquet to the nuptial bed. His attendants continued to reſpect his pleaſures or his repoſe the greateſt part of the enſuing day, till the unuſual ſilence alarmed their fears and ſuſpicions; and, after attempting to awaken Attila by loud and repeated cries, they at length broke into the royal apartment. They found the trembling bride ſitting by the bed-ſide hiding her face with her veil, and lamenting her own danger as well as the death of the king, who had expired during the night. An artery had ſuddenly burſt; and, as Attila lay in a ſupine poſture, he was ſuffocated by a torrent of blood, which, inſtead of finding a paſſage through the noſtrils, regurgitated into the lungs and ſtomach. This memorable event happened in the year of Chriſt 453. His body was ſolemnly expoſed in the midſt of the plain under a ſilken pavilion; and the choſen ſquadrons of the Huns, wheeling round in meaſured evolutions, chaunted a funeral ſong to the memory of a hero, glorious in his life, invincible in his death, the father of his people, the ſcourge of his enemies, and the terror of the world. According to their national cuſtom, the barbarians cut off a part of their hair, gaſhed their faces with unſeemly wounds, and bewailed their valiant leader as he deſerved, not with the tears of women, but with the blood of warriors. The remains of Attila were incloſed within three coffins, of gold, of ſilver, and of iron, and privately buried in the night; the ſpoils of nations were thrown into his grave, the captives who had opened the ground were inhumanly maſſacred, and the ſame Huns who had indulged ſuch exceſſive grief feaſted with diſſolute and intemperate mirth about the recent ſepulchre of the king. For the character of this ſingular and celebrated barbarian chief, as drawn by Mr. Gibbon, ſee the article ATTILA, vol. ii. p. 548.

The revolution which now quickly ſubverted the empire of the Huns, ſerved the more to eſtabliſh the fame of Attila, whoſe genius alone could ſuſtain the huge and disjointed fabric. After his death the boldeſt chieftains aſpired to the rank of kings; the moſt powerful kings refuſed to acknowledge a ſuperior; and the numerous ſons, whom ſo many various mothers bore to the deceaſed monarch, divided and diſputed like a private inheritance the ſovereign command of the nations of Germany and Scythia. The bold Ardaric felt and repreſented the diſgrace of this ſervile partition; and his ſubjects, the warlike Gepidæ, with the Oſtrogoths under the conduct of three valiant brothers, encouraged their allies to vindicate the rights of freedom and royalty. In a bloody and deciſive conflict on the banks of the river Netad, in Pannonia, the lance of the Gepidæ, the ſword of the Goths, the arrows of the Huns, the Suevic infantry, the light arms of the Heruli, and the heavy weapons of the Alani, violently encountered each other to ſhare or defend the ſpoils; and the victory of Ardaric was accompanied with the ſlaughter of thirty thouſand of his enemies. Ellac, the eldeſt ſon of Attila, loſt his life and crown in the memorable battle of Netad; his early valour had raiſed him to the throne of the Acatzires, a Scythian people whom he ſubdued; and his father, who loved the ſuperior merit, would have envied the death of Ellac. His brother Dengiſich, with an army of Huns ſtill formidable in their flight and ruin, maintained his ground on the banks of the Danube; and the ſettlements of the tribes who had ſo bravely aſſerted their native freedom, were irregularly diſtributed according to the meaſure of their reſpective ſtrength. Surrounded and oppreſſed by the multitude of his father's ſlaves, the kingdom of Dengiſich was confined to the circle of his waggons; his deſperate courage urged him to invade the eaſtern empire; he fell in battle, and his head, ignominiouſly expoſed in the Hippodrome, exhibited a grateful ſpectacle to the people of Conſtantinople. Attila had fondly or ſuperſtitiouſly believed that Irnac, the youngeſt of his ſons, was deſtined to perpetuate the glories of his race. The character of that prince, who attempted to moderate the raſhneſs of his brother Dengiſich, was more ſuitable to the declining condition of the Huns; and Irnac, with his ſubject hords, retired into the heart of Leſſer Scythia. Thus the overgrown and unwieldy empire of Attila melted away like an evening ſhadow, after which his ſucceſſors eſtabliſhed the firſt dynaſty of kings in Hungary, and embraced the Chriſtian religion, as noticed under that article.

HUNS'DEN, [of hunꞇe, Sax. a hound, and ꝺune, a hill, q. d. the hounds town, becauſe formerly a place of great reſort for hunting.] A town in Herefordſhire.

*To* HUNT, *v. a.* [hunꞇian, Sax. from hunꝺ, a dog.] To chaſe wild animals.—Wilt thou *hunt* the prey for the lion, or fill the appetite of the young lions? *Job.* xxxviii. 39.—We ſhould ſingle every criminal out of the herd, and *hunt* him down, however formidable and overgrown; and, on the contrary, ſhelter and defend virtue. *Addiſon.*—To purſue; to follow cloſe.—Evil ſhall *hunt* the violent man to overthrow him. *Pſ.* cxl.—To ſearch for.—Not certainly affirming any thing, but by conferring of times and monuments, I do *hunt* out a probability. *Spenſer.*—To direct or manage hounds in the chace.—He *hunts* a pack of dogs better than any, and is famous for finding hares. *Addiſon.*

*To* HUNT, *v. n.* To follow the chaſe.—Eſau went to the field to *hunt* for veniſon. *Gen.* xxvii. 5.—To purſue or ſearch.—Very much of kin to this is the *hunting* after arguments to make good one ſide of a queſtion, and wholly to neglect and refuſe thoſe which favour the other ſide. *Locke.*

HUNT, *ſ.* A pack of hounds:

The common *hunt*, though from their rage reſtrain'd
By ſov'reign power, her company diſdain'd;
Grinn'd as they paſs'd. *Dryden.*

A chace:

The *hunt* is up, the morn is bright and gray;
The fields are fragrant, and the woods are green. *Shakeſp.*

Purſuit:

I've heard myſelf proclaim'd;
And by the happy hollow of a tree
Eſcap'd the *hunt.* *Shakeſpeare.*

HUNT (Jeremiah), a learned Engliſh nonconformiſt divine, born at London in 1678. After being inſtructed in grammar-learning, he was ſent to Edinburgh, and from thence removed to the univerſity of Leyden, where he ſtudied eccleſiaſtical hiſtory and ſacred geography under the celebrated Frederic Spanheim; and attended the lectures of profeſſor Perizonius upon univerſal hiſtory. He preached occaſionally while he was in Holland to a ſmall Engliſh congregation at Amſterdam. Upon his return to England, he officiated for three years as aſſiſtant preacher to a congregation at Tunſtead, near Norwich, where he was greatly eſteemed. He afterwards removed to London; where, in 1707, he was choſen paſtor of the congregation of Proteſtant Diſſenters at Pinner's-hall; and, he diſcharged the duties of that office, with great fidelity and reputation, for more than ſeven-and-thirty years. In 1729, the univerſity of Edinburgh, out of regard to his diſtinguiſhed merit, complimented him with the diploma of doctor of divinity. He died in 1744, in the ſixty-ſeventh year of his age. Excepting ſeveral ſingle ſermons, the only publication which he committed to the preſs, was a valuable Eſſay towards explaining the Hiſtory and Revelations of Scripture in the ſeveral Periods; to which is annexed a Diſſertation on the Fall of Man; 8vo. After his death, four volumes of his Sermons, with ſome tracts, in octavo, were publiſhed in 1748.

HUN'TEBERG, a town of Germany, in Weſtphalia, and biſhopric of Oſnabruck, ſituated on the Hunte: eighteen miles north-eaſt of Vorden.

HUN'TER, *ſ.* One who chaſes animals for paſtime or food:

Bold Nimrod firſt the ſavage chaſe began;
A mighty *hunter*, and his game was man. *Pope.*

A dog that ſcents game or beaſts of prey:

Of dogs, the valu'd file
Diſtinguiſhes the ſwift, the ſlow, the ſubtle,
The houſekeeper, the *hunter.* *Shakeſpeare.*

A horſe trained for the amuſement of the chace.—For the qualifications of a good hunter, ſee the article Horse, p. 383 of this volume.

HUN'TER (Henry), an eminent divine of the church of Scotland, born at Culroſs in the year 1741. When he was thirteen years of age, he was ſent to the univerſity of Edinburgh. In 1764 he was licenced to preach by the Preſbytery of Dumferline, having paſſed the ſeveral trials before them with applauſe. Soon after this he began to preach in public, and acquired conſiderable celebrity by the popularity of his pulpit-talents, while he was courted by perſons of all ranks as a ſociable and entertaining companion. After having refuſed other offers of ſettlement, he accepted of an unanimous invitation to become miniſter of South Leith, and was ordained in 1766. When he had reſided in this ſituation about three years, he made a viſit to London, where he received an invitation to the paſtoral office in the Scotch church in Swallow-ſtreet, which he declined. In 1771, however, he was induced to remove to London, by an unanimous invitation to the paſtoral office in the Scotch church at London-Wall. About this time, he was admitted to the degree of doctor of divinity, by the univerſity of Edinburgh. In 1783 he ſent into the world the firſt volume of his Sacred Biography, which was afterwards extended to the number of ſeven volumes, and is the moſt important of his performances. It conſiſts of a ſeries of diſcourſes on the lives of the moſt eminent characters of the Old and New Teſtament, which met with a favourable reception from the public, both on account of the novelty of their plan, the animated ſentiments and reflections which occur in them, and the popular and ſpirited ſtyle in which they are written.

Soon after the publication of the firſt two or three volumes of this work, Dr. Hunter accidentally met with a French edition of Lavater's Eſſays on Phyſiognomy, and ſoon determined to tranſlate the work into Engliſh. In order to render his tranſlation as complete as poſſible, he paid a viſit to Swiſſerland in 1787, for the ſole purpoſe of procuring information from Lavater himſelf. In this viſit he was not received with the cordiality which he expected. Lavater conſidered that the Engliſh tranſlation would be likely to prove injurious to the ſale of a French edition in which he was concerned. It is ſaid, however, that Dr. Hunter procured at length ſome information, which greatly conduced to the improvement of the Engliſh verſion. In 1789 the firſt number of this work was publiſhed; and the whole in point of typography, and more particularly the illuſtrative engravings, is entitled to a diſtinguiſhed rank in every library. In 1790, he was elected ſecretary to the correſponding board of the Society for propagating Chriſtian Knowledge in the Highlands and Iſlands of Scotland. In 1795, he publiſhed, Sermons, preached at different Places, and on various Occaſions, republiſhed in their reſpective order; to which are ſubjoined Memoirs, Anecdotes, and Illuſtrations, relating to the Perſons, Inſtitutions, and Events; in 2 vols. 8vo. In 1798, he publiſhed eight Lectures on the Evidences of Chriſtianity, accompanying four lectures by the reverend John Fell. During the latter years of his life, his conſtitution ſuffered ſevere ſhocks from the loſs of three of his children; and, being ſeized with an inflammation on the lungs in the autumn of 1802, it terminated in a rapid decline, to which he fell a ſacrifice at Briſtol Hot-wells, on the 27th of October, in the ſixty-ſecond year of his age.

The tranſlations of foreign works which Dr. Hunter publiſhed, beſides his verſion of Lavater, were, 1. Letters of Euler to a German Princeſs, on different Subjects in Phyſics and Philoſophy, 1795, 2 vols. 8vo. 2. The Studies of Nature, by James Henry Bernardin de Saint Pierre, &c. 1795, 5 vols. 8vo. 3. A volume of Sermons, from the French of Saurin, in continuation of the plan of Mr. Robinſon, 1796, 8vo. 4. Sonnini's Travels in Upper and Lower Egypt, &c. 1799, 3 vols. 8vo. 5. Caſtera's Memoirs of Catharine II. Empreſs of Ruſſia, &c. in 2 vols. 8vo. Since his death, 2 vols. of Sermons, and other miſcellaneous Pieces, have been publiſhed from his manuſcripts, with a biographical ſketch of his life prefixed.

HUNTER (William), a moſt eminent anatomiſt and phyſician, born in 1718, at Kilbride, in Lanerkſhire. His father, John Hunter, deſcended from a younger branch of the family of Hunter of Hunterſtown, lived upon a ſmall eſtate which he had purchaſed in that pariſh, and which, after the education of a large family, was the only poſſeſſion remaining to him at his death. William, the ſeventh child, was ſent at the age of fourteen to the univerſity of Glaſgow, as a ſtudent of divinity. But liſtening to a propoſal from Mr. Cullen, afterwards the celebrated medical profeſſor, to become a domeſtic pupil of medicine with him at Hamilton, he embraced the invitation in 1737; and a co-partnerſhip afterwards took place between them; and it was agreed that each of them ſhould alternately purſue further improvement in ſome medical ſchool. Hunter, in conſequence, repaired to Edinburgh in November 1740, where he attended the winter courſe of lectures of Dr. Alexander Monro, ſen. in anatomy. In the ſummer of 1741, he arrived in London, with a recommendation to Dr. James Douglas, an eminent teacher of anatomy, and a practitioner in midwifery. The favourable opinion of his talents and character with which he inſpired Dr. Douglas, produced an invitation from him to reſide in his family as an aſſiſtant in his diſſections, and a private tutor to his only ſon. This offer was too flattering to be rejected. Dr. Cullen readily gave his aſſent to a change of plan which opened a path to his friend's advancement; and Mr. Hunter entered as a pupil at St. George's hoſpital, and as a diſſecting-pupil under the able anatomiſt Dr. Frank Nichols. His generous patron, Dr. Douglas, was, however, taken from him by death in 1742; and Hunter, though continuing to reſide in the houſe of the widow, found that he was to depend upon his own exertions for profeſſional ſucceſs. He now publiſhed a paper On the Structure and Diſeaſes of articulating Cartilages, which was printed in the Philoſophical Tranſactions, vol. xlii. and greatly admired for the novelty and ingenuity of its obſervations. It was now his determination to eſtabliſh himſelf as an anatomical teacher in London; and he began his firſt courſe of anatomical lectures in 1746. His commencement was in conſequence of the deſire of a ſociety of navy-ſurgeons, laudably bent upon profeſſional improvement, who had engaged Mr. Samuel Sharpe to deliver to them a courſe of lectures on the operations of ſurgery at a private apartment which they hired. On Mr. Sharpe's declining the office, Mr. Hunter was ſolicited to continue it. In 1748, he made a tour to the continent with his pupil young Douglas, of which the moſt remarkable circumſtance was his introduction to Albinus at Leyden, whoſe admirable anatomical preparations augmented his zeal to excel in the art of injection, ſo eſſential to the progreſs of phyſiological ſcience. He had been received into the corporation of ſurgeons; but he confined his profeſſional exertions to the two characters of an anatomical teacher and a practitioner of midwifery. His progreſs in parturition was accelerated by his being elected ſurgeon-accoucheur, firſt to the Middleſex Hoſpital, and afterwards to the Britiſh Lying-in Hoſpital. The delicacy of his perſon and manner, and the perfect propriety of his behaviour, did not a little contribute to his ſucceſs. In 1750, he obtained the degree of M. D. from Glaſgow; and, as his reputation increaſed, was much conſulted as a phyſician. He now quitted the family of Mrs. Douglas, and took a houſe in Jermyn-ſtreet.

So rapidly had Dr. Hunter riſen to profeſſional eminence, that in 1762 he was conſulted in the pregnancy of the queen, and in 1764 was appointed phyſician-extraordinary to her majeſty. For theſe diſtinctions he was indebted to his merit alone. He was elected into the Royal Society in 1767, and in the next year communicated to that body a curious memoir relative to the bones found near the Ohio in America, which, principally from the ſtructure of the teeth, he proved to have belonged to ſome large quadruped diſtinct from the elephant, to which they had been commonly aſcribed. This was printed in the fifty-eighth volume of the Tranſactions; and he enriched the ſixtieth and ſixty-firſt volumes of the ſame collection with remarks on foſſil bones found at Gibraltar. The Society of Antiquaries alſo admitted him as a member; and in 1768, on the inſtitution of the Royal Academy of Arts, Dr. Hunter was appointed to the profeſſorſhip of anatomy. This appointment induced him to apply his knowledge to thoſe parts of the ſcience which particularly relate to external form, as ſtudies for the painter and ſculptor; and the novelty and ingenuity of his obſervations in theſe points diſplayed the verſatility of his talents. After this he was elected a foreign aſſociate of the Royal Medical Society, and of the Royal Academy of Sciences, at Paris.

A profeſſional undertaking which had engaged his attention for a number of years, and had coſt much labour and expence, was brought to a concluſion in 1775. This was his Anatomy of the Gravid Uterus, illuſtrated in thirty-four large plates made from capital drawings of ſubjects and preparations, and engraved by the firſt maſters. This great work, equally eſtimable for its accuracy, and admirable for its ſplendour, exhibited, in a manner greatly ſuperior to any former attempts, the principal changes occurring during the nine months of pregnancy. Some of its delineations were entirely new, and preſented diſcoveries of the author's own. He drew up a detailed anatomical deſcription of the figures, which he did not live to finiſh. It was completed and publiſhed by his nephew, Dr. Matthew Baillie, in 1794, under the title of Anatomical Deſcription of the Gravid Uterus and its Contents. In 1778 he thought it adviſable to give to the public his Reflections on the Section of the Symphyſis Pubis, a new operation introduced in France, and received with the favour uſually attending a bold novelty in that country, but abſolutely rejected from practice by the cooler judgment of this. The Two introductory Lectures to his Anatomical Courſe, which he had prepared for the preſs, appeared after his death, in quarto, 1785.

The benefits Dr. Hunter conferred upon his profeſſion as a writer and lecturer, ſurpaſſed every thing that had gone before him; but he did not ſtop here. When ſucceſs had placed him in the road to fortune, his firſt object was to accumulate ſuch a ſum as might ſecure to him eaſe and independence. His induſtry and frugality ſoon accompliſhed this purpoſe; and his next view was to employ his ſuperfluous wealth in ſome ſcheme of public utility which might perpetuate his name with honour. The foundation of an anatomical ſchool in the metropolis, ſuggeſted itſelf to him as a deſign of this kind; and, about 1765, he preſented a memorial to the miniſter, requeſting a grant of ground in the King's Mews, on which he offered to conſtruct an edifice of great expence, and to endow a profeſſorſhip in perpetuity, both at his own charges. The offer was coldly received; and Dr. Hunter at length purchaſed a ſpot of ground in Great Windmill-ſtreet, on which he built a houſe, anatomical theatre, and muſeum; and he removed thither in 1770. A very extenſive and valuable collection of anatomical preparations, in which no labour or coſt was ſpared, was firſt depoſited in his muſeum. Beſides foſſils and other ſubjects of natural hiſtory, he alſo accumulated a vaſt treaſure of Greek and Latin books in the rareſt editions; to which he added a cabinet of ancient medals, progreſſively formed at an expence exceeding twenty thouſand pounds. An eaſy acceſs was always given to perſons who wiſhed to view and conſult his muſeum, and its reputation among foreigners reflected honour upon the capital containing it. The great intereſt he took in it was the cauſe of his continuing his profeſſional labours to the laſt, notwithſtanding an impaired ſtate of health had given him warnings to retire. But, conſidering the habits he had acquired, there is little doubt that he conſulted his happineſs in adhering to his plan of life. He had the ſatisfaction of ſeeing part of his numiſmatical treaſures made known to the learned world in a publication by his friend Dr. Combe, which was entitled, *Nummorum Veterum Populorum & Urbium qui in Muſeo Gulielmi Hunter aſſervantur Deſcriptio Figuris illuſtrata. Opera & Studio Caroli Combe, S. R. & S. A. Soc.* 4to. 1783.

His aſſiduity as a teacher and practitioner continued unabated till March 1783, when an attack of a wandering gout, to which he was ſubject, obliged him to keep the houſe for ſome days. An apparent recovery induced him, contrary to the advice of his friends, to deliver a lecture; but the effort ſo much exhauſted him, that he fainted away, and a paralytic ſeizure ſhortly followed. His intellects remained clear, and he ſurveyed the approach of death with ſo much tranquillity, that in his laſt moments he ſaid to Dr. Combe, "If I had ſtrength to hold a pen, I would write how eaſy and pleaſant a thing it is to die." He expired on March 30th, 1783. No man has ſo much contributed to the propagation of anatomical knowledge in this kingdom, and to the reputation of London as a ſchool for that ſcience. His pupils were extremely numerous, and many of them became eminent teachers. By his will he bequeathed his muſeum to his nephew, Matthew Baillie, M. D. for a term of thirty years, with a ſum for its augmentation, and truſtees for the care of it while in London. After that period it is to go entire to the univerſity of Glaſgow.

HUNTER (John), a very eminent ſurgeon, brother of the preceding, born in July 1728. As he was the youngeſt child, and his mother's favourite, and his father, through age and indiſpoſition, was unable to pay much attention to him, he was brought up in a courſe of indulgence which proved extremely injurious to his progreſs in learning. It was late and with great difficulty that he was taught to read; and he acquitted himſelf ſo ill at the Latin ſchool, that he was ſoon removed from it. After his father's death, he was ſent to a brother-in-law, who was ſettled in Glaſgow, as a carpenter and cabinet-maker. This perſon's ill ſucceſs in buſineſs threw the youth again into an unemployed condition; when, hearing of his brother William's ſucceſs in London, he requeſted to be allowed to viſit him, and try whether he could not make himſelf uſeful as an anatomical aſſiſtant. William accordingly embraced the propoſal, and John arrived in London in September, 1748. He ſoon ſhowed himſelf dexterous at diſſection, and was put into a courſe of inſtruction and practice, which could not fail of making him an expert anatomiſt. He was far enough advanced in the winter of 1749 to undertake the inſtruction of the diſſecting pupils. In the mean time he was initiating in the practice of ſurgery, firſt at Chelſea hoſpital, and afterwards at St. Bartholomew's. It does not appear with what intention he was entered as a gentleman-commoner at St. Mary's-hall, Oxford, in 1753; literary diſtinction ſeems never to have been his ambition, nor, indeed, within his reach. This he probably ſoon diſcovered, for we find no intermiſſion of his profeſſional purſuits in London. He was admitted by his brother to a partnerſhip in his lectures in 1755, and was houſe-ſurgeon at St. George's hoſpital in 1756. His labours in diſſection and anatomical preparation were aſſiduous almoſt beyond example, and were of great ſervice to his brother's collection.

When he had made himſelf complete maſter of human anatomy, he began to proſecute enquiries into that of other animals, particularly for the purpoſe of elucidating the vital functions by analogical obſervations. With the ardour of an enthuſiaſt, he profited of every opportunity to examine rare animals, and procured from the Tower, and from the keepers of wild beaſts for ſhow, the bodies of all thoſe which died in their cuſtody. His exceſſive application injured his health; for which reaſon, in 1760, he went abroad as a ſurgeon on the ſtaff, and ſerved in that capacity at the expedition againſt Belliſle, and in Portugal, till 1763. After his return he ſettled in London as a ſurgeon, and added to his income by giving winter courſes of practical anatomy, and the operations of ſurgery. He ſtill with unabated ardour purſued the ſtudy of comparative anatomy; and, for the convenience of carrying on experiments, purchaſed a piece of ground at Earl's-court, Brompton, where he built a houſe. At this place he kept ſeveral foreign and uncommon animals, of whoſe manners and habits he was a ſedulous obſerver. He was elected into the Royal Society in 1767. On his brother, Dr. Hunter, removing to Windmill-ſtreet, he ſucceeded him in his houſe in Jermyn-ſtreet, in 1768. In the ſame year he became a member of the corporation of ſurgeons, and in the following year, through his brother's intereſt, he was elected one of the ſurgeons to St. George's hoſpital. His firſt publication, On the Natural Hiſtory of the Teeth, 4to. appeared in 1771. It was illuſtrated with excellent plates, and diſplayed great accuracy of reſearch. His buſineſs increaſing with his reputation, he concluded, in 1771, a marriage with a lady to whom he had been long engaged, the eldeſt daughter of Mr. Home, a military ſurgeon. She was a perſon of elegant accompliſhments, and has lately obliged the public with a volume of poems. His houſe was now frequented by medical ſtudents, who came to finiſh their education in London, and who were deſirous of a reſidence in a ſituation ſo favourable to their improvement. In the winter of 1773, he began a courſe of lectures on the theory and principles of ſurgery, in which he brought forward many opinions peculiar to himſelf, which were the ſubject of much diſcuſſion, and introduced a peculiar language and reaſoning into the London ſchools. He never attained his brother's facility in lecturing, nor did he ever acquire that methodical way of arranging his ideas, and clearneſs in expreſſing them, which are ſeldom found apart from a regular literary education. Little converſant with books, and following the train of his own thoughts, he adopted notions often highly ingenious, but liable to objections which he had not conſidered. He was, however, a real improver in his profeſſion, both in a theoretical and practical view; and ſome of his experimental attempts have eſtabliſhed new and approved modes of treatment in various caſes. His perfect knowledge of anatomy rendered him a bold and ſucceſsful operator, and enabled him to undertake ſome cures which others had pronounced impracticable. His new method of operating for the popliteal aneuriſm, by taking up the femoral artery on the anterior part of the thigh, is perhaps the moſt important of his chirurgical improvements. But the fame of John Hunter will principally reſult from his diſcoveries in comparative anatomy. This never ceaſed to be his favourite employ; and he enriched the Philoſophical Tranſactions with many papers in this intereſting branch of ſcience. Three of theſe, communicated in one year, procured for him the honorary prize of Copley's gold medal.

An object which may be regarded as the main buſineſs of his life, was the formation of an anatomical muſeum upon a plan abſolutely new, and which he brought to a perfection that rendered it the admiration of all who were capable of judging of its value. It embraced the grand deſign of expoſing to view the gradations of nature, from the moſt ſimple ſtate in which life is found to exiſt, to the moſt perfect and complete piece of animal mechaniſm, that of the human ſpecies. The preparations elucidating this ſyſtem were arranged into four claſſes, according to the functions meant to be explained, and compriſed an amazing number of objects taken from the different orders of nature; there was likewiſe a large ſeries of whole animals preſerved in ſpirits, many of them the rareſt ever brought into this country. It may well be imagined, that a long courſe of years and great expences were requiſite for completing ſuch a collection, which, indeed, received continual additions as long as he lived.

In 1776 he was appointed ſurgeon-extraordinary to the army; and in 1778 he publiſhed the ſecond or practical part of his Treatiſe on the Teeth, in which their diſeaſes were conſidered. In 1783 he purchaſed the leaſe of a houſe in Leiceſter-ſquare, to which he removed, and to which he annexed a ſpacious building for his muſeum, at a coſt, as ſome of his biographers aſſert, much beyond the dictates of prudence. About this period his faculties of body and mind ſeem to have been exerted to the utmoſt, and every moment had its full employ. The poſt of deputy ſurgeon-general to the army was conferred upon him in 1786; and in that year his great and long-expected work, On the Venereal Diſeaſe, 4to. made its appearance. Few medical performances have been more read; but it underwent ſome ſevere criticiſms, both practical and theoretical. He alſo publiſhed in this year, Obſervations on various Parts of the Animal Œconomy, compoſed of papers already inſerted in the Philoſophical Tranſactions, with the addition of ſome new ones. An illneſs with which he was ſeized about this time left his conſtitution impaired, and eſpecially ſubjected him to an affection of the heart, which came on upon every violent agitation of mind or ſudden exertion of body. The office of inſpector-general of hoſpitals and ſurgeon-general to the army, to which he was appointed in 1790, gave him much additional occupation, and, with his private practice, took up almoſt his whole time. He reſigned his courſe of lectures to his brother-in-law Mr. Home, and employed all his little leiſure in ſcientific purſuits.

A long ſeries of ſpaſmodic ſymptoms, conſtituting what is named *angina pectoris*, had for ſome years been occaſionally haraſſing him, and gradually diminiſhing his capacity for action and enjoyment. They increaſed in violence from autumn 1790, and to himſelf and others portended a ſuddenly-fatal termination. This took place on October 16, 1793, when he was at St. George's hoſpital. Something occurring which irritated him, but of the circumſtances of which he was not perfectly maſter, he withdrew into another room, when, in the act of turning round to one of the phyſicians, he gave a deep groan, and dropt down dead. In originality of genius and powers of inveſtigation, he ſeems to have ſurpaſſed his brother: induſtry and perſeverance equally belonged to both. Beſides the works already mentioned, and his papers in the Philoſophical Tranſactions, he was the author of three papers in the Tranſactions of a Society for the Improvment of Medical Knowledge, of which he was a principal promoter. At the time of his death conſiderable progreſs had been made in the printing of A Treatiſe on the Blood, Inflammation, and Gun-ſhot Wounds, which was publiſhed in 1794, quarto, under the inſpection of Mr. Home, and contains his fundamental doctrines in pathology and ſurgery. By his will, Mr. Hunter directed that his muſeum ſhould be offered to the purchaſe of government; and, after ſome negociations, it was bought for the public uſe for the ſum of fifteen thouſand pounds. Poſſeſſion of it has been given to the college of ſurgeons, on the condition of expoſing it to public view on certain days in the week, and giving a ſet of annual lectures explanatory of its contents.

To his own great abilities alone, Mr. Hunter was indebted for the eminence which he acquired in his profeſſion; for, although his medical education, his ſituation as ſurgeon to St. George's Hoſpital, and above all, his brother's recommendation, entitled him to notice, yet the increaſe of his private practice was at firſt but ſlow. The natural independence of his mind led him rather to indulge in his own purſuits than to cultivate the means of enlarging the ſphere of his buſineſs; but the proofs which he afterwards gave of his talents commanded the attention of the public, and procured him a very liberal income. In private practice he was liberal, ſcrupulouſly honeſt in ſaying what was really his opinion of the caſe, and ready upon all occaſions to acknowledge his ignorance whenever there was any thing he did not underſtand. In converſation he ſpoke too freely, and ſometimes haſtily, of his cotemporaries; but, if he did not do juſtice to their undoubted merits, it aroſe not from envy, but from his thorough conviction that ſurgery was as yet in its infancy, and he himſelf a novice in his own art; and, his anxiety to have it carried to perfection made him think meanly and ill of every one whoſe exertions in that reſpect did not equal his own.

Public-ſpirited to an extreme, he valued money no farther than as it enabled him to proſecute and extend his various, and nearly univerſal, reſearches; and, hurried on by the ambition of benefiting mankind at large, he paid too little attention to his own and his family's intereſts. But imprudence almoſt always goes hand in hand with genius; if it deſerves a harſher name, let it be remembered, that his immediate relatives alone, and not the public, have a right to complain; for, viewed in a profeſſional light, and as a man of ſcience, his zeal for the improvement of ſurgery in particular, and for the advancement of knowledge in general, to both of which he himſelf materially contributed, entitles him at leaſt to the gratitude, if not the veneration, of poſterity.

HUN'TER's BAY, or Rigg Bay, a bay of Scotland, on the eaſt coaſt of the county of Wigton.

HUN'TER FORT, a fort of the American States, twenty-one miles weſt of Schenectady, on the ſouth ſide of Mohawk river, at the mouth of Schohary Creek, over which is a bridge. Here is an old church built in the reign of queen Anne, with a few houſes. At this place was the Old Mohawk Indian town, which was abandoned by that nation as late as the ſpring of 1780. Theſe Indians had made conſiderable advances in civilization; could generally ſpeak the Engliſh language, and numbers of them made profeſſion of their faith in the Chriſtian religion. In the church which is now ſtanding, they uſed to attend public worſhip in the epiſcopal form. Theſe Indians are now ſettled, a part of them on Grand River, a northern water of Lake Erie, and a part of them in Upper Canada. None of this nation now remain in the United States.

HUN'TER's RIVER, a river of New South Wales, which lies at a ſmall diſtance to the north from Port Jack- From the abundance of coals found on its banks, it has likewiſe obtained the name of Coal River.

HUN'TER's TOWN, a town of Pennſylvania, ſituated in York county: twenty-five miles weſt-by-ſouth of York Town.

HUN'TERDON, a county of the American States, in New Jerſey, bounded north by that of Morris, eaſt by Somerſet, ſouth-eaſt by Burlington, ſouth-weſt-and-weſt by Delaware river, which ſeparates it from the ſtate of Pennſylvania, and north-weſt by Suſſex county. It is about forty miles long, and thirty-two broad, divided into ten townſhips, and contains 20,253 inhabitants. On the top of Muſkonetcong mountain in this county, is a noted medicinal ſpring, much reſorted to. It iſſues from the ſide of a mountain into an artificial reſervoir, for the accommodation of thoſe who wiſh to bathe in, as well as to drink, the waters. It is a ſtrong chalybeate. Trenton is the chief town.

HUN'TIM, a town of Germany, in Weſtphalia, in the county of Gronsfeld: ſeven miles eaſt-ſouth-eaſt of Maeſtricht

HUN'TING, *ſ.* The amuſement of the chace; the purſuing with horſes, hounds, and horn, any of the animals of vert or veniſon, or the wild and noxious beaſts of the foreſt, dangerous to man, and deſtructive of flocks and herds. This exerciſe divides itſelf into three objects: that of mere amuſement; that for the procuration of food;

and that which, by driving ferocious animals from the fold, and abridging their numbers, even in the wilds and faſtneſſes of the deſert, finds its reward in commerce. Of the firſt little can be ſaid, either on the ſcore of taſte, or refinement of the underſtanding. Of the ſecond, the call of neceſſity, and the ordination of Providence, appear to have been the parent. Thus when the Levitical law diſcriminated *unclean* beaſts from *clean and fit for food*, that ſpecies of hunting was ſanctioned and confirmed by Holy Writ, which had been practiced by man from the firſt hour of his being ſubjected to a ſtate of nature. Hence the hunting and killing the veniſon of the foreſt, and the "toiling all night" to catch the fiſhes of the ſea, are of ſimilar deſignation, and were part of the means whereby the induſtry of fallen man was doomed to obtain his ſubſiſtence. Of the third kind, that of deſtroying the wild beaſts and ferocious animals of the deſert, too much cannot be ſaid in its commendation; for beſides that it gives employment to thouſands and tens of thouſands of hardy individuals of the ſavage tribes, it affords to cultivated ſociety many of the comforts and conveniences of life, which otherwiſe could not be obtained. For the great and extenſive commerce which ariſes from the conſtant employment of theſe hunters, ſee the article FUR, vol. viii. p. 124–128.

Hunting is employed by the princes and rajahs in the eaſtern countries, more as an object of pageantry and ſhow, than from any principle either of public or of private utility. The ſeaſon moſt appropriate for this purpoſe is the winter, as in other countries; and therefore the coldeſt period of the year, viz. from the beginning of December to the commencement of March, is uſually ſet apart for this diverſion. A circuit of between four hundred and ſix hundred miles is generally made; the hunters bending their courſe towards the ſkirts of the mountains, where the country is wild and uncultivated. The prince takes with him not only his court and harem, but a great part of the inhabitants of his capital. His immediate attendants may amount to two thouſand; or ten, or even twenty, according to the magnitude of his eſtabliſhment; but the parade chiefly conſiſts in a great number of trained elephants. Hawks are ſometimes carried before the elephants, and let fly at whatever game is ſprung by the way, which is generally partridges, buſtards, quails, and different kinds of herons; theſe laſt affording excellent ſport with the falcons or ſharp-winged hawks. Wild boars are ſometimes ſtarted, and either ſhot or run down by the dogs and horſemen. The royal tiger, however, is looked upon as the principal object of purſuit. The cover in which he lies is commonly long graſs, or reeds of ſuch a height as frequently to reach above the elephants; whence it is often difficult to find him, particularly as he either ſteals off, or lies ſo cloſe to the ground that he cannot be rouſed till the elephants are almoſt upon him. He then roars and ſkulks away, but is ſhot as ſoon as he can be ſeen; it being generally contrived that the prince ſhould have the firſt ſhot or ſtroke with his lance. If he be not diſabled, the tiger continues to ſkulk along, followed by the line of elephants; the attendants ſhooting at him as often as he can be ſeen, till he falls. The elephants are generally very much afraid of this terrible animal, and diſcover their apprehenſions by roaring as ſoon as they begin to ſmell him or hear him growl; generally attempting to turn from the place where he is. When the tiger can be traced to a particular ſpot, the elephants are diſpoſed of in a circle round him; in which caſe he will at laſt make a deſperate effort, ſpringing upon the elephant that is neareſt, and attempting to tear him with his teeth or claws. Some, but very few, of the elephants, can be brought to attack the tiger; and this they do by curling up their trunks under their mouths, and then attempting to toſs or otherwiſe deſtroy him with their tuſks, or to cruſh him with their feet or knees. It is conſidered good ſport to kill one tiger in a day.

The other objects in theſe hunting excurſions are wild elephants, buffaloes, and rhinoceroſes; but the whole generally cloſes with the chace of the antelope, the roe-buck, or ſtag. For this diverſion they train the animal called *chittah*, or hunting leopard, whoſe vigilance and ſagacity are ſtrikingly manifeſted in their ſubtile mode of ſeizing and ſecuring the hunted game. We are told by Pennant that the Great Mogul emperor Akbar trained the lynx to this diverſion, and ſucceeded beyond all his compeers in the veniſon he killed. The late Tippoo Sultaun was likewiſe famed for activity and ſkill in this ſport; and he actually made a preſent of a brace of his hunting leopards to his majeſty George III. which are preſerved in the Tower of London. See the article FELIS, vol. vii. p. 296.

But the boldeſt and moſt ſkilful hunters of wild and ferocious animals, are the paſtoral warlike tribes of Tartars who inhabit the vaſt regions of northern Aſia. The leiſure of this people is uſefully ſpent in the violent and ſanguinary exerciſe of the chace, either for the deſtruction of wild beaſts, or accumulation of proviſions. The plains of Tartary are filled with a ſtrong and ſerviceable breed of horſes, which are eaſily trained for the purpoſes of war, and of hunting. In every age they have been celebrated as a bold and hardy race of people. They excel in the dexterous management of the lance: the long Tartar bow is drawn with a nervous arm, and the weighty arrow is directed to its object with unerring aim, and irreſiſtible force. Theſe arrows are directed with ſucceſs againſt the goat, the roe-buck, the fallow deer, the ſtag, the elk, and the antelope. The vigour and patience both of the men and horſes are thus continually exerciſed by the fatigues of procuring a plentiful ſupply of game for the ſubſiſtence of a Tartar camp. But the exploits of theſe hunters are not confined to the deſtruction only of theſe timid animals; they boldly encounter the angry wild boar, when he turns againſt his purſuers, excite the ſluggiſh courage of the bear, and provoke the fury of the tiger, as he ſlumbers in the thicket. Where there is danger there may be glory; and this mode of hunting, which opens the faireſt field to the exertions of valour, may juſtly be conſidered as the image and as the ſchool of war. The general hunting-matches of the Tartar princes are hence made an inſtructive exerciſe for their numerous cavalry. A circle is drawn of many miles in circumference, to encompaſs the game or ferocious animals of an extenſive diſtrict; and the troops, that form the circle, regularly advance towards a common centre; where the captive animals, ſurrounded on every ſide, are abandoned to the darts and lances of the hunters. In this match, which frequently continues many days, the cavalry are obliged to climb the hills, to ſwim the rivers, and to wind through the valleys, without interrupting the preſcribed order of their gradual progreſs. They acquire the habit of directing their eye, and their ſteps, to a remote object; of preſerving their intervals; of ſuſpending or accelerating their pace, according to the motions of the troops on their right and left; and of watching and repeating the ſignals of their leaders. Their leaders ſtudy, in this practical ſchool, the moſt important leſſon of the military art; the prompt and accurate judgment of ground, of diſtance, and of time. To employ againſt a human enemy the ſame patience and valour, the ſame ſkill and diſcipline, is the only alteration that is required in real war; and the amuſements of the chace are made to ſerve as a prelude to the conqueſt of an empire. In this mode of hunting we may deſcry a *virtue*; in that which has no object but idle paſtime and deliberate cruelty, a *vice*.

In England we have but three genera of animals, which afford the amuſement for the hunter, viz. the hare, the deer, and the fox. Hare-hunting is conducted by a pack of harriers, which are, or ſhould be, trained to touch no other ſcent. On the merits of this ſport we ſhall be ſilent, leſt we reflect too pointedly againſt the humanity of thoſe who purſue it. The turning out from her peaceful form the poor harmleſs timid hare, for no other purpoſe but to expoſe her to the moſt barbarous of all deaths, that of being

ing torn in pieces by dogs, ſavours but little of moral ſentiment or tender feeling; yet we ſee numbers of the *tender-hearted* ſex captivated by it.

Stag-hunting, with us, is called a royal ſport; and certainly it is the beſt that can be adopted in this country for the parade and ſhow of majeſty. When the field is formed for this diverſion, the king and his attendants mounted, the hounds thrown off upon the ſcent, and the royal huntſman with his numerous attendants all in motion, decked in uniforms of ſcarlet and gold, the ſight, and the melody, are enchanting beyond the powers of deſcription.—But this is all. The cavalcade is ſoon broken and out of ſight, or otherwiſe the promiſed chace is fruſtrated by the obſtinacy of the animal, which will ſometimes die in the thicket, rather than break before the hounds.

If gentlemen are diſpoſed to enjoy *real* hunting in England, it muſt be in purſuit of the fox. It certainly is the moſt arduous and moſt manly diverſion, and by far the beſt exerciſe. Mr. Beckford, in his elegant work on this ſubject, is of opinion, that, for fox-hunting in its proper ſtyle, the pack ſhould conſiſt of not leſs than twenty-five couple of ſtaunch and true-bred hounds. The hour moſt favourable for the diverſion is an early one; and he thinks that the hounds ſhould be at the cover at ſun-riſing. The huntſman ſhould then throw in his hounds as quietly as poſſible, and let the two whippers-in keep wide of him on either hand; ſo that a ſingle hound may not eſcape them; let them be attentive to his halloo, and let the ſportſmen be ready to encourage, or rate, as that directs. The fox ought on no account to be hallooed too ſoon, as in that caſe he would moſt certainly turn back again, and ruin the ſport. Two things he particularly recommends, viz. the making all the hounds ſteady, and making them all draw. "Many huntſmen, ſays he, are fond of having them at their horſe's heels; but they never can get ſo well or ſo ſoon together as when they ſpread the covert; beſides, I have often known, when there have been only a few finders, that they have found their fox, bruſhed down the wind, and been heard of no more that day. Much depends upon the firſt finding of your fox; for I look upon a fox well found to be half killed. I think people are in too great a hurry on this occaſion. There are but few inſtances where ſportſmen are not too noiſy, and too fond of encouraging their hounds, which ſeldom do their buſineſs ſo well as when little is ſaid to them. The huntſman ought certainly to begin with his foremoſt hounds; and I ſhould wiſh him to keep as cloſe to them as conveniently may be; nor can any harm ariſe from it, unleſs he ſhould not have common ſenſe. No hounds can then ſlip down the wind and get out of his hearing; he will alſo ſee how far they carry the ſcent, a neceſſary requiſite; for without it he never can make a caſt with any certainty. You will find it not leſs neceſſary for your huntſman to be active in preſſing his hounds forward when the ſcent is good, than to be prudent in not hurrying them beyond it when it is bad. It is his buſineſs to be ready at all times to lend them that aſſiſtance which they ſo frequently need, and which when they are firſt at a fault is the moſt critical. A fox-hound at that time will exert himſelf moſt; he afterwards cools and becomes more indifferent about his game. Thoſe huntſmen who do not get forward enough to take advantage of this eagerneſs and impetuoſity, and direct it properly, ſeldom know enough of hunting to be of much uſe to them afterwards. Though a huntſman cannot be too fond of hunting, a whipper-in eaſily may. His buſineſs will ſeldom allow him to be forward enough with the hounds to ſee much of the ſport. His only thought therefore ſhould be to keep the hounds together, and to contribute as much as he can to killing of the fox: keeping the hounds together is the ſureſt means to make them ſteady. When left to themſelves they ſeldom refuſe any blood they can get; they become conceited; learn to tire upon the ſcent; and, beſides this, they frequently get a trick of hunting by themſelves, and are ſeldom good for much afterwards.

"Every country is ſoon known; and nine foxes out of ten, with the wind in the ſame quarter, will follow the ſame track. It is eaſy, therefore, for the whipper-in to cut ſhort and catch the hounds. With a high ſcent you cannot puſh your hounds on too faſt. Screams keep the fox forward, at the ſame time that they keep the hounds together, or let in the tail-hounds; they alſo enliven the ſport, and if diſcreetly uſed, are always of ſervice; but in cover they ſhould be given with the greateſt caution. Halloos ſeldom do any hurt when you are running up the wind, for then none but the tail-hounds can hear you; when you are running down the wind, you ſhould halloo no more than may be neceſſary to bring the tail-hounds forward; for a hound that knows his buſineſs ſeldom wants encouragement when he is upon a ſcent. Moſt fox-hunters wiſh to ſee their hounds run in a *good ſtyle.* I confeſs myſelf one of thoſe; I hate to ſee a ſtring of them, nor can I bear to ſee them creep where they can leap. A pack of harriers, if they have time, may ſometimes kill a fox, but I defy them to kill him in the ſtyle in which he ought to be killed; they muſt hunt him down. If you intend to tire him out, you muſt expect alſo to be tired yourſelf; I never wiſh a chace to be leſs than one hour, or to exceed two; it is ſufficiently long if properly followed; it will ſeldom be longer unleſs there be a fault ſomewhere; either in the day, the huntſman, or the hounds.

"Changing from the hunted fox to a freſh one is as bad an accident as can happen to a pack of fox-hounds, and requires all the ingenuity and obſervation that a man is capable of to guard againſt it. Could a fox-hound diſtinguiſh a hunted fox as the deer-hound does the deer that is blown, fox-hunting would then be perfect. A huntſman ſhould always liſten to his hounds while they are running in cover; he ſhould be particularly attentive to the headmoſt hounds, and he ſhould be conſtantly on his guard againſt a ſkirter; for, if there be two ſcents, he muſt be wrong. Generally ſpeaking, the beſt ſcent is leaſt likely to be that of the hunted fox: and, as a fox ſeldom ſuffers hounds to run up to him as long as he is able to prevent it; ſo, nine times out of ten, when foxes are hallooed early in the day, they are all freſh foxes. The hounds moſt likely to be right are the hard-running line-hunting ones; or ſuch as the huntſman knows had the lead before there aroſe any doubt of changing. With regard to the fox, if he break over an open country, it is no ſign that he is hard run; for they ſeldom, at any time, will do that unleſs they are a great way before the hounds. Alſo, if he run up the wind; they ſeldom or never do that when they have been long hunted and grown weak; and, when they run their foil, that alſo may direct him. All this requires a good ear and nice obſervation; and indeed in that conſiſts the chief excellence of a huntſman.

"When the hounds divide and are in two parts, the whipper-in, in ſtopping, muſt attend to the huntſman, and wait for his halloo, before he attempts to ſtop either; for want of proper management in this reſpect, I have known the hounds ſtopped at both places, and both foxes loſt. If they have many ſcents, and it is quite uncertain which is the hunted fox, let him ſtop thoſe that are fartheſt down the wind; as they can hear the others, and will reach them ſooneſt; in ſuch a caſe there will be little uſe in ſtopping thoſe that are up the wind. When hounds are at a check, let every one be ſilent and ſtand ſtill. Whippers-in are frequently at this time coming on with the tail-hounds. They ſhould never halloo to them when the hounds are at fault; the leaſt thing does them harm at ſuch a time, but a halloo more than any other. The huntſman, at a check, had better let his hounds alone; or content himſelf with holding them forward, without taking them off their noſes. Should they be at fault, after having made their own caſt, (which the huntſman ſhould always firſt encourage them to do,) it is then his buſineſs to aſſiſt them further; but, except in ſome particular inſtances, I never approve of their being caſt as long as they are inclined to hunt. The firſt caſt I bid my huntſman make is generally a regular one; not chooſing to rely entirely on his judgment: if that ſhould not ſucceed, he is then at liberty to follow his own opinion, and proceed as obſervation or genius may direct. When ſuch a caſt is made, I like to ſee ſome mark of good ſenſe and meaning in it; whether down the wind, or towards ſome likely cover or ſtrong earth. However, as it is at beſt uncertain, I always wiſh to ſee a regular caſt before I ſee a knowing one; which, as a laſt reſource, ſhould not be called forth till it be wanted; the letting hounds alone is but a negative goodneſs in a huntſman; whereas it is true this laſt ſhows real genius; and, to be perfect, it muſt be born with him. There is a fault, however, which a knowing huntſman is too apt to commit: he will find a freſh fox, and then claim the merit of having recovered the hunted one. It is always dangerous to throw hounds into a cover to retrieve a loſt ſcent; and, unleſs they hit him in it, is not to be depended on.

"When hounds are at fault, gentlemen are too apt themſelves to prolong it. They ſhould always ſtop their horſes ſome diſtance behind the hounds; and, if it be poſſible to remain ſilent, this is the time to be ſo. They ſhould be careful not to ride before the hounds, or over the ſcent; nor ſhould they ever meet a hound in the face, unleſs with a deſign to ſtop him. Should you at any time be before the hounds, turn your horſe's head the way they are going, get out of their track, and let them paſs by you. In dry weather, and particularly in heathy countries, foxes will run the roads. If gentlemen at ſuch times will ride cloſe upon the hounds, they may drive them miles without any ſcent. High-mettled fox-hounds are ſeldom inclined to ſtop whilſt horſes are cloſe at their heels. No one ſhould ever ride in a direction, which, if perſiſted in, would carry him amongſt the hounds, unleſs he be at a great diſtance behind them.

"The firſt moment that hounds are at fault is a critical one for the ſport-people, who ſhould then be very attentive. Thoſe who look forward may perhaps ſee the fox; or the running of ſheep, or the purſuit of crows, may give them ſome tidings of him. Thoſe who liſten, may ſometimes take a hint which way he is gone from the chattering of a magpie; or perhaps be at a certainty from a diſtant halloo: nothing that can give any intelligence, at ſuch a time, ought to be neglected. Gentlemen are too apt to ride all together: were they to ſpread more, they might ſometimes be of ſervice; particularly thoſe who, from a knowledge of the ſport, keep down the wind; it would then be difficult for either hounds or fox to eſcape their obſervation. You ſhould, however, be cautious how you go to a halloo. The halloo itſelf muſt in a great meaſure direct you; and, though it afford no certain rule, yet you may frequently gueſs whether it can be depended upon or not. At the ſowing-time, when boys are keeping off the birds, you will ſometimes be deceived by their halloo; ſo that it is beſt, when you are in doubt, to ſend a whipper-in to know the certainty of the matter."

Hounds ought not to be caſt as long as they are able to hunt. It is a common, though not a very juſt idea, that a hunted fox never ſtops; but Mr. Beckford informs us, that he has known them to ſtop even in wheel-ruts in the middle of a down, and get up in the middle of the hounds. The greateſt danger of loſing the fox is at the firſt finding him, and when he is ſinking; at both which times he frequently runs ſhort, and the eagerneſs of the hounds will as frequently carry them beyond the ſcent. When a fox is firſt found, every one ought to keep behind the hounds till they are well ſettled to the ſcent; and, when the hounds are catching him, the people ſhould be as ſilent as poſſible, that the hounds may eat him eagerly after he is caught. In ſome places they have a method of *treeing* him; that is, throwing him acroſs the branch of a tree, and ſuffering the hounds to bay at him for ſome minutes before he is thrown among them; the intention of which is to make them more eager, and to let the tail-hounds come up; during this interval they alſo recover their wind, and eat him more readily. But Mr. Beckford adviſes not to keep him too long, as he ſuppoſes the hounds have no appetite to eat him longer than while they are angry with him.

With reſpect to the merits and demerits of hunting, many opinions have been freely given. Among the poets, as well as proſe writers, there is much of praiſe, as well as depreciation, of this ancient ſport. Frederic the Great, king of Pruſſia, delivered his ſentiments on this ſubject in the following words: "The chace is one of the moſt ſenſual of pleaſures, by which the powers of the body are ſtrongly exerted, but thoſe of the mind remain unemployed. It is an exerciſe which makes the limbs ſtrong, active, and pliable; but leaves the head without improvement. It conſiſts in a violent deſire in the purſuit, and the indulgence of a cruel pleaſure in the death of the game. I am convinced, that man is more cruel and ſavage than any beaſt of prey. We exerciſe the dominion given us over theſe our fellow-creatures in the moſt tyrannical manner. If we pretend to any ſuperiority over the beaſts, it ought certainly to conſiſt in reaſon; but we commonly find that the moſt paſſionate lovers of the chace renounce this privilege, and converſe only with their dogs, horſes, and other irrational animals. This renders them wild and unfeeling; and it is probable that they cannot be very merciful to the human ſpecies. For a man who can in cold blood torture a poor innocent animal, cannot feel much compaſſion for the diſtreſſes of his own ſpecies. And, beſides, can the chace be a proper employment for a thinking mind?"

Anciently many perſons in England held their lands of the king by the tenure and ſervice of keeping a pack of harriers. See *Cart.* 12 *Edw.* I. For the law relating to "Treſpaſs in Hunting," ſee the article GAME, vol. viii. p. 232.

HUN'TING, *adj.* Belonging to the chace, uſed in the chace.

HUN'TING CREEK, in Virginia, runs eaſt into Patowmack river, at the ſouth corner of the territory of Columbia.

HUN'TING-CREEK TOWN, a town of the American States, in the northern part of Dorcheſter county, Maryland: fourteen miles north-north-weſt of Vienna, ſixteen ſouth by weſt of Denton, and eighteen north-eaſt of Cambridge.

HUN'TING-HORN, *ſ.* A bugle; a horn uſed to cheer the hounds:

Whilſt a boy Jack ran from ſchool,
Fond of his *hunting-horn* and pole. *Prior.*

HUN'TING ISLANDS, a cluſter of ſmall iſlands, in the Atlantic Ocean, near Port Royal, in the State of South Carolina.

HUN'TING-MOON, *ſ.* The lunation in which the moon about the full riſes nearly at the ſame time for ſeveral nights together; the harveſt-moon.

HUN'TING-NAG, *ſ.* A horſe to hunt on.—He makes his ignorance paſs for reſolve, and, like a *hunting-nag*, leaps over what he cannot get through. *Butler.*

HUN'TING-SEAT, *ſ.* A temporary reſidence for the purpoſe of hunting.—Near it is a houſe built by one of the grand dukes for a *hunting-ſeat*, but now converted into an inn. *Gray.*

HUN'TINGDON, [*Hunterſdune*, the Mount of Hunters.] the capital of Huntingdonſhire, and an ancient borough, diſtant fifty-nine miles from London, upon the north road. It is paved and lighted; and is built upon a gradually-riſing ground, cloſe to the river Ouſe, over which there is an excellent free-ſtone bridge of ſix arches. In the centre of the town, on one ſide of a large ſquare, ſtands a very neat and commodious edifice where the aſſizes are held; it conſiſts of two courts, one for criminal and another for civil cauſes. Alſo a ſpacious aſſembly-room, ornamented in the modern taſte. The town is governed by a mayor, twelve aldermen, and a common-council, and ſends two members to parliament. This town derives its name from the Saxon *huntadune*, or hunters'-down, from the conveniency of its diſtrict for hunting. It was built on a ſpot that was an entire foreſt, until it was diſforeſted by Henry II. Henry III. and Edward I. who left no more of the foreſt than his own land. This town ſent members to parliament *ab origine*, and was made a borough by king John, 1206. John granted to the town, by charter, a coroner, a recorder, a town-clerk, and two bailiffs; but Charles I. gave its firſt charter under a mayor, anno regni 6, 1630.

Huntingdon has formerly been conſiderably more extenſive than at preſent, and is ſaid to have contained no fewer than two hundred and twenty-ſeven burgeſſes, and to have had fifteen churches in it. This decay is aſcribed, by Speed, to the alteration of the courſe of the river by one Gray, who, ſays the hiſtorian, maliciouſly obſtructed its navigation to the town, which had before been enriched by it. It is, however, made navigable for ſmall veſſels as high as Bedford. Here is a good grammar-ſeminary, with a free Engliſh ſchool, both well endowed.

We muſt not cloſe our deſcription of Huntingdon without mentioning the witches of Warbois, who once made ſo much noiſe. We ſhall therefore juſt mention the fatal end of a man, his wife, and daughter, who were all three hanged for torturing the children of ſir Roger Throgmorton. The hiſtory of it is kept in Queen's-college library, in Cambridge; and one of their fellows preaches yearly at Huntingdon on that occaſion. The children being ſick, their urine was ſent to Dr. Dorrington, at Cambridge, who ſent a medicine againſt worms. That prevailing nothing, the doctor, upon ſecond thoughts, pronounced the ſymptoms were from witchcraft. It was not long before a poor family was ſuſpected: the woman and her daughter were frequently ſent for, and kept with the children, and the diſeaſe remitted upon the ſight of them; but chiefly upon a confeſſion, and a ſort of petition added to it. To this effect was the girl's: "As I am a witch, and a greater witch than my mother, ſo do I deſire that the pains ſhall go off from this child." Theſe confeſſions were the chief point againſt the priſoners, which they had been prevailed upon to repeat to the ſtanders-by, who had obſerved the children relieved upon it, as they imagined. And thus three unhappy perſons were ſacrificed to ignorance and ſuperſtition. The girl's perſecutors had only one circumſtance againſt her, that of concealing herſelf: for, when the mob came to ſeize her mother, the girl hid herſelf in the coal-hole. On her trial, the by-ſtanders, pitying her youth and innocence, adviſed her to plead pregnancy; ſhe replied, with the utmoſt ſpirit, that, notwithſtanding they had power to put her to death, they ſhould never make her deſtroy her reputation by ſo infamous a plea.

HUN'TINGDON, an extenſive and mountainous county of the American States, in Pennſylvania, bounded north and north-weſt by Lycoming county, eaſt and north-eaſt by Miſflin, ſouth-eaſt by Franklin, ſouth and ſouth-weſt by Bedford and Somerſet, and weſt by Weſtmoreland. It is about ſeventy-five miles long, and thirty-nine broad; contains 1,432,960 acres of land, divided into ſeven townſhips, which contain 7565 inhabitants. Lime-ſtone, iron ore, and lead, are found here; and they manufacture conſiderable quantities of pig and bar iron, and hollow ware; alſo large works have been eſtabliſhed for manufacturing of lead. Chief town, Huntingdon.

HUN'TINGDON, the capital of the above county, ſituated on the north-eaſt ſide of Juniatta river, and at the mouth of Standing Stone creek, fifty miles from the mouth of Juniatta. It is about twenty-three miles weſt-ſouth-weſt of Louis Town, and 184 weſt-north-weſt of Philadelphia.

HUN'TINGDON, a poſt-town of the American States, on the north ſide of Long Iſland, New York, ſituated at the head of a bay in Suffolk county, which ſets up ſouth from the ſound: thirty-eight miles eaſt by north of New York city. It is oppoſite to Norwalk in Connecticut, and contains by the cenſus 3260 inhabitants.

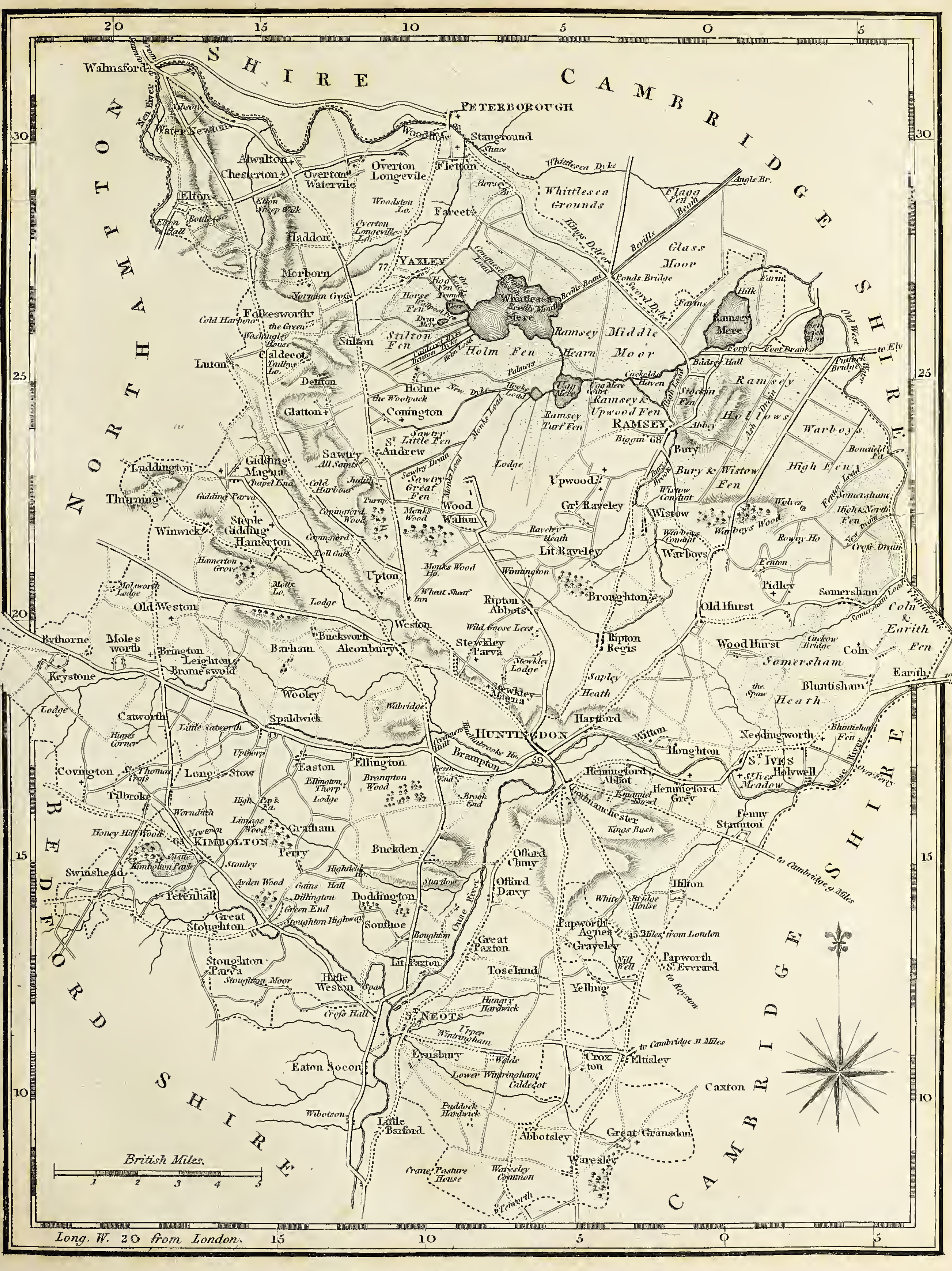
HUN'TINGDON, a townſhip of the American States, in York county, Pennſylvania.

HUN'TINGDON, a townſhip of the American States, in Fairfield county, Connecticut, ſeparated from Derby on the north-eaſt by Stratford river.

HUN'TINGDON, a ſmall iſland, near the eaſt of Labrador. Lat. 54. N. lon. 57. 15. W. Greenwich.

HUN'TINGDONSHIRE, is one of the ſmalleſt but moſt beautiful counties in England. It is almoſt encloſed by Cambridgeſhire and Northamptonſhire; the former of which bounds it on the north-eaſt and part of the ſouth, the latter on the north and weſt. The remainder is bounded by Bedfordſhire. The river Nen, and the canals, or dykes, joining it to the Ouſe, form its limits on the north and north-eaſt. The Ouſe, at its entrance, ſeparates it for a ſhort ſpace from Bedfordſhire; and, at its exit, from Cambridgeſhire. The face of the country has three varieties. The borders of the Ouſe, which flows acroſs the ſouth-eaſtern part, conſiſt of a tract of moſt fertile and beautiful meadows; of which Port-holm-mead, near Huntingdon, almoſt encloſed by a bend of the river, is particularly celebrated. The middle and weſtern parts are finely varied in their ſurface, fruitful in corn, and ſprinkled with woods. The north-eaſtern part conſiſts of fens, which join thoſe of Ely. Theſe are drained ſo as to afford rich paſturage for cattle, and even large crops of corn. In the midſt of them are ſome ſhallow pools, abounding with fiſh. The largeſt of theſe is a lake of conſiderable ſize, called Whittleſea Meer. At Ramſey, on the edge of the fens, was formerly a very rich abbey, built, like that of Crowland, in the midſt of a bog. The ſituation of theſe, and of various other religious houſes, as thoſe of Ely and Thorney, was probably choſen as well with a view to ſecurity from the difficulty of approach, as to the plenty of fiſh and water-fowl inhabiting theſe watery retreats. Kimbolton-caſtle was the place where Catharine, the divorced wife of Henry VIII. ended her days in a peaceful retirement. The village of Stilton gives name to a very rich and delicate kind of cheeſe, which, however, is ſaid not to be the product of its neighbourhood.

During the Saxon heptarchy, Huntingdonſhire belonged to the kingdom of Mercia; it is now in the province of Canterbury, dioceſe of Lincoln, and included in the Norfolk circuit. It is thirty miles long, twenty-four broad, and 130 in circuit; containing 414 ſquare miles, 264,960 ſquare acres, divided into four hundreds, ſeventy-eight pariſhes, twenty-nine vicarages, 229 villages, and ſix market towns, viz. Huntingdon, the county-town, which gives the title of earl to the family of Haſtings; Kimbolton, which gives title of baron to the Montagu family; St. Neots, which gives the title of baron to another branch of the Montagu family; Ramſey; Yaxley; and St. Ives. Among the villages, Hinchingbroke gives the title of viſcount to another branch of the Montagu family. It ſends four members to parliament, two for the county and two for Huntingdon; and pays four parts of the land-tax. The only rivers are the Ouſe, Nen, and Cam, with ſome ſmaller ſtreams. The moſt remarkable places are King's Delf and Dykes; Ramſey, Whittleſea, and Ug, Meers; Warbridge Foreſt; with Salom and Alconbury Woods. This is one of the ſeven counties that are contiguous without a city in either, viz. Bedford, Huntingdon, Bucks, Berks, Hertford, Eſſex, and Suffolk. The general products of this county are corn, cattle, wood, game, fiſh from the meers, rich paſture, excellent cheeſe, and fine butter. The ſoil is rich, and the air, except in the fenny parts, good. Huntingdon is remarkable for having been the birth-place of that very famous and remarkable uſurper Oliver Cromwell; and St. Ives for the largeſt market in England for cattle, except Smithfield; and at Warbois are the moſt beautiful meadows



# HUNTINGDONSHIRE.

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meadows on the banks of the Ouſe that are to be ſeen in England. This county was formerly the greateſt part of it foreſt-land.

HUN'TINGTON (Robert), a learned Engliſh divine, born at Deorhyrſt, in Glouceſterſhire, of which place his father was miniſter, in 1636. At the age of ſixteen he was entered of Merton college, in the univerſity of Oxford, of which he became a fellow. In the year 1670 he was appointed chaplain to the Engliſh factory at Aleppo, which appointment he retained for eleven years, during which time he particularly applied himſelf to the diſcovery and collection of ancient manuſcripts. In this undertaking he was employed by biſhops Marſh and Fell, and other public-ſpirited perſons in England. To ſucceed in it, he travelled, not only through the diſtricts adjoining to Aleppo, but to ſeveral diſtant provinces. After carefully viſiting almoſt all Galilee and Samaria, and examining the opinions, cuſtoms, religious ceremonies, and religious books, particularly the copy of the Pentateuch, belonging to the remains of the ancient Samaritans at Naploſa, he took a journey to Jeruſalem. In 1677 he made a voyage to Cyprus, for the purpoſe of examining the library of Hilarion Cigala, archbiſhop of Juſtiniana Nova, and primate of that iſland; but he was not able to obtain an interview with that prelate, who was then obliged to abſcond, on account of deſigns formed by the Turks againſt his life or liberty. During the following year he undertook a difficult and dangerous journey to view the ruins of Palmyra; but was prevented from examining thoſe beautiful remains of ancient art by two Arab chiefs, who had taken poſſeſſion of that diſtrict. In a journey to Egypt in 1680 he met with better ſucceſs, and had the opportunity of collecting ſeveral curioſities and manuſcripts, as well as the pleaſure of converſing with John Laſcaris, archbiſhop of Mount Sinai. At length, Mr. Huntington became impatient to return to his native country, and, upon the arrival of his ſucceſſor in 1682, embarked, and landed in Italy. After viſiting Rome, Naples, and other conſiderable places in that country, and taking alſo Paris in his way, he arrived ſafe in England, and immediately retired to his fellowſhip in Merton college. In 1683, he took the degrees of bachelor and doctor of divinity; and about the ſame time, through the recommendation of biſhop Fell, was appointed maſter of Trinity college in Dublin, which he reſigned in 1690. In 1691 he ſold for ſeven hundred pounds his fine collection of manuſcripts, about ſix hundred in number, to the curators of the Bodleian library, having before made a preſent to that library of ſeveral valuable ones. In 1692 he was preſented to the rectory of Great Hallingbury, in Eſſex; ſoon after which he married. About that time he was offered the biſhopric of Kilmore and Ardagh in Ireland, which he refuſed. However, in 1701, he accepted of the biſhopric of Raphoe, in that kingdom; but he ſurvived his conſecration only twelve days, dying in the ſixty-ſixth year of his age. He communicated nothing himſelf to the public, excepting an Account of the Porphyry Pillars in Egypt, inſerted in the 161ſt number of the Philoſophical Tranſactions. Some of his Obſervations are printed in A Collection of curious Travels and Voyages, in two volumes octavo, publiſhed by Mr. J. Ray; and thirty-nine of his Letters, chiefly written by him while abroad, were publiſhed by Dr. T. Smith, at the end of his life.

HUNT'LY, a town of Scotland, in the county of Aberdeen, on the borders of Banffſhire, with a caſtle belonging to the duke of Gordon, who is likewiſe marquis of Huntly: twenty-eight miles north-weſt of Aberdeen, and fifteen ſouth-ſouth-weſt of Banff.

HUN'TORP, a town of Germany, in Weſtphalia, and county of Oldenburg: nine miles north-eaſt of Oldenburg.

HUN'TRESS, *ſ.* A woman that follows the chace.—Homer repreſents Diana with her quiver at her ſhoulder; but at the ſame time he deſcribes her as a *huntreſs*. *Broome.*

Let old Arcadia boaſt her ample plain,
Th' immortal *huntreſs*, and her virgin train;
Nor envy Windſor. *Pope.*

HUNTS BAY, a bay on the ſouth coaſt of the iſland of Jamaica. Lat. 17. 52. W. lon. 76. 49. W. Greenwich.

HUNTS-UP', *ſ.* [probably derived from the firſt words of an old ballad, *The Hunt is up.*] The name of a tune:

No ſooner doth the earth her flow'ry boſom brave,
At ſuch time as the year brings on the pleaſant ſpring,
But *hunts-up* to the morn the feather'd ſylvans ring.
*Drayton.*

HUNTS'BURG, a townſhip of the American States, in Franklin county in Vermont, ſituated on the Canada line.

HUNTS'MAN, *ſ.* One who delights in the chace:

Such game, whilſt yet the world was new,
The mighty Nimrod did purſue:
What *huntſman* of our feeble race,
Or dogs, dare ſuch a monſter chaſe? *Waller.*

The ſervant whoſe office it is to manage the chaſe.—Apply this moral rather to the *huntſman*, that managed the chaſe, than to the maſter. *L'Eſtrange.*

HUNTS'MANSHIP, *ſ.* The qualifications of a hunter:

At court your fellows every day,
Give the art of rhiming, *huntſmanſhip*, or play. *Donne.*

HUNTS'VILLE, a poſt town of the American States, in North Carolina: ten miles from Bethania, and ſixteen from Rockford.

HUN'YAD, a town of Tranſilvania, on a ſmall river, which runs into the Maros: fifty-four miles eaſt-north-eaſt of Temeſvar, and forty-four ſouth-weſt of Hermenſtadt.

HUP'HAM, [Hebrew.] A man's name.

HUP'HAMITE, *ſ.* A deſcendant of Hupham.

HU'PY-LE-SEC, a town of France, in the department of the Somme, and chief place of a canton, in the diſtrict of Abbeville: two leagues ſouth of Abbeville.

HUR, [Heb. liberty.] A man's name.

HU'RA, *ſ.* [the Mexican vernacular name.] In botany, a genus of the claſs monoecia, order monadelphia, natural order of tricoccæ, (euphorbiæ, *Juſſ.*) The generic characters are—I. Male flowers. Calyx: ament from the divarication of the branches, oblong, drooping, covered with ſeſſile ſpreading florets, ſcales oblong. Perianthium within each ſcale of the ament, cylindric, two-leaved, truncate, very ſhort. Corolla: none. Stamina: filament cylindric, a little longer than the calyx, peltate at the tip, rigid, below the tip twice or thrice verticelled with tubercles; antheræ two, immerſed in each tubercle, oval, bifid. II. Female flower in the ſame plant. Calyx: Perianthium one-leafed, cylindric, furrowed, truncate, quite entire, cloſely ſurrounding the germ. Corolla: none. Piſtillum: germ roundiſh, within the calyx; ſtyle cylindric; long; ſtigma large, funnel-ſhaped, plano-convex, coloured, twelve-cleft, blunt, equal. Pericarpium: woody, orbiculate, or globular-flatted, toroſe, with twelve furrows, twelve-celled; cells diſſilient, creſcent-ſhaped, with an elaſtic dagger-point at the end; ſeeds ſolitary, compreſſed, ſub-orbiculate, large.—*Eſſential Character.* Male. Ament imbricated; perianthium truncated; corolla none; filament cylindrical, peltate at the tip, ſurrounded by very many antheræ in pairs. Female. Calyx and corolla none; ſtyle funnel-form; ſtigma twelve-cleft; capſule twelve-celled; ſeed one.

Hura crepitans, or ſand-box tree: a ſingle ſpecies. It grows naturally in the Spaniſh Weſt Indies, whence it has been introduced into the Britiſh colonies of America, where ſome of the plants are preſerved by way of curioſity. It riſes with a ſoft woody ſtem to the height of twenty-four feet, dividing into many branches, which abound with a milky juice, and have ſcars on their bark, where the leaves have fallen off. The branches are garniſhed with heart-ſhaped leaves; thoſe which are biggeſt are eleven inches long, and nine inches broad in the middle, indented on their edges, having a prominent midrib, with ſeveral tranſverſe veins from that to the ſides, which are alternate; theſe ſtand upon long ſlender foot-ſtalks. The male flowers come out from between the leaves, upon peduncles which are three inches long; they are formed into a cloſe ſpike, or catkin, forming a column, lying over each other like the ſcales of fiſh.

Browne makes this tree of the ſame genus with the Hippomane, or manchineel. The branches are divided alike in both; and the leaves, which ſtand in the ſame manner, reflecting a little backwards from the direction of the foot-ſtalks, are diſpoſed pretty thick at the extremities of the branches, and have one gland only on each foot-ſtalk; whereas in the manchineel there are two. This is full of a thick tranſparent juice, that of milk, both acrid; and the flowers, notwithſtanding they differ in ſome degree, agree in the formation of the ſtyle and ſtigma, as well as in the diſpoſition of the antheræ; though the number of theſe be not the ſame in both. In this, the fruit is regularly divided into cells: in that, the nut or ſhell is harder, and the diviſions not ſo regular; yet they are longitudinal, adjoining, in a number proportioned to the diviſions of the ſtigma, and generally both regular and many in the younger germs, but ſome abortive as the fruit increaſes.

The fruit is very curious in its ſtructure; and the tree, when it grows well, is very ſpreading and ſhady. It ſometimes caſts a ſhade of ſixty feet diameter. But from the quickneſs of its vegetation, its parts are of ſo looſe a texture, that a loud clap of thunder, or a ſudden guſt of wind, frequently cauſes the largeſt boughs to ſnap aſunder. Nor is its trunk of any uſe, except for fire-wood. Linnæus ſays that the wood is fit for joiſts and ſpars: and that the juice, when it gets into the eyes, brings on blindneſs after the eighth day. The ſeeds, according to Hernandez, when roaſted, purge both upwards and downwards. Browne taſted one of them, and it appeared at firſt to be both mild and pleaſant; but it ſoon began to warm and ſcald both his palate and throat; which induced him to look upon it as an improper purgative. This tree was introduced here before 1733, by William Houſtoun, M. D.

It is propagated by ſeeds, which ſhould be ſown early in the ſpring, in pots filled with light rich earth, and plunged into a hot-bed of tanners' bark. If the ſeeds are freſh, the plants will appear in about five or ſix weeks after the ſeeds are ſown. As the plants will advance very faſt, where due care is taken of them, they ſhould have a large ſhare of freſh air admitted to them, in warm weather, otherwiſe they will draw up too weak. When the plants are about two inches high, they ſhould be tranſplanted each into a ſeparate ſmall pot filled with light rich earth, and plunged again into the hot-bed of tanner's bark, being careful to ſhade them from the heat of the ſun, until they have taken new root; after which time they muſt have free air admitted to them, by raiſing the glaſſes in proportion to the warmth of the ſeaſon, and ſhould be frequently, but gently, watered. When the plants have filled theſe ſmall pots with their roots, they muſt be ſhaken out of them, and their roots trimmed, and then placed in larger pots, which ſhould be filled with the like rich earth, and plunged again into the hot-bed, where they ſhould remain till Michaelmas, provided the plants have room, without touching the glaſſes, at which time they muſt be removed into the bark-ſtove, and plunged in the warmeſt part thereof: during the winter ſeaſon they muſt be ſparingly watered, for, as the plants have ſucculent ſtalks, much moiſture will rot them; they muſt alſo be kept very warm, otherwiſe they will not live in this country. In ſummer they muſt have a large ſhare of freſh air in warm weather, but they muſt not be removed into the open air, for they are too tender to live abroad in the warmeſt part of the year in this country.

This plant is now pretty common in the Engliſh gardens, where there are collections of tender plants preſerved, ſome of which are grown to the height of twelve or fourteen feet, and many of them have produced flowers, but there has not been any of their fruit produced as yet in England. As theſe plants have ample leaves, which are of a beautiful green colour, they afford an agreeable variety among other tender exotic plants in the ſtove; for where they are kept warm, and duly refreſhed with water, they retain their leaves all the year in verdure. It is much cultivated in Jamaica, for its beauty, and the fine ſhade it yields. It loves a deep rich ſoil, and thrives beſt near water.

HUR'DAH, a town of Hindooſtan, in the Candeiſh country: twelve miles ſouth-ſouth-eaſt of Hindia, and ſixty-eight ſouth-eaſt of Indore.

HUR'DEN *ſ.* [from being made of *hurds*, or coarſe flax.] A coarſe kind of linen. It is uſed *adjectively*, as *linen*, *woollen*, and words of that kind very frequently are.—It is, when he is reaping, making hay, or when he is hedging in his *hurden* frock. *Shenſtone.*

HUR'DLE, *ſ.* [hẏꞃꝺel, Sax.] A texture of ſticks woven together; a crate:

The ſledge, the tumbril, *hurdles*, and the flail,
Theſe all muſt be prepar'd. *Dryden.*

Grate on which criminals were dragged to execution.—The blackſmith was hanged, drawn, and quartered, at Tyburn; taking pleaſure, upon the *hurdle*, to think that he ſhould be famous in after-times. *Bacon.*

HURDS, *ſ.* The refuſe of hemp or flax. *Ainſworth.*

HURD'WAR, a town of Hindooſtan, in the northern part of the country of Delhi, on the Himmaleh, near the weſt coaſt of the Ganges, on the borders of Thibet: eighty-ſix miles north of Delhi. Lat. 29. 55. N. lon. 78. 23. E. Greenwich.

HURE' (Charles), a learned and eminent French divine, the ſon of a labourer at Champigny-ſur-Yone, in the dioceſe of Sens, where he was born in 1639. As he early manifeſted a ſtrong inclination for learning, he was ſent by the archbiſhop of Sens to the college des Graſſins at Paris, where he ſoon diſtinguiſhed himſelf by his extraordinary proficiency in the different branches of literature, his commendable behaviour, and amiable manners. As ſoon as he had completed his academical ſtudies, he was admitted into holy orders, and appointed one of the preachers of his college. Not long afterwards he was made profeſſor of belles-lettres; of which office he diſcharged the duties with great applauſe for five-and-twenty years, till he was made principal of the college of Boncourt, where he died in 1717, in the ſeventy-eighth year of his age. He publiſhed, 1. An edition of the New Teſtament, in Latin, with ſhort notes, which are much eſteemed, 1692, in 2 vols. 12mo. 2. *Novum Teſtamentum regulis illuſtratum, ſeu Canones ſacræ Scripturæ certâ Methodo digeſti*, 1696, 12mo. which he afterwards abridged, threw into a new form, and publiſhed in French, under the title of *Grammaire ſacrée, ou Regles pour entendre le Sens littéral de l'Ecriture Sainte*, 1707, 12mo. 3. A French tranſlation of the New Teſtament, and of the author's former Latin notes on it, with conſiderable additions, 1702, in 4 vols. 12mo. 4. A Dictionary of the Bible, 1715, in 2 vols. folio, which is leſs perfect and comprehenſive than that of Calmet; and ſome ſhort pieces in Latin verſe. He was alſo the author, in part, of the Explication accompanying M. de Saci's Tranſlation of the New Teſtament; and of a Commentary on the Catholic Epiſtles and the Apocalypſe, in 7 vols. 18mo.

HURF'WA, a town of Sweden, in the province of Skone: ten miles north-eaſt of Lund.

HU'RIEL, a town of France, in the department of the Allier, and chief place of a canton, in the diſtrict of Montluçon: two leagues north-weſt of Montluçon.

*To* HURL, *v. a.* [from *huorlt*, to throw down, Iſlandic;

or, according to *Skinner*, from *whirl.*] To throw with violence; to drive impetuouſly.—If he thruſt him of hatred, or *hurl* at him by laying of wait. *Numb.* xxxv. 20.

Young Phaeton,
From eaſt to north irregularly *hurl'd*,
Firſt ſet himſelf on fire, and then the world. *Dryden.*

To utter with vehemence; [*hurler*, Fr. to make a howling or hideous noiſe.] This ſenſe is not in uſe.

Highly they rag'd againſt the Higheſt,
*Hurling* defiance towards the vaults of heaven. *Milton.*

To play at a kind of game.

HURL, *ſ.* Tumult; riot; commotion.—He in the ſame *hurl* murdering ſuch as he thought would withſtand his deſire, was choſen king. *Knolles.*

HURL'BAT, *ſ.* Whirlbat. *Ainſworth.*

HURL'ER, *ſ.* [from *hurl.*] One that plays at hurling. —The *hurlers* muſt hurl man to man, and not two ſet upon one man at once. *Carew.*

HUR'LEY, a townſhip of the American States, in Ulſter county, New York, containing 847 inhabitants; of whom 116 are electors. It is ſituated on Eſopus Kill, about five miles from the weſt bank of Hudſon's river, and one hundred north of New York.

HURL'ING, *ſ.* The act of throwing with violence; a kind of play.

HURL'WIND, *ſ.* A whirlwind; a violent guſt:

Like ſcatter'd down by howling Eurus blown,
By rapid *hurlwinds* from his manſion thrown. *Sandys.*

HUR'LY, or HUR'LYBURLY, *ſ.* [from the Fr. *hurlubrelu*, inconſiderately.] Tumult; commotion; buſtle.—Methinks, I ſee this *hurly* on foot. *Shakeſpeare.*

Poor diſcontents,
Which gape and rub the elbow at the news
Of *hurlyburly* innovation. *Shakeſpeare.*

HU'RON, one of the five principal lakes in North America. It lies between 43. 30. and 47. 30. N. lat. and between 80. 45. and 84. 45. W. lon. and is reckoned to be upwards of 1000 miles in circumference. The fiſh are of the ſame kind as in Lake Superior, and it communicates with that lake, through the ſtraits of St. Marie on the north-weſt, with Michigan on the weſt, and with Erie on the ſouth. It is of a triangular ſhape, and on the ſouth-weſt part is Saguinum or Sagana bay, eighty miles in length, and about eighteen or twenty in breadth; the other moſt remarkable bay is THUNDER BAY, which ſee; alſo ſee MANATAULIN ISLAND, and MICHILLIMAKKINACK. On the banks of the lake are found amazing quantities of ſand-cherries. The land bordering on the weſtern ſhore of the lake is greatly inferior in quality to that on lake Erie. It is mixed with ſand and ſmall ſtones, and is principally covered with pines, birch, and ſome oaks; but a little diſtance from the lake the ſoil is very luxuriant. Twenty years ago, part of the Indian nations, called Chepaways and Ottawas, who inhabited round Saguinum bay, and on the banks of the lake, could furniſh two hundred warriors; and thoſe of the latter nation, who lived on the eaſt ſide of lake Michigan, twenty-one miles from Michillimakkinack, could furniſh two hundred warriors.

HU'RON, a ſmall river of the American States, on the north-weſt territory, which, after a courſe of thirty-eight miles, falls into Lake St. Clair from the north-weſt: Gnadenhuetten lies on this river.—Alſo the name of another ſmall river in the ſame territory, which runs north-eaſtward into lake Erie, forty miles weſtward of Cayahoga, and fifteen ſouth-eaſt of the mouth of Sanduſky Lake.

HUR'RICANE, or HURRICA'NO, *ſ.* [*huracan*, Span. *ouragan*, Fr.] A violent ſtorm, ſuch as is often experienced in the weſtern hemiſphere.—A ſtorm or *hurricano*, though but the force of air, makes a ſtrange havock where it comes. *Burnet.*

So, where our wide Numidian waſtes extend,
Sudden th' impetuous *hurricanes* deſcend,
Wheel through the air, in circling eddies play,
Tear up the ſands, and ſweep whole plains away. *Addiſon*

HUR'RIER, *ſ.* One that hurries; a diſturber.—Mars, that horrid *hurrier* of men. *Chapman.*

*To* HUR'RY, *v.n.* [heꞃᵹian, Sax. to plunder; *hurs* was likewiſe a word uſed by the old Germans in urging their horſes to ſpeed; but ſeems the imperative of the verb.] To haſten; to put into precipitation or confuſion; to drive confuſedly.—A man has not time to ſubdue his paſſions, eſtabliſh his ſoul in virtue, and come up to the perfection of his nature, before he is *hurried* off the ſtage. *Addiſon.*

Stay thoſe ſudden guſts of paſſion
That *hurry* you away. *Rowe.*

*To* HUR'RY, *v.n.* To move on with precipitation:

Did you but know what joys your way attend,
You would not *hurry* to your journey's end. *Dryden.*

HUR'RY, *ſ.* Tumult; precipitation; commotion.—Ambition raiſes a tumult in the ſoul, it inflames the mind, and puts it into a violent *hurry* of thought. *Addiſon.*

The pavement ſounds with trampling feet,
And the mixt *hurry* barricades the ſtreet. *Gay.*

HUR'RY-SKUR'RY, *adv.* [a word formed to expreſs its own meaning.] Wildly:

Each hole and cupboard they explore,
 Each creek and cranny of his chamber,
Run *hurry-ſkurry* round the floor,
 And o'er the bed and teſter clamber. *Gray.*

HURST, HYRST, or HERST, derived from the Saxon hẏꞃſt, i. e. a wood, or grove of trees. There are many places in Kent, Suſſex, and Hampſhire, which begin and end with this ſyllable; and the reaſon may be, becauſe the great wood called Andreſwald extended through thoſe countries.

HURST CASTLE, a caſtle in Hampſhire, not far from the town of Lymington. It is ſeated on the extreme point of a neck of land, which ſhoots into the ſea toward the Iſle of Wight, from which it is diſtant two miles. In this caſtle Charles I. was confined previouſly to his being brought to trial. It is believed that this neck of land once united the Iſle of Wight to this part of Hampſhire.

*To* HURT, *v. a.* preter. *I hurt*; part. paſſ. *I have hurt*: [hẏꞃt, Sax. wounded; *heurter*, Fr. to ſtrike.] To miſchief; to harm.—He that overcometh ſhall not be *hurt* of the ſecond death. *Revelations.*

Virtue may be aſſail'd, but never *hurt*;
Surpris'd by unjuſt force, but not enthrall'd. *Milton.*

To wound; to pain by ſome bodily harm:

It breeds contempt
For herds to liſten, or preſume to pry,
When the *hurt* lion groans within his den. *Dryden.*

To damage; to impair.—See thou *hurt* not the oil and wine. *Revelation.*

HURT, *ſ.* Harm; miſchief.—I have ſlain a man to my *hurt*. *Geneſis.*—Wound or bruiſe.—The pains of ſickneſs and *hurts*, hunger, thirſt, and cold, all men feel. *Locke.*

In arms and ſcience 'tis the ſame,
Our rival's *hurts* create our fame. *Prior.*

Injury; wrong.—Why ſhould damage grow to the *hurt* of the king. *Ezra.*

HURTA'DO (Thomas), a celebrated Spaniſh divine, native of Toledo, who entered early among the friar minors, and became a regular clerk of that order. He officiated as profeſſor of philoſophy and theology, at Rome, at Alcala, and at Salamanca, with great reputation, and died in 1659. He was the author of 1. Syſtems of Philoſophy and Theology, according to the doctrine of

Thomas Aquinas. 2. *Reſolutionum Orthodoxo-moralium, Lib. VI.* 1653, folio. 3. *De congrua ſuſtentatione Eccleſiaſticorum.* 4. *Reſolutionum moralium de Reſidentia ſacra, Lib. XII.* 5. *Reſolutiones de unico Martyrio*, written in oppoſition to the Jeſuit Theophilus Raynaud's treatiſe *De Martyrio per peſtem.*

HUR'TER, *ſ.* One that does harm.

HURT'FUL, *adj.* Miſchievous; pernicious:

The *hurtful* hazle in the vineyard ſhun,
Nor plant it to receive the ſetting ſun. *Dryden.*

HURT'FULLY, *adv.* Miſchievouſly; perniciouſly.

HURT'FULNESS, *ſ.* Miſchievouſneſs; perniciouſneſs.

*To* HUR'TLE, *v. n.* [*heurter*, Fr. *urtare*, Ital.] To claſh; to ſkirmiſh; to run againſt any thing; to joſtle; to meet in ſhock and encounter. *Hanmer.*—The noiſe of battle *hurtled* in the air. *Shakeſpeare.*

*To* HUR'TLE, *v. a.* To move with violence or impetuoſity. This is probably the original of *hurl.* *Obſolete.*

His harmful club he 'gan to *hurtle* high,
And threaten battle to the fairy knight. *Fairy Queen.*

HURT'LESS, *adj.* Innocent; harmleſs; innoxious; doing no harm:

Unto her home he oft would go,
Where bold and *hurtleſs* many a play he tries,
Her parents liking well it ſhould be ſo;
For ſimple goodneſs ſhined in his eyes. *Sidney.*

Receiving no hurt.

HURT'LESSLY, *adv.* Without harm.

HURT'LESSNESS, *ſ.* Freedom from any pernicious quality.

HURT'LING, *ſ.* The act of ſkirmiſhing.

HUS, or HUSSU, a town of European Turkey, in the province of Moldavia, the ſee of a Greek biſhop, ſituated on the Pruth. Here Peter the Great made peace with the Turks: ſeventy miles ſouth-weſt of Bender, and eighty-ſeven north-north-weſt of Iſmael. Lat. 46. 35. N. lon. 46. 20. E. Ferro.

HUS'BAND, *ſ.* [*hoſsband*, Dan. maſter, from *houſe* and *bonda*, Runic, a maſter.] The correlative to wife; a man married to a woman:

Thy *huſband* is thy life, thy lord, thy keeper,
Thy head, thy ſovereign. *Shakeſpeare.*

The male of animals:

Ev'n though a ſnowy ram thou ſhalt behold,
Prefer him not in haſte, for *huſband* to thy fold. *Dryden.*

An œconomiſt; a man that knows and practiſes the methods of frugality and profit. Its ſignification is always modified by ſome epithet implying bad or good.—Edward I. ſhowed himſelf a right *good huſband*; owner of a lordſhip ill-huſbanded. *Davies.*—I was conſidering the ſhortneſs of life, and what *ill huſbands* we are of ſo tender a fortune. *Collier.*—A tiller of the ground; a farmer:

In thoſe fields
The painful *huſband* plowing up his ground,
Shall find all fret with ruſt, both pikes and ſhields.
*Hakewill.*

*To* HUS'BAND, *v. a.* To ſupply with a huſband:

If you ſhall prove
This ring was ever her's, you ſhall as eaſy
Prove that I *huſbanded* her bed in Florence,
Where yet ſhe never was. *Shakeſpeare.*

To manage with frugality:

If thou be maſter-gunner, ſpend not all
That thou can'ſt ſpeak at once; but *huſband* it,
And give men turns of ſpeech. *Herbert.*

To till; to cultivate the ground with proper management.—A farmer cannot *huſband* his ground, if he ſits at a great rent. *Bacon.*

HUS'BANDLESS, *adj.* Without a huſband:

A widow, *huſbandleſs*, ſubject to tears;
A woman, naturally born to fears. *Shakeſpeare.*

HUS'BANDLY, *adj.* Frugal, thrifty:

Bare plots full of galls, if you plow overthwart;
And compaſs it then is a *huſbandly* part. *Tuſſer.*

HUS'BANDMAN, *ſ.* One who works in tilling the ground.

HUS'BANDRY, *ſ.* The buſineſs or profeſſion of a farmer; that ſcientific and copious enlargement of the products of nature, which comprehends not only AGRICULTURE, or the art of tilling the ground, but the breed and improvement of domeſtic cattle; the method of grazing, fattening, foiling, ſuckling, and preparing all kinds of LIVE STOCK for market; of increaſing their number, weight, and growth, for the food and ſuſtentation of ſociety; and for producing, in a more eminent and enlarged degree, the quantities and qualities of many moſt valuable raw materials, for the uſe, encouragement, and extenſion, of our home-manufactures.

In a profeſſion of ſuch high antiquity, it is wonderful that ſo little improvement has been made; particularly when we reflect that MAN was ſo early and impreſſively admoniſhed that this was the only permanent mode on which he was to depend for bread, and the ſupport of human life. "In the ſweat of thy face ſhalt thou eat bread; for, curſed is the ground for thy ſake; thorns and thiſtles ſhall it bring forth to thee, and thou ſhalt eat the herb of the field." *Gen.* iii. 17, &c. Yet, notwithſtanding this original curſe upon the previous ſpontaneous fertility of the earth, it is obſervable that where the induſtry and labour of man have been employed in the improvement and fertilization of the ſoil, the thorns and thiſtles have given place to the golden grain, and plenty has ſmiled around their dwellings.

When ſuch have been the natural reſults of cultivation, when the earth returns an hundred fold for the care and attention beſtowed upon it, to what can we attribute that total neglect which pervades ſeveral kingdoms of the world, with reſpect to any thing that bears the ſmalleſt appearance of agriculture, and, by a total inattention to this moſt important avocation, ſubjecting themſelves to the miſeries of death, peſtilence, and famine? It is lamentable to collect, from the accounts of the moſt diſtinguiſhed and accurate travellers, how very little the ſcience of huſbandry is purſued, even in ſome of the more civilized parts of the world. In England, even till within a few years paſt, it does not appear to have met with that attention and regard which the importance of the ſubject ſo juſtly merits; but, on the contrary, was for ages left to the conduct and management of the moſt obſtinate and ignorant perſons; who, ever averſe to the arts of improvement, have been proverbially diſpoſed to follow but one beaten track, in the purſuits of a profeſſion, which, though perhaps the moſt common, is nevertheleſs founded on the moſt difficult department of human knowledge.

The Romans appear to have conſidered a knowledge of agriculture as highly becoming the moſt eminent men amongſt them. Cicero, in various paſſages of his works, beſtows the higheſt eulogiums on the purſuit of it; and in his opinion, nothing was more becoming the character of a patrician, than the cultivation and management of land. The Georgics likewiſe of Virgil, the moſt beautiful and deſcriptive poem that ever was written, afford ample teſtimony in favour of the high eſtimation in which huſbandry was deſervedly held by that celebrated and diſcerning people.

It is with pleaſure we remark, that the gentlemen of this country have now for ſome years turned their thoughts and attention to this healthful and profitable employment, by not only embarking in agricultural purſuits themſelves, but likewiſe endeavouring by rewards to honeſt labour and induſtry, as well as to mechanical improvements in the implements of huſbandry, to ſtimulate ſuch a ſpirit of general knowledge and exertion amongſt all claſſes, as may ultimately be productive of incalculable advantage.

It is indeed an arduous taſk to alter the arrangement or general œconomy of a farm with profit and credit to its proprietor. Nevertheleſs, a man who has at his heart the permanent good of the eſtate which he poſſeſſes, will look forward, and concert plans for its future improvement and ſuperior cultivation. And, as a farm which is judiciouſly laid out into compact incloſures of ſuitable ſizes, is always more productive than one of the ſame ſize and intrinſic value, whoſe lands lie ſcattered and intermixed, he will not fail to ſet on foot a plan of reform, which requires nothing but perſeverance to accompliſh.

Yet, notwithſtanding all theſe partial and numerous encouragements, it is an undeniable fact, that the preſent improved ſtate of our agriculture is not capable of furniſhing a ſupply of corn equal to the average conſumption of the population of the country, whereby the balance of this important article of commerce is for ever againſt us. Thus we are dependent upon foreign markets for a ſufficiency of various kinds of grain, but more particularly of wheat, to enable us to provide with certainty for our annual conſumption, and to guard againſt not only a ſcarcity, but the horrors of a famine. The firſt of theſe evils was ſeverely felt during the years 1799 and 1800; and we were only ſaved from a total deprivation of bread, by a foreign ſupply. It would therefore ſurely be an object worthy of the moſt ſerious attention of the legiſlature, to adopt ſome efficient remedy againſt a recurrence of this formidable evil. And when we conſider the immenſe track of CROWN-LANDS diſperſed throughout this kingdom, great part of which are literally producing nothing but "thorns and thiſtles," yet capable of the higheſt ſtate of cultivation, we cannot but lament that ſo much of the richeſt natural ſoil of this happy iſland ſhould be ſuffered thus to lie waſte and barren; and that ſuch valuable tracts as would produce a ſufficiency of bread for tens of thouſands of ſouls, by the induſtry and labour of the farmer alone, ſhould, in ſuch times as the preſent, be totally loſt to the COMMUNITY at large.

## Of the FENCING and LAYING OUT a FARM.

Whatever be the deſtination or ſituation of land intended for the purpoſes of a farm, the primary object ſhould be to fence it well from the depredations of cattle, whether expoſed to them from commons or waſtes, from careleſs neighbours, or even from the breaking of one's own ſtock, which in a few hours might, and often does, commit more miſchief than as many months are able to repair. For this reaſon, the fences againſt commons and public roads, and alſo againſt an adjoining farm, ſhould conſiſt of double hedge and ditch, planted with ſome durable and well-growing material, which will ſoon be able to keep itſelf in repair. Thus, in good rich ſtrong land, hawthorn or quick is to be preferred, which is confeſſedly the beſt and moſt durable of all live fences; and next to the hawthorn, black-thorn or ſlow; and next to that crab-tree. But, in ſoils where the hawthorn will not grow kind, birch or withy might be ſubſtituted. Birch, on dry ſandy ſoils, is found to anſwer extremely well; and will even grow on double banks in the moſt barren land, and maintain a much ſuperior fence to furze or whin, which is generally planted as a fence in ſuch poor ſoils, often from a miſtaken notion that nothing better will grow. In ſoils of a wet and clayey nature, withy or willow will moſt rapidly make a durable live fence; and, if kept while young from the browzing of cattle, will ſoon gain ſufficient ſtrength to oppoſe itſelf to all obſtacles. For theſe double hedges, the beſt width for the embankment is from three to four feet at the baſe, and to be carried four feet high, with a dike or ditch on either ſide; three feet deep, and two feet wide, on the outſide, and of half thoſe dimenſions on the inſide. In putting up theſe embankments, it ſhould ever be remembered not to carry the turf too upright, but to let the bank lean or level inwards, like the embankments of a fortification. Thus they will maintain themſelves not only againſt the depredations of cattle, but againſt the ravages of ſtorms and tempeſtuous weather, in all ſeaſons of the year.

In forming the fences of the interior fields or incloſures, ſingle hedges, with a dike on one ſide, are ſufficient. But in laying out theſe incloſures, more particularly if for a ſheep-farm, reference muſt be had to the openings or gate-places, which are to lead not only to the farm-yard, but with convenience and facility to the commons and ſheep-walks, where the cattle are to be depaſtured. This will prove a matter of importance the year round, both when the grounds are cropped, and when only in lay for the accommodation of the flock. With regard to the ſize or dimenſions of the fields to be laid out, it is ſufficiently obvious that ſuch incloſures as are intended for the production of graſs, ought to be ſmaller than thoſe in which grain is moſtly to be cultivated. On the lighter ſorts of ſandy or gravelly ſoils, too, the diviſions ſhould be ſmall in proportion to their dryneſs, and the particular kinds of crops which can be raiſed and cultivated moſt commonly, and to the greateſt advantage, upon them. And the incloſures near ſheep-downs, where there is conſiderable elevation, ſhould have a reduction of their extent proportioned to their height, and the dryneſs of the grounds; the thickneſs of the hedges being likewiſe regulated by the ſame circumſtances. It has, however, been aſſerted, that the graſs will begin to burn, and the grain to ſuffer firſt, in a dry ſummer, in ſmall incloſures, and particularly near the hedges; but this is a vulgar error, as the cauſe of burning ariſes wholly from the arid nature of the ſoil, or from ſome unfavourable aſpect or wind to which that particular part is expoſed. Where the fields or diviſions are large, and the ſoil moiſt, great care muſt be taken in making proper drains to ſupply the want of ditches, which anſwer the ſame purpoſe when properly formed. The frequency of full-grown hedges, high ditch-banks, and trees, has conſiderable effect in preventing ſuch lands from becoming too dry, for the ſucceſsful growth of different crops. But the hedges ſhould be kept cloſely cut or clipt, the trees trimmed, and every poſſible method taken to promote the free admiſſion of the ſun and air.

It is evident that ſuch fields as are intended for paſtures, if made ſecure by judicious fencing, provided they be properly drained, and a due circulation of air preſerved, the better they will fatten whatever cattle are kept in them; but in grounds where crops are to be grown in ſucceſſion, except in elevated and expoſed ſituations, the ſize of the incloſures ſhould be larger, and the fences leſs calculated for the purpoſes of ſhelter, as the free and equable admiſſion of air has great power in rendering the growth of all crops both healthy and vigorous; under other circumſtances, they muſt be expoſed; beſides, the health of mankind, as has been already obſerved, would, in many caſes, be conſiderably benefited by the adoption of ſuch a ſyſtem of incloſure.

Fences are of different kinds, and conſtituted of different materials, according to the ſituations and the particular circumſtances under which they are made. It muſt be obvious, from the nature of theſe different fences, that ſome kinds of them, from being formed perhaps of an improper material, muſt, from the very period of being completed, be conſtantly getting out of repair, or proceeding to a ſtate of decay; while others, as being compoſed of vigorous living plants, where properly managed, will be advancing to a ſtate of greater improvement and advantage. The beſt and moſt advantageous method of renewing an old hedge for the farmer, particularly where it can be protected from cattle, is that of heading the whole down at a proper ſeaſon, to within a few inches of the ground or bank. By this means, in two or three years an aſtoniſhing quantity of young wood is produced, ſo as to form a hedge that is almoſt impenetrable.

The fences now chiefly erected to farms, under different circumſtances and ſituations, are the following:

HEDGE AND BANK.—This conſiſts of a hedge planted upon the plain ground, with a bank or mound of earth raiſed behind it by way of protection. The bank, in ſome inſtances, is faced with ſod on both ſides, ſloping gradually towards the top; while in others it is only faced on one ſide, which is nearly perpendicular, and has a gradual ſlope on the other, ſimilar to the bank made with the earth taken out of an ordinary ditch. The hedge is frequently planted at the bottom of the perpendicular ſide that is faced with ſod; but in many caſes it is planted on the other ſide, near the bottom of the ſloping bank of earth. And this is certainly the beſt ſituation for the hedge; for if the earth with which the bank is made has been taken, as it generally is, from the ſide that is faced with ſod, this fencing will form a kind of ſunk fence, the bottom of which will be conſiderably below the common ſurface: of courſe, any hedge planted in ſuch a ſituation will not only be put into the worſt of the ſoil, but will at the ſame time be in danger of periſhing from the moiſture lodging there, and chilling the roots; whereas, when it is planted on the other ſide, near the bottom of the ſlope, the plants have the beſt of the ſoil to ſtrike into, and are in a great meaſure ſecured againſt the bad effects of ſtagnant water. It may be remarked too, that in bleak ſituations, where hedges cannot be ſucceſsfully reared without ſhelter, the bank of earth is a good contrivance, as it ſcreens the young plants from the weather, till they acquire a degree of ſtrength ſufficient to enable them to reſiſt the rigour of the climate, which moſt plants are able to do when they reach a certain age and ſtrength. In ſuch caſes theſe earthen mounds are often eſſential to the preſervation of good hedges, eſpecially of white-thorn.

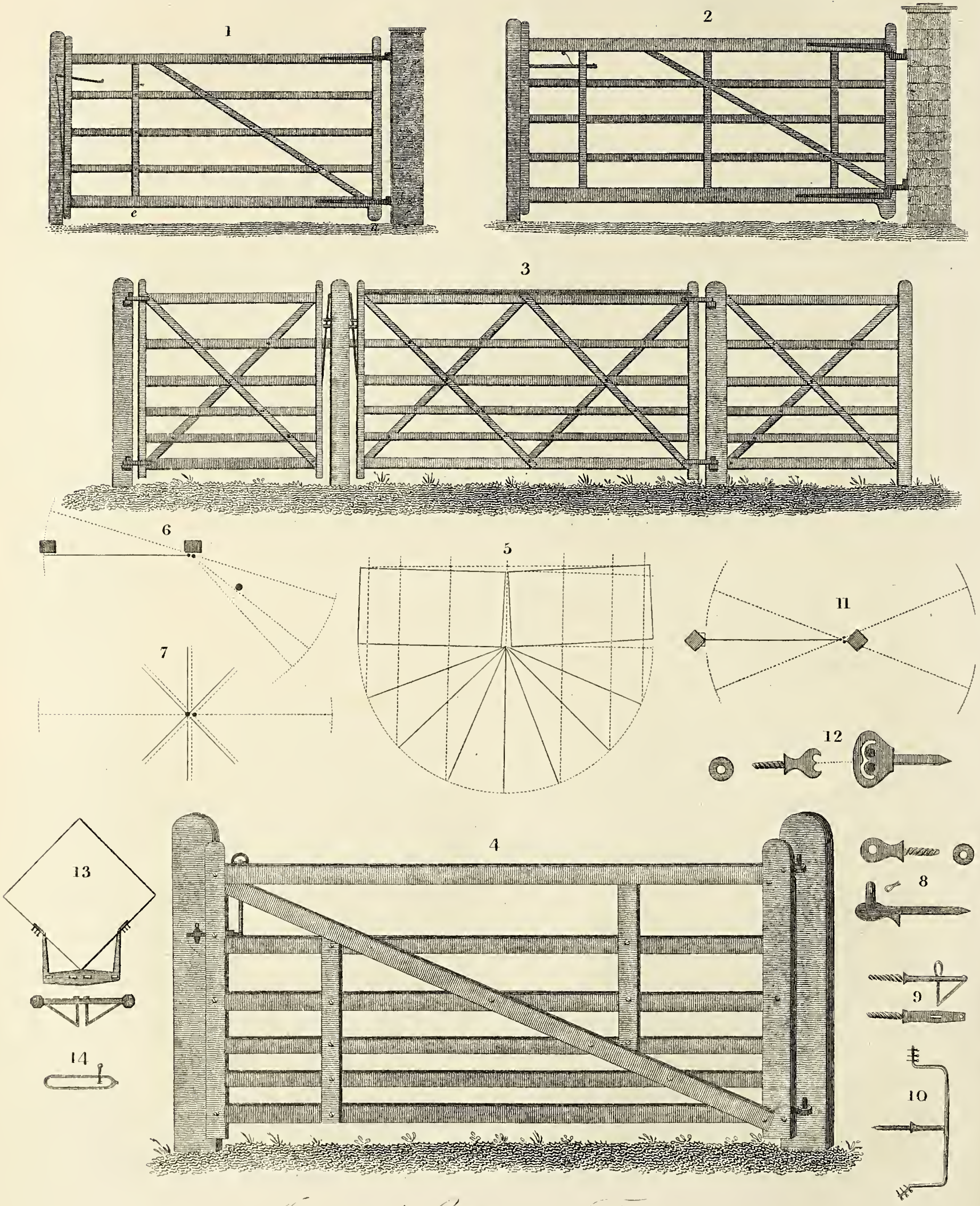
HEDGE IN FACE OF BANK.—This differs from the former principally, in having the hedge in the front of the bank conſiderably above the common ſurface, inſtead of having it at the bottom, as above deſcribed. The work is executed in the following manner: The bank, faced with ſod on one ſide, and having a gradual ſlope on the other, is raiſed to the height of two feet; the top is then levelled, and covered with two inches of good earth, above which the plants are laid horizontally, with their tops projecting about a couple of inches over the edge of the bank; the roots are afterwards covered with the ſame mould, and the bank raiſed to the intended height. This fence, however, is inferior to that already deſcribed, as the hedge-plants, by being raiſed ſo much above the common ſurface, are liable to great injury, not only from the bank decaying and mouldering down, and by that means depriving them of nouriſhment at the roots, but alſo from the effects of froſt, drought, &c. In many inſtances, nevertheleſs, it is very uſeful, eſpecially in the incloſing of wet lands, where hedges would not thrive if placed upon the common ſurface; but in ſuch caſes great advantage would ariſe from placing the hedge-plants about eight or ten inches back from the front, ſimilar to what is done in the common ditches; and, planted in this way, there is leſs riſk of the bank mouldering down. Theſe hedge and bank fences are often met with by the ſides of highways, in ſituations where the ground has a ſudden declivity towards the road. In theſe caſes it is common to cut down the face of the bank, in a ſloping direction, to within eighteen or twenty inches of the bottom, where a bed is made of about two feet in breadth, covered with good earth broken very ſmall; upon this the plants are laid, with their extremities about nine inches from the front; the roots are then covered with eight or nine inches of good mould; the bed below with the projection, in this caſe, ſerves the ſame purpoſe as the ſcarcement of the common ditch, and affords complete room for cleaning, and drawing up the earth to the roots of the hedge-plants. In the conſtruction of this fence it is eſſential to give the face of the bank ſuch a ſlope, as to prevent the earth from tumbling down; for if this is neglected, it will be continually falling in large maſſes after every froſt, or fall of ſnow or rain.

MOUND, OR DEVONSHIRE FENCE.—This conſiſts of an earthen mound, ſeven feet wide at bottom, five feet in height, and four feet broad at top, being moſtly carried up between two ſod-banks, and upon the middle of which a row of quick is planted, and on each ſide, at two feet diſtance, a row of withy ſtakes, of about an inch in diameter each, and from eighteen inches to two feet long, are ſtuck in, ſloping a little outwards; theſe ſtakes ſoon take root, and form a kind of live fence for the preſervation of the quick in the middle. Different ſorts of ſide-plants however may be proper in forming fences of this nature in different ſoils and ſituations. In poor thin ſoils, in bleak and expoſed diſtricts, furze is often found to afford a good protection, as well as a conſiderable ſhelter. But in this caſe the ſides ſhould be kept pruned, ſo as to preſent a cloſe firm face above the top of the bank. In ſimilar expoſed high tracks of land, the beech and ſycamore are likewiſe found beneficial in raiſing fences. But, in lower more favourable expoſures for the growth of hedge-wood, the hazel, oak, and aſh, may be had recourſe to for this purpoſe. The ſallow is alſo a ſort of wood that often grows well on the more high and dry aſpects, and may be uſeful as a fence-wood in ſuch places.

HEDGE AND DEAD HEDGE.—This fence conſiſts of a row of quick, or other hedge-plants, ſet either upon the plain ſurface, or in the face of a ditch or bank, having a dead hedge to protect them. This dead hedge anſwers a double purpoſe, namely, that of protecting the young plants from the injuries they may receive from cattle, or the inclemency of the weather; and at the ſame time forming a temporary incloſure, which laſts till the hedge is grown up. Where dead hedges are made of ptoper materials, ſuch as the cuttings of thorn, &c. and are well let into the ground, they anſwer the purpoſe very completely, and ſhould always be uſed for the protection of young hedges, where the materials can be obtained.

Where land is much expoſed to the ſea-air, it is found extremely difficult to raiſe quick-fences upon it, as this air, probably from the ſuperabundant quantity of muriatic acid which it conveys, and which is readily ſeparated from it, on account of its looſe ſtate of combination, is highly deſtructive to the white thorn, and ſeveral other plants employed in the making of fences. The beſt mode in ſuch ſituations is probably that of planting beech, as it ſeems, in a great meaſure, proof againſt the injurious operation of this kind of air. The bank on which it is to be planted, ſhould be ſix or ſeven feet high, and four or five in width at the top; on which the young beech-plants are to be put in, in two or three rows, at about the diſtance of a foot from each other, and ſufficiently thick in the rows. In moſt caſes no ditch is made; but in ſome inſtances the banks, or mounds, are prevented from crumbling down either by a low ſtone wall, or ſome other ſuitable guard at the baſe. The growth of theſe plants is rapid; they therefore ſoon form, not merely an excellent and beautiful fence, but one that is highly advantageous both in reſpect to the ſhelter which it affords, from the leaves being retained to a late period, and the annual profit that may be derived from it; as, when at maturity, one of the rows may be alternately cut and converted to various uſes, and the others plaſhed or trimmed, ſo as to yield much wood for fuel or other purpoſes.

In planting hedges of willow or withy and other aquatic plants, the ground ſhould always be made as mellow and friable as poſſible, and the ſhoots to be employed of two or three years' growth, and freſh cut off at the time of uſing them. They are then to be put into a narrow ridge of ground, prepared for them at the diſtance of eight or ten inches from each other, the tops being bent different ways, and plaited firmly together ſo as to make a fence. The grey willow is probably the beſt kind for this purpoſe.



Improved Gates and Fastenings.

The beſt ſecurity for all hedges or fences, is a deep and wide ditch. Theſe are conſtructed with different intentions, being ſometimes formed only as a part of a fence, or as a drain, while at others they ſerve equally the purpoſes of drainage and incloſure. In forming ditches, regard is neceſſary to the peculiarity of the ſoils, and the nature of their drainage, in order that they may be dug in a ſuitable manner in reſpect to depth, and the direction moſt convenient for conveying away the water: much miſchief being frequently occaſioned by its remaining ſtagnant. When ditches are made only for the purpoſe of fences, they ſhould be ſufficiently wide to prevent animals from getting over them, and be more than uſual ſloped in the banks, that cattle may not ſo readily poach them in. Ditches of this ſort ought to be more frequently cleaned out, and have their ſides well pared down, than is the general cuſtom among farmers. Where hedges are made, the ditches, as has been ſhown, are either ſingle or double; the latter is more ſuitable where much water is to taken off from the adjoining land; and, in caſes where the earth is well thrown up in the middle, a tolerable temporary fence may be formed.

Should there occur, in any part of the farm thus to be laid out, either arable land or meadow afflicted with weeping ſprings or bogs, recourſe muſt immediately be had to draining; than which nothing can prove more beneficial to the eſtate of the landlord, or more advantageous to the crops of the tenant. For the lateſt and moſt approved methods of draining, with the new draining-plough, and other modern implements for laying wet land dry, ſee the article DRAINING, vol. vi. p. 53–63.

When the farm is thus far completed in its practical arrangement, the next conſideration is its gates and faſtenings; for it is a deplorable thing, in windy and ſtormy weather, to ſee gates, as we too frequently do, blowing and ſwinging all day long, and beating themſelves to pieces againſt their poſts, only for want of proper faſtenings, and of care in keeping them ſhut. A very uſeful form for a gate is deſcribed by Mr. Robertſon, in his Survey of the County of Perth. "The back of the gate itſelf," ſays he, "(independent of the poſt on which it hangs), has a projection of three inches in the timber on the fore ſide, riſing nine inches from the foot of the moveable part. On this projection reſts the back end of the diagonal bar, which points upwards to the fore part of the gate, and reaches about four feet and a half in that direction. This diagonal bar is of ſuch a thickneſs, that every one of the horizontal bars paſs through it, nicely mortiſed, except the loweſt and the higheſt. About ſix or ten inches from the termination of the diagonal bar above, there is a perpendicular one fixed in the two outſide ones above and below, and of ſuch a thickneſs as to admit all the reſt to paſs through it, mortiſed as they are in the diagonal bar." The reſt of the gate is made in the ordinary way, and may be of any length. See a plan of this gate in the Huſbandry Plate I. fig. 1. Theſe gates alſo admit of being made double, having more than one perpendicular bar. The excellence of this conſtruction is, that all the horizontal bars, except the higheſt and loweſt, reſt, not on the poſts only, but likewiſe on the diagonal and perpendicular bars; and that the diagonal bar itſelf reſts on the projection of ſolid wood at the foot of the back poſt; ſo that it is impoſſible the joints can ſtart or the gate come aſunder, until the timber rot; or that the gate itſelf can fall forward, unleſs the pivot, on which it moves, or the pillar on which it hangs, be faulty. It is far ſuperior to any gate whoſe diagonal bar is fixed only by nails to the horizontal ones. See this correctly repreſented in the Engraving at fig. 2.

A gate which partakes of ſome ornament, as well as of conſiderable utility, has been recently invented by Mr. Waiſtell, of High Holborn, London, and which we have ſeen erected in many ſituations, with a very pleaſing effect. "The various methods uſed, (ſays Mr. Waiſtell,) in bracing common gates for fields, prove that not one of them is greatly ſuperior to the reſt; for, if it were, that method would have been generally adopted. Moſt gates are loaded with ſuperfluous timber in ſome of their parts, whence they are frequently broken by their own weight, aided by the concuſſion of the head againſt the falling-poſt; and this, long before any part of the wood has begun to decay. Gates made according to the plan here laid down poſſeſs greater ſtrength, are very light, and of eaſy and ſimple conſtruction; and, although uniformity of appearance be not eſſential in a common gate, yet it is worth having when it can be obtained, as in this gate, without additional expence. Its ſtrength conſiſts in there being at four diſtant points, between the head and the heel, two bars and a brace croſſing each other; whence it muſt be found proportionably more durable." This gate is correctly repreſented in the Engraving at fig. 3. It was deſigned for the approach to a country reſidence; but, for common purpoſes, the wicket on one hand, and the ſhort length of rails on the other, may be omitted.

The head and heel of the gate may be of oak, and the bars and braces of fir. Narrow and thick bars, when braced, as in this deſign, are ſtronger than broad and thin ones, containing the ſame quantity of timber, and they alſo oppoſe a leſs ſurface to the wind. The two points in the heel of the gate, to which the thimbles are faſtened, may be conſidered as firm or fixed points. From theſe points, two braces proceed in the middle of the bottom and top bars, and, being there ſecured, become fixed points. The gate is thus doubly braced, viz. from the top of the heel to the top of the head; and from the bottom of the heel to the bottom of the head. On each ſide of the gate are two braces, and thoſe parallel to each other. The brace proceeding from the bottom of the heel of the gate, and that which is parallel to it, as alſo the bottom bar, are all ſtrained in the way of compreſſion, and the brace proceeding from the top of the heel, and the other brace which is parallel to it, and alſo the top bar, are all ſtrained in the way of extenſion. The ſtrains in this gate being none of them tranſverſe, but all longitudinal, it would ſupport a vaſt weight at its head, without having its form altered. The braces all ſerve the double purpoſe of keeping the gate in its true form, and of ſhortening the bearings of the bars, and ſtrengthening them. Few gates have leſs timber in their braces; and perhaps in no other way can a gate be ſo firmly braced with ſo ſmall a quantity of timber.

If, in ſome caſes, a ſtrong top-bar be wanted to reſiſt the preſſure of heavy cattle, a bar or board, about ſix inches broad and one inch thick, may be laid with its broad ſide upon the top bar, and fixed thereto by means of the ends of the braces in the middle, and by the heel and head of the gate at the two ends of it. This board will, in this poſition, reſiſt exactly the ſame preſſure as a thick top bar, three inches broad by four inches deep, although it contain no more than half the timber.

When gates are hung to open one way only, their heels and heads generally reſt againſt the hanging and falling poſts; but when they are hung according to this deſign, gates may be made about one foot ſhorter for the ſame opening, and conſequently they muſt be lighter, ſtronger, and leſs expenſive. According to the eſtabliſhed principle of hanging gates, when the two hooks in the hanging-poſt are placed in the ſame perpendicular line, a gate, like a door, will reſt in any direction in which it may be placed. But, in order that a gate may ſhut itſelf when thrown open, the hooks are not placed exactly perpendicular; the upper hook declining a little towards the falling-poſt, or a few feet beyond it. In whatever direction that hook declines the fartheſt, in the ſame direction will the gate reſt, if unobſtructed; and its head cannot then ſink any lower. If the head be made to deſcribe half a circle, it will thus have attained its utmoſt elevation, and will be equally inclined to deſcend either to the right or to the left.

The following method of fixing the hooks and thimbles, will be found to anſwer well for a gate that is intended to open only one way. Suppoſing the face of the hanging-poſt to be ſet perpendicular, and the upper hook driven in near its inner angle, and that the lower hook muſt be four feet and a half below it; ſuſpend a plumb-line from the upper hook, and at four feet and a half mark the poſt; then, at one inch and a half farther from the gateway than this mark, drive in the lower hook; this hook muſt project about half an inch farther from the face of the poſt than the upper hook. A gate thus hung will, when thrown open nearly to the line of its higheſt elevation, return to the falling-poſt with a velocity ſufficient to reſiſt a moderately-ſtrong wind. This velocity will be either increaſed or diminiſhed, accordingly as the upper hook declines more or leſs from a poſition perpendicular to the lower hook. In order to adapt the thimbles to theſe hooks, as the lower hook is one inch and a half farther from the gateway than the upper hook, the lower thimble muſt have its eye an inch and a half farther from the heel of the gate than the eye of the upper thimble, in order that the bars of the gate may be in a horizontal poſition when it is ſhut. And, as the upper hook projects half an inch leſs from the hanging-poſt than the lower hook, the upper thimble ſhould be fixed half an inch nearer the farther ſide of the heel of the gate than the lower thimble, in order that the gate may be in a perpendicular poſition when ſhut. If the thimbles have ſtraps embracing the heel of the gate, and proceeding a few inches along each ſide of the bottom and top bars, and if they are fixed to the heel bars and braces, by means of iron pins and ſcrew-nuts, great firmneſs will be given to the gate at thoſe two points, which are thoſe that ſuffer the greateſt ſtrains.—For this improved gate Mr. Waiſtell received the public thanks of the Society for the Encouragement of Arts and Manufactures.

But the moſt ſcientific mode of hanging and ſecuring a very ſtrong and uſeful gate, is preſented to us by Thomas N. Parker, eſq. A plan of this gate is delineated in the Engraving at fig. 4. in which the top rail is ſupported by a long diagonal lacing let into the heel of the gate with a ſtrong butment, and ſecured from warping by the two upright lacings; the upper thimble being attached to, or forming a part of, a long bar or ſtrap of iron of the ſame length as the gate, is faſtened at the one end by a ſtout ſhouldering, and at the other by a ſcrew-nut, and the whole is put together with ſcrews: by this plan the gate is not likely to ſink at the head, neither is the top rail weakened with mortiſes, but greatly ſtrengthened by the iron ſtrap.

Mr. Parker then proceeds to the nicety of hanging his gates: On the principles here laid down, ſays Mr. Parker, a gate is conſidered as a lever of the ſecond kind; and, when ſuſpended by hooks or pivots preciſely perpendicular to each other, it will be at reſt wherever it may be placed; but, by the ſmalleſt variation of the hooks from their perpendicular poſition (provided it be ſufficient to overcome the friction), a gate will acquire one determinate line of reſt, and an oppoſition-line of equilibrium; and conſequently, from any part of a circle which a gate ſo ſuſpended may be made to deſcribe, it muſt have a conſtant tendency to fall to that line of reſt.

When a gate is in its line of reſt, or oppoſite line of equilibrium, the hooks and the centre of the gate's gravitation will be in one and the ſame vertical plane; and, when the hooks are perpendicular to each other, it can admit of no doubt that they muſt be in the ſame vertical plane with the centre of the gate's gravitation, becauſe they will be ſo with any third given point whatſoever.

The requiſite velocity for the fall of a gate which opens but one way, is obtained by an extra length of the lower thimble, or, more properly, by the horizontal diſtance of two perpendicular lines, one falling from the centre of each of the hooks or pivots upon which a gate is ſuſpended; and the proportion is not to be determined ſo much by the length and weight of the gate, as from the diſtance of two hinges from each other; about a quarter of an inch muſt alſo be added to the extra length of the lower thimble for what is loſt in the hanging of the gate, excluſive of the perpendicular difference of the two pivots. The velocity given to the gate's fall by the extra length of the lower thimble, is calculated for ſuch hinges as are rounded off and well-finiſhed; it being now aſcertained "that the ſmalleſt ſurface will have the leaſt friction." See Mr. Vince's Experiments "On the Motion of Bodies affected by Friction," Phil. Tranſ. vol. lxxv.

A gate nine feet long ſhould riſe at the head in opening about ſix inches, by which it will acquire a ſufficient tendency to fall to its line of reſt; and, ſuppoſing the hinges to be forty inches aſunder, it follows, that as the length of the gate is to the difference between the height of the head of the gate when in its natural line of reſt, and the height of the head of the gate at its greateſt elevation, or oppoſite line of equilibrium, ſo will be the diſtance of the two hooks to double the clear extra length of the lower thimble; that is, reducing it to inches, as 108 : 6 :: 40 : $2\frac{2}{12}$: therefore, this extra length of the lower thimble ſhould be $1\frac{4}{12}$, including the $\frac{3}{12}$ allowed for what is loſt in the hanging. From this proportion may be deduced any other; for example: if the diſtance of the two hinges were 30 inches, then the extra length of the lower thimble would be $1\frac{1}{12}$; becauſe as 40 : $1\frac{1}{12}$ :: 30 : $\frac{10}{12}$, and $\frac{10}{12} + \frac{3}{12} = 1\frac{1}{12}$, ſuppoſing a gate to be a right-angled parallelogram, or equivalent thereto as far as regards its upright ſuſpenſion. See fig. 5.

A gate, being thus hung, will not fall with an uniformly-accelerated motion, as might be imagined, but with a velocity ſomewhat increaſed towards the middle part of its ſemi-circular courſe, and retarded again in approaching its line of reſt, coinciding with a proportionate riſe of the head of the gate; one-half of which riſe, or three inches, it attained in the firſt half, or 90°, of the gate's ſemi-circular motion from its line of reſt, and the other half or three inches is added in completing the ſupplementary arc of 90°, but ſubject to certain variations in the intermediate parts of the gate's motion, viz. as the verſed ſine of the angle formed by the gate with its line of reſt is to the length of the gate which is made radius, ſo will be the correſponding riſe of the head of the gate to three inches, at any given angle within the quadrant: and the riſe of the head of the gate afterwards will be, as the *co-ſine* of any given angle formed by the gate with its line of equilibrium, is to the length of the gate or radius, ſo will be the correſponding riſe of the head of the gate to the remaining three inches. And by calculation it appears, that the riſe of the head of the gate will be as follows in each 22° 30′ or $\frac{1}{8}$th part of its ſemi-circular motion from the line of reſt to the line of equilibrium:

| | | | |
|---|---|---|---|
| In the 1ſt | 22° 30′ | it will riſe | $\frac{3}{12}$ of an inch. |
| 2d | ditto | ditto | $\frac{7}{12}$ |
| 3d | ditto | ditto | 1 |
| 4th | ditto | ditto | $1\frac{2}{12}$ |
| 5th | ditto | ditto | $1\frac{2}{12}$ |
| 6th | ditto | ditto | 1 |
| 7th | ditto | ditto | $\frac{7}{12}$ |
| 8th | ditto | ditto | $\frac{3}{12}$ |
| Total | 180° | will give the riſe of | 6 inches. |

Fig. 6, repreſents the horizontal ſection of two gate-poſts, with black ſpots where the hooks ought to be placed, the falling-poſt meeting the gate at $\frac{1}{8}$th of the ſemi-circle or 22° 30′ ſhort of its line of reſt, the better to reſiſt the effects of wind; the upper thimble being placed about half an inch nearer to the hanging-poſt, and the upper hook proportionably ſhorter than the lower one, the gate will be upright when faſtened, notwithſtanding it be ſo much ſhort of its line of reſt. Half an inch may be aſcertained to be the proper allowance for the above purpoſe, thus: take a common horizontal diſtance of two perpendicular lines, one falling from each of the hooks $1\frac{2}{12}$ths inch, to which I have an angle of 22° 30′ given, and a right angle parallel to the inſertion of the upper thimble into the heel of the gate is aſſumed of courſe; upon theſe data I complete the triangle, and find that the given line being $\frac{14}{12}$ths of an inch, the line determining the new poſition of the upper thimble muſt be $\frac{6}{12}$, and the diagonal line, or line ſubtending the right angle, will be $\frac{15}{12}$; thereby adding $\frac{1}{12}$ of an inch to the horizontal diſtance of two perpendicular lines, one falling from each of the hooks, which is not material, as many of my readers would be diſpoſed to ſacrifice a little more wear and tear of their gates to increaſe the velocity of a gate's fall, and in ſome meaſure provide againſt high winds.

At fig. 6, a ſhort poſt is repreſented to prevent the gate opening beyond the $\frac{1}{8}$th part of the ſemi-circle ſhort of the line of equilibrium, which may be placed ſtill further within that line, as convenient; for if a gate's line of faſtening be as uſual, at right angles to the road, the gate need not open wider than from 22° 30′ to 45° beyond the quarter-circle, for any occaſion. A left-handed gate will admit of the ſame explanation, by only reverſing the form of the hinges.

The above obſervations apply alſo to a ſwing-gate, as ſhown at fig. 11, and the lower hinge is more particularly repreſented at fig. 12; in the one part of which two hooks and an open groove are ſeen, and the other is placed diagonally to ſhow an iron peg, made to fit into the groove, whereby the objection of a ſwing-gate being eaſily taken off the lower hinge, when two centres are uſed there, is done away.

Fig. 7, repreſents a pair of hinges by two black ſpots, in order to ſhow, that a hammer, applied in any direction of the lines drawn through one of the hooks, will have the contrary effect of a blow given to the other hook in the ſame direction, as is marked by dotted lines, upon the principle with which we ſet out; that the two centres of a gate's ſuſpenſion, and the centre of the ſame gate's gravitation, when in its natural line of reſt, will be found to be in the ſame vertical plane.

Fig. 8, repreſents the lower hook and thimble and waſher for a gate to open one way; the hook being furniſhed with a key-hole and cotter, which for a ſwing-gate ſhould be attached to the other or upper hook. The upper thimble for a common gate is made with a ſtrap to paſs through the heel, and faſten to the top rail of a gate with ſcrews and a ſtaple in the uſual manner.

Fig. 9, is a catch adapted for the peg-latch and guard, as ſhown at fig. 10; but, when uſed with the jointed latch repreſented on a reduced ſcale in the gate at fig. 4, it ſhould have a button or ſtud in the place of the ring.

Fig. 13, repreſents the double catch for a ſwing-gate; and the latch in the gate at fig. 4, is equally well calculated for a ſwing-gate, as for a gate to open one way only.

Fig. 14, is a haſp with a peg attached to itſelf; the peg paſſes through the lower hole to faſten with a ſtaple, and moves freely in the upper hole; but a ſtud prevents the peg being drawn quite out, or ſeparated from the haſp.

The faſtenings for gates which are here recommended, are very readily opened either on foot or on horſeback, particularly with the jointed latches; at the ſame time that it is barely poſſible for cattle to open them; for private fields, where there are neither roads nor paths, it cannot be very material what kinds of gates or iron-work may be adopted, ſo that a good fence is ſecured; nevertheleſs, in regard to road-gates, any means of counteracting the careleſſneſs of paſſengers becomes very deſerving of attention.—We deem this the beſt and moſt convenient of all the gates for general uſe. Oak is the beſt of all timber for gates; but, as it is very dear, we ſhould, on the ſcore of durability, adviſe that they be painted over with ſome cheap pigment.

With regard to the old and long-conteſted queſtion, "Whether *large* or *ſmall* farms are moſt advantageous to the community, the experience of modern times has completely decided in favour of the former. It has been very properly ſuggeſted, that if the introduction of improvements in cultivation, and the breeds of the different ſpecies of live ſtock, are objects of importance to the proprietors of the kingdom as individuals, large farms muſt be conſidered by them as beneficial. As individuals, alſo, they muſt experience other advantages from large farms. The extent of capital employed in ſtocking and cultivating theſe farms, inſures a regular and conſtant ſupply of the neceſſaries of life in a double or triple proportion to what could be done by the ſame land being divided between ſeveral poor farmers. It is from large farms that the towns are principally ſupplied with the great articles of grain, fat cattle, and ſheep of the beſt quality. And as large farms are generally kept in the higheſt ſtate of cultivation of which the lands are ſuſceptible, and managed with the feweſt number of hands, the greateſt quantity of produce that can be ſpared from the like extent of land neceſſarily goes to market. To the occupiers of large farms it is alſo chiefly owing that the ſupply of the towns in theſe indiſpenſable articles is ſo regularly maintained. If theſe farmers could not afford to keep their grain and fat cattle on hand, till thoſe of the poorer tenants were diſpoſed of and conſumed, the markets would either be over-ſtocked at particular ſeaſons, and entirely empty in others; or, what is equally bad, the articles would get into the hands of a few dealers, who, by mutual conſent, might raiſe the price to any extent they pleaſed, to the great injury of the community.

The ingenious author of the corrected "Report of the County of Cheſter," contends for the ſuperior advantage of large farms on the following grounds. "Twenty or thirty acres of land cannot, (ſays he,) in the nature of things, furniſh full employment to a farmer; nor is the profit which they afford by any means adequate to the comfortable ſubſiſtence of a family; a man, therefore, who enters upon a farm of this deſcription, muſt either have ſome other occupation, to which he directs a great ſhare of his attention, or muſt unavoidably be ſubjected to poverty, and all its concomitant diſtreſs. In either of theſe caſes, the diſpoſition of the land cannot but be regarded as unfavourable to the general intereſts of agriculture; in the former, farming being made an object of ſecondary conſideration, and frequently being very imperfectly underſtood, the cultivation of the land is ſeldom carried to its practicable length, and, conſequently, a certain proportion of produce is virtually loſt to the community: in the latter caſe, the evils reſulting from a farm of this deſcription are ſtill more decided in their nature; ſince it will be generally admitted, that no ſpecies of occupation can be beneficial in its conſequences to the country at large, which is not ſo to the individual immediately concerned in it. The ſame reaſoning will apply equally to farms of forty or fifty acres; wherever the extent of land is not ſufficient to furniſh full employment to the farmer, and a comfortable ſubſiſtence to his family, a certain portion of perſonal exertion muſt neceſſarily be loſt, and the conſequences muſt be unfavourable, whether conſidered individually, or in a national point of view.

"Another ſerious objection to ſmall farms may be grounded on the difficulties they oppoſe to general improvements in agriculture. A farmer, entering upon thirty or forty acres, very frequently with a high rent, and little or no capital, cannot be expected to make any material improvement on his land, or to attempt experiments in cultivation, which are probably expenſive in the firſt inſtance, and uncertain in the reſults they may afford. All that he can do is to purſue the old beaten track; to force out of the ground the payment of his rent, and a bare ſubſiſtence for his family; and fortunate may he eſteem himſelf if he ſucceeds ſo far as to do this. On the other hand, the man who farms a conſiderable extent of land, can purſue with vigour any new modes of agriculture that appear likely to be attended with beneficial effects; the poſſeſſion of a competent capital enables him to undertake, and put into execution, any improvements of which his farm is ſuſceptible, till by theſe means his lands are brought to the higheſt ſtate of fertility. The opportunity which is afforded him, of making one department of his farming-economy ſubſervient to another, is an additional advantage which the farmer on a ſmall ſcale cannot carry into effect to any great extent. The latter too muſt neceſſarily expend on his land a quantity of capital greater in proportion than is required in a farm of more conſiderable ſize; he muſt have his cart and horſes, his plough and his harrow, and every other agricultural implement, as well as his neighbour, though he has only thirty acres, and his neighbour eighty or a hundred. Reverting then to the well-eſtabliſhed, and, indeed, ſelf-evident axiom in political economy, that capital is moſt advantageouſly employed, when, with a given quantity, the largeſt proportion of produce is the reſult; it ſeems ſcarcely to admit of a doubt, that large farms are, in this point of view, greatly more beneficial to the nation at large, than thoſe of ſmall extent only.

"The principal objections to large farms are (he ſays) founded on the tendency, which, as already noticed, it is aſſerted, they have to diminiſh the population of the country, and to increaſe the price of proviſions. It is obvious, however, that both theſe objections cannot ſtand their ground at the ſame time. If the population of the country be diminiſhed, while the produce of the ground is increaſed, or even while it remains the ſame in point of quantity, it is clear that no increaſe in the price of proviſions can take place; on the contrary, it would be natural to expect a very conſiderable reduction in this reſpect. As theſe objections againſt large farms may, however, be urged individually, it is proper that a diſtinct anſwer ſhould be given to each of them. With reſpect to its influence on population, it cannot be denied that the conſolidation of ſeveral ſmall farms into one of larger extent might have the immediate effect of throwing a number of individuals out of employ; many of whom, from the inadequate demand for labour of other kinds in the country, would be neceſſitated to have recourſe to emigration. But this effect could be of only temporary duration. If, in conſequence of the diminiſhed number and increaſed ſize of farms the improvements in agriculture became more extended, and its general ſtate more flouriſhing, it can ſcarcely be doubted but that the ultimate effect in this change in the diſpoſition of the land muſt be favourable to the population as well as to the proſperity of the country. The immediate effects of the adoption of improved modes of cultivation, and of the increaſed quantity of produce from a given proportion of capital, muſt be a diminution in the price of proviſions. As a neceſſary conſequence of this, the price of labour muſt likewiſe be diminiſhed; or, to ſpeak in more general terms, an increaſed value would be given to the circulating medium: a circumſtance highly favourable to a country; as it regards its commercial and manufacturing connections with other nations. The equalizing nature of commerce would, indeed, in proceſs of time, reſtore this value to its accuſtomed level; but the impulſe which had been given, meanwhile, to induſtry of every kind, could not fail to inſure internal proſperity, and conſequently, an increaſe of population to the country. If this reaſoning be accurate, there appears, ſays the writer, no grounds for doubting that the enlargement of farms would be productive of eſſential benefit to the real intereſts of the nation; a trifling diminution in population might, perhaps, indeed be the immediate reſult of the meaſure in queſtion; but that the ultimate conſequences of its operations would be injurious in this reſpect does not appear probable.

"The objection which has been urged againſt large farms, as tending to enhance the prices of proviſion, ſeems equally void of validity. The grounds of this objection are, that, by the enlargement of farms, the competition which exiſts between ſmall farmers would be in a great meaſure loſt, and a ſpirit of monopoly introduced in its ſtead. In anſwer to this, it may be ſufficient to aſk the ſimple queſtion, Why may not this competition, eſteemed ſo advantageous to the country, take place among farmers who hold two, three, or four, hundred acres of land, as well as among thoſe who hold thirty or forty? That this is contrary to experience the writer can by no means allow. Wherever monopoly has been the immediate cauſe of an unuſual high price of corn, or other neceſſaries of life, it muſt, he conceives, have been practiſed on a much larger ſcale than could be done by any combination of farmers in the country. In fact, a very ſlight conſideration muſt prove the futility of any objections to large farms reſted on theſe grounds. Suppoſing, for the ſake of argument, that the farmers in one county or diſtrict ſhould combine to keep their ſtocks out of the market, and thus to raiſe the price of proviſions, is it at all conſiſtent with probability to ſuppoſe that the farmers in the neighbouring diſtricts would favour this ſcheme, by retaining their individual ſtocks; on the contrary, is it not more likely that they would immediately come forward to ſupply the deficiency in the market, and thus counteract the deſigns of their more avaricious neighbours? Indeed, it appears a point ſo clear, that the ſame competition of intereſts muſt exiſt among large as well as among ſmall farmers, that the writer apprehends no concluſion can be deduced from this circumſtance which will not apply with equal force to both caſes. If then this competition renders proviſions cheaper where the farms are ſmall, will it not have preciſely the ſame effect where they are of large extent? And does it not appear highly probable, that a very conſiderable diminution of the price of proviſions would be the conſequence of the general enlargements of farms in the kingdom? This, as was ſtated before, muſt, in the natural courſe of things, be the immediate effect of improved modes of cultivation, and of an increaſed quantity of produce from a certain given expence of capital." The writer does not contend for an indefinite extenſion of the ſize of farms to an unreaſonable extent; but thinks they ſhould conſiſt of three or four hundred acres, as ſuperior in point of advantage to thoſe of other ſizes.

## *Of the LIVE STOCK.*

The firſt object of the young farmer when he commences the buſineſs, is to provide himſelf with a team or teams of horſes, in proportion to the magnitude of the concern in which he is about to embark. In the choice of theſe he will be regulated by the nature of the ſoil they will have to be employed upon, as well as their deſtination to other labour. Should the arable land conſiſt of clayey, or other adheſive, deep, and heavy, ſoil, the horſes intended for the purpoſe of conſtantly labouring upon it, will require to be heavier and ſtronger than ſuch as will have to work only on light, loamy, ſandy, or gravelly, ſoils. And again, where the arable land lies for the greater part flat and level, it will not require ſo much ſtrength as where it lies ſideling, and is frequently interrupted and broken by ſharp hills and ridges. Here the taſk is much more ſevere for the horſes, which muſt either do leſs work in a day, or poſſeſs ſtrength ſufficient to ſupport without fatigue the uſual hours of labour. On this ſubject, therefore, the farmer will contemplate with previous deliberation, and then make his choice from one or other of the moſt eſteemed breeds of draught-horſes, which we have pointed out under the article Horse, p. 384 of this volume.—Where the general labour of the team is not likely to be very ſevere, nor ſubjected frequently to timber-cart, or ſimilar heavy draught, our experience would urge us, in preference to all others, to recommend the Cleveland bays. They are certainly a moſt valuable breed of draught-horſes; are of an excellent ſize and ſhape; never refuſe their work; alert equally at plough or on the road; ſtand clean in the ſtable, where due care and good management are uſed; and always make a handſome appearance.

## Of SHEEP.

Should the farm be calculated to maintain a breeding flock of ſheep, and poſſeſs a right to an extenſive ſheep-walk on ſome contiguous, airy, and fertile, down, the advantages to be derived to the farmer from ſuch kind of ſtock, might, in the preſent times, be rendered uncommonly extenſive; not only by the ſale of the annual produce, and the high price of the wool, but by the practice of *folding*, which is the cheapeſt dung-cart in the world. Here the unceaſing object of the farmer muſt be to provide ample food in all ſeaſons, by growing large quantities of turnips, the production of which not only provides liberally for the flock, but enſures plentiful crops of corn to follow, as well as adequate ſupplies of red and white clover, cow-graſs, and other artificial graſſes; which, after being cut and made into hay, leaves a ſucceſſion of lays and relays of after-graſs, highly beneficial to the ſheep and lambs.

Of the numerous breeds of ſheep which England boaſts, the South Down or Sussex Breed has unqueſtionably the advantage. This, as well as their name, they derive from their paſturage on that alpine tract of country called the South Downs of Suſſex, which extend from eaſt to weſt the whole length of that country, and abut upon the Engliſh Channel. Here the paſture being ſhort, learns them to be quick feeders; while their expoſed ſituation renders them hardy, and extremely well adapted for the fold, to which they will travel a long way without fatigue. The mutton of this breed is alſo preferred for its rich flavour and tenderneſs, acquired undoubtedly from the aromatic herbage of the South Downs, heightened perhaps by the ſaline atmoſphere. This, therefore, is the kind of flock we ſhould wiſh to recommend, in preference to all others; particularly where the adaptation of the feed, and other conveniencies, can be made ſubſervient to their plentiful maintenance. This favourite breed is diſtinguiſhed by having no horns; grey or black faces and legs; fine bones; long ſmall necks; and by being rather low before, high on the ſhoulder, and light in the fore-quarter; ſides good; loin thick and broad; back-bone rather high; thigh full; mutton fine in grain. The wool is ſhort, very cloſe and fine; in length of ſtaple from two to three inches, and of much more value, generally ſpeaking, than any that is ſheared from our other breeds. Where the ewes are full kept, they moſtly produce twin lambs, nearly in the proportion of one-third of the whole; which are, when dropped, well woolled. The Dishley or Bakewell breed had for ſome time the pre-eminence; but it is an indiſputable fact, that gentlemen and opulent farmers have been, for ſeveral years paſt, eſtabliſhing large flocks of South Down ſheep in every part of England. It is found that the ewes are capable of being kept till between four and five years old, and ſtill maintain the work of the fold. The South Down ſheep, alſo from the compactneſs of their form, and their legs being ſmall and ſhort, conſiderably outweigh both the Dorſet and Norfolk breeds in proportion to the ſize of the carcaſe, being ponderous in a ſmall compaſs. Their hardineſs is eſtimated according to the darkneſs of the colour in the face and legs; whence *ſmuts* are generally preferred. They conſume leſs food in proportion to their weight than moſt other breeds, yet keep themſelves in better order.

But the favourite ſpeculation of the preſent day in ſheep, is almoſt excluſively beſtowed on the *Ovejas Merines* of Spain, called by us Merinos. In that country they maintain innumerable flocks of this fine breed of ſheep; part of which, during winter, feed in the levels, and in ſummer are driven up again into the mountains. From this breed is procured the beſt and fineſt wool. Aſtariz computes the number of Spaniſh ſhepherds at forty thouſand. The ſheep-walks are for the moſt part open downs with little ſhelter, except here and there a grove of cheſnut-trees, or ever-green oaks; the turf differs eſſentially from that of the Engliſh ſheep-walks, in containing very few ſpecies of graſs, being chiefly compoſed of the ſmaller papilionaceous plants. For this reaſon it has been generally allowed that the Spaniſh breed of ſheep is ſuperior to any in the world, for the delicacy of the mutton and the beauty of the fleece. This valuable breed of ſheep was firſt introduced into England by his preſent majeſty, under the direction of ſir Joſeph Banks; and they are ſaid to anſwer ſo well in the production of large quantities of the fineſt wool, that in a few years it is hoped our clothiers will be no longer ſubjected to the neceſſity of importing ſuch quantities of Spaniſh, or any other kind of foreign wool. The Merino ſheep are by no means beauties. The males have horns, but the females are ſometimes without; white faces and legs; the body not very perfect in ſhape; rather long in the legs; fine in the bone; a degree of throatineſs or production of looſe pendulous ſkin under the neck; and the pelt fine and clear.

The affinity of alpine paſturage, and aromatic feed, which our South Down breed ſeems to bear with the Merinos, has naturally pointed them out for a cross by the Spaniſh ram; whence the breed called *Anglo-Merino* have their origin. On this croſs breed, in all probability, much ſucceſs will depend; for when we reflect that the tenderneſs of the Merino breed, in coming from a warmer climate, will, by the hand of Nature, be adapted to a colder climate with us, while the offspring gradually partake of the ſuperior hardineſs of the dam, they will not only throw fleeces of three or four times the value of the South Down ſheep, but be equal to the work of the fold, and in fattening riſe to nearly the ſame weight with our native South Down wethers. This, however, is a ſpeculation to which we wiſh every imaginable ſucceſs; but the event of it muſt remain in the boſom of time.—For other particulars relative to the Merino breed of ſheep, ſee under their generic name Ovis, in this Encyclopædia.

In the choice of a ram, Mr. Culley has thus directed our attention to the principal perfections: "Head fine and ſmall; noſtrils wide and expanded, eyes prominent, rather bold or daring, ears thin, collar thin from breaſt to ſhoulders, tapering gradually to where the neck and head join, which ſhould be fine and graceful, being free from any coarſe leather hanging down; ſhoulders broad and full, joining ſo eaſy to the collar forward and chine backward, as to leave no hollow in either place; mutton upon arm or fore-thigh quite to knee; legs upright, with clean fine bone, equally clear from ſuperfluous ſkin and coarſe hairy wool, from the knee and hough downwards; breaſt broad and well forward, to keep the fore legs at a proper wideneſs; girth or cheſt full and deep, and, inſtead of a hollow behind the ſhoulders, that part by ſome called fore-flank quite full; back and loins broad, flat, and ſtraight, from which the ribs muſt riſe with a fine circular arch; belly ſtraight; quarters long and full; mutton quite down to hough, which ſhould neither ſtand in nor out; twiſt or junction of inſide of thighs deep, wide, and full, which, with the broad breaſt, keep the fore-legs open and upright; thin pelt, covered with fine, bright, ſoft, wool."

We ſhall here, for the general information of the farmer and grazier, juſt mention the other breeds of ſheep indigenous in England.

The Dishley or Bakewell Breed, now called the *New Leiceſterſhire Breed*, is diſtinguiſhed from the other long-woolled ſheep by having lively eyes, clean heads without horns, ſtraight broad flat backs, barrel-ſhaped bodies; ſmall bones; thin pelts, and a diſpoſition to make fat at an early age; to which may be added a ſuperiority in the fineneſs of the grain and flavour of the mutton to that of other ſheep of the large long-woolled breeds. The principal objections to this improved breed have been made on the grounds of their fattening too much, and the mutton in conſequence becoming leſs delicate in its flavour than in that of other breeds that require a greater length of time in the proceſs; on the deficiency in the quantity of wool which they produce, and on their not being calculated for the fold.

The Lincolnshire Breed is known by having no horns; white faces; long thin weak carcaſes; thick rough white legs; bones large; pelts thick; ſlow feeding; mutton coarſe-grained; the wool from ten to eighteen inches in length. This breed is capable of being kept with advantage, and made fat, only on the richeſt ſorts of grazing paſtures. The weight of mutton which theſe ſheep afford is great; but the fleſh is coarſe, with a large proportion of bone. The chief object is in the large quantity of wool which they afford, which pays for their being kept longer than other breeds before they are made fat; but it is coarſe, and always low in price.

In the Tees-water Breed, the legs are longer, finer-boned, and ſupport a thicker and more firm and heavy carcaſe, than the Lincolnſhire; the ſheep are much wider on the backs and ſides; and afford a fatter and finer-grained mutton. The wool is ſhorter and leſs heavy than in the preceding breed. This is ſuppoſed to be the largeſt breed of ſheep in the iſland; and is the moſt prevalent in the incloſed lands on the borders of the Tees in Yorkſhire. In this breed, which is probably from the ſame ſtock as the above, more attention has been paid to ſize than wool. It is only calculated for warm incloſed rich paſtures, where they are kept in ſmall lots, and well ſupported with food in ſevere winters. The ewes of this breed are in general very prolific, moſtly bringing two, and frequently three, lambs each.

The Romney-marsh Breed of ſheep is without horns; white faces and legs; rather long in the legs; good ſize; body rather long, but barrel-ſhaped; bones rather large. This breed has the quality of arriving at the ſtate of fatneſs at an early age, as well as that of producing a large fleece of fine long combing wool, which renders it highly valuable. But from the ſize, and circumſtance of the heavineſs of the coat, it is only capable of being kept and fattened on the rich kinds of paſture; in ſuch ſituations it is, however, an excellent breed.

The Devonshire Breed is chiefly diſtinguiſhed by having no horns; white faces and legs, thick necks, backs narrow, and back-bones high; ſides good; legs ſhort, and bones large. This breed is ſaid to have received conſiderable improvement by being croſſed with the new Leiceſters.

The Exmoor Breed of ſheep has horns, and white faces and legs; are very delicate in the bone, neck, and head; but the form of the carcaſe is very indifferent; narrow and flat-ſided; and the weight of wool much leſs than in the preceding breed.

The Dorsetshire Breed is known by its having horns; white faces; long ſmall white legs; by the carcaſe being rather long and thin; and by the mutton being fine-grained and of good flavour. This breed has the peculiar property of producing lambs at any period in the ſeaſon, even ſo early as September and October. The *Wiltſhire ſheep* are conſidered as a variety of this breed, which have acquired an increaſe in weight. And other varieties of it are met with in ſeveral other diſtricts. It is a breed that has been found to anſwer well in ſome of the midland diſtricts, and, from its cloſe make, to be capable of great improvement, by being croſſed with rams of a larger ſize. Thoſe farmers who have not maintenance for a flock the whole year, but who have nevertheleſs the advantage of water-meadows, and grow likewiſe conſiderable crops of turnips, are in the habit of buying in large quantities of this breed for fattening, and of which great profits are made. The wethers will in a ſhort time double their value; while the couples, being produced before Chriſtmas, afford an opportunity of ſending fat lambs to Smithfield, and other great markets, at a very early period, and at prices almoſt incredible.

The Herefordshire Breed of ſheep is known by the want of horns, and having white legs and faces; by being ſmall in ſize; and the wool growing cloſe to the eyes; by the carcaſe being pretty well formed; and by the excellence of the mutton. Wool fine and ſhort; the lean poor-fed ſheep producing the fineſt, as in the South Down. The true breed of this ſort of ſheep is frequently denominated *Rylands*. This breed is found to be remarkably patient of hunger; but in its management requires great care in the winter ſeaſon. In ſome caſes they are houſed all the year round in the night-time. Their cots are low covered buildings, proportioned to the extent of the flocks. They are ſaid to fatten the beſt at four years old.

The Norfolk Breed of ſheep has the face black; horns large and ſpiral; carcaſe long, ſmall, weak, and thin; narrow chine; large bones; very long black or grey legs; mutton fine-grained and high-flavoured, but does not keep well in hot ſeaſons. Wool ſhort and fine. This breed has been chiefly prevalent in Norfolk and Suffolk, where folding is much the practice, as they have the property of travelling well. In diſpoſition they are given to be reſtleſs. But this ſort of ſheep have lately given way to the preceding breed, which is ſuppoſed by ſome to be hardier, leſs nice in their food, ſooner ready for the fold, and more quiet.

The Heath Breed of ſheep is known by having large ſpiral horns; black faces and legs; a fierce look, ſhort firm carcaſe; mutton excellent in grain and flavour. Wool open, coarſe, and ſhagged. This is an active and hardy breed, which is firſt met with in the north-weſtern parts of Yorkſhire; whence it has extended itſelf over the extenſive mountainous tract of country on the borders of the Iriſh Sea, which ſtretches from Lancaſhire to Fort-William in the weſtern highlands of Scotland. The great objection to it is the coarſeneſs of the fleece. Theſe ſheep are very active and hardy, which has rendered their introduction into the high mountainous expoſed diſtricts advantageous. They are moſtly fattened about the third or fourth year, at which age they are found to anſwer the beſt. They afford a very ſuperior ſort of mutton. It is probable, that they might be much improved in their coats by being croſſed with ſome of the larger fine-wooled breeds.

The Herdwick Breed is diſtinguiſhed by having no horns; by the face and legs being ſpeckled; legs fine, ſmall, and clean. Wool ſhort, thick, and matted in the fleece. This breed is peculiar to the elevated mountainous track of country at the head of the rivers Eſk and Duddon in Cumberland, where they are let to herds, whence the name. They are ſaid to poſſeſs the property of being extremely hardy in conſtitution. This ſmall breed is ſaid to be ſo extremely hardy, as to ſupport itſelf on the rocky bare mountains with the trifling ſupply of a little hay in the winter ſeaſon; ſcratching down to the heath during the ſnows. The ewes, from the nature of the climate, produce their lambs late; but which, when dropped, are well-woolled. They are generally kept as long as they produce lambs. The wether ſtock is moſtly diſpoſed of from the mountains, without being put in the paſtures, at from four to five years old. The fleece in this breed is finer than in that of the preceding; but coarſer than any of the ſhort-woolled breeds.

The Cheviot Breed of ſheep is known by the want of horns; by the face and legs being moſtly white, and the eyes lively and prominent; the body long; little depth in the breaſt; narrow there and on the chine; clean, fine, ſmall-boned, legs, and thin pelts. Wool rather fine than coarſe. It is ſaid to be a valuable breed of mountain ſheep where the herbage is chiefly of the natural graſs kind; which is the caſe in the ſituations where they are found the moſt prevalent, and from which they have obtained their name. It has undergone much improvement within theſe few years in reſpect to its form and other qualities. The practice of milking the ewes of this breed for the purpoſe of making cheeſe is found to be prejudicial to the animals, and has of courſe been much left off by the beſt ſheep-farmers.

The Dun-faced Breed has no horns; the face, as the name implies, is in common of a tawny colour; the ſize ſmall; tail ſhort; mutton fine. Wool variouſly ſtreaked and blended with different colours, ſome of which is very fine. Mr. Culley, for what reaſon we know not, ſuppoſes this to partake of the Spaniſh breed.

The Shetland Breed is ſmall, and moſtly without horns; but what more particularly diſtinguiſhes it from other breeds, is the uncommon ſmallneſs and ſhortneſs of the tail. Wool very fine, and of various colours. This is a very hardy breed, but too wild in its diſpoſition to be confined in incloſed paſtures.

In the management of ſheep, different ſyſtems are purſued, according to the nature of the farms on which they are kept, and the methods of huſbandry that are adopted. But, whatever theſe may be, it ſhould be a principal object with the ſheep-managers to preſerve them in as good condition as poſſible at all ſeaſons of the year. In order to accompliſh it in the eaſieſt manner, it is uſeful to divide them into different parcels in reſpect to their ages and ſorts, as by ſuch means they may be kept with more convenience than in large flocks together, under a mixture of various kinds. In this mode there will be leſs waſte of food, and the flock at the ſame time thrive better, and the paſtures be fed with much more eaſe and facility.

It has been too much the practice to leave the ewes for the purpoſe of breeding without any ſelection; but it is obvious, that, where good ſheep-ſtock are deſired, much care and attention ſhould be beſtowed in chooſing ſuch as are the moſt perfect, and poſſeſs in the higheſt degree thoſe properties which are wanted, let the breed or variety be what it may; as it is only by adhering to this principle that ſucceſs can be enſured. This buſineſs ſhould therefore be carefully performed at the time they are turned to the ram. And it is equally neceſſary that a ſimilar degree of attention ſhould be paid to the ſelecting of the rams, and the adapting of them to the ewes.

The uſual time of having the rams admitted is about the beginning of October; except in the Dorſetſhire ewes, where the intention is ſuckling for houſe-lamb, in which caſe it ſhould be much earlier, in order that the lambs may be ſufficiently forward. But, by being kept well, any of the breeds will take the ram at a much earlier period. Where the rams are young, the number of ewes ſhould ſeldom exceed ſixty for each ram; but in older rams a greater number may be admitted without inconvenience; but letting them have too many ſhould be cautiouſly avoided, as by ſuch means the farmer may ſuſtain great loſs in the number of the lambs.

During the time the ewes are in lamb, they ſhould be kept in the paſtures, and as free from diſturbance as poſſible, and be carefully attended to, in order to prevent accidents which are liable to take place at this time, ſuch as thoſe of their being caſt in the furrows without the means of getting up again. In caſe any of the ewes ſhould ſlip their lambs, they ſhould be immediately removed from the flock. They require, as is the caſe with all other ſorts of live ſtock in ſimilar circumſtances, to be kept as well as the nature of the farm will admit, in order that there may be leſs loſs at lambing-time, from the ewes being ſtronger, and the lambs more healthy, and better capable of contending with the ſtate of the ſeaſon at which they may be dropped.

By a proper ſupply of turnips at this period, the milk of the ewes is much increaſed, and the growth of the lambs greatly promoted; which is of much conſequence; for, if they are ſtinted at this early period, they ſeldom turn out well afterwards. In the uſe of this ſort of food, where the ſoil is not ſufficiently dry to admit the ſheep, it is the beſt practice to draw the turnips, and convey them to a ſound firm paſture, in order to have the ewes baited upon them once or twice in the day, according as there may be occaſion, particular care being taken that they are wholly conſumed, and no waſte made. The circumſtance of their being eaten quite clean up may ſerve as a rule to the farmer for regulating the daily ſupply that may be requiſite.

It has been obſerved, that, "in ſome parts of the kingdom, the beſt farmers give their ewes and lambs bran and oats, or oil-cake in troughs, while they are feeding on turnips:" but it is remarked that "it muſt be a good breed for ſuch a practice to repay." When the weather is extremely wet or ſtormy, or there is much ſnow upon the ground, the ewes and lambs ſhould have hay given them in baits as may be neceſſary. This is beſt done in covered moveable racks, a portion being given freſh every day. If ſhelter can be provided with convenience, it will always be of much benefit to the ſheep. The practice of letting them to the hay-ſtacks, which is common with ſome farmers, is ſlovenly and waſteful, and which, though it may afford a degree of ſhelter, ſhould never be attempted where the other methods can be had recourſe to. It has been ſuggeſted as an excellent method, though not eſſentially neceſſary, to allow the ſheep, whether the weather be bad or not, a ſmall proportion of hay daily while feeding on turnips. By this careful management, and the uſe of ſtubble-turnips when neceſſary, the ewe and lamb-ſtock may be well ſupported through the ſeverity of the winter, and be brought on in the beſt poſſible condition until the turnips are finiſhed in March, which ſhould always be the caſe, or the farmer is ſure to ſuffer in his Lent corn. The preſerved graſs or rowen lays ſhould then be ready to receive them, which is conſidered by ſome as the moſt to be depended upon through this and the following month, which, with the firſt week in May, is the moſt difficult period of the year to the ſtock-farmer. On dry meadows and paſtures it is invaluable in this view, though at firſt ſight it may have an unpromiſing appearance from the covering of decayed autumnal graſs that is upon it, but which when removed preſents a new growth of freſh green graſs, five or ſix inches in height, brought up by the ſhelter and warmth afforded by the covering of old graſs. This is found to agree remarkably well with the ſheep, as they conſume both together, having, as it were, both hay and graſs in the ſame bite.

But, in caſes where theſe cannot be depended on for the ſupport of the ſheep-ſtock at this difficult ſeaſon, the improved practice is, inſtead of depending on turnips and hay with rye ſown for the purpoſe, the young wheats and the run of the paſtures, to let the turnips continue ſo as that their ſhoots may become an object of ſheep-food, and to have annually a portion of tolerably good land ſufficient to the extent of the flock, under rye-graſs and clover, ſo as to be ready in the ſpring to take the ſheep from turnips, and ſupport them till the period of turning upon the paſtures. It is remarked, that this conduct is an improvement on the other, as it gets rid of three great evils: depending on rye, which is ſoon eaten; feeding on wheat, which is pernicious to the crop; and turning too ſoon into the general paſtures. But at the ſame time that it effects this advantage, it is open to ſome objections, which make farther improvement neceſſary. Where water-meadow is poſſeſſed, or can be hired, it may be conſidered, at this trying ſeaſon, as the making of a breeding flock. By ſuch means, the ſheep and lambs may be continued in good and healthy condition till the time of turning upon the paſtures, when they ſhould be ſeparated, where the farms are incloſed into ſuitable diviſions, in proportion to the quantity that each paſture which they are to occupy can ſupport, care being taken not to over-ſtock the fields, though hard ſtocking in ſome caſes may be uſeful. By ſome managers they are put upon the beſt paſtures of the farm, while others let them have thoſe of the inferior kinds. Each method may have its advantage under different circumſtances; but the main object, that of having the ſtock preſerved in good condition, is never to be loſt ſight of. In keeping ſheep on incloſed paſtures, particularly where the lands are much occupied with wood, conſtant care is neceſſary in order to guard againſt the miſchief of the fly, as its effects are often irremediable in the courſe of a very ſhort time in ſuch ſituations, if not attended to, in hot ſeaſons.

Where the ſyſtem of FOLDING is diligently practiſed, the ſheep muſt be well filled before they are driven to the fold, by being fed for ſome time in good rich paſtures, after labouring in the morning on the ſheep-walks and downs. Many farmers give over folding in November or December; whereas it may certainly be carried on through the whole winter with profit on thoſe farms which have a perfectly dry gravelly ſoil. It muſt not be attempted on moiſt arable land, nor on moiſt graſs land, but on dry paſtures. Here the ſafety to the ſheep is greater, and the benefit to the crop the leaſt object.

But a much better method than folding in the winter, is, to confine the flock at night in a ſheep-yard, well and regularly littered with ſtraw, ſtubble, or fern, by which means the flock is kept warm and healthy in bad ſeaſons, and at the ſame time a ſurpriſing quantity of manure is raiſed. A great improvement in this method would be giving the ſheep a great portion of their food (except their paſture) in ſuch yard; viz. hay and turnips; for which purpoſe they may be brought up not only at night, but alſo at noon, to be baited; but, if their paſture be at a diſtance, they ſhould then, inſtead of baiting at noon, come to the yard earlier in the evening, and go out later in the morning.

This buſineſs may be ſtill farther promoted by means of proper yards ſuited to the extent of ſheep that are folded, with ſheds on the ſides for them to feed under; as in this way, by having the bottoms and under the ſheds well covered with turf, bog-earth, marl, or the ſcrapings of roads, in the autumn and winter ſeaſon, the ſheep being kept on them in the day-time in bad ſtormy weather, and always during the night, with plentiful ſupplies of ſtraw, ſtubble, fern, or any ſimilar ſubſtances, as litter, ſo as that they may be preſerved quite dry and free from moiſture, a vaſt ſtock of excellent manure would be raiſed. Such yards or ſtanding folds, on this account, as well as that of improving the wool and affording ſhelter to the animals, deſerve to be much more general than they are at preſent. Theſe yards, both with and without ſheds, are very common in Suſſex; with ſheds they are probably better than when wholly covered, as in the Herefordſhire method; for in this laſt mode it is probable the ſheep may be kept too warm, which is hurtful; an equality of temperature being found of the moſt benefit in the economy of theſe animals.

Wherever the buſineſs of folding is adopted, it ſhould be purſued with as much ſteadineſs as poſſible, and conducted in a perfectly regular manner. The lands under fallow for turnips are in general beſt to begin upon, as the crops will be ready to be put in almoſt immediately afterwards. From theſe the farmer may proceed to the grounds in preparation for other crops, as the wheat fallows, being conſtantly attentive to put his ſheep upon ſuch lands firſt as are to be firſt ſown, whether with grain or graſs ſeeds. When, on the approach of the winter ſeaſon, the weather becomes too wet for folding on the arable lands, it ſhould be transferred to the paſtures; for on dry paſtures this management may be continued without any harm to the ſheep, while much improvement to the land will be effected. Where there is much moſs on the land, folding effectually removes it.

Folding on tares is a moſt excellent method. In the month of May, where the land is good, tares will in general be fit to be fed off, and will be found of infinite benefit to the flock, at a ſeaſon of the year when very great difficulty generally occurs to the farmer how to procure the neceſſary food. But, if he be provided with a tolerable ſucceſſion of tares, he will find ample proviſion for his flock. To make the moſt of them, let a certain portion be cut acroſs the field, as far as occaſion may require, and as far as there are hurdles and ſtock for the purpoſe. This firſt allotment ſhould be mown, and carried clear off the field into a well-littered yard, and put into low racks; theſe racks to be moved about the yard at every repleniſhing; and thus, by the immenſe quantity of urine provoked by the tares, the ſheep will nearly ſaturate the whole yard. After a ſufficient ſpace of ground is cleared, the ſhepherd muſt cut ſome freſh tares, which he will place in racks, and diſtribute over the ground that was firſt cut; moving the hurdles forward as often as neceſſary, until the whole field is fed off, and dreſſed alike.

In the folding of ſheep, many inconveniences have and do ariſe from the ſlight materials with which the fold is formed; and the difficulty, particularly in hard froſty weather, of erecting any fold at all, or even of penning off turnips for the flock. To remedy theſe evils, Thomas Plowman, eſq. of Broome, in the county of Norfolk, has recently invented an improved ſheep-fold, of which he gives as the following account. "This ſheep-fold, invented on an improved and ſimple principle, combines many advantages over the old method of folding by hurdles; particularly ſince the whole fold can be removed with eaſe at all times. It will alſo be found peculiarly uſeful in feeding off turnips in froſty weather, when hurdles cannot be uſed; and, as the ſaving of labour in agriculture is a leading object, I have no doubt of ſeeing it, in a very few years, generally adopted. The expence, in the firſt inſtance, will exceed that of hurdles, for the ſame given quantity of ſheep; but, having had one in uſe nearly three years, I am ſatisfied the ſaving will be very conſiderable: for, before I adopted this method of folding, I loſt from thirty to forty nights folding in the year, owing to the land being hard in dry ſeaſons; which renders folding almoſt impracticable, as they never can be ſet without great labour and deſtruction of hurdles. I am alſo clearly of opinion, that the ſtock of ſheep will be greatly increaſed when this method of folding becomes more known; and that it will enable many ſmall farmers to keep from fifty to one hundred ſheep, who now are deterred from it, on account of the ſmall quantity of feed they have, not anſwering to keep a man for the purpoſe of folding them. In heavy gales of wind too, it frequently happens that hurdles are blown down, and the ſheep, of courſe, being at liberty, range over the crops, and do incalculable miſchief; which cannot happen with this new-invented fold. By this invention alſo an aſtoniſhing quantity of time is ſaved, when a man can remove a fold to contain three hundred ſheep in five minutes, which, by the old method, frequently takes ſome hours to accompliſh."

In the Huſbandry Plate II. the plan of this fold is given. Fig. 1, repreſents a compartment of the ſheep-fold, twenty-one feet long, and three feet eleven inches high, compoſed of a top-rail, A, three inches deep and two inches thick. B, the upper bar, three inches deep, and three-quarters inch thick. C C, the two lower bars, four inches by three quarters of an inch, which, with the upper bar, are mortiſed through the uprights, D D D D, which are of oak, three inches by two inches. E, the lower bar, three inches by three. F, an upright bar, with the horizontal bars halved into it. G G, two oak uprights, three by two inches.

Fig. 2, ſhows the oak uprights G G G. H, the axle-tree, three inches by three, and three feet between the wheels. I, an oak knee, which connects the uprights G G with the axle-tree, by means of two ſcrews and nuts.

Fig. 3, is a plan, in which the axle H is ſhown with two arms K K, at right angles to H, which are made to act as pivots to the wheels, when intended to be moved in a direction at right angles to the bars.

Fig. 4, is a more perfect view of the ſame parts deſcribed in fig. 3. The wheels marked W, in all the four figures, are of caſt iron, which coſt 3s. 6d. each.

When the fold is wanted to be uſed on very hilly ground, you muſt begin at the top, and work it down to the bottom, for the eaſe of removing it, and then draw it up again with a horſe. This, however, there is no occaſion to do if the land be ploughed in a contrary direction, and the fold worked in the ſame courſe as the ridges. By this mean, the inconvenience is avoided of croſſing the furrows, and they are alſo a guide to keep the fold in a ſtraight direction. For this invention Mr. Plowman was honoured with the gold medal of the Society of Arts and Manufactures, &c. in 1804.

The buſineſs of Shearing the Flock, under the preſent circumſtances of the price of wool, ſhould call forth

# HUSBANDRY.

Plate II.

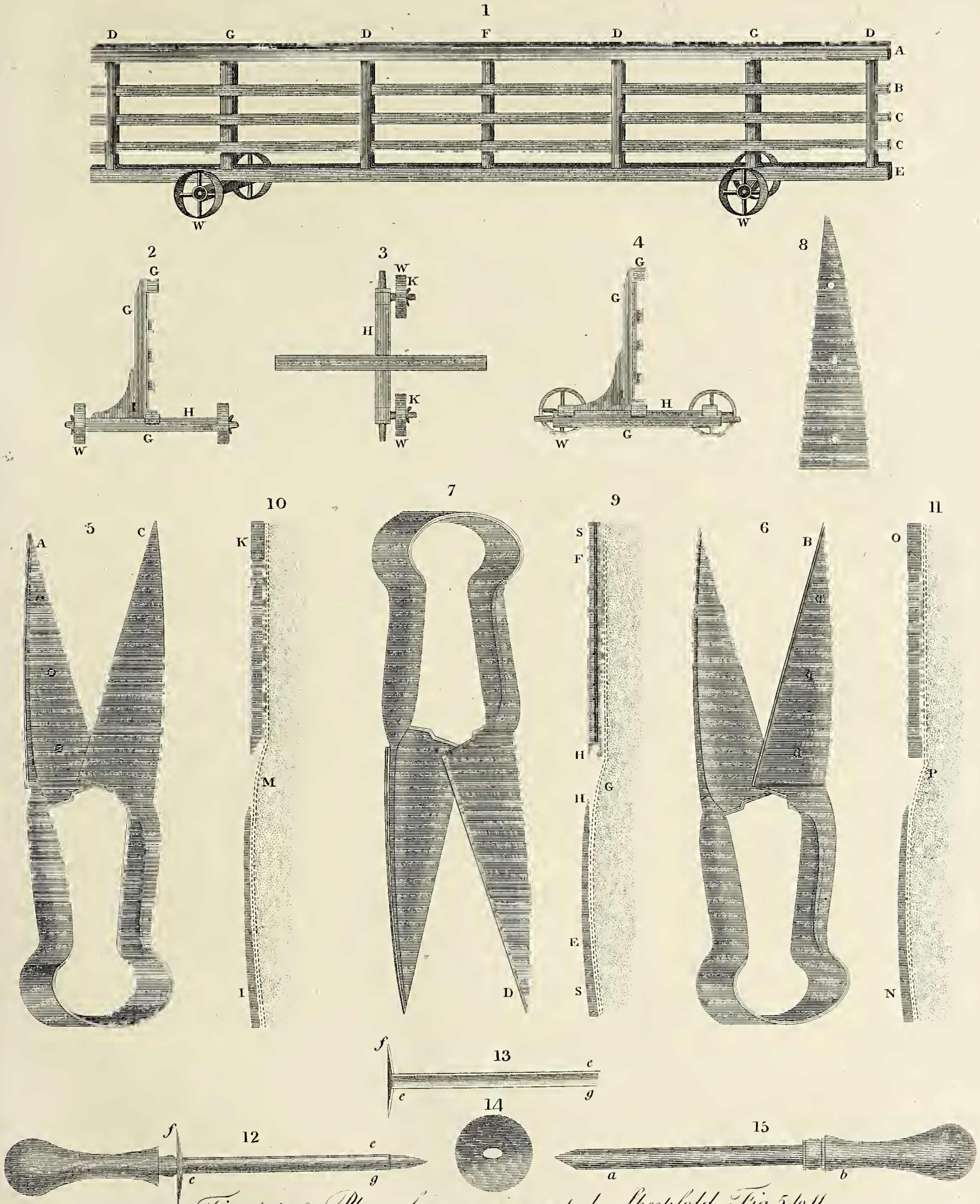


*Fig. 1. to 4. Plan of a new invented Sheepfold. Fig. 5. to 11. Improvements made for Shearing. Fig. 12 to 15. The Trochar or Instruments for curing the Hove in Cattle.*

London; Publ.d as the Act directs, Feb.1.1810. by J.Wilkes.

the attention of every farmer to ſee that it is not ſlighted, but that all is taken off as cloſe as poſſible to the pelt. The time ſhould be regulated by the ſtate of the weather, and ſooner in the ſouthern parts of the iſland than thoſe of the north. In this way the danger of injury by cold from depriving the ſheep of their coats too ſoon, and from heat by permitting them to continue on them too long, may be equally avoided. There is alſo another circumſtance that ſhould be attended to in this buſineſs, which is, that of the wool being in a ſtate of maturity: for, if the clipping precede that period, it is moſtly weak, and can ſcarcely be ſpun; and, if protracted later, it is yellow, felted, and imperfect. For the more ſheltered ſituations in the ſouthern parts of England, the beginning or middle of June, when the weather is fine, may be in general the moſt proper; but, in the more expoſed diſtricts in the northern parts of the iſland, the latter end of the ſame month, or beginning of July, may be more ſuitable. But with the fattening ſheep it will be neceſſary to perform the work at an earlier period in every ſituation, as the great increaſe of heat from the ſetting-in of the ſummer, added to the warmth of the fleece, becomes very oppreſſive to them in their feeding, and for a time prevents their improvement.—For the different kinds and values of wool, and the laws for regulating woolſtaplers, ſee the article Wool, in this Encyclopædia.

It is too much the cuſtom of the ſhearers to perform their work *length-ways* of the ſheep; by which method they cannot ſhear ſo cloſe, ſo that much injury is done to the following year's growth; as it is conceived that wool in this particular has much reſemblance to graſs, and "will not thrive well if it be not cut cloſe." The preſent practice is therefore to ſheer circularly *round* the body of the ſheep, by which means the work is certainly more evenly as well as more cloſely executed. It is therefore to be expected that this method will not long be neglected by the ſheep-farmers in thoſe diſtricts where it may be yet unknown, or if known, not practiſed.

Expert ſhearers ſeldom or ever cut or injure the pelt of the ſheep; but where they are not expert, nor well accuſtomed to the work, much injury is often done, by expoſing the mangled ſheep to the ravages of the fly; it is therefore of courſe neceſſary to be cautious in engaging perſons as ſhearers who have not been regularly accuſtomed to it.

But with a laudable view of rendering theſe accidents of cutting and ſearing the pelt of the ſheep much leſs common, even by ſhearers of the inferior claſs, or by learners, John Miller, eſq. of New Park, near Axminſter, Devonſhire, has ſuggeſted a moſt valuable, yet ſimple, improvement in the ſheep-ſhears, whereby theſe evils ſeem to be completely overcome. The contrivance is nothing more than a plate of iron, ſcrewed to one of the blades of the ſhears, the edge of which plate projects beyond the edge of the ſhear, ſo as juſt to be viſible when the ſhears are open, and held in the poſition for ſhearing, that is, the iron plate downwards, laid on the ſheep. It is hardly poſſible to cut the ſheep in uſing them; and in conſequence Mr. Miller received the ſilver medal of the Society of Arts and Manufactures, &c. in 1805, for the invention.

In the annexed Engraving this improvement of the ſheep-ſhears is fully delineated. Fig. 5, repreſents a pair of common ſheep-ſhears, with a thin plate of iron ſcrewed with three ſcrews to the under-part of the blade A, which plate may be about the twentieth part of an inch thick, and exactly of the ſame ſize as the blade of the ſhear to which it is ſcrewed, ſo that the edge of the plate and the edge of the blade ſhall be in a line, not allowing either to project beyond the edge of the other. This plate muſt be unſcrewed and taken off when the ſhears require to be ſharpened; and it may be neceſſary to remark, that, as the blade of the ſhear wears by frequent ſharpening, the edge of this plate muſt alſo be reduced ſo as always to be kept in a line with the edge of the blade, and not to be left to project beyond it; for that would give the wool a ſloping direction, which would render it more difficult to cut. The ſhears repreſented in this figure, are in the proper poſition for ſhearing with the right hand. The blade C to be inſerted into the wool.

Fig. 6, repreſents the ſame ſhears reverſed; the plate B uppermoſt, to ſhow the manner of ſcrewing it to the blade. Counter-ſunk ſcrews are recommended; and they muſt not go through ſo far as to take the edge of the other blade in cloſing the ſhears.

Fig. 7, a pair of ſhears requiſite for a left-handed ſhearer; the blade D to be inſerted into the wool; for it is evident, if the ſhears, fig. 5, were uſed with the left hand, the blade A, with the plate, would be inſerted into the wool, which would not penetrate with that facility which ſhearers require.

Fig. 8, is the plate taken off, and ſhown ſeparate. Theſe figures, and this deſcription, will be ſufficient for thoſe who make ſhears, or for cutlers, who may eaſily make the addition requiſite to the ſhears that they have already in their poſſeſſion.

It may be imagined that, if the lower blade of the ſhears were made as thick as the common blade and this plate together, it would have the ſame effect of preventing the ſkin of the animal from being cut: to prove that this will not be a ſufficient guard, let a ſection of the ſhears be taken acroſs the blades at E F, fig. 9; now it appears evident, that, when the edges of the plate H H come in contact (unleſs a very great preſſure is made at the ſame time), the ſkin of the animal at G, (which is repreſented by the dotted line SS,) cannot be brought to meet the edges of the blades HH. Whereas, ſuppoſing that the lower blade K, in the ſection I K, in fig. 10, were as thick as the common blade and the plate together, the ſkin at M, with a very little preſſure, might be brought up cloſe to the edges of the blades, and endanger its being cut. Such a blade as this would alſo take much time to ſharpen. Now, admit that the lower blade is the ſame thickneſs as the laſt-mentioned blade (as the blade O in the ſection N O, fig. 11), and let the lower part of this blade P be made ſo as to operate as the plate recommended; it will then be found that the edge of this blade is too obtuſe to cut wool, although it may anſwer very well to cut ſubſtances of leſs flexibility. Hence theſe muſt be of great ſervice to indifferent ſhearers and to learners, as a learner may begin to practiſe without fear, and an indifferent ſhearer may work with the greateſt confidence; and even to proficients they may become uſeful.

With reſpect to the Diseases of ſheep, they are certainly many, and often dangerous; and therefore every good farmer, and particularly every good ſhepherd, ſhould endeavour to ſtudy them, as a mean whereby they might at all times be ready to afford them relief.—For particulars of theſe diſeaſes therefore, and the moſt approved methods of cure, as well as for the natural hiſtory of the ſheep in all countries, with the different ſpecies, and figures of the moſt curious breeds, we beg leave to refer to their generic name Ovis, and the correſpondent Engravings.

But, though we do not in this place enter upon an inveſtigation of the diſeaſes of ſheep, yet there is one fatal malady to which they are liable in common with other cattle, which being accidental, and requiring inſtant help, we deem it highly expedient to notice: it is the malady called the hove. This is acquired by ſheep and horned cattle, in conſequence of their being thoughtleſsly turned into rank feed, or wet clover graſs, upon empty ſtomachs, whereby they feed with ſuch voracity, that they are apt to become wholly blown up with wind, and thus deprived of the powers of reſpiration, often ſink down and die. To afford in theſe caſes immediate relief, Mr. W. Wallis Maſon, of Goodreſt-Lodge, near Warwick, has contrived an inſtrument which he calls a trocar and canula; and which, he ſays, has, in every inſtance where it has been uſed, proved a ſafe, eaſy, and effectual, remedy. The method of applying it is, to penetrate with the trocar and canula through the hide of the animal, to the paunch on the near ſide, about ſix inches from the backbone, at an equal diſtance from the laſt rib and from the hip-bone; then to withdraw the trocar, and to leave the canula in the wound, until the exceſs of air which the paunch contains has eſcaped. The canula may then be taken out, and the wound covered with a plaſter of common pitch, ſpread on brown paper, about the ſize of a crown-piece. All the danger incidental to the common mode of ſtabbing with the knife is effectually prevented, by the canula being left in the inciſion when the trocar is withdrawn. A fattening ox has been found to thrive as well after the operation, as if it had never been affected by the diſorder. Even cows in calf are in no danger from its operation. It has been found particularly beneficial in preſerving rearing-calves, and young cattle, as well as ſheep, when thrown into this dangerous malady.

Fig. 12, is a view of the trocar and canula, incloſed one within the other. The blade of the trocar is made of ſteel *a*, fig. 15, fixed into a wooden handle *b*. The ſhape of the blade of the trocar is oval, as ſhown in the end-view of the canula, fig. 14. The canula or ſheath *c c*, as ſhown at fig. 12 and 13, is an oval tube, which exactly fits the blade of the trocar; *f*, is a concave circular plate, fixed at the end of the canula, forming a hilt to prevent the inſtrument from giving too deep an inciſion when uſed; the end *g* of the canula is worked down to a ſharp edge, that it may not obſtruct the paſſage of the inſtrument.

## OF HORNED CATTLE.

We appear to want an appropriate word in the Engliſh language to deſignate this claſs of animals. The term we have applied is far from claſſical or correct; becauſe there are ſeveral well-known breeds of them which have no horns at all. The original appellation appears to have been that of *Black Cattle*, from whence was underſtood ox, bull, and cow; and the reaſon aſſigned is, becauſe formerly theſe animals were all entirely black in every part of this iſland; and that the mixture of other colours has been wholly fortuitous, and introduced by bringing cattle acroſs the channel from the oppoſite ſhores. In confirmation of this opinion, the Welſh breeders inform us, that they have no *true-bred* cattle but what are *entirely black*; and that they conſider the introduction of ſpots or ſtreaks of any kind, even of white, as marks of a croſs of ſome accidental kind, and turn them out of their pure herds accordingly, to be driven to fairs or markets. It does not appear, however, from experience or obſervation, that the colour of horned cattle is at all material, in the view of general utility, unleſs we admit any weight to the old and common exception of white and light colours on the ſcore of tenderneſs. NEAT, was the Saxon term for theſe animals; whence neat-herd—βέκολος, with the Greeks.

We fully coincide with the opinion of Mr. Lawrence, ſtated in his ingenious Treatiſe on Cattle, that in point of utility and profit, no ſingle animal can ſtand in competition with the cow; a ſentiment which has been univerſal from the primitive ages, and which, to this moment, has loſt nothing of its force or its truth. Her milk, ſo indiſpenſable to civilized man, is her moſt precious product, and of which the value, in various forms, is ſo univerſally and feelingly underſtood. Of this real liquor of life, more valuable than the richeſt wines, the cow will give the amount of *many times her weight* in the courſe of a year, and every year that ſhe continues in a conſtant ſtate of reproduction, unto the end of her life, when her laſt gift to man is food of the moſt ſubſtantial kind, and ſo many articles of various uſe, that no part of her carcaſe need be waſted or loſt; the worth of theſe often replaces her original coſt.

The fleſh of the ox, whether for immediate uſe or preſervation, has been too often celebrated to bear a new deſcription. His tallow contributes to double the number of our days—his joints give us oil—his hide, leather of the ſtrongeſt kind—his hair helps to cement the walls of our dwellings—of his horns, are made combs and toys—of his teeth, buttons—his bones are a cheap ſubſtitute for ivory, and their aſhes ſerve to refine ſilver—his large full eye is inſtrumental to the diſcoveries of the anatomiſt—his blood, gall, and urine, are of account in manufacture, medicine, and manuring the ſoil.

The period of geſtation with the cow, having a bull-calf, is, according to the average of moſt accounts, two hundred and eighty-ſeven days, or forty-one weeks, with the variation of a few days either way; a cow-calf comes in about a week leſs time. The cow having TWINS of different ſexes, the female is called a *free-martin*, and is ſaid to be invariably incapable of procreation. The free-martin, or barren heifer, generally has a bulliſh appearance about the head, horns, and neck, with a ſmall udder. The different notions reſpecting the qualities of the free-martin, ſhow very plainly the little dependance that is to be placed upon them; by ſome their beef is repreſented as of ſuperior excellence; by others as coarſe-grained, flabby, and very bad.

The age of horned cattle is determined by the teeth and horns. They, as well as ſheep, are deſtitute of teeth in the upper jaw; but the mark of age, as in the horſe, is to be found in their corner inciſory teeth of the lower jaw. The firſt front teeth, or calves teeth, remarkable for their whiteneſs, are ſhed at two years old, and replaced by others not ſo white. Every ſucceeding year, two other calves teeth, next to the front, are alſo replaced; and at five years old the inciſory or cutting teeth, being all renewed, are of good length, whitiſh, and even; and the beaſt is then full-mouthed. From this period, as in the horſe, the teeth are gradually filling up until ſix years, when the mark is complete. The teeth afterwards become diſcoloured by age, and ſometimes long and irregular. At three years of age, the horns are ſhed, and replaced by others which continue. The indications of age from the horns are as follow: in the fourth year of the bullock's age, a kind of button, or ring, appears near the head as the bud or baſis of the horn; in the courſe of the year this ring moves, being puſhed forward by another which ſucceeds it, a proceſs which goes on to the end of the animal's life, its years being determinable by the number of theſe rings upon the horns, reckoning three years for the firſt ring. It is common with dealers to obliterate theſe rings, by ſhaving the horns, in order to conceal the age of the beaſt.

The horns of cattle are alſo made deſignations of diſtinction and variety, and are ſuppoſed to denote particular qualities. Thus, Engliſh bullocks are diſtinguiſhed as long, half-long, ſhort, and middle-horned, wide and broad horned, polled, or hornleſs. The grand diſtinctions, however, are the long and ſhort-horned, which ſeem generally implicated with peculiar properties of milk and hide. Thus the long-horned cows are ſaid to produce a richer milk, in courſe a greater proportional quantity of butter and cheeſe, and a thicker hide, than the ſhort-horned; which laſt, however, afford larger quantities both of milk, beef, and tallow. This however will ever more or leſs depend on the quantity and richneſs of the feed which they are reſpectively allowed.

The moſt uſual appellatives employed at this day are—ox, bull, and cow. Bull and cow calves. A young caſtrated male, after the firſt year, is called a ſtot, ſtirk, or ſteer—at five years old an ox. A female, after the firſt year, is called a heifer or quey; at four years old a cow. And afterwards a caſtrated female is called a ſpayed heifer or cow. Bullock is the general term for any full-grown cattle, male or female, fat or lean

Before the ſtock is decided upon with which the farm is to be furniſhed, it will behove the farmer to conſider well the nature and quantity of the feed with which he will have to ſupport his dairy, and to what kind of breed that keep will be beſt adapted; and alſo that proviſion for the flock is always *firſt* to be taken care of. It is not every farm that will make a *cow-farm*; for, where a cow will thrive and fatten, a ſheep will die with the rot; and ſo again, where a flock will depaſture and flouriſh, a herd of well-favoured kine would ſoon become lean and ill-favoured. Suppoſe the farm to contain about three hundred acres, and a flock of from ſix hundred to a thouſand ſheep to be maintained upon it; ſtill, if it has a little ſhare of water-meadow, which uſually happens, a few coarſe marſhy pieces, and a tolerably extenſive ſucceſſion of dry paſtures, with a good common contiguous, where he will have a right to depaſture the herd in the proper ſeaſon, there is no reaſon why a dairy of from twelve to twenty cows might not be decently ſupported upon it. The queſtion therefore is, What breed would do beſt for the purpoſe?—We ſhall not heſitate in ſtrongly recommending the pure WELSH, which ſhould be judiciouſly ſelected, notwithſtanding pains or expence. Theſe cows will live on one-third leſs than almoſt any other ſtock, keep themſelves ſleek and handſome, rarely turn barren, fatten each its own calf; and when aged, or rendered by accident no longer fit for the ſuckling-pens, will fatten with one ſummer's-run of graſs, and thus, without the ſmalleſt trouble, produce in the market probably more than twice her original coſt. It is alſo obſerved of this breed, that they are in general good milchers; and though they appear to be but ſmall cows, yet when ſufficiently fatted will produce a great ſhare of tallow; and from their cloddineſs, rotundity, and compact form, will often reach weights far beyond the expectation of the butcher.

For ſuch a dairy of cows, a true-bred Suſſex bull ſhould be procured to go with them. This croſs is of the moſt valuable kind, both for rearing ſtock, and for the ſuckling-pens. Whatever calves might fall between Chriſtmas and the middle of March, ſhould be reared; thoſe which fall afterwards are of courſe to be ſuckled. The young cattle are generally well-formed, healthy, and handſome; while the ſucklers fatten kindly, and often reach great weights. When the ſuckling ſubſides, in November or December following, then the beſt of the milchers are ſelected for a winter dairy, while the other cattle are turned dry. This circumſtance becomes of conſiderable advantage where a breeding flock is maintained; for the tags or young ewes of the Suſſex breed are uſually very weakly with their firſt lambs; and do not always give down their milk for a day or two after they have yeaned; in which caſe, but for the aſſiſtance of a winter dairy, with which the ſhepherd ſupplies the weakly lambs, and makes up for the deficiencies of their mothers, a great number of them would inevitably be loſt.

Upon a farm of more extenſive paſture, with a larger ſhare of water-meadow, and plenty of fodder to ſupply the gates through the winter ſeaſon, we ſhould probably recommend the red SUSSEX breed, in preference to the Welſh. Theſe are of a larger ſize, nearly as hardy, and in general famous ſucklers. They are indeed preferred by many farmers, even where there is an equal paucity of feed, from the ſuperior quantity and quality of their milk. For this dairy of cows, a long-horned or Lancaſhire bull ſhould be ſelected, well-bred, and of the largeſt ſize. We do not, however recommend this croſs to breed from, notwithſtanding the early calves muſt be reared; but the farmer takes them to market in due ſeaſon, while the ſuckling-pens employ his chief attention. Here the advantages of this croſs are plainly manifeſted in the ſuperior bulk of the calves, in their fatting kindly, and in the great thickneſs or broadneſs acroſs their loins, to which the broad white ſtripe that generally runs down their back gives a ſtill greater appearance of ſtrength and thickneſs. Theſe calves uſually arrive at great weights, and are acceptable in the market, from the ſuperior whiteneſs of the veal. When the ſuckling is over, the cows fulleſt in milk may be turned over to a winter dairy in aid of the flock, in the ſame manner as the Welſh ſtock noticed above. We do not recommend theſe two breeds of cattle from any fanciful predilection of our own, nor from the whim or theory of others; but from the experience and obſervation of upwards of twenty years, exerciſed over a large diſtrict in Hampſhire and Suſſex.

Mr. Culley has favoured us with the following inſtructions in the choice of a bull:—For the purpoſes of the breeder the head of the bull ſhould be rather long, and the muzzle fine; his eyes lively and prominent, his ears long and thin, his horns white: his neck riſing with a gentle curve from the ſhoulders, and ſmall and fine where it joins the head; his ſhoulders moderately broad at the top, joining full to his chine, or crops and cheſt backwards, and to the neck-vein forwards; his boſom open, breaſt broad, and projecting well before his legs, his arms or fore-thighs muſcular, and tapering to his knee; his legs ſtraight, clean, and very fine-boned; his chine and cheſt ſo full as to leave no hollows behind the ſhoulders, the plates ſtrong, to keep his belly from ſinking below the level of his breaſt; his back or loin broad, ſtraight, and flat; his ribs riſing one above another in ſuch a manner, that the laſt rib may be rather the higheſt, leaving only a ſmall ſpace to the hips or hooks, the whole forming a round or barrel-like carcaſe; his hips ſhould be wide placed, round or globular, and a little higher than the back; the quarters from the hip to the rump long; and inſtead of being ſquare, as recommended by ſome, they ſhould taper gradually from the hips backwards, and the turls or pott-bones not in the leaſt protuberant; rumps cloſe to the tail, the tail broad, well haired, and ſet on ſo high as to be in the ſame horizontal line with his back.

In the choice of a cow, he lays down the following rules:—The principal diſtinguiſhing marks of a good cow are, wide horns, a thin head and neck, dewlap large, full breaſt, broad back; large deep belly; the udder capacious, but not too fleſhy; the milk-veins prominent, and the bag tending far behind; teats long and large; buttocks broad and fleſhy; tail long and pliable, leſs proportionable to the ſize of the carcaſe; and the joints ſhort. To theſe outward marks may be added a gentle diſpoſition, a temper free from any vicious tricks, and perfectly manageable on every occaſion. On the other hand, a cow with a thick head and ſhort neck, prominent back bone, ſlender cheſt, belly tucked up, ſmall udder, or a fleſhy bag, ſhort teats, and thin buttocks, is to be avoided, as totally unfit for the purpoſes either of the dairyman, the ſuckler, or the grazier.

We ſhall now briefly deſcribe the other principal breeds of horned cattle, which England produces.—The LONG-HORNED breed of cattle is diſtinguiſhed by the great length of the horns, the thickneſs and firmneſs of the texture of their hides, the length and cloſeneſs of their hair, the large ſize of their hoofs, and the coarſe and leathery thickneſs of their necks. They are alſo deeper made in their fore-quarters, and lighter in their hind-quarters, than moſt other breeds. In ſize they are ſuperior to the Suffolk breed, but inferior to the ſhort and middle-horned breeds. They are likewiſe narrower in their ſhape, and leſs in point of weight than the ſhort-horns, though better weighers in proportion to their ſize; and the cows of this breed give conſiderably leſs milk, but ſuch as affords more cream in proportion to the quantity. In colour they are more varied than any of the other breeds; but, whatever the colour is, they have generally a broad white ſtreak down their backs, which the breeders term *finched*; and moſtly a white ſpot on the inſide of the hough. Lancaſhire appears to be the mother-country of this breed of cattle; notwithſtanding which they are alſo the prevailing ſtock in the counties of Warwick, Leiceſter, Glouceſter, Cheſter, and ſeveral other of the midland counties, where deep vales of graſs and marſhes prevail. And it is ſurpriſing, and ſhows great attention in one inſtance, and equal neglect in the other, that this ſort of cattle are at preſent found in greater perfection in the county of Leiceſter than in the diſtrict whence they take their name. This is ſuppoſed to have ariſen from the graziers of theſe counties buying their beſt bulls and heifers, for many years paſt, before the people of Lancaſhire were well aware of it. The former paid more attention to that kind which were of a true mould or form, and quicker feeders; while the latter contented themſelves with the old-faſhioned, large, big-boned, kind, which are not only ſlower feeders, but, when fed, are not ſuch good beef. In ſhort, the little farmers in Lancaſhire, tempted by the high prices given them for their beſt ſtock, loſt their valuable breed before they were ſenſible of it. This breed is commonly underſtood by graziers to be in general ſlow feeders, except that particular kind ſelected, improved, and recommended, by the late Mr. Bakewell, which are ſaid not only to eat leſs food than the others in proportion to their weight, but to become remarkably fat in a ſhort ſpace of time, and to lay their fat upon the moſt valuable parts, yet to have little tallow in them when killed; and, when uſed in the dairy, to give but little milk. This improved variety alſo differs from the reſt of the long-horned cattle, in having very fine, clean, ſmall bones in their legs, and thin hides. They are a middle-ſized, clean, ſmall-boned, round-carcaſed, kindly-looking, cattle.

The **Middle-horned Breed** of cattle ſeems to afford more variety than that of the preceding kind. The Devonſhire variety, when in a ſtate of purity, is diſtinguiſhed by a high red colour, without any white ſpots, as the breed is reckoned impure when theſe exiſt, particularly where they run into one another; by having a light dun ring round the eye; by the muzzle being of the ſame colour; by being fine in the bone and clean in the neck; by the horns being of a medium length and bent upwards; by being thin-faced; fine in the chaps, and wide in the hips; with a tolerable barrel, but rather flat on the ſide; by the tail being ſmall, and ſet on very high; by being thin-ſkinned, and ſilky in handling; and by the property of feeding at an early age, or arriving at maturity ſooner than moſt other breeds; they are a ſort of cattle well fitted for draught, both as to hardneſs and quick movement, and their ſhoulder-points are beautifully fitted for the collar.

The **Herefordſhire Breed** is alſo deep red, with fine hair; very thin ſkin; neck and head clean; horns neither long nor ſhort, rather turning up at the points; well made in the hind quarters; wide acroſs the hips, rumps, and ſurloins; narrow in the chines; tolerably ſtraight in the backs, but the ribs or ſides lying too flat; thin in the thighs; bones not large. It is obſerved, that, when all the properties which ſhould attach to an uſeful breed of cattle are conſidered, the middle-horned may be ſaid in general to come nearer to perfection than any other in the kingdom. They are of a large ſize, well formed, and, in diſpoſition to fatten, probably much on a par with the ſhort-horned, and greatly ſuperior to the Suffolk. As dairy-cattle, they are alſo as valuable as any that fall under the deſcription of quick feeders; for, although they give a leſs quantity of milk than the Suffolk or the long-horned, it is ſaid to be of a richer quality. The Herefordſhire as well as North Devon varieties of this breed are indeed a very ſuperior ſort of ſtock, both for the purpoſe of labour and that of fattening, as being not only clean, ſtrong, and well made, but affording quick proof under the feeding ſyſtem.

The **North Devon Breed**, from the fineneſs of the grain in the meat, is held in high eſtimation in Smithfield. And they are ſaid to have great ſuperiority over many other breeds, from their poſſeſſing more activity, being better calculated for labour, and having more blood; and which is believed to ariſe from the circumſtance of their being bred from one and two years old bulls and heifers. Great proof in this ſort of cattle is ſhown by the ſize of the rib, the rotundity of the barrel, and the mellowneſs of the ſkin. The colours that are moſt in eſteem, and which denote a ſuperiority in the animals, are thoſe ſhades of the mahogany kind, eſpecially where there is a ſilky or gloſſy appearance in the hide, with a ſlight degree of waving or curling in the hair. The ox in this variety is moſtly conſidered in perfection about the fifth year of his age. This valuable breed of horned cattle is moſt prevalent in the ſouth-weſtern parts of Dorſetſhire, Hampſhire, Devonſhire, Somerſetſhire, and even ſo far northward as Herefordſhire; where the largeſt, and perhaps the fineſt, variety of this breed is met with. The Suſſex breed, though not ſo large as the Herefordſhire, exceeds thoſe of moſt of the other diſtricts. The oxen of the Herefordſhire ſort, when ſix years old and fattened, will in general weigh from ſixty to one hundred ſtone of fourteen pounds, the fore quarters being moſtly the heavieſt. From their being ſteady, as well as capable of great exertion in harneſs, they are peculiarly adapted to the purpoſes of the team and plough. They may be worked from three to five or ſix years old, before they are fattened.

The **Short-horned Breed** is diſtinguiſhed from the others by the ſhortneſs of the horns; by being wider and thicker in the frame or mould, and, of courſe, feeding to the greateſt weight; by affording much the largeſt quantity of tallow when fattened; in having very thin hides, and much leſs hair upon them than any other breed except the Alderney; and more particularly by the quantity of milk they give beyond any other breed. The great quantity of milk, thinneſs of their hides, and little hair, are probably the reaſons why they are tenderer than any of the other kinds, except the Alderney. Their colours are much varied; but the generality of them are red and white mixed, which, when properly blended, is very pleaſing and agreeable, and fits them to run in gentlemen's parks and grounds. This breed is chiefly found in Lincolnſhire, and the eaſtern parts of Yorkſhire, Durham, Northumberland, and Berwickſhire. In conſequence of its having been originally imported from Holland, it is frequently called the *Dutch*, and ſometimes the *Holderneſs* breed, from a place of that name in Yorkſhire, where probably it was firſt eſtabliſhed.

The **Suffolk Dun Breed** has long prevailed in that diſtrict; and are diſtinguiſhed by their being polled, of ſmall ſize, and a dun colour. The cows are lean, and large in their bellies; yet they are valuable for the purpoſe of the dairy, as giving large quantities of milk. The weight of this breed is moſtly on the average from fifty to ſixty ſtone.

The **Polled or Galloway Breed** of cattle is conſidered as very valuable. In weight and ſize, it is as much leſs than the long-horns as theſe are than the ſhort-horns. The cattle generally weigh from forty to ſixty ſtone, ſome particular ones reach ſeventy and upwards; but their moſt eſſential difference from every other breed is their having no horns at all; ſome few indeed, in every other reſpect polls, have two little knobs, from two to four inches long, hanging down looſe from the parts where other cattle's horns grow, joined to the head by a little looſe ſkin and fleſh. In moſt other reſpects theſe cattle reſemble the long-horns both in colour and ſhape, but are ſhorter and more compact in their form; which probably makes them weigh leſs. The origin of this breed was probably in Galloway, a large diſtrict in the ſouth-weſt of Scotland, where they are moſtly bred upon the moors or hilly country and grazed upon the lands nearer the ſea until riſing four or five years old, when the graziers and drovers take them up in great numbers to the fairs in Norfolk and Suffolk, previous to the turnip-feeding ſeaſon; whence the greateſt part are again removed in the winter and ſpring, when fat, to ſupply the conſumption of the capital, where they are readily ſold at high prices, few or no cattle ſelling ſo high in Smithfield market, from their putting up ſo nicely marbled, owing to their laying their fat upon the moſt valuable parts; a great excellence in all feeding-cattle. They alſo prevail in Dumfriesſhire and Ayrſhire. The polled cows of this breed are ſaid to be good milkers in proportion to their ſize, the milk being of a rich quality, and yielding much more butter from a given quantity than in the ſhort-horns. The oxen and ſpayed heifers have alſo been aſſerted to anſwer well for draught. But, though the cattle of the above diſtrict are moſtly polled, they have ſeveral with horns, which they contend are a mongrel breed, produced by croſſing with long-horned bulls from other diſtricts. The polled ones, and of theſe the black or dark brindled ones, are preferred to any other, as they allow them to be the original breed of the country.

The HIGHLAND or KYLOE BREED of cattle is leſs in proportion to the polled than they are to the long-horns; this breed is alſo covered with a long cloſe coat of hair like the polls and long-horns; and, like theſe, the beef is fine-grained, well-flavoured, and mixed or marbled, but not ſo handſome on the outſide, when expoſed in the market, not being of ſo bright a colour, and often ſpotted with black, except when made very fat. When grazed, they feed very readily, their weight in general being from twenty to thirty-five ſtone; ſome reach to more than forty ſtone. The moſt prevalent colour is black; ſome are brindled or dun; but the breeders there, like thoſe in Galloway, prefer the black ones. This hardy breed is found in all the extenſive mountainous country, the Highlands of Scotland, together with the Weſtern Iſles. The Iſle of Skye cattle are the ſmalleſt in ſize, but the moſt perfect in other reſpects of perhaps any of the Kyloe or other ſorts; a circumſtance which is ſuppoſed to depend on its being a pure unmixed breed. This breed ſeems calculated in every reſpect to thrive in a cold, expoſed, mountainous, country, and probably better adapted to the cold regions where they are bred than any other kind. They are driven to the ſouthward in great numbers every autumn; many into the weſtern diſtricts of Yorkſhire; but the greateſt part into Norfolk, Suffolk, Eſſex, and other parts of the ſouth, where they are fattened. This ſort of cattle is termed *kyloes*, probably from a diſtrict in Ayrſhire called Kyle, where they prevail much.

The LOWLAND or FIFESHIRE BREED of cattle is rarely met with in an unmixed ſtate. Towards Cumberland they are half long-horns, half polls; on the borders of Northumberland they are mixed with ſhort-horns until we reach Tiviotdale, where they become altogether a ſmall coarſe kind of ſhort-horns, or what the Yorkſhire jobbers call *runts*; except a few good ſhort-horned cattle, bred in that pleaſant and fine country, the Tweed-ſide. This ſame kind of runtiſh coarſe breed continues all the way to the Frith of Forth. Croſſing this narrow ſea into Fifeſhire, it might at firſt be imagined that the Fife cattle were a diſtinct breed, from their upright white horns, their being exceedingly light-lyred, and thin-thighed; but Mr. Culley is pretty clear that it is only from their being more nearly allied to the kyloe breed, and conſequently having leſs of the coarſe kind of ſhort-horns in them. The cattle all along this coaſt continue to change more and more, growing ſtill leſs, until, upon the edges of the mountains, they become quite of the kyloe kind; but ſtill much inferior to that pure, unmixed, valuable, breed of kyloes which occupy the more northern and weſtern Highlands, and the different iſles; but particularly the Iſle of Skye, and that tract of country called Kintail.

The ALDERNEY BREED of cattle is very delicate and tender, ſo as to be little fitted for the uſe of the farmer. They are not able to bear the cold of this iſland, particularly the more northern parts of it. They are in general fine-boned, light red or yellow in colour, and their beef generally yellow or very high coloured, though fine in the grain, and well-flavoured. They make themſelves very fat; and are not in the leaſt ſubject to lyer, or black fleſh. Very uſeful cattle have been bred from a croſs between an Alderney cow and a ſhort-horned bull. This is a breed that is moſtly to be met with about the ſeats of the nobility and gentry, upon account of the cows giving exceedingly rich milk.

From this detail of the various breeds of cattle, it is obvious that they are not all equally profitable to the breeder, the rearer, the dairyman, the grazier, the butcher, or the conſumer. Some have a greater diſpoſition to fatten than others. Some, being cleaner boned and better formed, have leſs offal. Some give a greater quantity of milk than others. In a word; ſome of the particular properties for which cattle are eſtimable are more diſcernible in one breed than in another. Whether theſe can be all united in the ſame animal, or whether a breed of cattle poſſeſſing all the requiſite qualifications would be equally ſuitable to all ſituations, are queſtions not eaſy to be determined. In regard to the firſt, it ſeems univerſally agreed, that there are two properties for which cattle are eſteemed valuable, that cannot be united; that is, a diſpoſition to fatten, and a tendency to yield a large quantity of milk. The form of the animal moſt remarkable for the firſt, is very different from that of the other; in place of being flat in the ſides, and big in the belly, as all great milkers are, it is high-ſided and light-bellied; in a word, its body is barrel-formed, while that of the other is more fitted to embrace a horſe-collar. It is not probable, therefore, that the properties of two breeds of cattle, ſo oppoſite in form and general appearance, can ever be united in the ſame animal. If a large quantity of milk, whatever be its quality, is the object, the dairyman muſt content himſelf with ſuch plain ill-looking animals as have been deſcribed. And, as the milk of all cows is well known not to be of the ſame quality, it appears highly probable, that, in proportion as the cows of the milking tribe exceed thoſe that are more diſpoſed to fatten in quantity, in nearly the ſame proportion will their milk be inferior in quality. If this ſhould prove to be the caſe, the ſuperiority of the quick feeders one would ſuppoſe to be completely eſtabliſhed; as, while cattle of this deſcription are confeſſedly better for the purpoſes of the graziers, the butchers, and the conſumers, they would, if this point were determined in their favour, be alſo more valuable for the dairy. No perſon will think of aſſerting, that a gallon or two of whey or of buttermilk extra, is a ſufficient reaſon for prefering a breed of plain-looking, ill-formed, cattle, to one that, except in this particular, is more valuable in every reſpect. In a word, no perſon, who pretends to a knowledge of the different breeds of cattle, will think of ſupporting an opinion ſo erroneous, as that cattle which are diſpoſed to fatten quickly, and at an early age, that, from the ſuperior excellence of their form, have a ſmall proportion of offal, or what the breeders call *non-eſſentials*, and that, although they yield not a large quantity of milk, yet make up for that deficiency in the richneſs of its quality, are not more valuable than thoſe which have nothing to recommend them but the ſingle property of being great milkers.

Mr. Culley, in comparing the breeds of long and ſhort horned cattle, contends that the former excel in the hide, hair, and quality of the beef; the latter in the quantity of beef, tallow, and milk; and though each breed has long had, and probably may have, its particular advocates, it is not improbable but that each may have its particular advantages in different ſituations. Thus, the thick firm hide, and long cloſe-ſet hair, of one kind, may be a ſecurity againſt thoſe impetuous winds and heavy rains to which the weſt coaſt of the iſland is ſo ſubject; while the more regular ſeaſons and mild climate upon the eaſt coaſt may be more ſuitable to the conſtitution of the other.

In regard to the former breed exceeding the latter in the quality of the beef, it is only to the particular variety ſelected and improved by Mr. Bakewell, that preference is to be given in this view; for, as to the long-horned breed in common, it is ſuppoſed that their beef is rather inferior than ſuperior to that of the generality of the ſhort-horned kind; and there is little doubt, it is imagined, but a breed of ſhort-horned cattle might be ſelected, equal if not ſuperior to even that very kindly-fleſhed ſort of Mr. Bakewell, provided any able breeder would pay as much attention to theſe as he and his neighbours have done to the long-horns.

But, notwithſtanding theſe two breeds have hitherto been in poſſeſſion of the beſt part of the iſland; it is ſuggeſted that the Galloway cattle, and even the Scotch Kyloes, might be bred with advantage in many ſituations, ſo as to be more profitable than either the ſhort-horns or the long-horns, as being true quick feeders and kindly-fleſhed. It is likewiſe conceived that the latter of theſe ſorts is better adapted to cold moory ſituations than any other breed, and that particular breeds are probably beſt adapted to particular ſituations; on which ground it is recommended to breeders of cattle to find out which breed is the moſt profitable and beſt ſuited to their ſituations, and to endeavour to improve that breed to the utmoſt, rather than try to unite the particular qualities of two or more diſtinct breeds by croſſing.

The breeding and rearing of horned cattle may be accompliſhed upon moſt farms of any extent, but to the greateſt advantage on thoſe where the quantity of coarſe paſture is the moſt conſiderable, and where at the ſame time there is the means of raiſing large crops of the green vegetable kind for winter uſe, as in ſuch caſes the animals, while young, are capable of being kept in the beſt manner, and at the leaſt expence. In whatever ſituations the breeding and rearing of cattle is attempted, the young ſtock ſhould conſtantly be kept in the beſt manner the nature of the farm will admit of. This is of much greater conſequence than is generally ſuppoſed; for, where young animals are pinched for food at an early period of their growth, or fed with ſuch as is not of a ſufficiently good quality, they never thrive ſo well afterwards, or make ſuch good ſtock. In the winter the yearlings ſhould be fed with hay and roots, either turnips, carrots, or potatoes. If hay is not to be had, good ſtraw muſt be ſubſtituted; but then the roots ſhould be given in greater plenty, and with more attention. To ſteers and heifers two years old, the proper food is hay, if cheap; or ſtraw, with baits of turnips, cabbages, &c.

The moſt proper age at which cattle ſhould be made to become productive is a point of great importance, but which probably requires more experiments than have yet been inſtituted to aſcertain it. Much may depend upon climate, ſituation, and the manner in which they have been reared and kept; as where the ſituation is favourable, and the keep rich and good, they may be put to the bull earlier than where it is more expoſed, and the keep indifferent. This is ſupported by the obſervation of Mr. Marſhall, that in Yorkſhire, while the lands were in the ſtate of commonage, the heifers were frequently kept from the bull until they were three years old: now, in the ſtate of incloſure and improvement, and at the preſent high rents, they are frequently ſuffered to take the bull when yearlings, bringing calves at two years old. The arguments for bringing heifers in at two years old are, that they come ſooner to profit; and that farmers cannot afford, at the preſent rate of rents, to let them run unprofitably until they be three years old. On the other hand, the argument in favour of bringing them in at three years old is, that, not being ſtinted in their growth, they make larger and finer cows than thoſe which are ſuffered to bear calves at a more early age. It is now generally agreed, however, that the moſt advantageous time of putting the young ſtock to the bull, is at two years old, ſo as to bring their calves when three years old. It is ſaid that, if the buſineſs of geſtation is longer protracted, the young heifers become more liable to miſs having calves, and turn barreners.

Where the dairy is extenſive, an account ſhould always be kept of the time when each cow takes the bull, that ſhe may be dried off at a reaſonable diſtance of time before the expected term of geſtation be completed. The moſt proper time for the cow to be dried off, is about two months before her calving; under good keep, however, ſhe may be milked ſome weeks longer. It has, indeed, been ſtated by Dr. Dickſon as probable, that much in this buſineſs muſt depend on the manner in which they are kept; as, where they are well fed, they may be continued in milk till within a week or two of their calving, without ſuffering any injury whatever from it; but, in the contrary circumſtances, it may be better to let them run dry for a month, or ſix weeks, according to their condition, in order to their more fully recruiting their ſtrength. It appears, too, that the longer the milking is continued, the more free the cows will be from indurations and other affections of the udder; which is a circumſtance deſerving of attention. When a cow is four months gone with calf, the fact may eaſily be aſcertained by preſſing upon her off-flank, where the calf will be felt to kick againſt the hand. They may be known to be near the time of calving by ſpringing at the udder, or at the bearing. By the term *ſpringing at the udder*, is meant the collection of liquid in the bag; which, a few weeks before the time of geſtation is accompliſhed, aſſumes the appearance of milk, and may be drawn from the teats. To *ſpring at the bearing*, is when this part is more than ordinarily large and diſtended. Heifers are ſaid to ſpring ſooneſt at the bearing, and old cows at the udder.

In the buſineſs of improving different kinds of live-ſtock, two different ſyſtems have been chiefly purſued. The firſt, or that which has prevailed for the greateſt length of time, is by means of *croſſing* the various breeds, ſo as to ſupply the faults or defects of the one by the merits or perfections of the other; the latter, or that which has been more recently introduced and brought to the attention of the farmer, is by uniting the perfections of the ſame kind, by continuing to breed from the beſt and moſt perfect animals in the ſame line, family, or blood. It was ſuppoſed for a great length of time, and is ſtill by ſome, that the former of theſe methods, beſides its ſuperiority in other reſpects, poſſeſſed conſiderable advantages in preventing the animals from becoming ſmall, tender, and liable to diſeaſe, in conſequence of their being too near akin. This notion has however been ſhown to have little foundation in truth, by the great ſucceſs which has attended the contrary method, in the practice of Mr. Bakewell; as his beſt ſtock has been raiſed by the neareſt affinities, not only without either diminiſhing in ſize, becoming leſs hardy, or being more ſubject to diſeaſe; but, on the contrary, with a continued amelioration. And a ſtill more concluſive proof is, perhaps, afforded in ſuch breeds of cattle as have remained for many centuries in the ſtate of nature, in particular ſituations, without any mixture of others; as in ſuch caſes, though from their unreſtrained condition they muſt, without doubt, have bred in all the different poſſible degrees of affinity, they have been found to continue without any diminution either in their ſize, hardineſs, or health, and without undergoing any injurious alteration in their form, or change in their colour, or other peculiarities. But, in anſwer to theſe ſtrong proofs, it is ſtill contended by others, that in this method young ſtock decreaſe rapidly in ſize on the ſame paſture, without any other ill or good effect taking place in conſequence of it. It is likewiſe farther obſerved, in contradiction of the ſame opinion, that, in proportion as an animal decreaſes in ſize, it may be reaſonably ſuppoſed to decreaſe in vigour and activity; but that how far this may render it capable of feeding or living on leſs food is not aſcertained. There is no doubt, however, it is ſaid, but that very beautiful animals may be produced by breeding in-and-in; as the young animal comes into the world on a ſmall ſcale; but, by keeping it fat from the firſt moment of its exiſtence, it is made to attain a greater ſize than nature intended, and its weight will in conſequence be very great in proportion to the ſize of its bones. But this is far from proving that the practice is eligible. And it is ſtill further contended, in regard to horned cattle, that, as in this ſyſtem of breeding no expence is ſpared in feeding the young ſtock, the breed ſhould of courſe have attained a larger ſize; yet they are not only leſs, but, it is aſſerted, carry leſs fat on their beſt points than the Herefordſhire cattle, which from the firſt year are kept in a much inferior manner. In this ſtate of the queſtion, no certain concluſions can be drawn. The ſafeſt plan is, therefore, to have recourſe to both methods, according to the nature of the improvement that may be required; and, as there is no poſſible means yet diſcovered of rendering accidental varieties, in either the animal or vegetable kingdom, *permanent*, the beſt way is conſtantly to breed from the beſt and moſt perfect animals of their kind.

The long-agitated queſtion, whether large or ſmall ſized animals are the moſt profitable, or pay the grazing farmer the moſt money for the food they conſume, has never been decided; nor is it probably capable of being eaſily aſcertained, on account of the great difficulty of making experiments under an exact ſimilarity of circumſtances, in regard to breed, paſture, food, expoſure, and other points; and what is the difference in the growth, or increaſe of weight, or of labour, between large and ſmall animals, in proportion to the quantity of food which they take for their ſupport. And laſtly, what is the difference in the increaſe and quickneſs of feeding, in ſtock of different ſizes, in relation to the quantity of food which they conſume. A varied ſet of experiments, correctly made with a view to theſe different points, would no doubt lead to many uſeful concluſions, though they would not, probably, finally ſettle the diſpute, on account of the great difficulties that muſt always attend ſuch comparative inveſtigations, from the variation of circumſtances and other cauſes. It would ſeem therefore, that, in the preſent ſtate of our knowledge, no certain directions can be given in reſpect to the ſize of cattle, that will be generally applicable in governing the conduct of the farmer. The largeneſs of ſize, though it is a property that may be deſirable, in ſo far as it affords the means of feeding to a great weight; yet, as this is probably acquired by a much larger and longer-continued conſumption of food, it is probable that, except in ſituations where food is abundant, the ſmaller-ſized animals may be the more profitable. In deciding the point, it is not merely, as has been ſeen, the difference in the quantity of fleſh that they are ſeparately capable of affording, but the difference of ſuch quantity in relation to the conſumption of food, that is to be conſidered. It was found by Mr. Bakewell, that the ſmaller the bone, the truer the make of the beaſt, and the quicker in fattening; which throws the advantage on the ſide of ſmall ſize; and the experience of graziers in general ſeems to favour the ſame concluſion, as they commonly find that the middling and ſmall breed are the moſt profitable, from their fattening with the greateſt expedition.—For the natural hiſtory and different ſpecies of this genus of animals, both in the wild and domeſtic ſtate, ſee the article BOS, vol. iii. p. 221–226.

### OF SUCKLING, AND THE BUSINESS OF THE DAIRY.

In ſituations where a ready market can be found for fatted calves, there is no part of the farmer's buſineſs ſo productive as that of ſuckling; particularly on farms where a great number of cows can be maintained, and where the feed is hearty and unſtinted. It is a moſt pleaſing reflection that this department of the dairy concern can be carried on to a conſiderable extent by only two careful ſteady men, whereby the expence attending it is trivial to a degree; the milk is clean taken up by the ſucking calves, without the ſmalleſt waſte; no room or temptation is afforded to conniving ſervants for peculation; and the return is made in large ſums of money, inſtead of being received, as is too often the caſe for butter, &c. in very ſmall driblets.

Wherever the buſineſs is carried on, it is eſſential to the health of the calves, that the ſuckling-houſe be ſpacious and airy, having a range of faſtenings, called *clapſes*, on one ſide, for the purpoſe of confining the cows; and on the other a ſet of cloſe pens, for containing the calves. Theſe ſhould be ſo contrived, that, while they keep the calves as dry and clean as poſſible, they might at the ſame time exclude the influence of too much light. It is a cleanly and healthful method to have raiſed moveable floors in the pens, formed of narrow laths or ſpars nailed upon joiſts, at the diſtance of about an inch from each other; by which means the moiſture and filth conſtantly drain off, while a conſiderable degree of ventilation is afforded to the ſuckling-houſe. The pens or diviſions ſhould never be too large; for the more quiet, and the leſs the calves move about, the better and quicker they fatten. It is of the utmoſt conſequence to have them kept perfectly clean, and free from every ſort of diſagreeable ſmell; for, without attention in this reſpect, infection or diſeaſe is apt to take place. This is beſt effected by frequent ſweeping and cleaning the pens, and having recourſe to freſh clean wheat-ſtraw for littering them up every day. No other ſtraw muſt on any account be made uſe of.

There are two methods purſued by different farmers in fattening their calves; one is by allowing them to ſuck the cows; and the other to give them the milk, according to the diſcretion of the ſucker, after it has been drawn from the animals. The firſt is obviouſly the beſt and moſt adviſeable practice, and that which is therefore generally followed. In this mode the calves are admitted to ſuck twice in the day, which is, as nature beſt directs, at the milking-times. In the latter method the milk is given them warm from the cow in the morning and evening, being gradually increaſed as the calves increaſe in ſtrength and ſize. This practice, however, is attended with every diſadvantage, and ſhould be univerſally diſcontinued. The length of time neceſſary for perfecting the buſineſs of fattening muſt vary according to circumſtances; but in moſt caſes it is from ſix or ſeven to eight or nine weeks. Where this is not a regular buſineſs, the fattening is often diſpatched in a much ſhorter time, and with leſs care.

As it is extremely neceſſary that the calves ſhould always lie quiet, in order that they may indulge in ſleep at thoſe times when they are not employed in ſucking, the ſuckling-houſe ſhould be ſituated in the moſt retired part of the yard, and the pens at thoſe times ſhould be kept as dark as poſſible. But notwithſtanding this caution, the calves muſt by no means be ſuffered to lie too hot in the ſummer time; which would be apt to induce a ſickneſs amongſt them. To admit, therefore, an occaſional draught of freſh air, let a window be cut in each pen, with ſhutters adapted to the ſame, and let theſe windows be opened whenever the cloſeneſs of the atmoſphere indicates it to be neceſſary. In the ſummer ſeaſon they ſhould rarely if ever be cloſely ſhut; and, when it is requiſite, the ſtream of air may be increaſed by opening the door at the oppoſite end of the building.

In the order the calves are brought forth, they are to be taken into the pens, and ſuckled on their own mothers, which at firſt will yield a far greater quantity of milk than is neceſſary for their offspring, ſo that another calf may be ſuckled thereon: or the cow may be milked, and the cream be reſerved for butter, or applied to any other uſe that the owner may think proper. As the calf increaſes in ſize, it will require a larger quantity of milk; but, whilſt they are young, one good cow will yield a full ſupply for two calves; and, when the whole produce is demanded for one calf, another new-milch cow ſhould be provided, and theſe two cows will abundantly ſupply three calves with milk till the oldeſt is fit for the butcher; after which, if neceſſary, a freſh ſuckler may be bought in, and the buſineſs be carried on progreſſively by keeping the houſe conſtantly ſupplied with calves, ſo that the whole milk may be ſucked.

As young calves, when permitted to ſuck their fill, are often ſeized with a looſeneſs or ſcouring; in order to prevent this, for the firſt fortnight or three weeks it is neceſſary to ſtint them in their allowance; but, at the ſame time, due regard ſhould be had that they do not pine or decreaſe in fleſh for want of milk. After this age they ſhould be allowed to ſuck as long as they chooſe, and every means ought to be made uſe of to increaſe their appetite, and render them more eager for their food.

Free chalk may be made uſe of for this purpoſe, as well as for correcting the ſuperabundant acidities in the ſtomach, and leſſening the tendency to ſcour. The idea of its giving to the fleſh a delicate whiteneſs, is ſuppoſed by ſome not to be well founded; there is however very little doubt that the contrary is the fact. Salt ſprinkled in the troughs likewiſe acts as a ſtimulus to the appetite. Beſides theſe, it is a common practice with many good ſucklers to give their calves balls compoſed of flour, pounded chalk, and milk, with the addition of a ſmall quantity of common gin, and ſometimes a little tincture of opium. Of theſe balls they give two, about the ſize of a walnut, once a-day, or oftener, to each calf. Such balls, being very nutritious, in ſome degree ſupply the place of milk, and at the ſame time, from the great ſtimulus which they afford to the young animals, diſpoſe them to ſleep, and thereby increaſe their diſpoſition to fatten; but, where milk can be had in ſufficient abundance, it is never worth while to have recourſe to theſe aids. When the demands of the calves, however, are beyond the powers of the cows, theſe balls come ſeaſonably to their relief. Occaſional bleedings have alſo been adviſed, to prevent loathing the food, and diſeaſes from plethora.

In this ſyſtem of management it is conſtantly neceſſary to be buying in calves at a week or ten days old, or as they can be procured. The prices vary, according to the goodneſs, and the time of year at which they are bought in. The calves that are ſuckled by their own mothers are in general found to fatten in a ſhorter time than thoſe which are afterwards bought in to ſupply their places; the reaſon of which is, probably, their not having been removed from the place where they were firſt dropped, and having always continued to ſuck the milk moſt natural to them; which muſt be ſuppoſed more nutritious, and to agree better with them, than that of any other cow. Beſides, from the cows having recently calved, the milk nouriſhes and fattens in a higher degree than when they become ſtale-milched. Cow-calves are obſerved to fatten more kindly than the male or bull-calves; and theſe laſt are more coarſe grained, and their fleſh leſs delicate in taſte, than the former. In ſome diſtricts, barley-meal and linſeed boiled into a kind of jelly, and ſuch-like materials, are ſometimes given to calves in the courſe of fattening; but the methods recommended above are greatly ſuperior, though they may be more expenſive.

It is found by experience that the veal of calves when killed at ſix weeks or two months old is ſeldom of ſo good a colour, or ſo rich in flavour, as where the animal is ſuffered to live a few weeks longer. To attain both theſe deſirable ends of colour and flavour, it is ſuppoſed neceſſary that the calves ſhould be maintained with plenty of milk, and regulated under ſuch management as before directed, till they arrive to the age of eight or ten weeks, according to the ſeaſon of the year, the more or leſs kindly ſtate of the calf, the particular demand of the markets, or other circumſtances. In the ſummer ſeaſon it may be proper to diſpoſe of them at an earlier period than in the winter; not only on account of their growing away with greater celerity in warm weather, but likewiſe becauſe of the increaſed demand for ſmall veal, which is then moſt ſaleable. During the laſt three or four weeks, blood ſhould frequently be drawn from the calf, which, it is ſuppoſed, will be a likely means towards rendering the veal of a colour delicately white; a circumſtance ſo much attended to by the butcher, that he will commonly depreciate ſuch calves as from the appearance of their eyes are likely to die *black*, as they term it, though in other reſpects not to be deſpiſed.

Mr. Marſhall is decidedly of opinion, in his Courſe of Huſbandry, that to ſuckle calves in general after they are ten weeks old is bad management; as, from the whole of his accounts, thoſe of nine or ten have paid as much a-week as thoſe of twelve or thirteen; and, although a calf of ſix weeks old may ſuck nearly as much milk as a calf of twelve weeks old, yet the firſt month or five weeks the quantity is conſiderably leſs, and this advantage of their infancy is doubly as valuable to nine as it is to twelve weeks. The advantage of this practice is certainly very conſiderable when conducted upon a large ſcale.

From the primeſt cows of his ſuckling-herd, it ſhould be the anxious care of the farmer to rear his future ſtock. By this means he would ſeldom or ever be liable to a vacancy in his ſuckling-pens, and a breed be eſtabliſhed and adapted to his farm, greatly ſuperior, perhaps, to any he could purchaſe. Beſides, he would always have this advantage, that he could retain the beſt and moſt promiſing of his young cattle for the improvement of his general ſtock, while the coarſe and ill-formed may be ſent to the market or fair.

The beſt calves to be reared, are thoſe which fall early; that is, from Chriſtmas to Lady-day, becauſe by weaning them the buſineſs of the ſuckling is not impeded, and the calves, with due care and attention, will acquire conſiderable growth before the ſpring of the year, by which means they will go on with double advantage, and make larger cattle than any of thoſe that are weaned later in the year.

There are different modes of rearing calves in different diſtricts; but the moſt natural and convenient, as well as that which is moſt advantageous to the animals, is permitting them to ſuck for a ſufficient length of time to get into perfect order before they are put to other food, as in this way they become much ſtronger, and more diſpoſed to thrive, than where brought up from the firſt by the hand, which is done to ſave the milk. In Yorkſhire the uſual method is, for the firſt two or three weeks, for them to get milk warm from the cow; but for the next two or three weeks half the new milk is withdrawn, and ſkimmed milk ſubſtituted in its ſtead; and, at the end of that period, the new-milk is wholly withdrawn; they are then fed on ſkimmed-milk alone, or ſometimes mixed with water, till they are able to ſupport themſelves by eating graſs, or other food of that ſort. They are very ſeldom allowed to ſuck. But in Cheſhire the practice is to allow the calves to ſuck for the firſt three weeks. They are then fed on warm green whey, or ſcalded whey and butter-milk mixed; or with the green-whey water mixed, and oatmeal or wheat and bean-flour added. A quart of meal or flour is thought ſufficient to mix with forty or fifty quarts of liquid. Oatmeal, gruel, and butter-milk, with an addition of ſkimmed-milk, are alſo uſed for the ſame purpoſe. Some one or other of theſe prepared foods is given night and morning for a few weeks after the calves are put on that diet; but afterwards only once a-day till they are three months old or more. Calves in Glouceſterſhire are not allowed to ſuck above two or three days; they are then fed on ſkimmed-milk, which is previouſly heated over the fire. When they arrive at ſuch an age as to able to eat a little, they are allowed ſplit-beans or oats and cut hay, and water is mixed with the milk. In Suſſex it is common to allow the calves either to ſuck for ten or twelve weeks, or to wean them at the end of three or four, and to give them a liberal allowance of ſkimmed-milk for ſix or eight weeks longer. It is the cuſtom in Suffolk to let the calves ſuck ſix or ſeven weeks, and then to give them coarſe pollard and oats with ſkimmed-milk and water, letting them have ſome ſweet green hay conſtantly till they are turned to graſs. In Norfolk, with early calves, the method is for them to ſuck twice a-day for a fortnight, then to have the pail twice a-day for an equal length of time, afterwards once a-day for a month or ſix weeks longer; cut hay, turnips, and ſometimes carrots, being put in the mangers for them, and of which they ſoon become very fond.

Where calves are reared with ſkim-milk, it ſhould be boiled, and ſuffered to ſtand until it cools to the temperature of that given by the cow, or a trifling degree more warm, and in that ſtate be given to the calf. Milk is frequently given to calves when made warm only; but that method will not ſucceed ſo well as boiling it. If the milk be given too cold, it is apt to cauſe the calf to purge. When this is the caſe, a little rennet may be put in the milk. If, on the contrary, the calf is bound, mutton-broth is a very good and ſafe thing to put into the milk. From a gallon to a gallon and a half of milk per day will keep a calf well till it be thirteen weeks old. It may then be ſupported without milk, by giving it hay and a little wheat-bran once a-day, with about a pint of oats. The oats will be found of great ſervice as ſoon as the calf is capable of eating them. The bran and oats ſhould be given about mid-day; the milk in equal portions, at eight o'clock in the morning and four in the afternoon. But, whatever hours are ſet apart for feeding the calves, it is proper to adhere to thoſe particular times, as regularity is of more conſequence than is commonly ſuppoſed. If calves go but an hour or two beyond their uſual time of feeding, they are uneaſy, and pine for food.

In caſes where the calf is ſuffered to ſuck the mother, it ſhould have the firſt of the milk, the reſt being afterwards milked. It will thus have the thinneſt part, which is the leaſt liable to injure it by producing a ſcouring. Great care ſhould be taken to prevent this diſorder, which is apt to follow from ſucking ſtale-milched cows, or when taken from ſucking, and put upon other food. When however this happens, the beſt remedy is probably that of boiling pounded chalk, in the proportion of half a pound or more to four quarts of water, adding a couple of ounces of the ſhavings of hartſhorn, with a quarter of an ounce of bruiſed caſſia, for a few minutes, and then ſtraining off the liquid, which may be given with the milk or other food, ſuitably warm, to the quantity of from half a pint to a pint, once or twice a-day, according to circumſtances. In theſe caſes the calves ſhould always be kept dry and warm under ſhelter from wet. If other materials be neceſſary to be mixed with the milk, wheaten-flour will probably be found the beſt.

From the increaſing value of milk, great attention has lately been beſtowed in endeavouring to diſcover ſubſtitutes, that may anſwer the purpoſe without that valuable food, as by ſuch means a greater number of calves might be reared; which would certainly be of vaſt importance to the farmer, as well as in other points of view. Various experiments have been made, but without any very complete ſucceſs. A method recommended by the duke of Northumberland was found to ſucceed in his trials, and by thoſe of others ſince. It is by preparing ſkimmed-milk with other ingredients, ſo as to anſwer the purpoſe as where new milk is given, at about one-third the expence. The ſubſtances that are made uſe of are treacle and linſeed-oil cake, reduced by the operation of grinding to the ſtate of almoſt an impalpable powder; being employed in ſuch ſlight proportions as, excluſive of the milk, to come to no more than about ſixpence for thirty-two gallons. The manner of preparing it is this: Take one gallon of ſkimmed milk, and to about a pint of it add half an ounce of common treacle, ſtirring it until it is well mixed; then take one ounce of linſeed-oil cake, finely pulverized, and with the hand let it fall gradually, in very ſmall quantities, into the milk, ſtirring it, in the mean time, with a ſpoon or ladle, until it be thoroughly incorporated; then let the mixture be put into the other part of the milk, and the whole be made nearly as warm as new milk when it is firſt taken from the cow. In this ſtate it is fit for uſe. After a time the quantity of oil-cake powder may be increaſed, which ſhould be done as occaſion may require, and as the calves become inured to the flavour of ſuch food.

The beſt time to perform the operation of caſtrating the calves, is pretty ſoon after they have been dropped, as there is leſs danger from bleeding and inflammation at that period than afterwards, when they have attained a greater degree of health and vigour. Some adviſe three weeks or a month, but a week or a fortnight at moſt is probably much better. In the male calves, the cutter, when expert, after dividing the ſcrotum, or bag, and ſeparating the teſticles, draws out the ſpermatic veſſels by introducing his fore-finger and thumb. It is probable, however, that ſimple exciſion may be equally effectual, and muſt always be leſs hazardous. The ſpaying of the female calves, which is frequently performed, is an operation of greater nicety, and requires more dexterity in its management. Such calves as are ſpayed are found to be more quiet in the paſtures, and to fatten more expeditiouſly.

Much care and attention are neceſſary, eſpecially in the more early weaned calves, to keep them perfectly dry and warm, as their thriving will in a great meaſure depend upon this being effectually done. The following advice of a practical writer, Mr. Banniſter, is judicious: After the calves have been weaned, eſpecially the later ones, they ſhould be turned abroad, in the day-time, into a ſmall cloſe or orchard near the farm-yard, where there is a good bite of graſs; and, as there is generally more than one calf weaned in a ſeaſon, they will each be company for the other, and become in a ſhort time reconciled to their ſituation. For the firſt month or ſix weeks, they ought every night to be brought out of the meadow, and lodged in the pens; but, after this time they may be left in the paſture as well in the night ſeaſon as in the day: and their food may now be lowered by degrees, till it be at length reduced to ſimple water only; for, when the calves get to the age of twelve or fourteen weeks, they will no longer require the aid of this ſuſtenance, but be able to ſatisfy their appetites by graſs. Care, however, muſt be taken throughout the ſummer that they be frequently ſhifted from one paſture to another, in order that they may be kept up in good fleſh, and enabled to grow away with the utmoſt celerity. At Michaelmas, or ſoon after, they ſhould be taken into the yard; and, if they were allowed the indulgence of a ſmall cloſe to themſelves, it would be ſtill better. And here their taſte muſt be gratified with the beſt and ſweeteſt hay that can be procured, with an outlet on a dry paſture, where in fine open weather they may be ſuffered to enjoy themſelves; it would redound greatly to their advantage, if, on the approach of winter, a ſhed were to be erected for them to repoſe in during the night, and for ſhelter in tempeſtuous days. So eſſential are warmth and good living to young animals of every denomination, that the care which has been taken of them in their early life will be manifeſt in every ſtage of their future growth. Nor is there any ſtock which will pay better for this cautious management in their youth than thoſe of the cow kind; for if theſe are ſtinted in their feed, or careleſsly attended whilſt in their growing ſtate, they will never arrive to that ſize which they would otherwiſe have done, and conſequently the loſs will be perpetually felt by the farmer who attempts to raiſe milch-cows of his own breed, without giving them ſufficient attendance the firſt year.

Where the ſituation of the farm does not admit of obtaining a market for the veal when fatted, or where the ſtock is ſo conſiderable that ſuckling and rearing a due proportion of the calves is inſufficient for the diſpoſal of them, the reſidue muſt be ſent to the market lean, and the milk employed for the manufacture of butter, or cheeſe, or both. Where the graſs-lands are of the older kinds, and tolerably rich and fertile, butter ſhould be the principal object; but where they have been more recently converted to the ſtate of ſward, and are of a leſs rich quality, cheeſe may be moſt depended upon. It is perhaps only under particular circumſtances and ſituations that the different methods can be combined with profit and convenience. There are, however, ſituations in which this is effected with great advantage. In Yorkſhire the dairy-farmers are in the habit of preſerving their old paſtures in their original ſtate, as they find the milk produced on them churns with more facility, and the butter is capable of being kept better than if ſuch naturally-rich grounds were highly improved. In ſome caſes it has been found that there was great difficulty in making as well as preſerving the butter, eſpecially in the more warm months, where the land had been wholly ploughed up and improved by manure, particularly of the calcareous kind, where there was previouſly no difficulty of that ſort, and the butter was of the beſt ſort. Old paſtures have therefore, beſides the property of ſupplying the butyraceous material in greater abundance, that of rendering the butter more firm and waxy. It has likewiſe been obſerved that the richneſs of the butter in the Highlands of Scotland has been univerſally attributed to the cows feeding upon the old graſs in their remote glens; though it is ſuggeſted that this may partly depend on the management that is adopted in making it. In Cheſhire they find that the inferior ſorts of paſture-lands are the beſt ſuited for cheeſe.

In commencing this branch of the dairying buſineſs, the farmer is therefore to determine, from the nature and quality of his land, which ſort of dairy management it may be the moſt advantageous for him to adopt, whether that of the cheeſe or butter kind. It has not been ſhown, by any ſet of experiments that can be fully depended upon, whether the butter or cheeſe dairy affords the largeſt profit to the farmer, when conducted under equally good management. The moſt valuable part of the milk is in each caſe converted into a ſubſtance of great utility; and, though the former ſells for a conſiderably higher price than the latter, from the differences in the quantity of the products, in the expence and trouble of management, and various other circumſtances, it ſeems that the real advantages are nearly equal. It has been ſtated, before the late riſe in the prices of theſe different articles, to amount, whether of butter and butter-milk, or of cheeſe and whey, to nearly fourpence-halfpenny for each gallon of milk; at preſent, perhaps, little leſs than from ſixpence to ſixpence-halfpenny. In the vicinity of large towns, and wherever butter is conſtantly in great demand, it will evidently be moſt profitable to have a butter-dairy.

To ſucceed in this buſineſs with ſatisfaction and advantage, it is neceſſary that the farmer ſhould be provided with a ſufficiently large and convenient dairy-houſe, whether the object be butter or cheeſe. It ſhould be in a diſtinct yard or diſtant ſituation from the ſuckling-houſe, and ſo proportioned to the number of cows, as that there may be ſufficient convenience for performing all the operations without embarraſſment; and great attention muſt be paid to cleanlineſs in every thing that relates to it.

It has been obſerved to be of great conſequence to the produce of a dairy, that the cows ſhould not drop their calves too early in the ſeaſon. When that happens, they fall off in the quantity of milk in the autumn, when, owing to its ſuperior richneſs, it is more valuable than at any other period. From the end of March to the end of April is the beſt time in the more northern diſtricts that a cow can drop her calf, as ſhe ſoon gets into good condition on the early graſs, and yields a greater quantity of milk in the courſe of the ſeaſon than thoſe that calve either conſiderably earlier or later. But in the ſouthern parts of the iſland it is an advantage for them to calve much earlier.

It is extremely expedient for ſome truſty perſon to be employed to examine the cows ſeparately after the milkers, eſpecially where they cannot be fully depended upon; to ſee that the buſineſs has been perfectly performed; for, where the contrary is the caſe, great loſs may not only be ſuſtained in the richeſt part of the milk, but the cows be more ſubjected to diſeaſe. The ingenious Dr. Anderſon has made ſuch accurate experiments on this ſubject, that they highly deſerve the attention of every perſon employed in the management of a dairy. It was found, firſt, that of the milk that is drawn from any cow at one time, that which comes off at the firſt is always thinner, and of a much worſe quality, than that which comes afterwards; and that the richneſs goes on continually increaſing to the very *laſt drop* that can be drawn at that time. Few perſons are ignorant that the milk which is taken from the cow laſt of all at milking is richer than the other parts of it; but very few are aware of the greatneſs of the diſproportion between the quality of the firſt and the laſt drawn milk from the ſame cow at one milking. The following facts in reſpect to this circumſtance were aſcertained many year ago, and have been confirmed by ſubſequent experiments and obſervations. Having taken ſeveral large tea-cups, exactly ſimilar in ſize and ſhape, and filled them at regular intervals, the laſt being filled with the dregs of the milk; theſe were each weighed, ſo as to aſcertain that the quantity of milk in each was preciſely the ſame. From a great number of experiments, frequently repeated with many different cows, the reſult was in all caſes thus: The quantity of cream obtained from the firſt-drawn cup, in every caſe, was much ſmaller than from that which was laſt drawn; and thoſe between afforded leſs or more as they were nearer the beginning or the end. It is unneceſſary to ſpecify intermediate proportions; but the quantity of cream obtained from the laſt-drawn cup, from ſome cows, exceeded that from the firſt in the proportion of ſixteen to one. In other cows, however, and in particular circumſtances, the diſproportion was not quite ſo great; but in no caſe did it fall ſhort of the rate of eight to one. Probably, upon an average of a great many cows, it might be found to run as ten or twelve to one.

In the next place, the difference in the quality of the cream obtained from the two cups was much greater than the difference in the quantity. In the firſt cup the cream was a thin tough film, and very white; but in the laſt of a thick butyraceous conſiſtence, and of a glowing richneſs of colour, that no other kind of cream is ever found to poſſeſs. And the difference in the quality of the milk that remained after the cream was ſeparated was perhaps ſtill greater than either, in reſpect to the quantity or the quality of the cream. In the firſt cup it was a thin bluiſh liquid, as if a very large portion of water had been mixed with ordinary milk; while in the laſt cup it was of a thick conſiſtence and yellow colour, more reſembling cream than milk both in taſte and appearance. From this experiment it appears, that the perſon who, by bad milking of his cows, loſes but half a pint of his milk, loſes in fact about as much cream as would be afforded by ſix or eight pints at the beginning; and beſides, that part of the cream which alone can give richneſs and high flavour to the butter, where that is the object, is loſt.

Secondly. That if milk be put up in a diſh, and allowed to ſtand till it throws up cream, that portion of cream which riſes firſt to the ſurface is richer in quality and greater in quantity than what riſes in a ſecond equal portion of time; and the cream that riſes in the ſecond interval of time is greater in quantity and richer in quality than that which riſes in a third equal ſpace of time; and that of the third than the fourth, and ſo on, decreaſing in quantity and declining in quality continually as long as any riſes to the ſurface. Theſe experiments not having been, in this caſe, made with ſo much accuracy as in the former, the writer has not been enabled to aſcertain the difference in the proportion that takes place in equal portions of time; but they have been ſo often repeated as not to leave any room to doubt the fact; and it will be allowed to be a fact of no ſmall importance in the management of the dairy. It is not clear, however, but that a greater quantity of cream may upon the whole be obtained from the milk by taking it away at different times; but the proceſs is ſo troubleſome as not to be counterbalanced by the increaſed quantity obtained; if, indeed, an additional quantity be thus obtained, which is not as yet fully aſcertained.

Thirdly. That thick milk always throws up a ſmaller proportion of the cream it actually contains to the ſurface than milk that is thinner, but the cream is of a richer quality; and, if water be added to that thick milk, it will afford a conſiderably greater quantity of cream than it would have done if allowed to remain pure; but its quality is at the ſame time greatly debaſed. This is a fact that every perſon attentive to a dairy muſt have remarked; but no experiment has been made that could aſcertain either the preciſe amount of the increaſed quantity of cream that might thus be obtained, or of the ratio in the decreaſe of its quality; but it aſcertains the effects, at leaſt, of mixing water with the milk in a dairy; and the knowledge of this fact will enable attentive perſons to follow that practice which they think will beſt promote their intereſt.

Fourthly. That milk which is put into a pail, bucket, or other proper veſſel, and carried in it to any diſtance ſo as to be much agitated, and in part cooled before it be put into the milk-pans to ſettle for cream, never throws up ſo much nor ſo rich cream as if the ſame milk had been put into the milk-pans directly after it was milked. In this caſe it is believed, that the loſs of cream will be nearly in proportion to the time that has elapſed, and the agitation it has ſuſtained, after being drawn from the cow; but the author is not yet in poſſeſſion of any experiments that ſufficiently aſcertain how much is to be aſcribed to the time and the agitation taken ſeparately.

From the whole of theſe facts and circumſtances, the following corollaries are deducible: 1ſt, That it is of importance that the cows ſhould be always milked as near the dairy as poſſible, to prevent the neceſſity of carrying and cooling the milk before it be put into the diſhes; and, as cows are much hurt by far driving, it muſt be a great advantage in a dairy-farm to have the principal graſs-fields as near the dairy, or homeſtead, as poſſible. 2dly, That the practice of putting the milk of all the cows of a large dairy into one veſſel, as it is milked, there to remain till the whole milking be finiſhed before any part of it is put into the milk-pans, ſeems to be highly injudicious, not only on account of the loſs that is ſuſtained by agitation and cooling, but alſo, more eſpecially, becauſe it prevents the owner of the dairy from diſtinguiſhing the good from the bad cow's milk, ſo as to ſeparate theſe from each other where it is neceſſary. He may thus have the whole of his dairy-product greatly debaſed by the milk of one bad cow, for years together, without being able to diſcover it. 3dly, That, if it be intended to make butter of a very fine quality, it will be adviſeable in all caſes to keep the milk that is firſt drawn ſeparate from that which comes laſt; as it is obvious that, if this be not done, the quality of the butter will be greatly debaſed, without much augmenting its quantity. It is alſo obvious, that the quality of the butter will be improved in proportion to the ſmallneſs of the proportion of the laſt-drawn milk that is retained; ſo that thoſe who wiſh to be ſingularly nice in this reſpect, will do well to retain only a very ſmall proportion of the laſt-drawn milk. To thoſe owners of dairies who have profit only in view, it muſt ever be a matter of trial and calculation, how far it is expedient for them to carry the improving of the quality of their butter, at the expence of diminiſhing its quantity. In different ſituations, prudence will point out different kinds of practice as moſt eligible; and all perſons muſt be left, after making accurate trials, to determine for themſelves. It is likewiſe a conſideration of no ſmall importance, to determine in what way the inferior milk that is thus to be ſet apart, where fine butter is wanted, can be employed with the greateſt profit. 4thly, That, if the quality of the butter be the chief object attended to, it will be neceſſary not only to ſeparate the firſt from the laſt drawn milk, but alſo to take nothing but the cream that is firſt ſeparated from the beſt milk, as it is this firſt-riſing cream alone that is of the prime quality. The remainder of the milk, which will be ſtill ſweet, may be either employed for the purpoſe of making ſweet-milk cheeſes, or it may be allowed to ſtand to throw up cream for making butter of an inferior quality, as circumſtances may direct. 5thly, That, from the above facts, we are enabled to perceive that butter of the very beſt poſſible quality can only be obtained from a dairy of conſiderable extent, when judiciouſly managed; for, when only a very ſmall portion of each cow's milk can be ſet apart for throwing up cream, and when only a very ſmall proportion of that cream can be reſerved as of the prime quality, it follows that, unleſs the quantity of milk were upon the whole very conſiderable, the quantity of prime cream produced would be ſo ſmall as to be ſcarcely worth the while for manufacturing ſeparately. 6thly, That from theſe premiſes we are alſo led to draw another concluſion, extremely different from the opinion that is commonly entertained on this ſubject, viz. That it ſeems probable that the very beſt butter could only be with œconomy made in thoſe dairies where the manufacture of cheeſe is the principal object. The reaſons are obvious: If only a ſmall portion of the milk ſhould be ſet apart for butter, all the reſt may be made into cheeſe while it is yet warm from the cow and perfectly ſweet; and, if only that portion of cream which riſes during the firſt three or four hours after milking is to be reſerved for butter, the rich milk which is left after that cream is ſeparated, being ſtill perfectly ſweet, may be converted into cheeſe with as great advantage nearly as the newly-milked milk itſelf. But as it is not probable that many perſons could be found, who would be willing to purchaſe the very fineſt butter made in the manner above pointed out, at the price that would be ſufficient to indemnify the farmer for his trouble in making it, theſe hints are thrown out merely to ſatiſfy the curious in what way butter poſſeſſing this ſuperior degree of excellence may be obtained, if they chooſe to be at the expence; but, for an ordinary market, the writer is ſatiſfied, from experience and attentive obſervation, that if in general about the firſt-drawn half of the milk be ſeparated at each milking, and the remainder only be ſet up for producing cream, and if that milk be allowed to ſtand to throw up the whole of its cream even till it begins ſenſibly to taſte ſouriſh, and if that cream be afterwards carefully managed, the butter thus obtained will be of a quality greatly ſuperior to what can uſually be obtained at market, and its quantity not conſiderably leſs than if the whole of the milk had been treated alike. This, therefore, is the practice that is thought moſt likely to ſuit the frugal farmer, as his butter, though of a ſuperior quality, could be afforded at a price that would always inſure it a rapid ſale.

It has been obſerved, that thoſe who have had little experience in the dairy, believe that no butter can be of the fineſt quality, except that which has been made from cream that has not been kept above one day; but this is a very great miſtake. So far indeed is this opinion from being well-founded, that it is in very few caſes that even tolerably good butter can be obtained from cream that is not more than one day old. The ſeparation of butter from cream only takes place after the cream has attained a certain degree of acidity. If it be agitated before that acidity has begun to take place, no butter can be obtained, and the agitation muſt be continued till the time that that ſourneſs is produced; after which the butter begins to form. In ſummer, while the climate is warm, the beating may be without very much difficulty continued until the acidity be produced, ſo that butter may be got; but in this caſe the proceſs is long and tedious, and the butter is for the moſt part of a ſoft conſiſtence, and tough and glucy to the touch. If this proceſs be attempted during the cold weather in winter, butter can ſcarcely be in any way obtained, unleſs by the application of heat, which ſometimes aſſiſts in producing an inferior kind of butter, that is white, hard, and brittle, with very little taſte, and almoſt unfit for any culinary purpoſe. The judicious farmer ſhould not therefore attempt to imitate this practice, but allow his cream to remain in the veſſel appropriated for keeping it, until it has acquired that proper degree of acidity that fits it for being made into butter with great eaſe, and by a moderate degree of agitation; by which proceſs only very fine butter can be prepared. The length of time cream may be kept before it attains the preciſe degree of acidity that is neceſſary to form the very beſt butter, and after that period before its quality be ſenſibly diminiſhed, has not yet been well aſcertained by experiment.

It is remarked by Dr. Anderſon, that ſo little nicety has hitherto been obſerved by practical farmers, even thoſe who have a high reputation for making good butter, that few of them ever think of obſerving any preciſe rule in this reſpect with regard to the different portions of their cream, ſeeing they in general make into butter all the cream they have collected ſince the former churning, ſo that the new and the old is all beaten up together; and he can find nothing like an uniform rule eſtabliſhed among them as to the time that ſhould intervene between one churning and another, that being uſually determined by local or accidental circumſtances. He is himſelf inclined to believe, that if the cream be carefully kept, and no ſerous matter allowed to lodge about it, a very great latitude may ſafely be admitted in this reſpect; and, though the exact length of time has not been determined, it is certain that cream which has been kept three or four days in ſummer is in excellent condition for being made into butter; and he is inclined to believe, that from three days to ſeven may be found in general the beſt time for keeping cream before churning; though, if circumſtances make it neceſſary, a conſiderable latitude in this reſpect may be allowed. If the farmer has ſuch a quantity of cream as may be worth his while to churn once every day, there is nothing to prevent him from doing it. He has only to provide a ſeparate veſſel for holding the cream for each day he means it ſhould ſtand before churning; if three days, three veſſels; if four days, four veſſels; and ſo on. Thus he may churn every day cream of three days old, or of four, or any other number of days old that he may incline. In the ſame manner, if it were found that the cream of two, of three, or of a greater number of days gathering, was required to make a proper churning, it might be eaſy ſo to contrive it as to churn every day, as will be obvious to any one who thinks upon the ſubject. In this way the operations of a dairy may be kept perfectly regular and eaſy.

It is frequently a practice in Cheſhire to churn the whole of the milk without ſeparating any part of the cream from it. After milking, it is cooled, according to the heat of the weather in ſummer, in ſeparate veſſels for the purpoſe, and a certain degree of acidity brought on; and warmed in the winter by being ſet by the fire. In this way they obtain a greater quantity of butter, though of an inferior quality. By careful management, however, eſpecially if a portion of the firſt-drawn milk be ſeparated, very good butter may be obtained; but the practice, on many accounts, is not to be recommended.

As, while the butyraceous part of the milk is in the ſtate of cream, the particles are not in a ſufficiently concentrated ſtate for producing an uniform ſubſtance, on account of the large portion of interpoſing ſerous fluid; in order to produce butter, it is therefore neceſſary to force out this by means of continued agitation in the proceſs of churning. The cream or milk, after being ſeparated and prepared as above, is to be put into the churn of the kind which is preferred, and agitated for ſome time, in order to effect the ſeparation of the butter. From the practice generally adopted in the beſt-managed dairies of cooling the churn, by filling it for ſome time with cold water before churning in ſummer, and of warming it with ſcalding water when the weather is very cold in winter, and of putting in alſo cold or hot water among the cream in the churn occaſionally, according to the ſeaſon of the year, it is concluded, that cream poſſeſſing a proper temperature, whatever that temperature may be, is, among the moſt exact dairy-farmers, conſidered eſſentially neceſſary in the making of good butter; which being admitted, it muſt follow that ſome churns may be better ſuited to the purpoſe than others; as ſuch as admit a free ſupply of atmoſpheric air, and permit that which, from the violent agitation, has become overheated to eſcape, from their preſerving that medium temperature, which, it would appear, cream in the courſe of making into butter ought to poſſeſs, than ſuch as are kept conſtantly ſhut up, or in which the air is only allowed to enter or eſcape occaſionally by means of a ſmall aperture. It is probably on this account that the upright churn is ſtill preferred in ſome dairies.

In Holland, the method of making butter, according to the account of Mr. Carew, as ſtated in the Agricultural Report of Middleſex, is this: After milking the cows, the milk is not put into pans till it is quite cold. It is then ſtirred two or three times a-day with a wooden ſpoon, to prevent the cream from ſeparating from the milk; and, if it can be ſtirred till the ſpoon will almoſt ſtand in it, it is deemed ſo much the better. When it is found to be ſufficiently thick, it is put into the churn, and beaten for an hour. When the butter begins to form, a pint or more of cold water, according to the quantity of the milk, is poured in, to ſeparate the butter from the milk. When the butter is taken out of the churn, it is waſhed and kneaded till the laſt water is perfectly clear and free from milk. By this method, it is ſuppoſed that a greater quantity of butter is made from an equal quantity of milk. And the butter is ſaid to be firmer and ſweeter, and to keep longer, than that which is made in the ordinary mode which is in uſe in England. The butter-milk is alſo thought preferable. A churn is there thought better adapted to the purpoſe than a barrel.

The different operations of butter-making we have already given under the article BUTTER, together with its firſt diſcovery, chemical qualities, Dr. Anderſon's moſt approved method of ſalting, and the laws relating to.— For which ſee vol. iii. p. 552–556.

With reſpect to the manufacture of CHEESE, it is ſuppoſed that the beſt ſeaſon adapted to the purpoſe is during thoſe months when the cows are allowed to be fed on the paſtures; that is, from the beginning of May till the end of September. On many of the larger dairy-farms, cheeſe is frequently made throughout the year; but that made during the winter months is ſaid to be conſiderably inferior in quality, and much longer in becoming fit for ſale, or for uſe, than that which is made within the above period. In Glouceſterſhire, Somerſetſhire, and North Wilts, the ſeaſon of making thin cheeſe is from April to November; but the principal one for making double Glouceſter is during the months of May, June, and the beginning of July. If made later in the ſummer, they are found not to acquire a ſufficient degree of firmneſs to be marketable the enſuing ſpring.

The times of milking for cheeſe are different in different diſtricts: in Cheſhire they are in the ſummer ſeaſon at ſix o'clock both morning and evening, and in winter at day-light in the morning and immediately before dark in the evening. But in Wilts, Suffolk, and ſome other counties, the people are frequently employed in milking by four o'clock in the morning in ſummer; and the buſineſs in a dairy of forty or fifty cows is nearly completed before the period at which it commences in Cheſhire. The latter would ſeem the moſt preferable practice; as when the cows are brought home to the farm-yard, which is the beſt method where the paſtures are within a ſhort diſtance, they are milked unfettered, and the buſineſs is over before the heat increaſes ſo much as to make the cows reſtleſs and unruly. The farmer himſelf, or ſome careful perſon, ſhould attend the milking, for the double purpoſe of ſeeing the work properly done, and carrying the milk in large buckets, into which it has been occaſionally emptied from the pails, to the dairy, to be poured through a ſtrainer into coolers for the purpoſe, or the cheeſe-tub, preparatory to applying the rennet. The expeditious cooling of the milk, by putting it into leaden or other pans, is found of much utility in retarding the proceſs of fermentation in the ſummer ſeaſon, and thereby preventing the milk from turning into a ſtate of acidity. But in winter it is obviouſly unneceſſary. It has been ſuggeſted, that, when the ſeaſon is hot, the quality of the cheeſe might be improved, and the difficulty of its being made leſſened, by cooling down the milk as ſoon as poſſible by repeatedly drawing off and returning it to the cooler.

The quantity of cream that is uſed is generally different, according as they are *one-meal*, or *two-meal*, cheeſes. In Cheſhire the general cuſtom, in the beſt dairies, is to take about a pint of cream, when two-meal cheeſes are made, from the night's milk of twenty cows. In order to make cheeſe of the beſt quality and in the greateſt abundance, it is admitted that the cream ſhould remain in the milk; but whether the cream that is once ſeparated from it can by any means be again ſo intimately united with it as not to undergo a decompoſition in the after-proceſs, admits of ſome doubt. There is, at leaſt, no abſurdity in attempting to prevent the ſeparation of two bodies which it is the profeſſed intention to unite again. If a cheeſe made entirely of the night's milk on which the cream has riſen be as rich as one made of new milk, all other circumſtances being alike, it is a proof that milk and cream after being ſeparated may, by heating alone, become as it were new-milk again. Experiment alone can decide this point; but the practice here is to unite the milk and cream; and the dairymen ſay, that when ſo united it differs not from new-milk as to the purpoſes of cheeſe-making.

If the whole milking be directly made uſe of in its ſimple ſtate for the cheeſe, it is denominated a *one-meal* cheeſe; but where two milkings are blended, or *two-meal* cheeſe made, the quality of the milk uſed differs conſiderably; in ſome caſes the whole of the cream of the firſt meal is abſtracted, and in all caſes a certain portion. In ſome dairies the milk of the firſt meal is ſet in the leads or other veſſels as uſual; and, as it is the evening's milk that is in common added to the ſucceeding morning's, the operation of cheeſe-making begins immediately after that of the morning milking is completed, as about five or ſix o'clock. The cream of the evening milk being ſkimmed off, the milk is carried and put into the cheeſe-tub, reſerving ſometimes a half, ſometimes a third, but more frequently only three or four gallons, to be applied as below. The milk reſerved, in any of theſe proportions, after being put into a braſs pan and made ſcalding hot, by placing the pan on a furnace or in a veſſel of hot water, is one half of it poured into the cheeſe-tub among the cold milk, and the other into the pan in which the cream had been put. The cream and the hot milk being intimately incorporated, the whole is poured into the cheeſe-tub, which by this time has received a great addition, if not the whole, of the morning's milk, warm from the cows. Thus the different meals' milk forms, as it were, a fluid of the ſame nature, equal in quality and temperature, and to which the rennet is applied in the uſual manner. This re-union, or, in the dairy-phraſe, *melting the cream*, is probably the beſt method practiſed; but it is, we believe, not ſo effectual in forming cheeſe of the beſt quality as that where the milk is entirely new.

In making ſkim-milk cheeſes, the milk is ſet in the leads or pans as uſual, in which ſtate it remains longer or ſhorter according to the weather, care being taken to ſkim off the cream, or to drain off the milk, in proper time, before it begins to acquire a ſouriſh taſte. If that ſhould at any time happen, either from the exceſſive heat of the weather, or owing to ſome inattention in the general management; in place of putting the ſkim-milk upon the furnace to give it that degree of heat ſuppoſed to be neceſſary for facilitating the coagulation after the rennet is applied, and which is the uſual practice, the method is, to put it directly into the cheeſe-tub, and to pour in ſuch a quantity of hot water as will give the wiſhed-for temperature. By this means, the riſk of the milk breaking while heating on the furnace, which when not quite ſweet and freſh it is apt to do, is avoided without inconvenience in other reſpects.

Milk may be coagulated, or turned into a curdled ſtate, by the application of alum, or any ſort of acid; but that ſubſtance which is moſt commonly uſed in the making of cheeſe, is the *maw* or ſtomach of a young calf prepared for the purpoſe, and called *rennet*. The maws, which uſually contain a curdled kind of ſubſtance, on being purchaſed from the butcher, are opened, and the curd or thick ſubſtance taken out; this, having been repeatedly waſhed in cold water, as well as the bag which contained it, is again replaced, with a conſiderable addition of ſalt, and then packed in a jar, into which is poured a very ſtrong brine of ſalt and water. In many inſtances the maws are allowed to remain in this ſtate for about twelve months before uſing; in others, after having remained for ſome time covered with the brine, they are taken out; and, an additional quantity of ſalt being applied, they are hung up in the dairy, or ſome other convenient place, to dry, and remain in that ſtate for uſe. But, from the preparation in this mode being made at different times, there muſt be a great difference in their ſtrength, and of courſe in their effects, either when made uſe of after being ſteeped in ſome ſort of liquid, or in the piece.

From the practice of *colouring* cheeſe, which has been ſo long common in the cheeſe-diſtricts, it is probable that thoſe of the beſt quality would be in a great meaſure unſaleable, if they did not poſſeſs the requiſite colour. The introduction of this practice originated in the intention of conveying an idea of richneſs; and the leaneſt cheeſe always requires the greateſt quantity of colour to bring it to the proper appearance. The material which is uſually employed for this purpoſe is Spaniſh arnotta. The weight of half an ounce of it is conſidered in Cheſhire ſufficient for a cheeſe of 60lbs. and in Glouceſterſhire an ounce is the common allowance to the hundred-weight. There are different ways of preparing as well as of applying it. The method uſed in Cheſhire is, when the dye is wanted in the morning, to tie up the neceſſary quantity of pounded arnotta in a linen rag, and to put it into about half a pint of warm water the preceding evening. In the morning, immediately before applying the rennet, the infuſion of arnotta is poured into the milk, and the mixture is then well ſtirred about, ſo as to make the milk and the dye incorporate intimately together. In other diſtricts it is common to rub a piece of unpounded arnotta, after having been previouſly dipped in milk, on a ſmooth ſtone, in the ſame manner that paint is ground. The colouring thus obtained is mixed with the milk in the cheeſe-tub, in the manner and at the period before mentioned, care being taken to prevent any of the unreduced particles of arnotta from falling into it.

The degree of temperature which milk ought to poſſeſs, ſo as to be in the beſt poſſible condition for applying the rennet, is a point by no means fully decided. It is, however, admitted that the quantity and quality, or texture of the curd, depend much on the length of time the curd is in forming, and that on the quantity and ſtrength of the coagulum employed, the ſtate of the atmoſphere, and the heat of the milk, at the period of its being mixed. Mr. Marſhall obſerves that "it is known from daily experience, that, the warmer the milk is when the rennet is put to it, the ſooner it will coagulate with a given quantity of rennet of a given ſtrength. It is equally well known, that the cooler the milk, and the longer it is in coagulating, the more tender and delicate the curd becomes; on the contrary, if the milk be too hot, and the coagulation takes place too rapidly, the curd proves tough and harſh. But it ſeems to be a fact equally well eſtabliſhed, that a cheeſe made from milk which has been coolly and ſlowly coagulated, is longer before it becomes marketable than one made from milk which has undergone a leſs deliberate coagulation, and which being drier, and of a harſher texture, ſooner becomes cheeſey and fit for the taſter. Therefore, the great art in this ſtage of the proceſs lies in the degree of warmth of the milk when *ſet*; that is, when the rennet is put to it; or in the degree of heat retained by the curd when it *comes*; that is, when the coagulation has ſufficiently taken place; or in the length of time between the ſetting and coming. Which length of time may be regulated either by the degree of the warmth of the milk when ſet; or by the ſtate of warmth in which it is kept during the time of coagulation; or by the quantity and ſtrength, taken jointly, of the rennet."

With a view to obtain ſome information on this ſubject, he made the following experiments: In 1781, June 5, twenty-three gallons of milk, heated to ninety-ſix degrees of Fahrenheit's ſcale, with two tea-cupfuls of weakiſh rennet, came in one hour; the curd delicate and good. 6th. The ſame quantity of milk, of the ſame heat, with one tea-cupful of rennet, came in nearly the ſame time; the curd ſomewhat tough; owing, probably, to the milk having been burnt to the kettle in which it was heated. 7th. Twenty-ſeven gallons of milk, heated to ninety-four degrees, with the ſame quantity of rennet, came in about two hours; the curd very good. 8th. Twenty-ſix gallons of milk, heated to one hundred and two degrees, with one tea-cupful of rennet, came in two hours and a half; curd very good. 9th. Twenty-five gallons of milk, heated to one-hundred degrees, with a tea-cupful and a half of rennet, came in about one hour and a half; the curd good, but ſomewhat tough; owing, perhaps, to the milk being kept too warm in the cheeſe-tub, by being covered up cloſe with a thick cloth. It is noted, that on the ſeventh and eighth the whey retained a heat of about eighty-eight degrees, whereas the whey this morning was ninety-two degrees; ſo that, perhaps, it is not the heat when it is ſet, but the heat when it comes, which gives the quality of the curd. 10th. Twenty-five gallons; ninety-ſix degrees: two cups, uncovered, came in two hours and a quarter: whey eighty-ſeven degrees: curd very tender. 11. Twenty-three gallons: one hundred degrees: more than a tea-cup: uncovered: did not come in two hours; owing to the rennet being lower in ſtrength than before: therefore, added a little more rennet: which brought it in about three hours from the firſt ſetting: the whey eighty-ſeven degrees: the curd uncommonly tender. 12th. Twenty-four gallons of milk: one hundred degrees: two cups of rennet: uncovered: came in two hours: whey eighty-nine degrees: curd uncommonly tender. 13. Twenty-eight gallons of milk: ninety-two degrees: three cups (ſay ſtrongly renneted) covered up with a coarſe linen cloth: came in one hour and a half: whey eighty-ſix degrees: curd very good, and of a very fine colour: though perhaps would have handled tenderer if it had not ſtood ſome time after it came before it was broken up. Perhaps, ſays he, much depends on its being broken up in the critical minute. 14th. Twenty-eight gallons: one hundred degrees: two cupfuls: uncovered: came in one hour and a quarter: whey ninety-four degrees: curd ſomewhat harſh, but of a good colour. The change of colour, therefore, he thinks owing to the change of paſture.

He here notes, that the milk ſhould be covered to make it come together: this came and grew hard at the bottom half an hour before it was ſet at the top. 15th. Twenty-eight gallons: milk heated to ninety-five degrees: with two cups of rennet; and covered after it had ſtood three quarters of an hour: came in one hour and a half: whey eighty-nine degrees (the morning warm): curd very good and tender. 16th. Thirty gallons of milk heated to one hundred and three degrees, but lowered by two pails-full of cold water to ninety-ſix degrees; with two cups and a half of rennet; and kept cloſe covered: came in one hour: whey ninety-four degrees: curd pretty good, but not ſufficiently tender. 17th. Twenty-eight gallons: ninety-ſeven degrees: two cups and a half: covered; but not cloſe: came in one hour and a half; whey not tried: curd ſomewhat tough. It is noted, that the toughneſs was owing, perhaps, to ſome milk of a new-calved cow being among it. And, alſo, to try the exact heat of milk immediately from the cow, immerged a diſh in the pail while milking. After it had lain long enough to receive a degree of heat equal to that of the milk in the pail, emptied it, and immediately milked into it from the teat (the cow being at this time about half milked); the heat ninety-five degrees; and likewiſe, that the cheeſes of yeſterday (the 16th of June) preſs remarkably elaſtic, and ſpungy, like a fungus: perhaps owing to the milk's coming too hot; or perhaps to two or three of the cows being then a-bulling; or perhaps, being made thicker than uſual, the preſs was not heavy enough for them: or perhaps this ill quality is owing to the cold water being put into the milk. He afterwards found that milk of a cow, on the day of amour, retained, after having ſtood for ſome time in the pail after milking, ninety-eight degrees of heat. This ſhows that the ſtate, if not the quality, of the milk is altered by the heat of the cow; and a cautious dairy-woman always endeavours to keep ſuch milk out of her cheeſe-tub.

June 18th. Thirty gallons: ninety-five degrees: covered: came in one hour and a half: whey ninety-two degrees: curd pretty good. 19th. Thirty gallons: ninety-two degrees: two cups covered: curd very good. 21ſt. Thirty gallons: ninety-eight degrees: lowered by half a pail of cold water to ninety-five degrees: the curd good; but the cheeſes, like thoſe of the 16th, preſs hollow and ſpungy. Therefore it is probable, from theſe two incidents, that lowering the heat of the milk with cold water has an evil effect. 23d. (Evening) fifteen gallons of new milk warm from the cow, retaining a heat of ninety-two degrees, with two cups and a half of new weak rennet, and cloſely covered, came in three quarters of an hour: whey eighty-eight degrees: curd very delicate and good. 25th. Forty gallons of half-ſkimmed milk, heated to eighty-ſeven degrees, with three cups of rennet, ſlightly covered, came in three quarters of an hour: whey ſeventy-nine degrees: curd remarkably good of this ſort. On September 8, in obſerving the effect of ſome remarkably ſtrong rennet, he found that an ordinary tea-cupful coagulated ſufficiently upwards of forty gallons of milk, heated to only eighty-eight degrees, in thirty-five minutes.

From the whole of theſe experiments it appears, he thinks, that curd of good quality may be obtained from milk heated from 87 to 103 degrees of Fahrenheit's thermometer; provided the rennet be ſo proportioned that the time of coagulation be from three quarters of an hour to two hours and a half; and provided the milk be kept properly covered during the proceſs of coagulation. And from theſe as well as a variety of other trials, which he made in the courſe of the ſummer, it appears to him at preſent, that eighty to ninety are the proper degrees of heat; that from one to two hours is the proper time of coagulation; and that the milk ought to be covered ſo as to loſe in the proceſs about five degrees of its original heat.

It may well be thought ſurpriſing, that in large dairies the uſe of the thermometer is not as well known as that of the *ſkimming-diſh*, as well to aſcertain with preciſion the temperature the moſt proper for milk to poſſeſs at the time the rennet is applied, as to prevent the cracking, bliſtering, and hoving, which ſo frequently take place in cheeſe in conſequence of miſmanagement in the making.

Mr. Price, on the authority of ſignor Vitabni, gives the following as the method of making PARMESAN cheeſe: It is to put, at ten o'clock in the morning, five *brents* and a half of milk, each *brent* about forty-eight quarts, into a large copper, which turns on a crane, over a ſlow wood-fire, made about two feet below the ſurface of the ground; the milk is ſtirred from time to time; and about eleven o'clock, when juſt luke warm, or conſiderably under blood-heat, a ball of rennet as big as a large walnut is ſqueezed through a cloth into the milk, which is kept ſtirring. By the help of the crane the copper is turned from over the fire, and let ſtand till a few minutes paſt twelve;

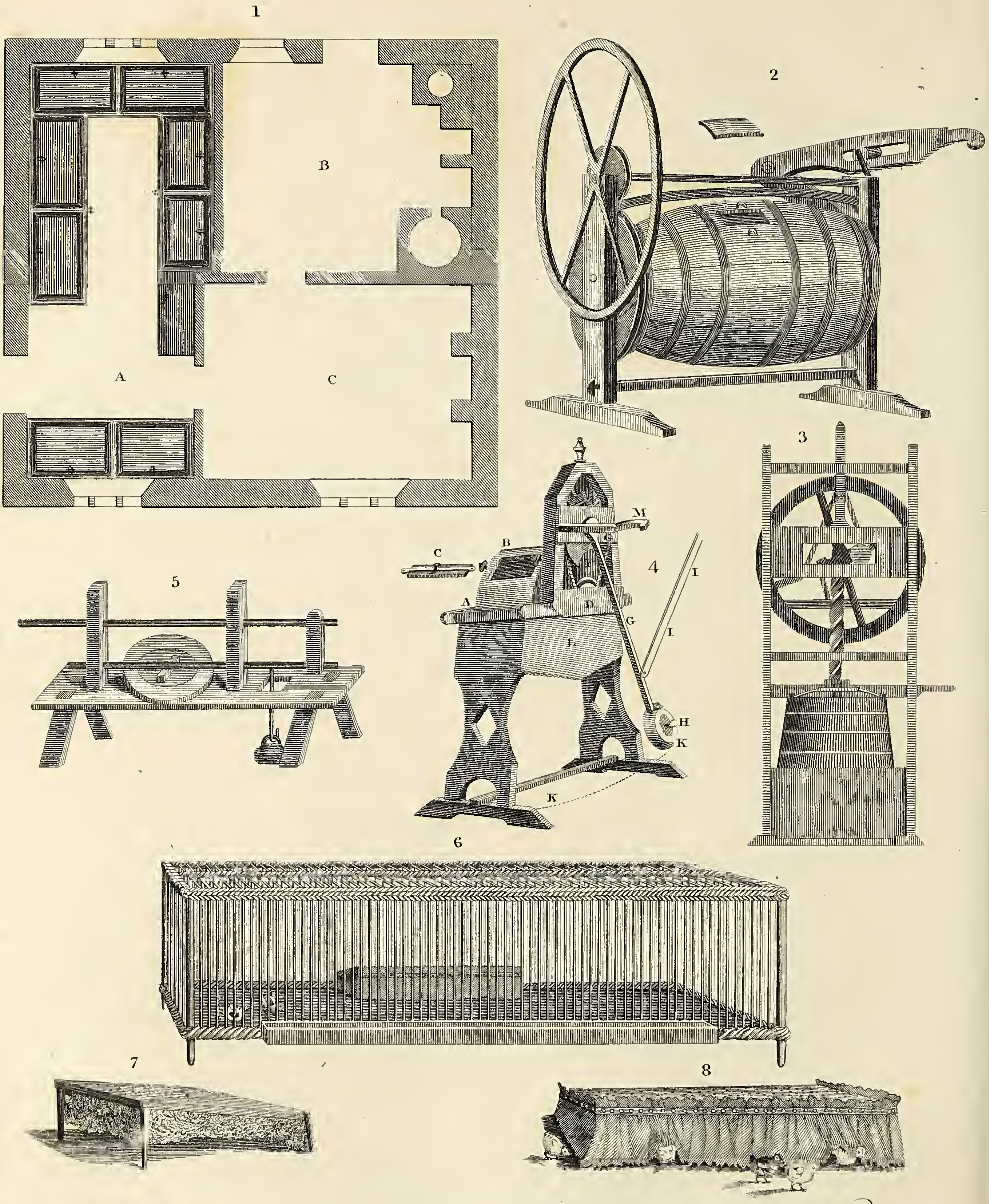


*Fig 1. Plan of an Improved Milkhouse. 2. Barrel Churn with Wheel. 3 Rowntree's improved Butter Churn. 4. Bowler's New Pendulum Churn. 5. Cheese Press on a New Principle. 6.7.8. Mrs d'Oyley's artificial Mother for rearing Poultry.*

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twelve; at which time the rennet has ſufficiently operated. It is now ſtirred up, and left to ſtand a ſhort time. Part of the whey is then taken out, and the copper again turned over a fire ſufficiently briſk to give a ſtrongiſh heat, but below that of boiling. A quarter of an ounce of ſaffron is now put in to give it a little colour; and it is well ſtirred from time to time. The dairy-man frequently feels the curd. When the ſmall, and, as it were, the granulated parts feel rather firm, which is in about an hour and a half, the copper is taken from the fire, and the curd left to fall to the bottom. Part of the whey is now taken out, and the curd brought up in a coarſe cloth hanging together in a tough ſtate. It is then put into a hoop, and about half a hundred-weight laid upon it for about an hour; after which the cloth is taken off, and the cheeſe placed on a ſhelf in the ſame hoop. At the end of two, or from that to three, days, it is ſprinkled all over with ſalt; the ſame is repeated every ſecond day for about forty or forty-five days, after which no further attention is required. While ſalting, they generally place two cheeſes one upon another; in which ſtate they are ſaid to take the ſalt better than ſingly.

In making STILTON cheeſe, the proceſs, according to the Agricultural Report of Leiceſterſhire, is this: The night's cream is put into the morning's new-milk with the rennet, and when the curd is come it is not broken as is done with other cheeſes, but taken out with a ſoil-diſh all together, and placed in a ſieve to drain gradually; and as it drains kept gradually preſſed, till it becomes firm and dry; then placed in a wooden hoop, and afterwards kept dry on boards, turned frequently with cloth binders round it, which are tightened as occaſion requires.

The method of making GREEN cheeſe is this: For a cheeſe of ten or twelve pounds weight, about two handfuls of ſage and one of marigold leaves, and a little parſley, are bruiſed and ſteeped one night in milk. Next morning the greened milk is ſtrained off, and mixed with about one third of the whole quantity to be run. The green and the white milks are then run ſeparately, keeping the two curds apart until they be ready for vatting. The method of mixing them depends on the fancy of the maker. Some crumble the two together, mixing them evenly and intimately; others break the green curd into irregular fragments, or cut it out in regular figures with tins for this purpoſe. In vatting it, the fragments or figures are placed on the outſides. The bottom of the vat is firſt ſet with them, crumbling the white or yellow curd among them. As the vat fills, others are placed at the edges, and the remainder buried fluſh with the top. The after-treatment is the ſame as that of common cheeſes.

The produce of a dairy of cows, where the milk is converted into cheeſe, is variouſly ſtated by different farmers. In ſome diſtricts two hundred-weight and a half from each cow, whether a good or bad milker, if at all in milk, is conſidered a good annual return. In others, the average runs as high as three; and in Wiltſhire in particular from three and a half to four is the uſual quantity. From accurate calculations made by Mr. Marſhall, and theſe ſeveral times repeated, he found that in Glouceſterſhire about fifteen gallons of milk were requiſite for making little more than eleven pounds of two-meal cheeſe, and that one gallon of new-milk produced a pound of curd. It is the general opinion of dairy-farmers, that the produce of from two and a half to three and a half acres of land is neceſſary to maintain a cow all the year round. Taking, therefore, the medium of the three averages of cheeſe above-mentioned (amounting to 355lbs. from each cow), the quantity of cheeſe by the acre is 118lbs. Every calculation of this kind muſt, however, be extremely vague and uncertain. The correctneſs of this is, however, to a conſiderable degree confirmed by Sir William Petty's Statement, in his Political Economy of Ireland, in regard to the quantity of milk which he ſuppoſed the cows in that country to yield in the year, viz. "for ninety days three gallons, for other ninety days one gallon; for the next ninety days a quarter of a gallon, and for the remainder of the year none, making in all three hundred and eighty-four gallons; which, conſidering that in every dairy a certain quantity of cream is abſtracted before the milk is put into the cheeſe-tub, it may be ſuppoſed, when converted into one-meal or two-meal cheeſes, to make little more or leſs than 355lbs. as has been juſt ſtated. For other particulars ſee the article CHEESE, vol. iv. p. 136–137.

Of ſo much importance is a plentiful ſupply of pure water to the regular production of good and ſweet butter, as well as to the general cleanlineſs of the dairy-room and its various implements, that no farmer ſhould think of entering upon this buſineſs in a large way without ſelecting ſome favourable ſpot by the ſide of a pure perennial ſpring, for the purpoſe of erecting his dairy-houſe. And as this buſineſs muſt be carried on in ſituations where the water cannot be far from the ſurface of the ground, there would be little difficulty, by the aid of the boring-augur figured and deſcribed under the article DRAINING, vol. vi. p. 62, in aſcertaining ſuch a ſpot. The experiments of two or three days, perhaps only of as many hours, would ſecure a convenience incalculable in its value, by ſaving the labour of water-carrying, pumping, or drawing from the well; and bring up the ſpring into obvious view; and, where the farmer could direct its courſe in whatever way might be moſt convenient, ſupply reſervoirs, and feed pools for the cattle. By the ſide of this he might erect his Dairy-houſe, according to the plan delineated in the Huſbandry Plate III. fig. 1; where A repreſents the milk-houſe, with the coolers; the ſlab for receiving the butter upon after it has been made up; and the cocks for drawing off the milk from the coolers. B, the churning-room; with a large and ſmall boiler or copper for ſcalding the implements, and other uſes. C, a room for airing or drying utenſils, and which may alſo be uſed as a laundry.

Fig. 2, An improved barrel-churn, with wheel.

Fig. 3, Rowntree's improved butter-churn, for large dairies.

Fig. 4, Bowler's new PENDULUM CHURN: A is the body of it; B, an opening by which the cream is introduced; C, the cover of the large opening, the ſmall hole on the oppoſite ſide not being ſhown; D, the gudgeon on which the body hangs; E, the upper larger pulley; F, the ſmaller pulley fixed on the axis or gudgeon; G G, the rod of the pendulum ſuſpended from upper pulley E; H, bob of pendulum; I I, the handle, ſwinging in the form of the dotted line K K; L, the trough for hot or cold water; M, a projecting piece of wood for ſupporting the handle, I, when the churn is not at work.

Fig. 5, A cheeſe-preſs on the principle of the lever. Screw-preſſes are, however, common in moſt daries, as being more convenient and more eaſily managed.

But in many dairy-farms which happen to be ſituated in the vicinity of large cities or towns, it is inconceivable the property that has been realized by pence and farthings, in ſelling the milk to perſons who carry it away every morning and evening for ſale, whereby all trouble and loſs is at once eluded, and the ready money paid. This practice went on for years to the great emolument of ſuch private farmers, till their landlords, accidentally diſcovering the ſource of their tenants' wealth, gradually raiſed their rents till they were more than doubled; very fairly arguing, that it was the locality of their eſtates, and not any extraordinary exertion or induſtry of the farmer, whereby he was enabled to enrich himſelf. But this is not to be mentioned with what is done in the city and vicinity of London by the profits on milk, or rather by the ſcandalous impoſitions played off upon the public.

In the Survey of the County of Middleſex, it is ſtated that, from the facts which are there brought forward, it would ſeem that there are kept, for the purpoſe of ſupplying the capital and its vicinity with milk, about the number of eight thouſand five hundred milch-cows; and that, according to the information which has been procured, the quantity of milk, which is afforded by each cow, is on an average about nine quarts in the day, which is equal to, per annum, 3285 quarts.

Mr. Curwen, the ingenious author of the Middleſex Report, after beſtowing every attention to inveſtigate the fact, aſſures us, that the conſumers of milk in the city and vicinity of London pay no leſs than four-pence halfpenny per quart to the retailers. If the latter were to ſell the milk pure and unadulterated at this price, it would then yield them a profit of 64l. per cent. But, in order to diſcover the actual profit of the retailers, we muſt add eight-pence for cream ſhort-meaſure, and the extraneous articles mixed with it, which increaſes 3s. the uſual price of eight quarts, to 3s. 8d. and, as it coſts them only 1s. 10d. there remains for labour and profit 100 per cent. thus the retailer clears 36l. 13s. 4d. by every cow. On the whole, they are ſtated to divide among them the unreaſonably large ſum of 308,833l. and the ſum paid for milk amounts to 626,233.! When the families of faſhion are in London for the winter ſeaſon, it is ſuppoſed that the conſumption and conſequent deterioration of milk are at the higheſt. During the ſummer months, when ſuch families are for the moſt part in the country, the milk may probably be of rather a better quality. The cream is taken from ſo much of it as remains unſold, and made into freſh butter for the London markets. The milk is always ſaid to be given in its genuine ſtate to the retail dealers; and, as it is ſold to them by the cow-keepers after the rate of two-pence three-farthings per quart, and is retailed by them at four-pence halfpenny per quart, the profit is ſurely ſo large as ought to prevent even the ſmalleſt adulteration. But when it is conſidered how greatly it is reduced by water, and impregnated with worſe ingredients, it is much to be lamented that no method has yet been deviſed to put a ſtop to the many ſcandalous frauds and impoſitions in general practice with regard to this very neceſſary article of human ſuſtenance. It is certainly an object well deſerving the particular conſideration of the legiſlature. It cannot be doubted that many perſons would be glad to make ſome addition to the price now paid for it, (high as that price is,) provided they could, for ſuch increaſed price, procure ſo uſeful an article in domeſtic economy perfectly genuine.

The retail milk-dealers are, for the moſt part, the refuſe of other employments; poſſeſſing neither character, decency of manners, nor cleanlineſs. We are informed that no perſon could poſſibly drink of the milk, were they fully acquainted with the filthy practices of theſe dealers in it. To remedy theſe abuſes it would be highly proper for every retail milk-dealer to be obliged to take out an annual licence from the magiſtrates; which licence ſhould be granted only to ſuch as could produce a certificate of good conduct, ſigned by the cow-keeper and a certain number of their cuſtomers; and alſo on their being ſworn to ſell the milk PURE AND UNADULTERATED.

## OF PIGS.

It is obvious that, in both the butter and cheeſe dairy, a great additional profit may be made to ariſe from the keeping and breeding of pigs. In this intention the ſkim-milk, butter-milk, and cheeſe-whey, ſhould be converted to the purpoſe for which they are the moſt adapted, which would ſeem to be that of ſupporting pregnant ſows, and rearing young pigs for market. In this way very little trouble and expence are occaſioned, and nearly all the money which is taken becomes profit. It is not ſo in piggeries, where conſiderable expence and long attendance muſt be given, or the buſineſs fails of its deſired end, and the expected profit is converted into loſs.

The breeds of pigs, like thoſe of other animals, ſhould be provided according to the nature of the keep. Where it is abundant, or cultivated ſolely for the purpoſe of the raiſing of pigs, the large breeds will moſtly be found the moſt advantageous, as the difference in the proportions between the living and the dead profitable weight, is ſaid by ſome to be always the leaſt in the largeſt-ſized animals. It is, however, of the utmoſt importance in the management of ſwine in general, both in the view of economy, in the labour of their attendance, and the raiſing of a large proportion of manure, as well as the advantage of the hogs, to have convenient piggeries. Methods of conſtructing theſe to the greateſt advantage, have been deſcribed by different writers. Mr. Young ſays, that a piggery muſt be in a circle, or it muſt fail in convenience. In the centre, the boiling or ſteaming-houſe, with a granary for corn, meal, bran, &c. a range of ciſterns in diviſions around it, for receiving immediately from the copper or ſteam apparatus, and alſo by tubes from the granary; around theſe a path; then the fence, wall, or paling, in which the troughs, with hanging lids, for ſupplying food directly from the ciſterns on one ſide, and for the hogs feeding on the other; a range of yards next, and another of low ſheds beyond; and laſt of all, the receptacle for the dung. The potatoe-ſtores ſhould be at one end or point near to the entrance, and water muſt be raiſed to the coppers and ciſtern at once by a pump; a trough or other conveyance from the dairy to the ciſterns, for milk, whey, &c. Such an arrangement will be very convenient, and the expence need not be conſiderable. To annex a certain ſpace of graſs, or artificial graſſes, in diviſions into which the hogs may be let at pleaſure, is an addition of admirable uſe if the ſpot permit it. Thoſe who do not poſſeſs a convenient piggery, can have little idea of the great uſe of it in making manure. This alone becomes an object that would juſtify any good farmer in going to a certain expence, for attaining ſo profitable a part of what ought to be his farm-yard ſyſtem.

Hampſhire BACON is eſteemed throughout the kingdom, whence its breed of hogs have gained great celebrity, and are much in requeſt. They are a large breed, moſtly white, or party-coloured black and white. When fattened, they will produce great weights. In the neighbouring county, Berkſhire, they are of a ſmaller growth, yellowiſh brown ſpotted. They make ſmall ſweet bacon. In Staffordſhire, the breed of hogs moſt eſteemed is not the large breed, but a croſs between them and a dwarf breed. They ſhould be fine in the bone, thick and plump in the carcaſe, with a fine thin hide, and of a moderate ſize; large enough to fat, at from one to two years old, to the weight of from three hundred to four hundred pounds each. Theſe, if well bred, will keep themſelves in good plight with little feeding, and will ſoon grow fat with a plentiful allowance of proper food. Hogs of the large breed have been fatted there, to from ſix hundred to eight hundred pounds weight, excluſive of the entrails; but, requiring much time and food, have pretty generally given way to a ſmaller-ſized, finer-boned, thick, plump, animal. Hogs are generally fatted there by farmers with boiled potatoes, and barley-meal, and peaſe either whole or ground; by brewers with the beer-grounds and grains; by millers, with what they call *ſharps* and *gurgeons*, that is, with the huſk or bran of wheat ground down, but not wholly diveſted of its flour; alſo with other ſorts of grain, and pulſe ground down; by butchers, with the refuſe or offal of ſlaughtered animals. The beſt way of managing the potatoes, is to boil them in their own ſteam, and put them afterwards into a large oven when the bread is drawn, to evaporate the watery parts; they will then go nearly as far as cheſnuts or acorns in feeding. In Lancaſhire, they have a breed between the wild boar and the Chineſe, which have very light and ſmall bellies. Their ſize is but ſmall, weighing only from ten to fifteen ſcore, generally about twelve ſcore.

Pigs ſhould, during the ſtage of their growth, be regularly turned out to graze, where there is a conveniency. This, beſides the advantage of graſs, which is nutritious and helps digeſtion, by the freſh air and exerciſe, cauſes a diſpoſition

tion to take their reſt, and ſleep after a meal, contributes to their cleanlineſs, and renders their fleſh of ſuperior flavour.

The beſt general management of hogs, is probably to feed them ſo as to keep them in middling condition, till they are ready to fatten. It is proper to feed them every morning and evening, to make them come home to their ſtyes. The reſt of the day, they ſhould graze, and get ſuch food as they can. Moiſt ſedgy grounds are good for them, the roots of which they will eat; and all ſorts of haws, hips, ſloes, crabs, acorns, cheſnuts, ground-nuts, &c. In fatting hogs in ſtyes, it is neceſſary to give them meat often, and but little at a time, that it may be always freſh; and likewiſe to give them as much water as they will drink, and to keep them very clean; which will help their fatting, and improve the taſte of their fleſh. However, the common mode of fattening them is, in ſtyes, with peaſe, if cheap; but, when dear, the meal of barley, rye, or offal corn, according as they are cheapeſt, which is mixed with water, whey, or ſkimmed milk.

On the beſt means of rearing and fattening of hogs, the following obſervations and experiments by Mr. Young, the diſtinguiſhed ſecretary of the Board of Agriculture, are given in the Tranſactions of the London Society of Arts, &c.

The importance of this animal to the farmer, ſays he, is not ſufficiently known in every part of England; there are many dairies that do not maintain one-tenth of the pigs they might with proper management. Several garden-roots are raiſed in large quantities, without being applied to feeding them; and clover is cultivated in many countries, upon the largeſt ſcale, without its utility for the ſame uſe being in the leaſt known. No perſon, who has tried many experiments in this part of rural economy, can fail regretting, that ſo many farmers ſhould neglect a conduct that adds ſo much to the good of the public, as well as to their own profit.

There are two principal objects in the rearing and fattening hogs; firſt, to make the greateſt advantage of them in a dairy; and ſecondly, to ſubſtitute ſome other food, in the place of that which ariſes from cows, where none are kept. It is the practice of ſeveral counties to uſe the ſkim-milk, butter-milk, and cheeſe-whey, in fattening hogs. This is a moſt pernicious cuſtom; that food, for ſuch a uſe, it is every where known, has twenty ſubſtitutes, viz. peaſe, beans, buck-wheat, barley, &c. but it is not ſo generally known that pigs are beſt reared by the help of cows. It is agreed that the dairy-food is excellent for the latter purpoſe. For this reaſon, ſays he, I ſhall venture to propoſe a different conduct, and with the greater readineſs, as I have found it, by experience, to be more profitable than the common management. The dairy upon this improved ſyſtem ſhould be applied only to rearing pigs, and feeding ſows which have young, as recommended above. But this at once opens a larger proſpect of the whole management of a farm.

The ſows and weaned pigs ſhould evidently be proportioned in ſuch a manner to the number of cows in milk, as to conſume all the dairy-food without waſte; and other ſorts of food provided for the keeping ſows that have no pigs; hogs half, three-fourths, full grown, and fattening ones. The practice of ſome counties, as well as the annexed experiments, proves that clover is a moſt capital object in keeping all theſe ſorts of ſwine; but thoſe writers who aſſert that it will completely fatten them, go much too far. There is no ſort of cattle in a farm that requires more attention than hogs; any method, therefore, that ſimplifies the management muſt, be peculiarly valuable. Hogs that are a quarter (or upwards) grown, continues he, may be abſolutely confined to a clover-field until it is neceſſary to ſow wheat. Here Mr. Young relates the following experiments made on feeding and fattening hogs with different ſorts of food.

Exp. I. The firſt week in March, thirty pigs, juſt weaned, were drawn from forty-three, that they might be all of a ſize; they were then diſtributed into five lots, equally divided (I do not think there was half a crown difference in the value of them), and then fed with diſtinct ſorts of meat. Each lot had a ſtye to themſelves, and all were kept clean and, littered with ſtraw.

Lot No. 1. was fed with pollard mixed with water.
2. with pollard mixed with ſkim-milk.
3. with boiled turnips, and pollard mixed with the turnip-liquor.
4. with boiled potatoes and water.
5. with ſkim-milk.

They were kept with this food thirty days. He then turned them out of their ſtyes (none had died), and viewed them with a perſon particularly ſkilled in hogs; the reſult was,

No. 2. the beſt—pollard and ſkim-milk.
5. the next beſt—ſkim-milk.
1. next—pollard and water.
3. and 4, equal.

It appears from hence that pollard and milk are the beſt food, milk alone very good; the other articles advantageous (for none of the pigs were in bad order), though not equal to the former.

Exp. II. January 1, forty pigs, that had been weaned about a fortnight, were draughted very equally into eight lots, and confined each to a ſtye; they were cleaned out and littered on the ſame day, and equally. Their food was as follows:

No. 1. Raw carrots.
2. Boiled ditto.
3. Boiled potatoes.
4. Pollard mixed with ſkim-milk.
5. Pollard mixed with boiled turnips.
6. Malt-duſt mixed with ſkim-milk.
7. Skim-milk.
8. Ditto and half carrot-water boiled.

They continued upon this food in the month of January, and were then viewed; the reſult was as follows:

No. 4. the beſt—pollard and milk.
7. next—ſkim-milk.
2. ditto—boiled carrots.
3. ditto—boiled potatoes.
5. ditto—pollard and boiled turnips.
8. ditto—ſkim-milk and carrot-water.
1. ditto—raw carrots.
6. the worſt—malt-duſt and ſkim-milk.
Two dead.

Pollard and milk hitherto maintain the ſuperiority, boiled carrots excellent, the reſt almoſt equal, except the malt-duſt, which is evidently bad.

Exp. III. In the beginning of June, he confined ſixty hogs, half and three-fourths grown, in his hog-yard, (a pond's mouth in it,) and fed them fourteen days with clover, mown freſh every day; it was given in their troughs, with racks acroſs to prevent the foiling it. They fell off in their looks in about four days, and grew worſe and worſe, ſeveral dying. At the end of that time, he gave them ſome malt, grains, and waſh, every day, for a few days longer; but the effect was no better, more dying. They were then all turned into the clover-field whence it had been taken, and confined conſtantly to it for ſome time. Not one more died, for all throve greatly. It will not perhaps be impertinent here to add, ſays he, that I never found any method of uſing clover more beneficial than thus applying it to the feeding of hogs.

Exp. IV. At the time of the preceding experiment, eight hogs of equal ſize were divided into two lots, and confined to two ſtyes. Four were fed fourteen days on clover mown, and the other four on lucerne mown; they were given at the ſame time, and in the ſame ſtyes. At the end of that time the ſame were viewed attentively; both were bad, the clover ones much the worſt, one near dying.

Exp. V. In the month of December, twenty pigs, that had been weaned a month, were draughted into four parcels, and kept that month ſeparately in the following manner:

No. 1. Boiled carrots.
2. Boiled potatoes.
3. Boiled turnips.
4. Boiled cabbages.

At the end of the month they were turned out and viewed attentively. The reſult was,

No. 1. the beſt—boiled carrots.
2. next—boiled potatoes.
3. and 4, equal—all nearly dead.

Carrots continue, in every trial, ſuperior to all common vegetable food. I am, ſays he, not at all ſurpriſed at the ill ſucceſs of turnips and cabbages.

Exp. VI. In June, he draughted from his piggery twenty that were of a perfect equality in ſize and appearance; they were even half grown; marked them into four lots, and turned

No. 1. into his clover-field.
2. lucerne ditto.
3. ſainfoin ditto.
4. burnet ditto.

In another month they were driven up and viewed; the reſult was,

No. 2. the fineſt—lucerne.
1. next—clover.
3. next—ſainfoin.
4. very indifferent—burnet.

The reſult of this experiment he thinks deciſive in favour of lucerne, and likewiſe in the proportionable merit of the other articles; but it muſt be farther inquired into by future experiments. The reſult of theſe trials is thus given:

Milk mixed with pollard appears to be, of all food, the moſt proper for rearing pigs. Milk alone is good. Boiled carrots excellent, and fully proved to be ſufficient for any farmer to depend on who does not keep a good dairy. Potatoes boiled to a batter alſo a very good food. Turnips, cabbages, and malt-duſt, very bad. Of green food, that which is growing is clearly the beſt; mown, and given in ſtyes, it is pernicious. In the field, lucerne is ſuperior to all the reſt. Clover comes next, then ſainfoin; all theſe three are good. Burnet laſt and bad.

He then inſtituted a ſet of experiments in order to diſcover what kind of food was moſt proper for fattening hogs, when given to them ſeparately, and the beſt mixtures of them for that purpoſe.

Exp. VII. In January, he drew from the piggery ten hogs, as equal in ſize as poſſible, and weighed them alive in five lots.

| | ſtone | lb. |
|---|---|---|
| No. 1. weighed - - | 13 | 4 |
| 2. - - - | 12 | 6 |
| 3. - - | 13 | 0 |
| 4. - - - | 12 | 11 |
| 5. - - | 13 | 1 |

A nearer quality than this, in matters that can neither be added to nor diminiſhed, can ſcarcely be expected. No. 1. was fatted with white peaſe, that weighed 56lb. per buſhel; the price 30s. per quarter. No. 2. with pollard that weighed 22lb. per buſhel; price 9d. per buſhel. No. 3. with buck-wheat 47lb. per buſhel; price 2s. 3d. per buſhel. No. 4. with boiled potatoes 54lb. per buſhel; price 2s. per buſhel. No. 5. with boiled carrots 55lb. per buſhel.

He thought it beſt to fix on a given ſum, as proper to fat each hog. The people he conſulted were of opinion that eight buſhels of white peaſe were neceſſary to fat one ſuch hog well. This he accordingly fixed on as his criterion. The account of the expence therefore ſtood thus:

| | | | | £. | s. | d. |
|---|---|---|---|---|---|---|
| No. 1. Peaſe, 16 buſhels - - - | | | | 3 | 0 | 0 |
| 2. Pollard, 80 buſhels - - - | | | | 3 | 0 | 0 |
| 3. Buck-wheat, 27 buſhels - - | | | | 3 | 0 | 0 |
| 4. Potatoes, 28 buſhels at | 2 | 16 | 0 | 3 | 0 | 0 |
| Labour and coals - | 0 | 4 | 0 | | | |
| 5. Carrots, 49 buſhels | 2 | 13 | 2 | 3 | 0 | 0 |
| Labour and coals | 0 | 4 | 10 | | | |

Each lot was weighed as ſoon as the food was done. This reſult was as follows:

| | ſtone. | lb. |
|---|---|---|
| No. 1. weighed - - | 27 | 6 |
| 2. - - - - | 27 | 9 |
| 3. - - - | 29 | 13 |
| 4. - - - - | 25 | 7 |
| 5. - - - - | 31 | 0 |

It is here again evident, from this experiment, that carrots boiled are ſuperior to any other food. He did not expect that potatoes would be ſo much inferior; but he has found from divers other trials ſince, that it is requiſite to mix the meal of ſome kind of corn with them. Pollard in this trial, as in the laſt, is ſuperior to peaſe.

With reſpect to the comparative fattening quality of carrots and potatoes, it appears by this experiment that lot No. 5. gained 17 ſtone 13 pounds weight in fleſh, fed upon carrots; and lot No. 4, fed upon potatoes, gained but 12 ſtone 10 pounds. The difference was 5 ſtone and 3 pounds of fleſh gained by feeding on carrots more than was gained by their feeding on potatoes; a great ſuperiority when viewed in this light. But on the other hand, to gain this greater weight there was a conſumption of 49 buſhels of carrots, and but 28 of potatoes. But 49 buſhels of potatoes (the ſame quantity as the carrots) would, in the above proportion, advance ſuch a lot of hogs to the weight of 22 ſtone and 4 pounds; that is, to 4 ſtone 5 pounds more in weight than the ſame quantity of carrots did advance them; by which it appears that potatoes are really more fattening than carrots, of the ſame meaſure or weight. The hogs ſeem to reliſh carrots much, and they eat a great quantity of them; but, taking an equal quantity of each, the potatoes go fartheſt in fattening hogs; a circumſtance that merits the farmer's ſerious attention; for it is much more difficult to find a ſoil that is proper for carrots than for potatoes, and the produce from an acre of potatoes is nearly as great, and frequently greater than the produce of carrots; nor is there much difference in the expence. This however is certain, that in moſt farms, there is much more land proper for potatoes than for carrots. The price of the potatoes, in this inſtance, is indeed much higher than the carrots; but that it is a circumſtance merely local; it is not ſo in all places; as the farmers may in general raiſe potatoes as cheap as they can carrots, and in much greater quantities.

The other experiments in Mr. Young's paper, were made in order to diſcover the fattening quality of ſeveral ſorts of food, when mixed together; pollard, bran, and of beans, peaſe, buck-wheat, and barley ground into meal; upon which he makes the following obſervations: It appears from theſe experiments, that pollard alone, at the preceding prices, is a cheaper food than peaſe alone. That boiled carrots is much the moſt profitable food that has been tried. That buck-wheat is a more profitable food than peaſe. That ſeveral kinds of food mixed are better than given alone. That the meal of any one or various kinds of grain is better, and more profitable, than the whole grain mixed or alone. That peaſe and barley are a much ſweeter food than beans.

The ſow is capable of propagating at ſeven or eight months old; but it is better to defer her taking the boar till ten or twelve months old, as ſhe becomes more ſtrong and affords better litters of pigs. The period of being with young in the ſow is about four months, and the uſual produce from about eight to ten or twelve in the large, and more in the ſmaller breeds, which in general bring the greateſt number, and the moſt early. The boar ſhould be a year old or more before he be put to the ſow, as by this delay he attains a better growth, and is more vigorous.

After all, the breeding and fattening of pigs is a buſineſs but of minor conſideration, and muſt remain ſo while the ſpeculations in ſheep and in grazing preſent ſo many ſuperior opportunities of turning capital; or until the time arrives when a more abundant population ſhall render animal food more ſcarce, and the modes of raiſing it as much derived from the calls of neceſſity as from the deſire of gain.

Of

## OF POULTRY.

As moſt farmers conſider the rearing and fattening of poultry as a buſineſs beneath their notice, they generally give it up as a pleaſing employment to their wives and daughters, and which is uſually the more agreeable, becauſe they are allowed the profits for pocket-money, and to ſupply little contingencies about the houſe.

Among the common poultry there are ſeveral kinds to be preferred, ſuch as the Game-breed, the Engliſh or white breed, the Poland or black breed, the Dorking-breed, the Shackbag-breed, and the Malay-breed. The two firſt of theſe are much ſmaller than the others; but the game and the Poland breeds are much the beſt layers; though, in reſpect to the ſize of the eggs, the larger breed is preferable. In ſetting and breeding-fowls, the Dorking and other large breeds are probably to be preferred from their ſuperior ſize; but, in what regards the colour, quality, and flavour, of the fleſh, the game and the white breeds are ſuppoſed, by thoſe who indulge in this ſort of food, to be the moſt delicate and rich in flavour.

In order that there may be the leaſt poſſible interruption to the poultry, ſeparate places ſhould be provided for their rooſting, ſitting, and being fattened in; and, where the quantity kept is very conſiderable, for plucking and preſerving their feathers. In ſetting both the hen and the turkey, in order to prevent their interfering with each other, ſeparate neſts ſhould be provided in ſituations where they can be confined and kept from the reſt; as, without this precaution, the ſame neſt will have two or three upon it; by which much injury is often ſuſtained.

Hens may be kept in the proportion of about ſix or ſeven to a cock. Young ones are the beſt where eggs are the principal object: but where chickens are chiefly in demand, the older kinds ſhould be preferred, as they ſit with more aſſiduity and care. Young hens moſtly begin to lay in January, or early in the following month; but this may be greatly promoted by the uſe of food of the more ſtimulant kind, ſuch as buck-wheat, barley, hemp-ſeed, fenugreek, &c. in which intention any kind of refuſe animal matter chopped very ſmall has been found highly beneficial; alſo any of the ſmall ſorts of fiſh, ſuch as ſprats, &c. prepared in the ſame manner. But, whatever ſort of food may be employed for the laying hens, it is eſſential to their producing a great number of eggs that they be not *too much fed*; though they ſhould not be keep too poorly, as from each extreme diſadvantage proceeds. The periods of ſetting hens muſt neceſſarily vary according as chickens are wanted, but in general the latter end of February or the beginning of the following month is a good ſeaſon for the purpoſe; as the weather will be getting warm about the time they are hatched. The period of ſetting is uſually about twenty-one days.

In ſetting the hens, the eggs ſhould always be ſuch as are new-laid and perfectly freſh, and the number ſhould not exceed thirteen. While ſitting, the hens ſhould conſtantly have a ſufficiency of food near them, in order that they need not be taken from their neſts too great a length of time. In the time of hatching, ſome adviſe the removing the firſt brought-out chickens; but it is probably a better practice to let them remain, to be ſupported by the natural warmth of the hen until the whole brood is out. At this time ſome recommend their being put under a coop with the hen; but, where the poultry-yards are well incloſed, they may be ſuffered to follow the mother. Where there are more broods than one, the coops ſhould not be placed too near each, leſt the hens ſhould deſtroy each other's chickens. It is beſt to feed the chickens firſt with ſteeped rice or ſplit grits with boiled potatoes bruiſed; but afterwards the refuſe wheat or barley may be given them with propriety, after having been boiled or ſteeped ſome time in water.

Various directions have been given for the FATTENING of poultry; but the beſt practice is probably that of confining them for a few days in dry well-ventilated places, which are covered ſo as in ſome meaſure to prevent the entrance of too much light, the fowls being previouſly kept in good condition in the poultry-yards. In theſe ſituations they ſhould be regularly fed three or four times in the courſe of the day with well-ſteamed potatoes, which are probably the cheapeſt ſort of food; as from recent experiments this practice has been attended with the moſt complete ſucceſs, the poultry thriving perfectly well. Buck-wheat is likewiſe an uſeful and cheap food for fattening, either given whole or ground into flour. Barley-meal, ground-malt, and alſo coarſe wheat-flour, when mixed up with milk, or, what is better, water, as milk runs quickly into a ſtate of acidity, have been much recommended in this intention. From ſome experiments alſo lately made, it appears that pea-meal, employed in the ſame way, poſſeſſes a ſtill more fattening property, and is at the ſame time more economical. A confinement of ſeven or eight days to this mode of feeding, will in general be ſufficient for effecting the buſineſs of fattening. When kept up long, fowls are extremely apt to be affected with diſeaſe. Whatever ſort of food is made uſe of, free air and a perfect ſtate of cleanneſs is eſſential in all the utenſils employed for the purpoſes, in order to prevent the food from becoming acid, and the fowls affect- with diſeaſe.

The GALENA, or GUINEA HEN, is a kind of fowl that lays a great number of eggs; but retains too much of its wild nature to be kept with advantage by the farmer. The leaſt diſturbance makes it forſake its neſt, which is moſtly made in ſome diſtant unfrequented ſituation. The fleſh of this ſort of fowl is ſomewhat dry, but has more of the game flavour than that of the common fowl.

Of TURKEYS, there are two breeds or varieties; the black breed, and the white or ſpeckled breed; the former is in general the largeſt and moſt hardy; the latter the earlieſt in neſting. The turkey generally lays from eight to ten or twelve eggs, and hatches in about twenty-eight or thirty days. The young brood are extremely tender, and require conſtant care and attention for a month or ſix weeks after they are hatched to rear them with ſafety. They ſhould during this time be kept in a warm airy incloſed ſituation, perfectly free from wet, and be attentively fed with white bread ſteeped in milk that is quite free from acidity; or, what ſome prefer, alum curd mixed with chopped onions, for which uſe a proper ſupply of early young onions ſhould be provided, or old ones planted in this intention. After they have been managed in this way for about a month, they may be brought gradually to be ſupported on oatmeal and ſweet milk, or grain, of which buck-wheat is found the moſt ſuitable.

Young turkeys may be fattened with great expedition by means of boiled potatoes and good barley-meal mixed well together, if they be kept fed in a regular manner. The practice of cramming them is a ſtupid and unneceſſary cruelty, as it is evident they can only fatten in proportion to the quantity of food that is digeſted, whatever quantity may be forced upon them; beſides, they will conſume it faſt enough without forcing, if kept regularly fed. The fineneſs of the flavour in the Norfolk turkeys, is aſcribed to the great dryneſs of the ſoil in that diſtrict, and the extenſiveneſs of the range which they are ſuffered to poſſeſs.

Of DUCKS there are ſeveral different breeds, but the common white or Engliſh breed, and the dark-brown or ſpeckled wild-breed, are in moſt eſtimation. This ſort of poultry may be kept with moſt profit in ſituations where there are large ponds or ſheets of water for them to reſt upon near to the farm-yards, as in ſuch caſes they will require little or no trouble; but in other circumſtances, except where they are reared by perſons who make a buſineſs of dealing in theſe and other ſorts of poultry, they will afford little advantage, unleſs it be a few juſt for the purpoſe of the table. Ducks begin to lay early in the year, as the latter end of January or beginning of the following month, eſpecially when well fed. They require attention at this period, as they lay a great number of eggs, and are very apt to drop them in the water, or at random in other places. One drake is ſufficient for four or five ducks. When ſet, from ten to a dozen or thirteen eggs are a ſufficient number. They ſit about thirty days, and during the time ſhould be fed and have water near their neſts, to prevent the eggs from being injured by their leaving them too long. When hatched, they ſhould remain with the duck in ſome incloſed ſafe warm ſunny place, and be well fed with crumbs of bread, grits or barley-meal, and boiled potatoes well mixed and uſed freſh and freſh; ſand and clean water being conſtantly kept in ſhallow pans. The duck-breeders have alſo in general a proviſion of worms, ſnails, and other ſimilar animals, in readineſs for them when a little more advanced in their growth, as well as corn, either in its ground or natural ſtate. The practice of raiſing ducks under hens ſeldom anſwers well, as their habits are by no means ſuited to the rearing of ſuch birds; nor has the cuſtom of trimming off the tails of the young ducklings any better foundation in reaſon. They ſhould never be admitted at full liberty till they are become quite ſtrong, as at a month or ſix weeks old.

In fattening ducks, grain, either in its whole or reduced mixed ſtate, is probably the beſt ſort of food. The uſe of boiled potatoes well mixed with oatmeal, is found to be an economical and expeditious method. Much however depends on their being fed in an exact and regular manner, and on a proper ſupply of water and ſand being conſtantly given; while at the ſame time they are kept in a perfectly quiet ſituation, not too much expoſed to the action of light, but well aired. When fattened on animal ſubſtances, which are very expeditious in accompliſhing the buſineſs, they are ſaid to have more reſemblance, both in the colour and flavour of their fleſh, to the wild duck. In the acorn-ſeaſon they are alſo capable of being readily fattened upon them, and are allowed to be well-flavoured in their fleſh from it.

The breeding of GEESE, from their being ſuch favourites upon the table, and living principally by grazing, is an inducement to almoſt all perſons, whether farmers or not, ſituated on the ſides of commons, to attempt rearing them in the domeſtic way. But the breeding of geeſe in the fenny countries is a buſineſs of the utmoſt magnitude, and often attended, on account of the feathers, with immenſe profit. See the article ANAS, vol. i. p. 516–520, and the correſpondent Engravings.

In the choice of ſtore-geeſe, great care ſhould be taken to procure them as large a ſize as poſſible. They begin to lay in the ſpring months; and the earlier this happens the better, as the price of early *green geeſe* is generally high, and as in ſome caſes it may be poſſible to have a ſecond brood. Both theſe purpoſes may be promoted by letting them be well fed with oats, grains, or ſome ſuch kinds of food, at the period. The gooſe generally lays from eight to twelve eggs. It may be known when geeſe are about to lay, from ſtraw being frequently picked up and carried about by them. The length of time of ſitting is about thirty days. The proper quantity of eggs is from ten to twelve, which ſhould be placed in the neſts, and ſomething put before them, ſo as to prevent the geeſe from being much ſeen. They ſhould alſo have plenty of food, ſand, and water, near them, in order that they may not remain long off the neſts. The ganders ſhould be left with them as guards. When the weather is warm they generally hatch rather ſooner than when it is cold. After the goſlings are hatched, the beſt method is to let them remain with the gooſe, eſpecially where they are ſtrong, in ſome warm ſunny place, that is well ſecured againſt the entrance of rats, and all other ſorts of vermin, and which is properly ſupplied with water; being well fed with the crumbs of bread, grits, wheat, and chopped clivers. They ſhould remain until they are grown ſtrong and capable of following the gooſe with eaſe; they may then be put into a ſmall field, or paddock, where the graſs is ſhort, till they are fit to be turned out with the geeſe. When weakly, it is cuſtomary to feed them in the houſe, with bread ſoaked in milk, or a little barley-meal, &c.

In fattening of *green geeſe*, care ſhould be taken that a little green food be given them along with the oats or other grain that may be employed for the purpoſe when they are put up, and that they be well ſupplied with water and ſand. A fortnight or three weeks is long enough for this purpoſe, if they be well and regularly fed; but, in the fattening of the older geeſe, there will not be any neceſſity for the green food. The place in which they are fattened ſhould be quite out of the hearing of the old or ſtore-geeſe, or it will occaſion a reſtleſſneſs in the fattening pens, that will prevent them from thriving in the manner they ought.

We cannot diſmiſs this ſubject without noticing a very ingenious contrivance, invented by Mrs. Hannah D'Oyley, of Sion Hill, near Northallerton, in Yorkſhire, by which ſhe hatches chickens, and raiſes poultry, in any quantity, and at a ſmall expence. Her account of the proceſs is as follows: "I keep a large ſtock of poultry, which are regularly fed in a morning upon ſteamed potatoes chopped ſmall, and at noon they have barley; they are in high condition, tractable, and lay a very great quantity of eggs. In the poultry-yard is a ſmall building, ſimilar to a pigeon-cote, for the hens to lay in, with frames covered with net to ſlide before each neſt; the houſe is dry, light, and well ventilated, kept free from dirt by having the neſts and walls white-waſhed two or three times a-year, and the floor covered once a-week with freſh aſhes; when I wiſh to procure chickens, I take the opportunity of ſetting many hens together, confining each to her reſpective neſt; a boy attends morning and evening to let any off that appear reſtleſs, and to ſee that they return to their proper places; when they hatch, the chickens are taken away, and a ſecond lot of eggs allowed them to ſet again, by which means they produce as numerous a brood as before. I put the chickens into long wicker cages, placed againſt a hot wall at the back of the kitchen fire, and within them have what I call ARTIFICIAL MOTHERS, for the chickens to run under; they are made ſimilar to thoſe deſcribed by Reaumur, in his *Art de faire éclore et d'élever en toutes Saiſons des Oiſeaux domeſtiques, &c.* in two volumes, printed at Paris, 1751. They are made of boards about ten inches broad, and fifteen inches long, ſupported by two feet in the front, four inches in height, and by a board at the back two inches in height. The roof and back are lined with lamb's ſkins dreſſed with the wool upon them. The roof is thickly perforated with holes for the heated air to eſcape; they are formed without bottoms, and have a flannel or green baize curtain in front, and at the ends, for the chickens to run under, which they do apparently by inſtinct. The cages are kept perfectly dry and clean with ſand or moſs. The above is a proper ſize for fifty or ſixty new-hatched chickens; but, as they increaſe in ſize, they of courſe require a larger mother. When they are a week old, and the weather fine, the boy carries them and their artificial mother to the graſs-plot, nouriſhes and keeps them warm, by placing a long narrow tin veſſel filled with hot water at the back of the mother, which will retain its heat for three hours, and is then renewed freſh from the ſteamer. In the evening they are driven into their cages, and reſume their ſtation at the hot wall, till they are nearly three weeks old, and able to go into a ſmall room, appropriated to that purpoſe. The room is furniſhed with frames ſimilar to the artificial mothers, placed round the floor, and with perches conveniently arranged for them to rooſt upon.

"When I firſt attempted to bring up poultry in the above way, I loſt immenſe numbers by too great heat and ſuffocation, owing to the roofs of the mothers not being ſufficiently ventilated; and, when that evil was remedied, I had another ſerious one to encounter; I found chickens brought up in this way did not thrive upon the food I gave them, and many of them died, till I thought of getting coarſe barley-meal, and ſteaming it till quite ſoft: the boy feeds them with this and minced potatoes alternately; he is alſo employed rolling up pellets of dough, made of coarſe wheat-flour, which he throws to the chickens to excite them to eat, thereby cauſing them to grow ſurpriſingly. I was making theſe experiments in the ſummer of 1806, for about two months; and during that time my hens produced me upwards of five hundred chickens, four hundred of which I reared fit for the table or market. I uſed a great many made into pies for the family, and found them cheaper than butchers' meat. Were I ſituated in the neighbourhood of London, or any populous place, I am confident I could make an immenſe profit, by rearing different kinds of poultry in the above method for the markets, and ſelling them on an average at the price of butchers' meat. Any perſon might bring up in a ſeaſon ſome thouſands; and with but little trouble. Hens kept as mine are, and having the ſame conveniences, will readily ſet four times in a ſeaſon; and, by ſetting twice each time, they would produce, at the loweſt calculation, eighty chickens each, which would ſoon make them very plentiful.

The moſt convenient ſize of an artificial mother for forty or fifty young chickens, is about fifteen inches long, ten deep, four high in front, and two at the back; it is placed in a long wicker cage againſt a warm wall, the heat at about eighty degrees of Fahrenheit's thermometer, till the chickens are a few days old, and uſed to the comfort of it, after which time they run under when they want reſt, and acquire warmth by crowding together. I find it adviſeable to have two or three chickens among them of about a week old, to teach them to peck and eat. The meat and water are given them in ſmall troughs fixed to the outſide of the cage, and a little is ſtrewed along from the artificial mother, as a train to the main depoſit. The whole of this apparatus is correctly delineated in the Huſbandry Plate III. Fig. 6, repreſents the wicker baſket, four feet long, two feet broad, and fourteen inches high, with a lid to open, and a wooden ſliding bottom ſimilar to a bird-cage: a ſmall artificial mother is ſhown placed within it.

Fig. 7. Another view of the artificial mother, but without the curtain, in order to ſhow its ſloping direction, and interior lining of woolly ſheep-ſkin, as above deſcribed.

Fig. 8. The apparatus called the artificial mother, complete, with a curtain of green baize in front and ends, and holes bored through the top to allow the circulation of air.

For the above invention, Mrs. D'Oyley was voted the ſilver medal by the Society of Arts and Manufactures, &c. in 1807.—We will not ſay whether Mrs. D'Oyley ever met with the ancient Egyptian method of hatching eggs by artificial means, and raiſing vaſt numbers of chickens; but certainly her proceſs, though incubated under hens, as nature intended, inſtead of the chickens being produced in heated ovens, yields numbers that would almoſt vie with the art that has been ſo much celebrated and admired. See the article Egg, vol. vi. p. 285.

## Of GRAZING and FATTENING CATTLE.

This branch of the huſbandry-buſineſs is perhaps the moſt intereſting, and at the ſame time the moſt difficult, of any that calls for the ſkill and judgment of the farmer. Indeed his ſucceſs muſt depend entirely on the extent of his experience, and his knowledge of the nature of the different breeds of cattle in their tendency to fatten, on what parts they chiefly lay their fat, and whether marbly or not; a perfection that every butcher is ſure to prefer. He has alſo to contemplate the quantity and richneſs of his paſtures, if for ſummer-fattening; and the reſources he might have for a plentiful ſtock of dry food, if his plan is for ſtall-feeding. It is from this ſkilful knowledge and judicious management of the Britiſh graziers alone, that the "Roast Beef of Old England" has for ages paſt maintained the ſuperiority over that of all other nations; and we ſincerely hope and truſt it will long continue ſo to do.

From what has been obſerved, it becomes evident that the ſtocking of grazing-lands with a promiſing kind of cattle, is probably one of the moſt precarious points the farmer has to contend with. In the natural ſtate, ſuch animals are in general produced on the lands as are ſuited to the ſtate and nature of their herbage; thus, in the mountainous diſtricts, where the graſs is ſhort and light, the ſmall breeds of both cattle and ſheep prevail; while in the low, rich, marſhy, or other paſtures, where the graſs is more full and ſucculent, we have the larger breeds of theſe different animals. It will therefore be neceſſary, in this buſineſs, for the farmer to conſider two things: firſt, what ſort of ſtock may be the moſt proper for the particular kind of paſture on which they are to be grazed; and, in the ſecond place, what ſorts may afford the greateſt profit in the conſumption of the herbage. It will probably in moſt caſes be found, that upon the ſtrong and more dry rich paſtures, the larger ſorts of cattle and ſheep will be the moſt proper, and turn out to the greateſt advantage; but that on ſuch as are leſs dry and luxuriant, the different ſmaller breeds of cattle, as well as ſheep, may be found to anſwer beſt. This is in ſome degree proved by the practice of the graziers in different diſtricts. On the rich lands in Suſſex and Lincolnſhire, as well as other grazing counties, they prefer the large breeds of cattle as well as ſheep for the purpoſe; while in many others that are leſs fertile, the ſmaller ſorts are found more to the advantage of the grazing farmer. In paſtures where the graſs is ſhort and ſweet, ſheep are the proper ſort of ſtock.

It has been well obſerved, that where the grazier has fine and rich paſtures, he may chooſe his beaſts as large as he can find them, provided they are of the right breed and ſhape; but let him always prefer ſhape to ſize; for it will aſſuredly pay him better. And it is added, that thoſe who are upon indifferent graſs, muſt take care to proportion the ſize of their beaſts to the goodneſs of their paſtures; their cattle had much better be too ſmall than too large; there are vaſt tracts of land that will anſwer well in grazing, which are not good enough to ſupport large breeds.

Where the ſtock is bred upon the land, there will be little difficulty in fixing upon ſuch animals as are the moſt ſuitable in theſe different intentions; but, as it will frequently be neceſſary for the farmer to purchaſe his fatting ſtock at fairs and other places, much care and attention, as well as knowledge, will be requiſite for him to do it in the moſt advantageous manner. It is of great importance in this buſineſs to provide ſuch as appear to have been kept in a proper manner, and are in thriving condition; as, where the contrary is the caſe, they are difficult, and require a much greater length of time to be brought into the ſtate proper for ſale than would otherwiſe have been neceſſary. It is perhaps experience alone, that can qualify the grazier to form a correct judgment in theſe reſpects; in general, however, he is led to the choice of ſtock by no fixed principles, but by the impreſſion the appearances of the animals have upon him. It has been obſerved, that the experienced grazier who has been accuſtomed to attend fairs and markets, knows at ſight, or by the aſſiſtance of the ſlighteſt touch, whether the animals he is about to purchaſe will ſuit him. Their general form and looks pleaſe him. They are every where clean; have little offal about them; their eyes are full and vivid; their countenances briſk; their ſkins alive, and their fleſh mellow. On the whole, they have the reſemblance of thoſe which have been grazed before with ſucceſs. Others are rejected, from the grazier not having found any ſuch as they reſemble to have done well, but many to have turned out in an unprofitable manner.

In different ſituations, different ſorts of both cattle and ſheep muſt often be preferred, from the eaſe and convenience of procuring them; but the graziers in the midland diſtricts for the moſt part find that variety of the long-horned termed the Craven-breed, to anſwer the beſt, as having the moſt advantageous form, and the greateſt diſpoſition to fatten readily, eſpecially as improved by Mr. Bakewell. In Lincolnſhire ſome prefer the large ſhort-horned breed, others the long-horned, with a mixture of other kinds; as the different ſorts of Scotch, and ſuch as are bred in the neighbourhood. In Somerſetſhire the dark-red Devonſhire breed is the moſt prevailing ſort, which have alſo of late been more in demand by the beſt graziers in Leiceſterſhire, Oxfordſhire, and Warwickſhire. In the London markets theſe are ſaid to come next to the Galloway Scots, that are fattened by the Norfolk and Suffolk graziers, in the fineneſs of the grain of their fleſh and their internal fatneſs. The Cumberland and other north-country graziers moſtly employ the home-breeds, which are in general of the long-horned kind, with both the Scotch breed, the Kiloe, and Galloway. They find the Kiloes the quickeſt feeders, the Galloways the next, and their own the ſloweſt. The Herefordſhire, Glamorganſhire, and Suffolk polled breeds, are all found valuable as grazing-ſtock in different ſituations. The breeds of the particular neighbourhood, as well as cattle of the Welſh or Scotch kind, may often be the moſt profitable where the graſs lands are not of a rich or fertile nature, as the ſize of theſe may be more eaſily proportioned to the quality or goodneſs of the lands; and there are ſcarcely any ſo indifferent as not to be capable of bringing the ſmalleſt to a ſufficient ſtate of fatneſs for the market.

With reſpect to the ſort of ſtock that may be employed with the greateſt profit by the grazing farmer, they are unqueſtionably oxen and ſpayed heifers; the latter in general fattening not only much better, but more expeditiouſly, but are not capable of being procured with ſuch facility; and of the former kind, ſuch as have been accuſtomed to work are preferred in almoſt every grazing diſtrict, as both fattening more kindly, and making better beef, than others that have not been employed in that way. Even when killed at a great age, after being accuſtomed to work, the beef has been found extremely good. In ſome caſes cows that have become barren, as well as ſuch old cows as are found unfit for other uſes, are purchaſed by the grazier for the purpoſe of fattening; but the danger of ſucceſs in theſe inſtances is always conſiderably greater; of courſe, though they occaſionally turn out to much advantage, ſuch as have been mentioned above are conſtantly to be preferred. Cows, eſpecially thoſe that are of much age, ſcarcely ever fatten well, and never in a quick manner; they can therefore hardly ever be equally profitable for the uſes of the grazier as thoſe of other ſorts of young ſtock. Whenever cows are employed for the purpoſe of grazing, they ſhould conſtantly be let take the bull either before they are turned into the paſtures, or as ſoon after as poſſible, and be always in a ſtate fit for the market at leaſt three months before the period of their calving.

In regard to ſheep-ſtock, it is probable that in general the large improved long-woolled breeds may be the moſt profitable on the more rich and productive paſtures; but on thoſe where there is a leſs degree of fertility, and the graſs is ſhorter, the ſmall ſhort-woolled improved breeds are preferable for the uſes of the grazier. In the firſt of theſe caſes, that ſort which is termed the New Leiceſter has of late years had numerous advocates. Where wethers are capable of being procured of the New Leiceſter kind, they moſtly turn out an excellent ſtock for the grazing farmer. In the latter inſtance the South Downs are in common the moſt advantageous ſort, as not being exceeded, perhaps, by any other breed.

In Somerſetſhire the polled ſheep of the lower part of that diſtrict have lately gained ground over thoſe of the Dorſetſhire ſheep, formerly the prevailing ſort by the beſt grazing farmers. They afford a large ſhear of wool, fatten quickly, and particularly on the internal parts. They are ſuppoſed capable of improvement by croſſing with the new Leiceſter breed. The Romney Marſh graziers principally employ the white-faced polled and the South Down breeds, both of which they find profitable on their lands. The Cumberland graziers chiefly ſtock with the true black-faced Heath and Cheviot breeds of ſheep, the former of which they find the more quick feeders, as well as more hardy.

In the ſyſtem of grazing-management, many different methods of practice are employed, both in reſpect to horned-cattle and ſheep. With ſome graziers it is a method to purchaſe their cattle in the fairs in the autumn ſeaſon, about October or in the following month, ſupporting them, during the winter, principally with ſtraw, or ſometimes, which is a much better practice, with a little hay mixed with it, till towards the beginning of March, continuing their fattening through that and the ſucceeding month with ſome ſort of ſucculent food, ſuch as turnips, potatoes, or other ſimilar kinds, until the graſs be in a ſtate fit to be turned upon in May, on which they may be carried forward and completed according to circumſtances about Auguſt, or in the following month. Another method is to purchaſe the beaſts lean, as ſoon as the graſs-lands are in a ſtate fit to be turned upon in May, wholly completing their fattening on the graſs about the latter end of October, or later in the autumn, according to their quickneſs in feeding. In this ſyſtem of practice the ſmaller ſorts of cattle-ſtock may be found in general the moſt advantageous, eſpecially where the lands are not of the moſt fertile kind.

The grazier has alſo ſometimes recourſe to another mode of proceeding in his ſyſtem of fattening horned cattle; but which is ſuppoſed to be leſs profitable than either of the preceding methods; this is that of buying in his ſtock at ſuch periods, according to the difference in their ſizes, as that they may be ready to be diſpoſed of about April, or in the ſucceeding month, a period at which they uſually fetch a high price. In this ſyſtem, with large oxen or other ſorts of beaſts, it is ſometimes the practice to keep them through two winters, giving them only one ſummer's graſs; being in the firſt winter not fully fed, but kept in good graſs in the ſummer ſeaſon, and forced on with the beſt feeding in the ſecond; but with the ſmaller ſorts of ſtock, one ſummer's graſs and a winter's ſtalling is the uſual mode; the cattle being bought in as ſoon in the ſpring as the graſs is riſen to a good bite.

In ſome diſtricts heifers are preferred to oxen, in which caſe they buy them in about March or April, and, after keeping them through the ſummer, ſell in October and November. This method is thought by ſome a profitable ſyſtem of management. All thoſe methods may probably be practiſed with advantage under different circumſtances; but it is obvious that the firſt can only be had recourſe to with propriety where green winter-food is raiſed in ſufficient abundance, and the grazier has a ſtore of litter for being converted into manure. Under other circumſtances the ſecond mode of management will be much more profitable. The two laſt methods are the leaſt convenient, and, probably, on the whole, except in very favourable circumſtances, the leaſt profitable, eſpecially the former of them, as, from the great length of time which they are kept, much management and attention to food becomes neceſſary to render them advantageous; which, with common ſervants, is ſeldom ſufficiently regarded. Beſides theſe, there is another practice that deſerves attention in particular caſes, ſuch as that of buying in ſmall cattle in tolerable condition in the autumn as ſoon as the after-graſs is ready, in order to their being fattened out on the rowens, and diſpoſed of towards the latter end of October, or beginning of the following month. This is a practice ſometimes beneficially purſued on the rich hay-farms in the county of Middleſex.

With ſheep-ſtock different ſyſtems of grazing are likewiſe in uſe. In ſome caſes, where the lands are in a ſtate of incloſure, it is a profitable practice to buy ewes in lamb in the latter end of ſummer or beginning of autumn, keeping them on the inferior ſorts of graſs-lands, ſtubbles, or fallows, till the beginning of January, and then, by giving them turnips, to keep them in good condition through the period of their lambing, and afterwards in the beſt manner that can be contrived, in order that the lambs may become fit for the butcher ſufficiently early to admit of the ewes being afterwards fattened, and diſpoſed of in the beginning of the autumn. Another method of grazing ſheep is to purchaſe wether-ſtock, about the beginning of May, at the age of two or three years, keeping them ſcantily till ſome weeks after the grounds have been cleared from hay, then bringing them to good keep in the rowen, afterwards fattening them by means of turnips or cabbages, ſo as not to have them ready ſooner than the beginning of March, which is uſually the ſeaſon in which they fetch the greateſt price. This ſpecies of grazing-management moſtly affords a good profit to ſuch farmers as are ſufficiently attentive to it.

In addition to theſe methods there is another practiſed in ſome caſes with great profit and advantage, which is that of buying in lambs of the wether or other kinds about the beginning of September. Theſe are kept in different methods by different managers; by ſome they are brought forward with the greateſt poſſible expedition by the beſt keep, ſo as to be ready to be diſpoſed of as ſoon as poſſible. Others, however, adopt the contrary method, keeping them only in a middling way during the winter till about the beginning of April, and then forcing them by good keep, ſo as to have them ready for the butcher in Auguſt, or continuing them in the following month, and then clearing the whole of the ſtock from the land. This is a practice from which great profit is often derived.

The providing of graſs-lamb for the markets as early as poſſible in the ſpring of the year, is an object of great importance, and which pays the grazier well in many ſituations, eſpecially near large towns. In this view it is the practice to procure the more forward ewes, ſuch as thoſe of the Dorſet kind, which may drop their lambs before Chriſtmas. The ewes, in order that they may have a plentiful ſupply of milk, ſhould be extremely well kept on turnips and fine green ſweet rowen hay, and the lambs thereby forced forward in ſuch a rapid manner as to be ready for the markets in the beginning of March or April. The ewes, from their becoming dry ſo early, are capable of being fattened and diſpoſed of towards Michaelmas, uſually fetching the prices at which they were purchaſed in at; as the whole of the ſtock is in this ſyſtem cleared within the year, the farmer has the opportunity of fully aſcertaining its advantage or diſadvantage.

In the fattening of graſs-lambs, Mr. Marſhall, in his Midland Counties, has mentioned a practice which in particular caſes may be adviſeable; this is that of removing the lambs from the ewes when they decline much in milk, before they are perfectly fattened, in order to complete them on young clover, or other ſorts of prime keep. The principle in this caſe is that of the ewes becoming ſooner ready for the butcher; beſides, it is ſuppoſed by ſome, that after the firſt fluſh of milk is gone, and it begins to be ſcanty, the lambs thrive better on graſs alone away from the ewes, than when kept along with them, as the hankering after the little milk that is afforded prevents their feeding freely on the graſs. Where this method is followed, which can probably be with advantage only where the milk of the ewes is greatly deficient in ſupporting and bringing the lambs forward, much attention muſt be paid to having the keep early and in abundance. In this view rye-graſs and white clover for early uſe, and broad clover at a later period, are the moſt proper and uſeful crops.

The proportion in which different ſorts of cattle and ſheep-ſtock ſhould be introduced upon the graſs-lands with the view of being fattened, muſt depend chiefly upon the goodneſs of the land, the ſize of the ſtock, and various other circumſtances of feed. The great principle is never to ſtock in ſuch a way as to reſtrict the animals in the leaſt degree; as it is by filling themſelves quickly, and lying down much, that the greateſt progreſs in fattening is made, whether in cattle, ſheep, or any other ſort of animals when at graſs. On the weaker graſs-lands, a much ſmaller proportion of ſtock than on thoſe of the rich and fertile kind, can only be admitted. Often not more than an ox and a ſheep or two, to two acres or a half. There is alſo another circumſtance that is neceſſary to be attended to in bringing the ſtock properly forward in the paſtures, which is that of changing them more frequently than has generally been the caſe with graziers. On this principle, as well as thoſe of their affording greater degrees of warmth and ſhelter, and thereby promoting the growth of the herbage more abundantly, ſmall incloſures may be more advantageous in the grazing of live-ſtock than large ones; but to have them varying in ſize from ten or fifteen to twenty-five acres or more, according to the nature of the paſtures, may be the perfection of the ſyſtem; the matter is not, however, eaſily decided by experiment, as no two pieces of graſs-land can ſcarcely be met with that are preciſely equal in all their different circumſtances.

In the mode of diſpoſing of his fat ſtock, the grazing-farmer muſt be directed by the nature of his farm, and the circumſtances of his ſituation. In the ſouthern parts of England, Smithfield is the principal market; but in the northern parts of the kingdom the ſeveral large towns. In the firſt caſe, on the ſmaller ſorts of farms, the fattened ſtock is moſtly ſent up by men who are ſolely employed in the buſineſs, and who are termed "*diſtrict drovers*," being regularly employed by different graziers in the ſame neighbourhood, and in whom they have the moſt perfect confidence. But where the farms are very extenſive, ſo as to enable the graziers themſelves to regularly ſend droves of cattle or other ſtock to this market, the common practice is to depend upon ſaleſmen for the diſpoſal of them.

In regard to the profits on fattening-land, two methods muſt be noticed: the firſt uſed by the beſt graziers; the other, the moſt common: ſome take-bullocks in to keep, others buy runts; the profits of which muſt depend on their judgment; but 3l. is the *medium* profit between the whole; 10s. each ſheep is generally allowed as the gained profit by fattening. Yet, it cannot be ſuppoſed that this profit will always amount to ſo much, as the years differ; therefore dry ſeaſons will abate it, and a large tract of land cannot have the ſupply of ſtock to make it ſo great. There are loſſes alſo to be taken out; but, upon the whole, it is *very* profitable, as the expences are ſo *moderate*, that one ſervant-man can manage a thouſand acres of paſture land.

Beſides the above methods, there are other ſyſtems of feeding and fattening cattle, that properly come under conſideration in this place, ſuch as thoſe of SOILING, during the ſummer ſeaſon, with various kinds of ſucculent green vegetable crops; and STALL-FEEDING, in the winter months, with roots, cabbages, turnips, and other ſorts of food of a ſucculent nature, in combination with various kinds of dry meat. The former of theſe modes appears to have had much leſs attention beſtowed upon it than its importance would ſeem to demand. Without attending ſufficiently to the economy and advantage of the practice, it has been the common huſbandry in almoſt every part of the iſland, to allow all ſorts of horned-cattle to be grazed in the paſtures. In ſome caſes of improved farming, it has indeed been lately purſued in ſome degree in the ſtable, but without being applied to the cattle-ſtock. The principal circumſtances that recommend this ſyſtem of practice, are thoſe of the food being conſumed with much leſs waſte, and of courſe going a vaſt deal further, than when fed upon the land; the great increaſe of good manure that is produced, and probably that of the ſtock feeding with leſs interruption and inconvenience, in conſequence of their being more effectually ſhaded from the heat of the ſun, and better protected from the haraſſing attacks of flies. In all theſe points, this method would ſeem to have a ſuperiority over that of letting the cattle range in the paſtures. It has however been objected againſt this ſcheme of feeding, that the expence of conducting the buſineſs is too conſiderable. The experiments of Mr. Mure, which were conducted upon a very extenſive ſcale, as well as thoſe of Mr. Young, ſhow that this, with the care of the cattle, may be performed at an expence in proportion to each, that can never afford any ſolid argument againſt the practice.

The ſuperiority of the ſoiling method, in reſpect to the economical conſumption of the food, cannot be diſputed. In various experiments that have been made in proof of the great ſaving in this way, it has been found to go from twice to four or five times as far as when fed on the land; and in ſome trials it has been a great deal more. With graſs, clover, lucerne, and tares, in the trials of an able cultivator, three times as many cattle were found capable of being ſupported in better condition, than in the paſture mode of feeding. In the field it is obvious that great waſte muſt be committed by the graſs being trampled down, dunged upon, and in many other ways, eſpecially where a great number of cattle are paſtured together, moſt of which are avoided in the ſtall method; but it has been remarked, that it is an error to ſuppoſe that all the waſte is in feeding in the field, and none in the ſtalls; there is on the contrary a waſte in ſoiling, as in caſes where the tares become podded, from the butt-ends of the plants being coarſe and in a ſtate of decay, by lying on the ground, and of courſe rejected by the animals; the ſame thing alſo occurs with lucerne when in bloſſom. In the heating of the food by its remaining heaped together, loſs may likewiſe be ſuſtained. Proper management in reſpect to the crops, and the manner of employing them, may, however, in a great meaſure, prevent waſte in this method. But, whatever the waſte in theſe different ways may be, the various trials recorded in the Annals of Agriculture clearly demonſtrate that a vaſtly-increaſed ſtock may be kept upon the ſame extent of land in the method of *ſoiling*, over that of the common mode of grazing the cattle in the fields.

In the winter-fattening of cattle, different methods are purſued in different diſtricts; in ſome it is the practice to conſume the food upon a dry piece of land, to which it is conveyed for the purpoſe. It is evident, however, that this mode can only be had recourſe to where the nature of the ground is ſufficiently dry to prevent injury being done by poaching, which is the caſe only on very few ſoils in the winter ſeaſon. In ſome caſes, eſpecially with turnips, the crop is eaten on the land where it grows, the cattle being turned upon it. This is a practice that takes place in Norfolk with the leſs perfect managers. But it is a great objection to this mode, that the quantity of valuable manure that might otherwiſe be produced by the oxen, is in a great meaſure loſt by being ſpread about in the field; and it is probable that the ſtock does not thrive ſo well, from being more expoſed to the weather, and kept leſs warm and quiet, than in other methods. With ſheep, this huſbandry is leſs exceptionable, as great improvement of the land may be effected without injury by poaching.

There is another practice often adopted in fattening horned-cattle in the winter, which is that of confining them to the yard, and letting them have their food in troughs in open ſheds. This, though a better method than that above noticed, is probably, from the ſtock being left too much at liberty, leſs advantageous in the point of fattening than that of wholly confining them to the ſtalls, or what is uſually termed *ſtall-feeding*; for by this means they are kept more quiet, and free from interruption, and of courſe feed more quickly, and with greater regularity; which are points of great importance in this ſyſtem of management.

The food employed in *winter*-fattening of cattle, is principally of the ſucculent kinds, as carrots, parſnips, potatoes, cabbages, turnips, grains, &c. and of the more dry ſorts, oil-cake, oats, barley-meal, rye-flower, bean-meal, and other ſimilar materials, with various ſorts of ſtraw and hay cut into chaff.

The buſineſs of fattening in the ſtall, or the farm-yard, uſually commences on the decline of the paſture and after-graſſes, towards the end of October, continuing through the whole of the winter, until the beginning of May. When ſucculent food is made uſe of with cut dry meat, which is in general a more profitable method to the farmer than that of having recourſe to corn and oil-cake, carrots, parſnips, and potatoes, would ſeem to ſtand the higheſt as articles for this purpoſe; cabbages and turnips having been found inferior in their fattening qualities for large cattle. The moſt general practice, is to ſerve out theſe roots cut, ſliced, or chopped, giving only a moderate proportion at once, three or four times in the courſe of the day, in cribs or mangers contrived for the purpoſe; proper ſupplies of chaff being provided and given in the intervals of ſuch feeds.

Of the dry kinds of food employed in ſtall-feeding, there is, perhaps, none equal to *oil-cake* in the property of fattening. It is, however, linſeed-cake that muſt be preferred. The late advances in the price of this article have probably rendered it incapable of being made uſe of with much profit, except in particular caſes, and where manure is a principal object. With the oil-cake it is alſo the practice to give ſome other ſort of meat, ſuch as hay, chaff, and other ſubſtances of a ſimilar nature. In this mode of fattening, ſome begin by giving, to a beaſt of a hundred ſtone, two cakes per day, of about ſix pounds each, for ſix or eight weeks, and then increaſe them to three, till the animals become fat. In addition to the cake, from half a ſtone to a ſtone of hay is given each day; the whole conſumption in cake being about 21 cwt. and in hay 26 cwt. which, at the prices previous to the late advance on theſe articles, rendered the expence of winter-fattening a large ox ſomething more than ſeven guineas. Lean cattle of the ſmaller kinds have been made perfectly fat in the courſe of eight or ten weeks by this ſubſtance. The cake, in this application, is broken down into ſmall pieces, and frequently blended with the chaff or other ſubſtances that are made uſe of with it. On the continent, according to Mr. Young, linſeed-cake is ſometimes exhibited in a liquid ſtate, being diffuſed in hot water and drunk by the cattle, hay and other ſubſtances being given at the ſame time. In the Lincolnſhire Report a method is ſuggeſted, of giving oil-cake to cattle while in the paſtures, in a ſmall proportion, with great ſucceſs; a practice which may be applicable where the cake-fed beaſts are not fully fattened for ſale in the early ſpring months. It is an advantage in fattening with oil-cakes, that the cattle may be completed with them at much more advanced ages than in other modes.

When ſheep are fattened with cake, they require it to be reduced into a much finer ſtate than for beaſts; and it may then be mixed with bran or chaff, and put in the troughs or cribs. Oats are excellent for ſtall-fattening cattle, but the price has lately been too high for their being made uſe of to any extent in this way. They are moſtly given in the ſtraw when applied in the fattening of cattle.

Beſides theſe ſubſtances, various others have been employed in particular ſituations for the purpoſe of fattening cattle. The waſh of malt-diſtilleries, which has long been employed in the fattening of hogs, has of late been found applicable in the ſtall-feeding of cattle. The method of uſing it is in conjunction with ſome farinaceous ſubſtances, ſuch as thoſe that have been already mentioned.

tioned. It is then given in ſmall proportions, three or more times in the day; a little hay or ſtraw being given them to enable them to chew the cud.

Whatever the nature of the food may be that is employed for the purpoſe of fattening cattle in the yard or the ſtall, the greateſt care is neceſſary to ſee that it is regularly given to them, that they have it in due proportion and ſufficiently varied; that pure water be amply provided, and that they have litter ſo as to keep them dry and clean.

The buſineſs of fattening houſe-lambs for the purpoſe of early ſale, is a practice that can only be undertaken with advantage in ſituations near large towns, where there is a ſufficient demand for early lamb. In order to conduct this ſort of fattening with profit and ſucceſs, a *lamb-houſe* muſt be provided. The ewes whoſe lambs are adapted to this purpoſe muſt be carefully kept during the day-time in a warm paſture, and houſed in the night. They ſhould be fed with brewers' grains, and good green rowen-hay, where there is not plenty of graſs, as it is of much conſequence to keep them well before the time of lambing as well as afterwards. They uſually begin to lamb a little before Michaelmas; and, when twenty or thirty lambs are dropped, they may be put into and confined in the houſe. It is neceſſary to provide a proper ſupply of calcined chalk, both in the lump and in powder, in order that the lambs, by licking it, may correct the ſuperabundant acidity of the ſtomach, and thereby prevent the tendency to looſeneſs, and preſerve themſelves in health. And, as they are apt to ſuck any thing that comes in their way, a little clean wheat-ſtraw ſhould be put, with the ear-ends downwards, in a rack within their reach, for them to nibble and eat of. If there be pitch-marks on the ewes, they ſhould alſo be clipped out. The foot-rot and ſcab are likewiſe to be well guarded againſt.

The method of management that is uſually adopted in the *ſuckling-houſe* is this: The mothers of the lambs are turned every night at eight o'clock into the lamb-houſe to their offspring. At ſix o'clock in the morning they are ſeparated from their lambs and turned into the paſtures; and at eight o'clock, ſuch ewes as have loſt their own lambs, and thoſe ewes whoſe lambs are ſold, are brought in and held by the head till the lambs by turns ſuck them clean; they are then turned into the paſture; and at twelve o'clock the mothers of the lambs are driven from the paſtures into the lamb-houſe for an hour, in the courſe of which time each lamb is ſuckled by its mother. At four o'clock, all the ewes that have not lambs of their own are again brought to the lamb-houſe, and held for the lambs to ſuck; and at eight the mothers of the lambs are brought to them for the night. If an ewe gives more milk than its lamb will ſuck, the ſuperabundance is given to the twins, or to any other lamb whoſe mother may not be able to furniſh it with ſufficient food. The ſhepherd muſt in this caſe hold the ewe, or ſhe would not ſuffer the ſtrange lamb to ſuck. From their timid nature, it is extremely eſſential that they ſhould be kept free from every ſpecies of unneceſſary diſturbance.

The lambs are retained in the houſes under this method of feeding, till they are in a proper condition for the butcher; at which time ſuch as are about eight weeks old, and fully fattened, are drawn out for the market, which in general fetch from two to four or five guineas a-piece, according as they are more early. December and the two ſucceeding months are the deareſt; as at other ſeaſons they ſeldom fetch more than one half the price.

### *Of the* CULTIVATION *and* MANAGEMENT *of* ARABLE LAND.

Whatever be the nature and quality of the ſoil of which the farm conſiſts, or the adaptation of corn or pulſe intended to be cultivated upon it, or whether for plantations of turnips, or other ſpring food, for the proviſion of cattle, ſtill it would be worſe than childiſh in the farmer to attempt to ſow any of theſe articles, until he had got his land perfectly clean, and in a ſtate of mellowneſs and pulverization, free from weeds, and fully charged with the principles and powers of vegetation. To obtain theſe deſirable ends in the completeſt manner, there appears to be no certain alternative but thoſe of ploughing and fallowing, and expoſing the naked ſoil to the action of the different ſeaſons, and to the powerful influence of the fertilizing ſun. Theſe operations are beſt accompliſhed by the ſame ſoil taking a winter and ſummer-fallow in ſucceſſion; but where this is not to be attained, on account of the crops in the ground, then ſummer-fallowing is ever to be preferred, except for barley and other ſpring corn. The great advantages which the ſoil receives by proper fallowing, are thus ſatisfactorily explained: The heavier particles of land, by being under different circumſtances of the air and ſeaſons thus frequently ſtirred and turned over, are ſo effectually divided or ſeparated from each other, and broken down, that even in moſt of the ſtiffer ſorts of ground, as well as thoſe of the lighter kinds, there is a degree of pulverization and mellowneſs effected that could ſcarcely have been induced by any other means; in conſequence of which, the portions of vegetable matter that are preſent, and that may have been reduced into the carbonaceous ſtate, with the calcareous, the argillaceous, and other earthy ingredients, and ſuch metallic ſubſtances as may exiſt in the condition of oxyds or calces, become ſo uniformly and ſo extenſively blended and incorporated, and the manures that are afterwards applied ſo minutely intermixed with them, that the fibrous roots of the growing crops, of whatever nature they may be, are enabled to penetrate and extend themſelves more fully, and of courſe to draw more regular and varied, as well as more abundant, ſupplies of nouriſhment. And that, on account of the extreme diviſion and pulverization that take place, and the great irregularity of ſurface which is produced in this way, the dews and light refreſhing rains that are ſo frequently occurring in the early ſpring months, are more capable of being admitted and diffuſed through, and detained in, the hollows and interſtices of the ground, and thus of contributing powerfully to the ſupport of the crops in the more incipient ſtages of vegetation. Alſo, by the repeated turning-in and deſtruction of different ſorts of weeds, much vegetable ſaccharine matter may alſo be added, as well as the land improved by the putrefactive fermentation that muſt from theſe cauſes be conſtantly taking place. There are alſo other modes in which advantages may be gained, by the repeated turning over and breaking down of the particles of ſoils; as, from much of the atmoſpheric air being by ſuch methods of huſbandry blended with the fine particles of the ſoils, and detained in the numerous hollows and cavities formed by ſuch degrees of pulverization, a larger proportion of oxygen may be ſupplied, which, by its union with the carbon and other inflammable materials that are moſtly contained in earths, may produce the carbonic or other acids, according to the circumſtances of the caſes, in greater abundance, and in this manner aid the growth of vegetables in a high degree. And as the water, or moiſture that is included in large quantities in the pores of ſoils in ſuch powdery ſtates, may undergo the proceſs of decompoſition more fully, by coming more minutely in contact with the portions of atmoſpheric air that are covered up and impriſoned with it in them, the ſupplies of ammonia or volatile alkali, by the combination of its hydrogen with azot, may be more regular and copious, as well as thoſe of nitre, by the more complete union of its ſuperabundant oxygen with ſome other portion of the abounding nitrogen, or azot of ſuch air. And it has likewiſe been ſuggeſted, that, as the atmoſpheric air conſiſts or is conſtituted of oxygen, azot, and the fluid matter of heat, if the heat that cauſes them to exiſt uncombined in the form of gaſes be drawn away from them by ſome other material while they are confined in the cavities of the ſoil, they may, by their nearer approach to each other, combine ſo as to produce nitrous acid; or the oxygen, in its fluid ſtate, not in its aerial one, may more readily unite with carbon, and thus conſtitute a fluid, not an aerial carbonic acid, which is ſuppoſed to be of great utility in promoting the growth of plants. And further, that if any proceſs of the putrefactive kind be going on where atmoſpheric air is in this way confined in the interſtices of the ſoil, and by the deprivation of its heat is converted from a gas to a fluid, the azot may combine with the hydrogen of the decompoſing water, or contribute to decompoſe it, and in this manner form volatile alkali, which, like nitrous acid, may, either during the proceſs of its formation or after that has been completed, be of very material utility in promoting vegetation, while at the ſame time the oxygen afforded by the decompoſing water may, like that of the atmoſphere, contribute to the production of the carbonic, nitrous, or phoſphoric, acids; and in this way render carbon, phoſphorus, and the baſis of nitre, capable of being taken up by the abſorbent roots of growing plants. From the great diminution of bulk that has been found from experiment to take place where atmoſpheric air is confined in contact with water, it is conceived that there may be a decompoſition of both the water and the air, and a production of both ammonia and nitrous acid, which are known to be beneficial in promoting the growth of plants. It is conceived that, in theſe different views, the practice of fallowing may in various inſtances be highly beneficial, notwithſtanding the objections that have been brought againſt it by ſome writers on huſbandry; but at the ſame time it muſt be admitted that it will be much more advantageous and uſeful in ſome ſoils than in others. On the lighter kinds of land, where full and luxuriant crops of different ſorts of plants, as turnips, potatoes, &c. may be grown, that produce a cloſe thick foliage, and which, as has been ſhown by experiment, afford under ſuch circumſtances much carbonic acid, which, from its being greatly heavier than the common air of the atmoſphere, muſt fall upon, and be mixed with, the ſoil in ſuch ſtagnated ſituations, and thus, together with the more conſtant moiſture that muſt be preſent in ſuch caſes, promote the ſolution and decay of various vegetable matters, and continually add carbonaceous and other materials, ſo as to greatly improve the ſoils; it can but ſeldom be neceſſary. Beſides, as in theſe ſoils, by the uſe of the drill, and repeated hand or horſe hoeing during the growth of the crops, the ground may be kept perfectly clean from weeds, and in a fine mellow or powdery ſtate, without the danger of being injured by too much evaporation and expoſure in the way of fallowing; and likewiſe in ſoils of the ſame nature, that are rich from the frequent applications of manure, and in which the proceſſes by which the different nutritious ſubſtances that have been deſcribed are formed and prepared, are properly going on, it muſt be improper to expoſe their ſurfaces too frequently to the influence of the air, ſun, and rain, by which the little ſtrength of ſuch light lands would be too much weakened.

But in all the wet-bottomed, ſtiff, adheſive, and clayey, ſorts of ſoil, which conſtitute a large proportion of the lands of the kingdom, where, from the cloſeneſs of their textures and the great tenacity of their particles, but a very ſlight, or indeed ſcarcely any, degree of pulverization has been effected, the practice of ſummer-fallowing muſt be highly advantageous, not only by the mechanical alterations that take place in them by the repeated ploughing and turning up to the influence of the atmoſphere, but by their admitting the particles of the manures that may afterwards be applied to be blended and incorporated with them in a more minute and extenſive manner; and their becoming ſo perfectly aërated, as that the different proceſſes that have been mentioned may take place and properly proceed, ſo as to form in them ſuch ſubſtances as have been found of utility in aiding the growth of crops; and which could not poſſibly have been produced without ſuch pulverization as is found to be the effect of fallowing.

It may be further ſtated likewiſe, that the degree of friability and mellowneſs that is produced in this way in ſuch ſoils has alſo other advantages, ſuch as thoſe of admitting the roots of the growing plants to penetrate them with greater facility, and preſenting a more extenſive ſurface for them to draw their nouriſhment from. And, as in lands of theſe kinds there is a conſtant tendency to throw up abundant crops of weeds, it is perhaps only by the frequent turning over of the ſoil, and the tearing of them up by harrowing, as is the caſe in ſummer-fallowing, that they can be effectually eradicated and deſtroyed. It is principally in this view, that the working of ſuch ſoils in the early ſpring or ſummer months becomes ſo particularly neceſſary, as, at the period in which the ſeed is to be put into the ground, neither the ſeaſon nor the ſtate of the weather will admit of their being ſufficiently broken down and reduced by ploughing, or the weeds to be deſtroyed. And it may be added, that wet lands, by being turned over during the winter ſeaſon, are liable, in many caſes, to become more ſtiff and adheſive, by which the roots of the crops muſt be more limited and confined in their means of acquiring nouriſhment from them. It has been lately well obſerved, that, when land of a dry gravelly quality gets foul, it may be eaſily cleaned without a plain ſummer-fallow; as crops, ſuch as turnips, &c. may be ſubſtituted in its place, which, when drilled at proper intervals, admit of being ploughed between as often as neceſſary; whereas wet ſoils, which are naturally unfit for carrying ſuch crops, muſt be cleaned and brought into good order by frequent ploughings and harrowings during the ſummer months.

Indeed it is ſtrenuouſly contended by ſome agriculturiſts, that the moſt judicious intermixture of crops upon clay ſoils will not preclude the neceſſity of a ſummer-fallow; though it is admitted that it may go a great way in preventing the neceſſity of its being ſo frequently repeated. But a very able writer on huſbandry, whoſe experience has been conſiderable, while he allows that there is no queſtion at all of the merit of fallowing when compared with bad courſes of crops, and who thinks, that, if the huſbandry is not correct in this reſpect, the fallowiſt will certainly be a much better farmer than his neighbours, contends that there are courſes which will clean the fouleſt land as well as any ſummer-fallow, by means of plants which admit all the tillage of ſuch as fallow. Cabbages, he ſays, are not planted before June or July; winter tares admit of three months' tillage, if tillage be wanted. Beans, well cultivated, will preſerve land clean, which has been cleaned by cabbages; and in any caſe two ſucceſſive hoeing-crops are, he thinks, effective in giving poſitive cleanneſs. Theſe obſervations are not, he adds, theory; they are practice: and it is high time that mankind ſhould be well perſuaded, that the right quantity of cattle and ſheep cannot be kept on a farm, if the fallows of the old ſyſtem are not made to contribute to their ſupport. There are probably, however, many ſituations of clayey ſoils ſo exceedingly ſtiff and wet, that though turnips, cabbage, or bean-crops, may be grown upon them, it cannot, from the great labour and difficulty of their preparation, and the high degree of injury that muſt be done in the eating them or carrying them off the land, be to much advantage, or ſuch as to admit of that ſort of culture during their growth that will keep the ground perfectly clean from weeds.

In ſuch caſes no courſe of cropping, however judicious, can probably be effectual in this reſpect; it is indeed well known to ſuch practical farmers as have had the management of ſoils of this nature, that it is ſcarcely poſſible to be effected even by ſummer-fallowing itſelf. It has alſo been juſtly obſerved, that ſoils of this deſcription are ſo frequently, from neceſſity, ploughed over when wet, that an adheſion and ſoundneſs are produced that cannot be removed without expoſure to the heat of the ſummer's ſun, and the pulverization afforded by the repeated operations of the plough and the harrow. There is no ſort of crop that can in ſuch caſes ſupply the place of fallow, as turnips are highly detrimental; and drilled beans, though they may anſwer in the way of an aſſiſtant to fallow, and have the tendency of keeping lands clean that are already in a proper condition, it is ſuppoſed, from the neceſſity there is of ſowing them early, can never be beneficially ſubſtituted for the radical improvement that is produced by a ſummer-fallow.

It is however added, that, even if ſuch ſorts of land could be kept perfectly clean and free from weeds by the judicious interpoſition of bean, cabbage, or other ſimilar crops that might be cultivated on them, it is evident that the various beneficial products which have been mentioned, and which are the reſult, in a great meaſure, of the perfect pulverization and high degree of aëration that are produced by means of ſummer-fallowing, could never be formed in ſuch an abundant manner as to be of much utility in aiding the growth of crops; nor could they be in ſo ſuitable a condition for the admiſſion and extenſion of the abſorbent roots of the plants that may be cultivated upon them as crops.

But though the practice of fallowing is ſo highly uſeful on ſuch wet, adheſive, or clayey, ſoils, yet the repetition of the practice ſhould be prevented as much as poſſible, by the cultivation and growth of green crops, as often as the lands may be in a ſtate for them, and they can be had recourſe to with any chance of ſucceſs. The Swediſh turnip, as being a plant ſomewhat more adapted to ſtiff ſoils than either the common cabbage or turnip, might probably, in ſuch caſes, be advantageouſly ſubſtituted as a green crop; and by being eaten off in the later ſpring months, when the ground became ſufficiently dry to bear the cattle or ſheep without injury, admit of a pea-crop; after which, the land would probably be in a ſuitable condition for wheat; or a crop of clover might be taken, and then wheat. But in all ſuch caſes much muſt depend upon the degree of cleanneſs, pulverization, and aëration, that has been accompliſhed by the preceding uſe of ſummer-fallowing. And as there is much variety in the conditions of ſuch ſoils as may occaſionally require the aid of ſummer-fallowing, in order to render them ſuitable for the growth of grain or other crops; ſome, from the nature of their ſituations, and the ſub-ſoils on which they are placed, being more inclined to the retention of moiſture than others, are conſequently more diſpoſed to be cold, and to the throwing up of large crops of weeds; while others, from a large proportion of tenacious loamy materials that may be mixed and incorporated with pebbly or other ingredients, may be more ſtiff and retentive, and of courſe more incapable of ſufficient pulverization, and of admitting the roots of ſuch plants as are capable of being cultivated upon them, to readily eſtabliſh themſelves, and draw from them ſufficient ſupplies of nouriſhment. And, beſides the varieties of theſe different ſoils, there may be others that have not hitherto been well aſcertained, ſuch as may proceed from the differences in the qualities or properties of the clays or loams as they enter into their compoſitions, upon each of which ſome diverſity in reſpect to the neceſſity, repetition, or method of conducting the buſineſs of fallowing, may depend. The judicious farmer ſhould, therefore, conſtantly keep them in view, whenever it may be requiſite for him to prepare land by means of ſummer-fallowing.

It is ſatisfactorily ſhown, by a late writer on huſbandry, that one great purpoſe of the fallow-ſyſtem is that of deſtroying weeds which, in conſequence of previous bad management and of over-cropping, have increaſed to ſuch a degree, as to render cultivation for grain no longer profitable. Land being allowed to reſt for a ſeaſon from yielding a crop, and being repeatedly ploughed, the ſoil expoſed to the influence of the different ſeaſons, and at the ſame time completely pulverized, its fertility is again ſomewhat reſtored, ſo that, by the application of a ſmaller portion of manure than would be otherwiſe neceſſary, it is rendered fit for again producing crops of grain or graſs. It is a fact univerſally acknowledged, that all ſoils, even thoſe naturally the moſt fertile, will be rendered unproductive by conſtant and ſevere cropping; and that the more improper the modes of cropping are, the ſooner, and the more certainly, will a comparative barrenneſs enſue. Hence the propriety of fallowing, where imperfect modes of culture are adopted.

Fallowing, in what may be called the infancy of improvements in agriculture, is alſo, it is conceived, eſſentially neceſſary. If land be greatly exhauſted, no matter by what ſort of previous miſmanagement, fallowing is, it is ſuppoſed, the moſt expeditious, the moſt effectual, and every thing conſidered, the leaſt expenſive, method that can be adopted for reſtoring its fertility, and rendering it productive. It is the moſt expeditious, becauſe it is completely done in the courſe of one ſeaſon, whereas ſeveral years of culture, and a great additional quantity of manure, would be requiſite, were any other mode of tillage adopted. It is the moſt effectual, becauſe the farmer has it in his own power to deſtroy every weed, to turn over and expoſe the ſoil to the influence of the weather in the different ſeaſons, and alſo to level and ſtraighten the ridges, drain the land, and remove every obſtruction to the introduction of better modes of huſbandry, none of which could be ſo conveniently or effectually performed between the harveſt of one year and the ſeed-time of the next. Fallowing is alſo, upon the whole, the leaſt expenſive method by which the fertility of land greatly exhauſted can be reſtored, and the only one that can be adopted with a certainty of ſucceſs for the removal of every obſtacle to the introduction of more perfect agriculture. Manure operates more powerfully when applied to a field that has been properly ſummer-fallowed, than when laid on one that has been long under an improper courſe of cropping. The returns, after fallowing, will be to a certainty greater; and, therefore, although the actual expence of a ſummer-fallow is conſiderable, yet the crop that ſucceeds is ſo much greater as to counter-balance that expence, while thoſe that follow, if properly adapted to the ſoil, will yield the farmer a proper compenſation for his extra trouble and expence.

For land already in cultivation, the great uſes of fallow are, to preſerve it in a ſtate of fine tilth, to clean it of weeds, and, by turning it up to the air, to cauſe a more perfect putrefaction of the animal and vegetable matters it may contain. This laſt effect is ſo clearly aſcertained, that the land which has been repeatedly dunged has been found to yield a much better crop, in conſequence of a fallow without dung, than from a complete coat of dung without a fallow; and this too, after the productive power of the land had been much exhauſted by cropping. But for land that is to be reclaimed from a natural ſtate, or from a rude and imperfect ſtate of cultivation, a fallow is always indiſpenſably neceſſary for various reaſons, and particularly thoſe of affording a convenient opportunity to level the inequalities, and to lay the land in the moſt proper form for future cultivation.

The intelligent authors of the "Agricultural Survey of the County of Northumberland," ſtate that the practice of making ſummer-fallows on all kinds of ſoils, once in three or four years, was general throughout that county till the introduction of turnips; in a few years the fallows of the dry-lands were covered with this valuable plant. On ſuch other ſoils as were found improper for this root, the ſummer-fallows ſtill prevail, with an almoſt univerſal opinion that it is abſolutely neceſſary to the fertility of the land; yet there are ſome few, they ſay, who dare to doubt this long-eſtabliſhed doctrine, and preſume to think that fallowing might be diſpenſed with in many ſituations, by cultivating leguminous crops, drilled at wide intervals, to admit being ploughed or horſe-hoed between; to which, if proper hand-hoeings be added, the land will be as well prepared for wheat as if it had been a complete ſummer-fallow. This is not, they ſay, advanced on ſpeculation or theory; inſtances can be produced where no fallows have been made on fields of ſtrong loam for twelve years, yet they are as clear of couch-graſs, or other pernicious weeds, as any fields in the diſtrict that have been under ſummer-fallow two or three times in the ſame period. They think, nevertheleſs, that, previous to the adoption of this ſyſtem, the land had been previouſly cleared of couch-graſs by a complete ſummer-fallowing.

In reſpect to the manner of performing the proceſs or operation of fallowing, it ſhould always, like moſt other proceſſes in huſbandry, be conducted with a due attention to the circumſtances and qualities of the ſoil, as more pulverization or breaking down will evidently be required where the land approaches to the nature of a perfect clay, than where it has more of the loamy quality; and, where the retention of moiſture is conſiderable, more regard will be neceſſary to the deſtruction of weeds, than where there is a greater tendency to dryneſs. In moſt caſes where the practice of ſummer-fallowing is thought neceſſary to be performed, the moſt general method of proceeding is, for the land to be firſt ploughed up in the autumn, a ſecond time after the barley ſeed-ſeaſon is finiſhed, and two or three times, or oftener, afterwards, as circumſtances may render neceſſary; the ground being well broken and reduced by means of harrowing in the intervals of the different ploughings. But it has been obſerved, that in many diſtricts ſeldom more than three ploughings are given to lands in a courſe of ſummer-fallow; one in autumn, or early in the ſpring; another during the ſummer; and afterwards the ſeed-furrow. This preparation appears, however, it is further contended, extremely defective; as in an ordinary ſeaſon it is ſcarcely poſſible that with ſo few ploughings either the roots or ſeed-weeds can be completely deſtroyed; and, when the ſummer happens to be wet or rainy, the lands under ſuch management muſt certainly be in a very bad ſtate for receiving the ſeed-corn. It has likewiſe been long ſince judiciouſly recommended, both in the preparation of lands by winter-fallowing for barley-crops, and ſummer-fallowing for thoſe of wheat, that, when it is firſt ploughed up after the harveſt is over, (which ſhould always be done as *deep* as poſſible,) no time ſhould be loſt in rendering the new-turned-up ſoil fine and mellow by harrowing; as repeated trials and attentive obſervation have fully ſhown, that ſuch lands as are made fine before the ſharp froſt and winter-rains come on receive a much larger ſhare of their influence than any others; but that, if the land be left in a rough ſtate, there is ſeldom time for the rains and froſt to penetrate or affect more than merely the outſide of the large clods or lumps that are preſent. The outſide may thus, indeed, be pulverized, or broken down; but the middle of the lumps, wherever they are large, are found nearly in the ſame hard ſtiff ſtate as when turned up by the plough. Hence it is evident, that the benefit of the air, winter-rains, and froſts, on lands thus left, muſt be only partial; and that of courſe the harrowing it in the ſpring, eſpecially when the latter of theſe are over, is too late for its receiving the full benefits which might otherwiſe have accrued from them, and the power of promoting vegetation not being nearly ſo great.

Therefore, to make winter-fallows as fine as poſſible in autumn, and ridge them up in that pulverized ſtate, is acting moſt agreeably to nature; the greateſt poſſible quantity of ſurface being thereby expoſed to the atmoſphere, and the land left in the ſtate wherein the rains and the froſts are moſt eaſily admiſſible; they are conſequently more capable of penetrating and enriching the whole maſs to a much greater extent. By this means, too, a larger proportion of atmoſpheric air is involved and incorporated with the mould, and of courſe a more perfect degree of aëration effected. It is contended, that it has been invariably found, that the froſt penetrates a quantity of earth, formed into a large hard clod, only partially, on account of its bulk and hardneſs, and that the ſame clod broken into four parts would be thereby penetrated four times as much, or, in other words, that four times the quantity of earth would be affected, and on a thaw be pulverized by it; for it is always found, after the breaking up of a ſevere froſt, that all the ſmall clods crumble eaſily into powder, while the large ones are only ſlightly reduced by the crumbling off of a portion of their external ſurfaces. It is ſuggeſted, that there cannot be much doubt but that, by reducing ſuch ſtiff adheſive ſoils, as require fallowing well, on their being firſt ploughed up, great advantages in the way of pulverization may be accompliſhed, as in the ſpring and ſummer months they are apt to cake, and become ſo hard and lumpy as to be wrought with difficulty. But, in order fully to aſcertain the utility of this method of preparing fallows, one half of a field of ten acres was left as nearly of an equal quality as poſſible, in the rough ſtate after ploughing; while the other was made very fine, by harrowing and beating in pieces any large hard clods which the harrows could not reduce. In the following ſpring it was obſerved, that that part which had been harrowed was much finer, without any additional working, than the other could be rendered by repeated harrowings. It is conſequently concluded, that upon moſt ſorts of ſtiff clayey ſoils, where fallowing becomes neceſſary, the firſt ploughings ſhould be given, if poſſible, before the commencement of the winter ſeaſon, and that they ſhould alſo be well reduced by means of harrowing, in order to promote the decay of ſuch vegetable matters as may be upon the ſurface of the land, as well as to promote a more complete ſtate of pulverization and aëration of the ſoil at the time. This is often moſt uſefully performed by gathering up the ridges, as in that way the ground is not only laid more dry, but the furrows more effectually opened for the draining off of the injurious moiſture.

In the ſecond ploughing in the ſpring, which is generally before the croſs-ploughing is given, theſe ridges ought to be cloven or turned back again, and, after lying a ſuitable length of time, be well harrowed down for ſeveral times, and occaſionally rolled, that ſufficient opportunity may be given to collect and remove every ſort of weed that may be brought up to the ſurface of the ground. After this buſineſs has been properly performed, the land may be again ridged up by means of the plough, by which it is rendered leſs affected by wetneſs, and the portions of ſoil that had not been touched in the croſs-ploughing ſtirred. In this way a perfectly clean fallow may ſoon be produced in moſt caſes. It has, however, been maintained by ſome writers who have had much opportunity of examining the matter, that ploughing only is neceſſary; the collecting the roots of the weeds and removing them being uſeleſs and improper. But in the ſtiffer ſorts of clayey wet ſoils, where we have conceived the fallowing ſyſtem to be chiefly neceſſary, it is almoſt impoſſible to get perfectly clear of different ſorts of weeds in this way, from the cloddy manner in which ſuch lands break up in the operation of the different ploughings, the earthy lumps often containing many that are not in the leaſt degree injured in their power of taking root, by the heat to which they have been expoſed under ſuch ploughings of the land.

In theſe caſes, they can only perhaps be effectually eradicated and deſtroyed, by the high degree of pulverization that may be accompliſhed by means of frequent harrowings and rollings; the weeds being afterwards carefully removed by the hand. In this way there may alſo frequently be a conſiderable ſaving of expence by the leſſening of the number of ploughings. The froſt in the winter months has alſo, as has been ſeen, a much more powerful action where ſuch reductions in the clods of ſuch ſoils have been effected. In ſuch ſoils there can ſeldom be any danger of their being made too fine by operations of this nature, as the ſeed-furrow, when given ſufficiently deep, conſtantly leaves the land lumpy and irregular enough for the purpoſes of covering the grain, and protecting the young plants during the ſeverity of the winter ſeaſon. The benefits of affording as high a degree of pulverization or fineneſs as poſſible to the land in the management of this proceſs, has been fully ſhown by the reſults of many well-conducted experiments. The produce of a field of barley and broad clover, one-half of which had been prepared in the moſt perfect mode of fallowing, and the other half in the common method, on being harveſted and kept ſeparate, was in the following proportions: that which had been conducted in the latter way only affording twenty-four buſhels to the acre, while the former yielded thirty-one, and the grain conſiderably better in quality.

There was alſo an equal ſuperiority in the clover-crop the ſucceeding year; that on the moſt perfectly-prepared part being heavier by nearly half a ton on the acre. In addition to this, it cannot have eſcaped obſervation, that in large fields of wheat, where, from accident or other cauſes, ſome portions of them have received more frequent ploughings than others, in theſe parts the crops generally appear, for a great length of time, more perfect and promiſing than on the other parts.

There is another mode of performing this proceſs, which has lately been practiſed in ſome places, which is to plough the land over firſt with a deep, broad, clean furrow, in a dry ſeaſon in the autumnal months, leaving it in this ſtate till the early ſpring, when, immediately after the ſeed period, it ſhould be harrowed down as fine as it can be made, clearing off all the couch and other refuſe matters at the ſame time, and conſuming them by fire. Then ploughing the land in exactly the ſame direction back again, breaking the root-weeds as little as poſſible; after which letting it be well harrowed over again in the lengthways of the ridges, as croſſing them would be injurious; collecting and burning the whole of the refuſe materials as before. In this looſened condition of the ſoil, a powerful ſcarifier is to be immediately paſſed in the croſs direction of the ridges and furrows to the full depth of the plough, by which means the roots of the couch and other weeds will in a great meaſure be drawn out at length, without being much broken, and the lumpy parts be brought to the ſurface to be reduced by the action of the harrows afterwards. When not ſufficiently broken down and cleared by theſe operations, the ſcarifier and harrows muſt be again had recourſe to as before; and, when the root-weeds have been collected and burnt, any clods that may remain on the ſurface may be fully reduced by rolling, and afterwards another harrowing.

In this way it is found that in the fouleſt land a perfectly clean fallow may be made. In the execution of the buſineſs, however, much depends upon the work being performed when the land is in a proper dry condition, as when wet it cannot be done to advantage. The harrowing ſhould be ſo managed as to have the refuſe weedy matters in ſuch a ſituation as not to prevent the whole of the land from being operated upon, and as well as the ſcarifying be executed as ſoon as poſſible after it is left light by the ſecond ploughing. The ſcarifier, though an excellent implement for this purpoſe, cannot indeed perform its work properly, except when the ſoil is in this looſe ſtate of mould. Where this implement is to be uſed, there ſhould never be any croſs ploughing made, as that renders it incapable of performing its work in the moſt effectual manner. And where the land is inclined to the retention of moiſture, it ſhould be well drained to prevent the ſtagnation of water upon it, as it would thereby be greatly injured during the winter ſeaſon. By this method of preparing a fallow, the ſoil is reduced into a fine ſtate of mould, and rendered perfectly free from weeds, without having its parts ſo much expoſed to the influence of the atmoſphere as to rob it of any portion of its fertility.

In Eſſex, and many other diſtricts where the ſoils are ſtiff and heavy, it is uſual to plough the fallow-lands over a great number of times, frequently even eight or ten, in different directions, in order that they may be rendered perfectly clean and mellow. In ſome caſes the firſt ploughing is given deep before Chriſtmas, then two clean croſs-ploughings early in the ſpring; after this the land is ploughed up into ridges of different breadths, according to circumſtances, then ſplit out again, and laſtly ploughed back for the ſeed-furrow; different harrowings being practiſed in the times between the ſeveral ploughings.

It has been remarked, that though the advantages that have been ſtated to ariſe from the perfect pulverization, aëration, and cleanneſs, occaſioned by ſummer-fallowing in thoſe ſoils where it has been found to be occaſionally requiſite, can ſeldom be ſo fully obtained by other methods of cultivation; yet as that method is conſtantly attended with a heavy expence to the farmer, and as many of the benefits that are produced by it may be effected by the repeated partial fallowings that muſt occur in the hoe-culture of different ſorts of crops, it ſhould be conſtantly the aim of the farmer, where the climate will admit of it, to leſſen the neceſſity of ſummer-fallowing even on the wet clayey as well as the light kinds of ſoil, by the judicious interpoſition of ſuch ſorts of cloſe, thick, green crops, as can be grown and cultivated on them under the hoe-ſyſtem. This is ſtill more neceſſary, on account of the loſs that muſt be ſuſtained from the land often remaining ſuch a great length of time totally unproductive where the fallowing proceſs is going on. It cannot, indeed, be diſputed, but that the practice of ſummer-fallowing may be greatly leſſened in many diſtricts, by the proper ſubſtituting of green fallows, or what are termed fallow-crops, ſuch as beans, peaſe, cabbages, tares, and rape, for the heavier ſorts of land; and buck-wheat, potatoes, and turnips, for ſuch as are of the lighter kind. It is likewiſe maintained as a fact, that, where large and luxuriant crops of theſe preparatory kinds are grown, thoſe by which they are ſucceeded the following ſeaſon are for the moſt part ſtill larger, ſo that the lands are more improved by large crops than by ſuch as are poor. This amelioration or increaſe of fertility has been attributed to different cauſes; as the prevention of evaporation from the ſoil by the ſhade produced by ſuch large crops; the putrefaction of the various vegetable matters, which may be more abundant after ſuch large crops, taking place more completely and more effectually under ſuch circumſtances; and laſtly, to the repeated pulverization and aëration that are produced by the different hoeings; but it is probable that advantages may be derived in each of theſe ways, as well as from the carbonic acid or fixed air that is afforded by the ſhaded leaves of the plants being depoſited upon, or united with, the ſoil. That the melioration in ſuch caſes muſt depend on cauſes of this kind there can be little doubt, as much of the nutritious properties of the land muſt obviouſly have been conſumed during the growth of ſuch crops, which muſt have been again reſtored to it by ſome ſuch proceſſes. But in whatever manner this effect may be produced, as it is conſtantly found that land is in a better condition, and when turned up in a more friable and mellow ſtate, after ſuch crops as are large, than thoſe that are poor and light; it is of courſe evident, that if ground can be covered with ſmothering crops of the fallow kind, or thoſe that will admit of frequent pulverization by means of the plough or hoe, ſo as to keep it clean and free from the growth of weeds, it may be more beneficial to the farmer, not only for the ſake of the immediate crop, but alſo on account of the increaſe of manure produced by ſuch means, and the advantageous condition of the land for the reception of ſuch crops as may be afterwards cultivated upon it.

In theſe different views, as well as thoſe that have been already mentioned, the introduction of green-crops of ſome ſort or other ſhould probably be more frequently attempted on all deſcriptions of ſoils; and it would ſeem probable, that on the ſtiff and heavy kinds of land, from its having been found, that in many well-cultivated diſtricts, by the growing of proper leguminous crops in drills or rows, ſo as to admit of the ground between them being frequently ſtirred, either by means of the plough or the hoe, ſuch kinds of land, after they have been once well cleaned by a ſummer-fallow, may be kept perfectly clean and in ſuitable tilth for the production of good grain-crops; they may be much more generally had recourſe to than has commonly been the caſe; but on ſuch ſorts of land great attention is neceſſary to introduce ſuch kinds of green-crops as are adapted to them, and that as little injury as poſſible be done by the treading of animals in the feeding them upon, or taking them from, the ground. But as neither the full effects of pulverization or aëration, nor the complete deſtruction of weeds, can in ſome caſes be ſo perfectly obtained by the cultivation of fallow-crops as by the making of ſummer-fallows, it will be advantageous to the farmer to have recourſe to them occaſionally with theſe intentions, on the heavy and more wet ſorts of land, as well as thoſe that have been injured by over-cropping, as is too frequently the caſe in particular diſtricts.

Yet, though fallowing may be uſeful and neceſſary in altering the textures of particular kinds or qualities of ſoils, there are numerous facts that ſhow, in the moſt clear and ſatisfactory manner, that great injury and diſadvantage are often the reſult of expoſing land in its naked ſtate too much to the action of light and heat, as happens in the fallow-proceſs, and which can only be avoided by having recourſe to ſheltering-crops of the green kind. Beſides this, fallows are too apt to be neglected after they are made, and allowed to lie too long without being croſs-cut or the ridges turned back, whereby numberleſs rank weeds get freſh hold of the ground, and rob it of its moſt valuable properties. Never allow this to happen; but follow up every winter and ſummer fallow with diligence and regularity; and, when the ſoil is brought into a complete ſtate of mellowneſs and pulverization, then the ſagacious farmer will decide upon the ſucceſſion of crops he means to adapt to it, not only from the nature of the grain itſelf, but from the ſtrength and quality of the land he is about to ſow. It has been juſtly obſerved, that the proper *cropping* of arable land is a matter of the utmoſt importance to the intereſts of the farmer, as upon it in a great meaſure muſt depend the profits and advantages which he is to derive from his labour and induſtry. Indeed it is the moſt prominent feature in good farming, by which the produce of the ſoil may be increaſed in a threefold proportion. Mr. Young, in his valuable Calendar of Huſbandry, conceives it to be the moſt important ſubject that has been treated of by the modern writers of huſbandry, and that on which they have thrown far more light than upon any other circumſtance in agriculture. It is a very ſingular and remarkable circumſtance, he ſays, that before the reign of his preſent majeſty, notwithſtanding the multitude of books on agriculture, there is not one author who had any tolerable ideas upon this ſubject, or even annexed to it any importance. They recite, he obſeves, courſes good, bad, and execrable, in the ſame tone, as matters not open to praiſe or cenſure, and unconnected with any principles that could throw light on the arrangement of field-crops. But that, when once the idea was properly ſtarted, its importance preſently became obvious, ſo that thirty years have carried to great perfection the precepts which practice has afforded in this branch of rural economy. And it is very remarkable, that, wherever either very *good* or very *bad* huſbandry is found on arable land, it is ſeen to reſult more from the right or wrong arrangement of the crops, than from any other circumſtance. Hence no diſtrict can be well cultivated under bad rotations, while it is extremely rare to ſee any badly managed under good ones.

It may be obſerved farther that, in the arrangement of this buſineſs, as different ſorts of crops not only require different kinds and proportions of nutritious materials to be drawn from the earth for their increaſe and growth, but alſo different ſituations and conditions of ſoil, it muſt be neceſſary to adapt them as much as poſſible to the peculiar qualities of the ſoil, as well as the ſtate of the land, and the nature of the climate, in which it is placed; and as on the ſame principles ſome ſorts of crops may exhauſt the ſoils on which they grow in much leſs proportions than others, which is well known to be the caſe with many kinds of what are termed *green*-crops, when compared with thoſe of the *white* or corn kind; it will be requiſite to alternate or interpoſe them in ſuch a manner as that the ground may ſuſtain the leaſt poſſible injury in that way.

In the trials of Mr. Secretary Young, in reſpect to the effects of different ſorts of crops on land, which appear to have been conducted with a conſiderable degree of accuracy and attention, on a ſoil of the ſandy loam kind, incumbent on a wet clay marl bottom, rendered dry by means of previous hollow draining, and of the annual value of about fifteen ſhillings the acre, broken up from the ſtate of graſs under which it had been for a great length of time, and ploughed into ridges in contrary directions each ſucceeding year, no manure being applied except on particular lands or ridges in the fourth; though two or three white crops in ſucceſſion were found to exhauſt in a high degree, potatoes had a ſtill greater effect in the ſame way, much more than barley in moſt caſes, and in ſome courſes even more than wheat. Theſe experiments are fully recorded in the twenty-third volume of the Annals of Agriculture; and conciſely below.

It is alſo obvious that the reſults are equally curious and intereſting, as they not only demonſtrate the advantages that may ariſe from the alternation of different ſorts of crops in different ways, but the effects of various rotations, both good and bad, upon the ſoil, and produce derived from it. They would, however, it is obſerved, have been more ſatisfactory, if the nature of the land had admitted the turnip and cabbage crops to have been conſumed upon the ground, as no certain concluſions can probably be drawn where this is not the caſe; for, though a proportionate quantity of manure may be afterwards returned to the land, its application in that way does not ſeem to afford ſuch beneficial effects as when gradually incorporated with the ſoil during the time the animals are feeding on it, upon ſuch luxuriant vegetable ſubſtances. Beſides, the effects of the urine and perſpiration, which are known to be of conſiderable utility in ameliorating the earth, are wholly loſt. It is further ſuggeſted by this able writer, that tares, clover, and other graſſes of the artificial kinds, ſhould likewiſe have been introduced, as by ſuch kinds of crops the courſes would not only have been more varied, but the effects of different combinations more fully ſhown.

And the able experimenter further remarks, that all the work of tillage was performed by the common implements of the farm, and that the crops in the whole of the thirty-ſix courſes were reaped and threſhed directly, diſtinct from each other, to obviate the danger of mixing and errors, and that they are minuted accurately to ſave the trouble of calculation. In the valuation, all the ſtraw is rated at 10s. an acre, and the crops are likewiſe eſtimated, that the fluctuations of price may not affect the general concluſions; the turnips at 4s. a-ton carted off, cabbages at 5s. wheat 5s. a-buſhel, barley 2s. 6d. oats 2s. 3d. beans 3s. potatoes 6d. any other value may however be put upon them, according to circumſtances. It is likewiſe to be obſerved, that, in order to afford a full and complete view of the effects of different courſes of crops, it would be neceſſary to compare them on ſoils of different qualities, and which vary much in reſpect to their nature, climate, ſituation, and other circumſtances. But, even as they ſtand below, the ſagacious farmer may draw many uſeful deductions from them.

### COURSE I.

| *Courſe.* | *Produce.* | *Value.* £. | *s.* | *d.* |
|---|---|---|---|---|
| 1. Beans | 3 qrs. 1 buſhel | 4 | 5 | 0 |
| 2. Turnips | 8 tons 6 cwt. | 1 | 13 | 0 |
| 3. Wheat | 2 qrs. 5 buſhels | 5 | 15 | 0 |
| 4. Potatoes | 234 buſhels | 5 | 17 | 0 |
| 5. Beans | 3 qrs. | 4 | 2 | 0 |
| 6. Wheat | 3 qrs. 3 buſhels | 7 | 5 | 0 |
| | | 28 | 17 | 0 |
| | Per annum | 4 | 16 | 2 |

### COURSE II.

| | | | | |
|---|---|---|---|---|
| 1. Beans | 3 qrs. 1 peck | 4 | 2 | 9 |
| 2. Cabbages | 6½ tons | 1 | 12 | 6 |
| 3. Wheat | 2 qrs. 5 buſhels | 5 | 15 | 0 |
| 4. Cabbages | 7 tons | 1 | 15 | 0 |
| 5. Beans | 3 qrs. 7 buſhels | 5 | 3 | 0 |
| 6. Wheat | 3 qrs. 3 buſhels | 7 | 5 | 0 |
| | | 25 | 13 | 3 |
| | Per annum | 4 | 5 | 6½ |

### COURSE III.

| | | | | |
|---|---|---|---|---|
| 1. Beans | 3 qrs. 1 buſhel, 1 peck | 4 | 5 | 9 |
| 2. Potatoes | 150 buſhels | 3 | 15 | 0 |
| 3. Wheat | 2 qrs. 2½ buſhels | 5 | 2 | 6 |
| 4. Cabbages | 5½ tons | 1 | 7 | 6 |
| 5. Beans | 3 qrs. 5 buſhels | 4 | 17 | 0 |
| 6. Wheat | 3 qrs. 1 buſhel | 6 | 15 | 0 |
| | | 26 | 2 | 9 |
| | Per annum | 4 | 7 | 1½ |

Upon theſe courſes it is remarked, that their effects lead to different concluſions: in the firſt courſe, in which there are four green fallow-crops, to two of the white or grain kind, little advantage is ſhown except in the leaving of the land in fine tilth, and perfectly clean. Potatoes appear to exhauſt; and the experimenter ſuggeſts, that eſtimating thirty tons of yard-compoſt, the proportion employed at any imaginable rate, the courſe cannot be adviſeable; the loſs on the potatoe-crop would not, he thinks, be leſs than five pounds, nor would the turnips pay ſo as to leave a profit equal to the expences of newly-broken-up lands for the firſt ſix years.

He however ſtates the ſecond as a more profitable courſe, from the great charge of the potatoes not being incurred; and it ſhows that, though cabbages cannot be grown to any great advantage on ſuch ſoils without manure, they may be of much utility by the pulverization and cleanneſs which they afford. The goodneſs of the grain-crops, evinces that they exhauſt but little, and that it is of great importance to have few white crops in rotations. And the third, he conſiders as explaining the neceſſity of manuring for potatoes on all ſoils except ſuch as are rich and dry. With only two white crops in ſix years, the land ſeems rather, it is obſerved, to improve, notwithſtanding the potatoe-crop. The goodneſs of the laſt crop of wheat, in compariſon with the firſt, proves, he ſays, the ſuperiority of cabbage and bean-crops, over thoſe of beans and potatoes, in cleaning and rendering the ground fine and fit for the growth of wheat-crops, in a perfect manner.

### COURSE IV.

| | | | | |
|---|---|---|---|---|
| 1. Beans | 3 qrs. 1¼ buſhel | 4 | 5 | 9 |
| 2. Beans | 4 qrs. 2 buſhels | 5 | 12 | 0 |
| 3. Wheat | 2 qrs. 3½ buſhels | 5 | 7 | 6 |
| 4. Cabbages | 6½ tons | 1 | 12 | 6 |
| 5. Beans | 4 qrs. | 5 | 6 | 0 |
| 6. Wheat | 3 qrs. 1 buſhel | 6 | 15 | 0 |
| | | 28 | 18 | 9 |
| | Per annum | 4 | 16 | 6½ |

### COURSE V.

| | | £. | s. | d. |
|---|---|---|---|---|
| 1. Beans | 3 qrs. 2 buſhels | 4 | 8 | 0 |
| 2. Barley | 3 qrs. 1 peck | 3 | 10 | 7 |
| 5. Wheat | 2 qrs. 2 buſhels | 5 | 0 | 0 |
| 4. Barley | 2 qrs. 2 pecks | 2 | 11 | 5 |
| 5. Beans | 2 qrs. | 2 | 18 | 0 |
| 6. Wheat | 1 qr. 7 buſhels | 4 | 5 | 0 |
| | | 22 | 13 | 0 |
| | Per annum | 3 | 15 | 6 |

### COURSE VI.

| | | | | |
|---|---|---|---|---|
| 1. Beans | 3 qrs. 1 buſhel, 1½ peck | 4 | 5 | 5 |
| 2. Wheat | 2 qrs. 7 buſhels | 6 | 3 | 0 |
| 3. Wheat | 1 qr. 6 buſhels | 4 | 0 | 0 |
| 4. Wheat | 2 qrs. | 5 | 2 | 6 |
| 5. Beans | 1 qr. 7 buſhels | 2 | 15 | 0 |
| 6. Wheat | 1 qr. 4 buſhels | 3 | 10 | 0 |
| | | 25 | 15 | 11 |
| | Per annum | 4 | 6 | 0 |

The experimenter obſerves, that the reſult of theſe courſes ſhows, in the firſt, the utility of repeated bean-crops in cleaning land; and, when combined with cabbages, in preſerving the fertility of ſuch as is newly-broken-up. When compared with the firſt courſe, which ends in the ſame way, its advantages alſo appear, he thinks, great in other reſpects. By the two laſt, the diſadvantages attending ſucceſſive crops of corn are particularly brought forward. And it is well remarked, that they alſo ſhow that any ſort of corn-crops will ſucceed, to a certain extent, on lands recently broken up from the ſtate of old graſs or ſward; and that, for the firſt two or three years, they may afford a produce proportionate to the ſort of crop that is ſown or cultivated on them. But that the three laſt years, on being compared with the three firſt, the whole ſtill in corn, the product was in the ratio of 9l. 14s. 5d. to 14l. 18s. 7d. or a decreaſe of more than 5l. while, in the preceding courſes, with better rotations, the products have ſomewhat increaſed. The difference is therefore enormous. The decline in the barley, and even the wheat-crops, notwithſtanding the intervention of beans in the latter caſe, is very great. Beſides, they leave the land in a bad condition, being in the fourth and ſixth years ſuch a bed of weeds as could not be half deſtroyed by the hoeing of the beans; in theſe inſtances the land not being left worth eleven ſhillings an acre, while in ſome of the preceding it was left of the value of ſixteen. Theſe, he well remarks, are the prejudicial effects of adopting bad courſes of cropping, from the circumſtances of old graſs-lands being capable of affording a good produce for a time. The ſame conſequences may likewiſe, he thinks, take place, even upon ſoils of a much better quality, by ſuch methods of cropping. It is evident, that they ſhould therefore be avoided as much as poſſible, on all deſcriptions of ſoil, by the correct farmer. The laſt of theſe courſes not only exhibits the badneſs of the practice of taking ſucceſſive grain-crops, but that beans, by the aid of the hoeing-culture, cannot afford a produce, even on newly-broken-up land, that will ſufficiently repay the great trouble and expence of the farmer.

### COURSE VII.

| | | | | |
|---|---|---|---|---|
| 1. Beans | 3 qrs. | 4 | 2 | 0 |
| 2. Turnips | 4 tons | 0 | 16 | 0 |
| 3. Beans | 5 qrs. 2 buſhels | 6 | 16 | 0 |
| 4. Potatoes | 234 buſhels | 5 | 17 | 0 |
| 5. Beans | 3 qrs. | 4 | 2 | 0 |
| 6. Wheat | 3 qrs. 4 buſhels | 7 | 10 | 0 |
| | | 29 | 3 | 0 |
| | Per annum | 4 | 17 | 6 |

### COURSE VIII.

| | | £. | s. | d. |
|---|---|---|---|---|
| 1. Beans | 3 qrs. 1 buſhel | 4 | 5 | 0 |
| 2. Cabbages | 6 tons | 1 | 10 | 0 |
| 3. Beans | 3 qrs. | 6 | 10 | 0 |
| 4. Cabbages | 6½ tons | 1 | 12 | 6 |
| 5. Beans | 4 qrs. 2 buſhels | 5 | 12 | 0 |
| 6. Wheat | 3 qrs. 6 buſhels | 8 | 0 | 0 |
| | | 27 | 9 | 6 |
| | Per annum | 4 | 11 | 7 |

### COURSE IX.

| | | | | |
|---|---|---|---|---|
| 1. Beans | 3 qrs. | 4 | 2 | 0 |
| 2. Potatoes | 147 buſhels | 3 | 13 | 0 |
| 3. Beans | 4 qrs. | 5 | 6 | 0 |
| 4. Cabbages | 6½ tons | 1 | 12 | 6 |
| 5. Beans | 4 qrs. 2 buſhels | 5 | 15 | 0 |
| 6. Wheat | 3 qrs. 5 buſhels | 7 | 15 | 0 |
| | | 28 | 3 | 6 |
| | Per annum | 4 | 13 | 5 |

On theſe courſes it is noticed, that the produce of the firſt of them, though there is only one grain-crop in the ſix years, is ſo conſiderable, as to prove the diſadvantage of exhauſting courſes, eſpecially as the circumſtances under which they are put in are ſuppoſed to be unfavourable, on account of the land, after turnips and potatoes, from the repeated tillage which is required for ſuch crops, being left in too light and porous a ſtate for the growth of beans. It has the advantage, however, of leaving the land perfectly clean, and in a fertile condition. It likewiſe proves, in the opinion of the experimenter, that great attention may be had to the keeping of land clean and in heart, by gentle modes of cropping, without the danger of immediate injury being ſuſtained by it. And it is further ſuppoſed, that, if beans or wheat had been the crop of the fourth year upon the manure, in place of the potatoes, the profit on the whole would have been more, without the ground being left in a leſs fertile condition. In regard to the two laſt courſes, they ſhow, from there being but one grain-crop in ſix years, that though cabbages, by being removed from the land, exhauſt, three crops of beans are ſufficient to preſerve the land for a good wheat-crop, beſides leaving it in good heart. They are, conſequently, profitable courſes, and ſuch as are ſuited to the obtaining of perfect cleanneſs of culture. In the latter courſe, the profit is however leſs, from the circumſtance of potatoes being had recourſe to as a crop.

### COURSE X.

| | | | | |
|---|---|---|---|---|
| 1. Beans | 3 qrs. | 4 | 2 | 0 |
| 2. Beans | 4 qrs. | 5 | 6 | 0 |
| 3. Beans | 4 qrs. 6 buſhels | 6 | 4 | 0 |
| 4. Cabbages | 8½ tons | 2 | 2 | 6 |
| 5. Beans | 4 qrs. | 5 | 6 | 0 |
| 6. Wheat | 4 qrs. 1 buſhel | 8 | 15 | 0 |
| | | 31 | 15 | 6 |
| | Per annum | 5 | 5 | 11 |

### COURSE XI.

| | | | | |
|---|---|---|---|---|
| 1. Beans | 3 qrs. 7 pecks | 4 | 2 | 9 |
| 2. Barley | 4 qrs. 7 buſhels | 5 | 7 | 6 |
| 3. Beans | 4 qrs. | 5 | 6 | 0 |
| 4. Barley | 5 qrs. 4 buſhels | 7 | 0 | 0 |
| 5. Beans | 4 qrs. 1 buſhel | 5 | 9 | 0 |
| 6. Wheat | 3 qrs. 1 buſhel | 6 | 15 | 0 |
| | | 34 | 0 | 3 |
| | Per annum | 5 | 13 | 4 |

### COURSE XII.

| | | £. | s. | d. |
|---|---|---|---|---|
| 1. Beans | 3 qrs. | 4 | 2 | 0 |
| 2. Wheat | 2 qrs. 6½ buſhels | 6 | 2 | 6 |
| 3. Beans | 3 qrs. 2½ buſhels | 4 | 9 | 6 |
| 4. Wheat | 3 qrs. 3¾ buſhels | 7 | 8 | 9 |
| 5. Beans | 3 qrs. | 4 | 2 | 0 |
| 6. Wheat | 3 qrs. | 6 | 10 | 0 |
| | | 32 | 14 | 9 |
| | Per annum | 5 | 9 | 1 |

The experimenter on theſe courſes ſuggeſts, that it is evident, from the firſt, that ſucceſſive crops of beans have a conſiderable ameliorating property, as both the cabbages and beans after them were very good. Their effects in preſerving the fertility ariſing from the old turf is likewiſe obvious, as well as that of keeping the land perfectly free from weeds, at the ſame time that a good profit is afforded. It alſo affords a ſtrong proof of the advantage of a careful method of cropping newly-broken-up lands. Such courſes ſhould, conſequently, be more frequently employed on all thoſe ſtiff and retentive deſcriptions of land on which beans can be grown, both with the view of immediate profit, and the benefits that may enſue from the land being kept clear and free from noxious weeds. In reſpect to the ſecond, it affords, in his opinion, an example of a good and correct mode of practice, without much exhauſtion; though, if compared with the preceding courſe, there appears to be a ſlight degree of deterioration from the wheat, in that being a quarter more. It may, however, be adopted as a very profitable courſe. The laſt of theſe courſes is well known to be a very profitable one on all the richer ſorts of heavy ſoils; and it is here ſhown, he thinks, to anſwer well on ſuch as are of an inferior quality, even without the application of manure. The power of bean-crops, in preſerving the fertility of lands newly broken up from ſward, is likewiſe here evinced by the ſixth crop, though inferior to others. This courſe ſhould not, however, in general, be attempted, except on the richeſt ſort of heavy-ſoiled kinds of land.

### COURSE XIII.

| | | | | |
|---|---|---|---|---|
| 1. Turnips | 3 tons | 0 | 12 | 0 |
| 2. Turnips | 5½ tons | 1 | 2 | 0 |
| 3. Oats | 9 qrs. | 8 | 12 | 0 |
| 4. Potatoes | 252 buſhels | 6 | 6 | 0 |
| 5. Beans | 3 qrs. 1 buſhel | 4 | 5 | 0 |
| 6. Wheat | 3 qrs. 3 buſhels | 7 | 5 | 0 |
| | | 28 | 2 | 0 |
| | Per annum | 4 | 13 | 8 |

### COURSE XIV.

| | | | | |
|---|---|---|---|---|
| 1. Turnips | 3 tons | 0 | 12 | 0 |
| 2. Cabbages | 6 tons | 1 | 10 | 0 |
| 3. Oats | 10 qrs. 5½ buſhels | 10 | 2 | 4 |
| 4. Cabbages | 8 tons | 2 | 0 | 0 |
| 5. Beans | 3 qrs. 5 buſhels | 5 | 17 | 0 |
| 6. Wheat | 3 qrs. | 6 | 10 | 0 |
| | | 26 | 11 | 4 |
| | Per annum | 4 | 8 | 6 |

### COURSE XV.

| | | | | |
|---|---|---|---|---|
| 1. Turnips | 3½ tons | 0 | 14 | 0 |
| 2. Potatoes | 154 buſhels | 3 | 17 | 0 |
| 3. Oats | 8 qrs. 5½ buſhels | 8 | 1 | 11 |
| 4. Cabbages | 8 tons | 2 | 0 | 0 |
| 5. Beans | 3 qrs. 5 buſhels | 4 | 17 | 0 |
| 6. Wheat | 3 qrs. 1 buſhel | 6 | 15 | 0 |
| | | 26 | 4 | 11 |
| | Per annum | 4 | 7 | 6 |

It is remarked on theſe courſes, that the firſt exhibits the utility of repeated turnip-crops in the preparation of this kind of ſoil for grain-crops; the produce of the oats, from the pulverization they effected, being very great. It is added, that oats are moſtly ſown on newly-broken-up lands, but never with much ſucceſs on ſuch as are wet. The exhauſtion of the ſoil in this courſe ſeems not to have been great, though the oats were followed by potatoes, which are known to exhauſt, as the ſucceeding bean and wheat crops were both good, but more eſpecially the latter. It is obvious, however, he ſays, that as turnips and cabbages cannot be produced to advantage on ſuch cold, wet, ſoils, without much manure; that ſuch rotations muſt be the moſt beneficial and proper on the drier ſorts of land, where ſuch crops can be grown and fed on the grounds by live ſtock. And he adds, that the groſs product in the ſecond courſe is not to be compared with the firſt, as the potatoes, affording ſix guineas, left no profit. The largeneſs of the produce of oats ſeems to ſhow the beneficial effects of cabbage-crops in preparing the ſoil. The inferiority of the wheat-crop, when compared with that in the firſt of theſe courſes, is ſuppoſed to depend on the want of manure. Notwithſtanding there are two crops of cabbages and one of turnips in this courſe, it appears to be profitable. It would ſeem, however, to be beſt ſuited to the more dry kinds of ſoil. He ſtates farther, that, in comparing the third courſe with the two that precede it, the exhauſting properties of potatoes are evidently much greater than thoſe of either turnips or cabbages, from the inferiority of the oat-crop that followed them. And it is ſuggeſted, that wherever potatoes enter with a ſmall produce, expences more than abſorb the value.

### COURSE XVI.

| | | £. | s. | d. |
|---|---|---|---|---|
| 1. Turnips | 3 tons | 0 | 12 | 0 |
| 2. Beans | 4 qrs. | 5 | 6 | 0 |
| 3. Oats | 8 qrs. 7 buſhels | 8 | 9 | 9 |
| 4. Cabbages | 6 tons | 1 | 10 | 0 |
| 5. Beans | 3 qrs. 6 buſhels | 5 | 0 | 0 |
| 6. Wheat | 3 qrs. 2 buſhels | 7 | 0 | 0 |
| | | 27 | 17 | 9 |
| | Per annum | 4 | 12 | 11 |

### COURSE XVII.

| | | | | |
|---|---|---|---|---|
| 1. Turnips | 5½ tons | 0 | 14 | 0 |
| 2. Barley | 5 qrs. 1 peck | 5 | 0 | 7 |
| 3. Oats | 5 qrs. 5 buſhels | 5 | 11 | 3 |
| 4. Barley | 4 qrs. | 4 | 10 | 0 |
| 5. Beans | 3 qrs. | 4 | 2 | 0 |
| 6. Wheat | 2 qrs. | 4 | 10 | 0 |
| | | 24 | 7 | 10 |
| | Per annum | 4 | 1 | 3 |

### COURSE XVIII.

| | | | | |
|---|---|---|---|---|
| 1. Turnips | 3 tons | 0 | 12 | 0 |
| 2. Wheat | 2 qrs. 7 buſhels | 6 | 5 | 0 |
| 3. Oats | 4 qrs. 6½ buſhels | 4 | 16 | 1 |
| 4. Wheat | 2 qrs. 3 buſhels ½ peck | 5 | 5 | 4 |
| 5. Beans | 2 qrs. | 2 | 18 | 0 |
| 6. Wheat | 1 qr. 7 buſhels | 4 | 5 | 0 |
| | | 24 | 1 | 5 |
| | Per annum | 4 | 0 | 2 |

On theſe courſes it is ſhown, that the reſult of the firſt diſplays the advantage of beans over potatoes in reſpect to profit. In the ſecond, the land being left foul and in a bad condition, ſhows by the lightneſs of the wheat-crop, when compared with thoſe in other courſes, that great deterioration had been produced by it. The laſt courſe exhibits a ſtill worſe practice, and that the land is left in a more exhauſted and foul ſituation by three wheat-crops. Such courſes can therefore never be had recourſe to with either the view of profit, or that of keeping the land in proper condition in reſpect to cleanneſs.

### COURSE XIX.

| | | £ | s. | d. |
|---|---|---|---|---|
| 1. Potatoes | 106 buſhels | 2 | 13 | 0 |
| 2. Turnips | 4½ tons | 0 | 18 | 0 |
| 3. Potatoes | 136 buſhels | 3 | 8 | 0 |
| 4. Ditto | 198 buſhels | 4 | 19 | 0 |
| 5. Beans | 2 qrs. | 2 | 18 | 0 |
| 6. Wheat | 1 qr. 6 buſhels | 4 | 0 | 0 |
| | | 18 | 16 | 0 |
| | Per annum | 3 | 2 | 8 |

### COURSE XX.

| | | | | |
|---|---|---|---|---|
| 1. Potatoes | 185 buſhels | 2 | 12 | 6 |
| 2. Cabbages | 5 tons | 1 | 15 | 0 |
| 3. Potatoes | 110 buſhels | 2 | 15 | 0 |
| 4. Cabbages | 4 tons | 1 | 0 | 0 |
| 5. Beans | 2 qrs. 2 buſhels | 3 | 4 | 0 |
| 6. Wheat | 2 qrs. | 4 | 10 | 0 |
| | | 15 | 6 | 6 |
| | Per annum | 2 | 11 | 0 |

### COURSE XXI.

| | | | | |
|---|---|---|---|---|
| 1. Potatoes | 104 buſhels | 2 | 12 | 0 |
| 2. Ditto | 126 buſhels | 3 | 3 | 0 |
| 3. Ditto | 97 ditto | 2 | 8 | 6 |
| 4. Cabbages | 3 tons | 0 | 15 | 0 |
| 5. Beans | 1 qr. 7 buſhels | 2 | 15 | 0 |
| 6. Wheat | 1 qr. 4 buſhels | 3 | 10 | 0 |
| | | 15 | 3 | 6 |
| | Per annum | 2 | 10 | 7 |

On theſe courſes it is ſtated, that the deteriorating effects of potatoe-crops are fully demonſtrated. With manure in the proportion already explained in the fourth courſe, the beans which ſucceeded were, he ſays, a very poor produce, and the wheat, though the only white crop in ſix years, a miſerable produce in a very good year. He adds, that in the fourth courſe, where there were two crops of wheat, with three of beans, the concluding wheat-crop afforded three quarters one buſhel, without any manure, a difference that is highly ſtriking. And that in the eighth, three crops of beans, and two crops of cabbages, were followed with very good wheat, though cabbages removed from the ground exhauſt; but in theſe courſes, there are ſcarcely any except ſucceſſive wheat-crops, that exhauſt the land ſo greatly as potatoe-crops are found to do. With reſpect to the ſecond courſe, it diſplays little elſe, he thinks, but a continued loſs; and the third affords a proof of the loweſt decreaſe of produce that can be ſuppoſed on newly-broken-up land; beſides, the ſoil is left ſo foul and exhauſted, that the whole of its fertility from improvement, and the decay of the old turf, appears removed. It makes ſtrongly, he thinks, againſt potatoes, which can probably only be introduced with advantage as a cleaning-crop, and where manure is readily procured, and in great abundance.

### COURSE XXII.

| | | | | |
|---|---|---|---|---|
| 1. Potatoes | 100 buſhels | 2 | 10 | 0 |
| 2. Beans | 3 qrs. | 4 | 2 | 0 |
| 3. Potatoes | 142 buſhels | 3 | 11 | 0 |
| 4. Barley | 5 tons | 1 | 5 | 0 |
| 5. Beans | 2 qrs. 3 buſhels | 3 | 10 | 0 |
| 6. Wheat | 2 qrs. 1 buſhel | 4 | 15 | 0 |
| | | 19 | 13 | 0 |
| | Per annum | 3 | 5 | 6 |

### COURSE XXIII.

| | | | | |
|---|---|---|---|---|
| 1. Potatoes | 101 buſhels | 2 | 10 | 6 |
| 2. Barley | 4 qrs. 7 buſhels | 5 | 7 | 6 |
| 3. Potatoes | 127 buſhels | 3 | 3 | 6 |
| 4. Barley | 3 qrs. 2 buſhels | 3 | 15 | 0 |
| 5. Beans | 2 qrs. 7 buſhels | 3 | 19 | 0 |
| 6. Wheat | 2 qrs. 5 buſhels | 5 | 15 | 0 |
| | | 24 | 10 | 6 |
| | Per annum | 4 | 1 | 9 |

### Course XXIV.

| | | £. | s. | d. |
|---|---|---|---|---|
| 1. Potatoes | 100 buſhels | 2 | 10 | 0 |
| 2. Wheat | 2 qrs. 1 buſhel | 4 | 15 | 0 |
| 3. Potatoes | 104 buſhels | 2 | 12 | 0 |
| 4. Wheat | 2 qrs. | 4 | 10 | 0 |
| 5. Beans | 2 qrs. 2 buſhels | 3 | 4 | 0 |
| 6. Wheat | 1 qr. 6 buſhels | 4 | 0 | 0 |
| | | 21 | 11 | 0 |
| | Per annum | 3 | 11 | 10 |

The experimenter remarks, that the firſt of theſe courſes ſhows the exhauſting effects of potatoes in a ſtill more evident manner; but the effects of the beans are ſomewhat different than in the other caſes noticed above. It is ſuppoſed evident from the ſecond, that barley ſucceeds better after potatoes than wheat; while the inferiority of the ſecond crop proves that the preparation they afford is not perfectly ſuitable, and that the wheat that ſucceeds is affected by their deteriorating property. The third courſe not only confirms the different reſults that have been ſtated, but affords, by a compariſon with the twelfth, proofs of the utility of having beans and wheat in alternate courſes.

### Course XXV.

| | | | | |
|---|---|---|---|---|
| 1. Potatoes | 98 buſhels | 2 | 9 | 0 |
| 2. Turnips | 4 tons | 0 | 16 | 0 |
| 3. Cabbages | 5½ tons | 1 | 7 | 6 |
| 4. Potatoes | 270 buſhels | 6 | 15 | 0 |
| 5. Beans | 2 qrs. 2 buſhels | 3 | 4 | 0 |
| 6. Wheat | 2 qrs. 2 buſhels | 5 | 0 | 0 |
| | | 19 | 11 | 6 |
| | Per annum | 3 | 5 | 3 |

### Course XXVI.

| | | | | |
|---|---|---|---|---|
| 1. Potatoes | 101 buſhels | 2 | 10 | 6 |
| 2. Cabbages | 6 tons | 1 | 10 | 0 |
| 3. Cabbages | 5½ tons | 1 | 7 | 6 |
| 4. Cabbages | 3 tons | 0 | 15 | 0 |
| 5. Beans | 2 qrs. 6 buſhels | 3 | 16 | 0 |
| 6. Wheat | 2 qrs. 2 buſhels | 5 | 0 | 0 |
| | | 14 | 19 | 0 |
| | Per annum | 2 | 9 | 10 |

### Course XXVII.

| | | | | |
|---|---|---|---|---|
| 1. Potatoes | 100 buſhels | 2 | 10 | 0 |
| 2. Potatoes | 115 buſhels | 2 | 17 | 6 |
| 3. Cabbages | 3½ tons | 0 | 17 | 6 |
| 4. Cabbages | 3½ tons | 0 | 17 | 6 |
| 5. Beans | 2 qrs. 2 buſhels | 3 | 4 | 0 |
| 6. Wheat | 2 qrs. | 4 | 10 | 0 |
| | | 14 | 16 | 6 |
| | Per annum | 2 | 9 | 5 |

It is remarked, that in the firſt of theſe courſes, though the potatoes of the fourth crop were manured for as above, the poorneſs of the wheat-crop, which was the only one of the grain kind in ſix years, ſhows the exhauſting effects of cabbage and turnip crops, when removed from the ground in combination with potatoes, to be conſiderable; and from the ſecond it is evident, that cabbages, when not conſumed upon the land, are ſo prejudicial as not to permit the ameliorating powers of beans to ſecure a favourable crop of wheat. Neither this nor the preceding courſe is therefore profitable. The laſt is ſtated to be a courſe of nothing but loſs, and which ſhows, in addition, the exhauſting effects of potatoes and cabbages to be great, when the cabbages are carried off the ground to be conſumed in other ſituations.

### Course XXVIII.

| | | | | |
|---|---|---|---|---|
| 1. Potatoes | 96 buſhels | 2 | 8 | 0 |
| 2. Beans | 3 qrs. ½ peck | 4 | 2 | 4 |
| 3. Cabbages | 6½ tons | 1 | 12 | 6 |
| 4. Cabbages | 4 tons | 1 | 0 | 0 |
| 5. Beans | 2 qrs. 2 buſhels | 3 | 4 | 0 |
| 6. Wheat | 2 qrs. 3 buſhels | 5 | 5 | 0 |
| | | 17 | 11 | 10 |
| | Per annum | 2 | 18 | 7 |

### Course XXIX.

| | | £. | s. | d. |
|---|---|---|---|---|
| 1. Potatoes | 100 buſhels | 2 | 10 | 0 |
| 2. Barley | 4 qrs. 7½ buſhels | 5 | 8 | 9 |
| 3. Cabbages | 4 tons | 1 | 0 | 0 |
| 4. Barley | 4 qrs. 1 buſhel | 4 | 12 | 6 |
| 5. Beans | 3 qrs. | 4 | 2 | 0 |
| 6. Wheat | 2 qrs. 6 buſhels | 6 | 0 | 0 |
| | | 23 | 13 | 3 |
| | Per annum | 3 | 18 | 10 |

### Course XXX.

| | | | | |
|---|---|---|---|---|
| 1. Potatoes | 99 buſhels | 2 | 9 | 6 |
| 2. Wheat | 2 qrs. 7 buſhels | 6 | 5 | 0 |
| 3. Cabbages | 4½ tons | 1 | 2 | 6 |
| 4. Wheat | 3 qrs. 6 buſhels 1½ peck | 8 | 1 | 6 |
| 5. Beans | 2 qrs. 6 buſhels | 3 | 16 | 0 |
| 6. Wheat | 2 quarters | 4 | 10 | 0 |
| | | 26 | 4 | 6 |
| | Per annum | 4 | 7 | 5 |

The experimenter obſerves, that the courſes in which potatoes and cabbages, not conſumed on the land, enter in any conſiderable degree, all prove the ſame thing, that, under particular circumſtances, they are both prejudicial in exhauſting the land; and that the two latter courſes, when compared with thoſe of eleven and twelve, diſplay the advantages of beans over potatoes and cabbages in a manner that is extremely obvious, and highly in their favour.

### Course XXXI.

| | | | | |
|---|---|---|---|---|
| 1. Potatoes | 100 buſhels | 2 | 10 | 0 |
| 2. Turnips | 4 tons | 0 | 16 | 0 |
| 3. Turnips | 5 tons | 1 | 0 | 0 |
| 4. Potatoes | 288 buſhels | 7 | 4 | 0 |
| 5. Beans | 3 qrs. | 4 | 2 | 0 |
| 6. Wheat | 2 qrs. 7 buſhels | 6 | 5 | 0 |
| | | 21 | 17 | 0 |
| | Per annum | 3 | 12 | 10 |

### Course XXXII.

| | | | | |
|---|---|---|---|---|
| 1. Potatoes | 100 buſhels | 2 | 10 | 6 |
| 2. Cabbages | 5 tons | 1 | 5 | 0 |
| 3. Turnips | 4 tons | 0 | 16 | 0 |
| 4. Cabbages | 4 tons | 1 | 0 | 0 |
| 5. Beans | 3 qrs. | 4 | 2 | 0 |
| 6. Wheat | 2 qrs. 6 buſhels | 6 | 0 | 0 |
| | | 15 | 13 | 6 |
| | Per annum | 2 | 12 | 3 |

### Course XXXIII.

| | | | | |
|---|---|---|---|---|
| 1. Potatoes | 100 buſhels | 2 | 10 | 0 |
| 2. Potatoes | 112 buſhels | 2 | 16 | 0 |
| 3. Turnips | 4 tons | 0 | 16 | 0 |
| 4. Cabbages | 4½ tons | 1 | 2 | 6 |
| 5. Beans | 2 qrs. 5 buſhels | 3 | 13 | 0 |
| 6. Wheat | 1 qr. 3 buſhels | 5 | 5 | 0 |
| | | 16 | 2 | 6 |
| | Per annum | 2 | 13 | 9 |

Here it is ſhown, that the profit of theſe courſes is too trifling to recommend them; and the products of the fifth and ſixth years' crops are ſuppoſed to be leſs than they ought to be, from the circumſtance of manure being applied in the fourth, and there being only one grain-crop in the courſe; ſo that potatoes, even when manured for, leave the ſoil in no very advantageous ſituation for the growth of wheat, though aſſiſted by the cleaning and improving qualities of bean-crops. And that the ſecond and third courſes are equally deciſive in ſhowing the exhauſting effects both of potatoe and cabbage crops, when not conſumed on the land, as well as that they are courſes that ſhould ſeldom be employed, where they cannot be manured for, and be fed off by live ſtock.

| Course XXXIV. | | £. | s. | d. |
|---|---|---|---|---|
| 1 Potatoes | 98 buſhels | 2 | 9 | 0 |
| 2. Beans | 3 qrs. 1 peck | 4 | 2 | 9 |
| 3. Turnips | 4 tons | 0 | 16 | 0 |
| 4. Cabbages | 5½ tons | 1 | 7 | 6 |
| 5. Beans | 3 qrs. | 4 | 2 | 0 |
| 6. Wheat | 2 qrs. 6 buſhels | 6 | 0 | 0 |
| | | 18 | 17 | 3 |
| | Per annum | 3 | 2 | 10 |

| Course XXXV. | | £. | s. | d. |
|---|---|---|---|---|
| 1. Potatoes | 100 buſhels | 2 | 10 | 0 |
| 2. Barley | 4 qrs. 6 buſhels 3 pecks | 5 | 6 | 10 |
| 3. Turnips | 4 tons | 0 | 16 | 0 |
| 4. Barley | 4 qrs. | 4 | 10 | 0 |
| 5. Beans | 3 qrs. | 4 | 2 | 0 |
| 6. Wheat | 3 qrs. | 6 | 10 | 0 |
| | | 23 | 14 | 10 |
| | Per annum | 3 | 19 | 1 |

| Course XXXVI. | | £. | s. | d. |
|---|---|---|---|---|
| 1. Potatoes | 100 buſhels | 2 | 10 | 0 |
| 2. Wheat | 2 qrs. 6 buſhels | 6 | 0 | 0 |
| 3. Turnips | 4 tons | 0 | 16 | 0 |
| 4. Wheat | 2 qrs. 7 buſhels 2½ pecks | 6 | 8 | 0 |
| 5. Beans | 2 qrs. 6 buſhels | 3 | 16 | 0 |
| 6. Wheat | 2 qrs. 6 buſhels | 6 | 0 | 0 |
| | | 25 | 10 | 0 |
| | Per annum | 4 | 5 | 0 |

On theſe three courſes it is obſerved, that the firſt ſhows ſtill more fully the effects of potatoes and cabbages. The ſecond alſo ſhows, that while the turf of newly-broke-up grounds is in a ſtate of decay, ſpring-corn ſucceeds well after potatoe-crops. It likewiſe proves that three grain-crops may be grown in ſix years, without the ſoil being greatly exhauſted, where proper care and attention is paid to the nature of the crops that are interpoſed between them. Thus, from the numerous facts and obſervations which have been ſtated above, we may be enabled to comprehend more clearly the nature and principles of the modern ſyſtem of cropping land, or the art of properly regulating the courſes of crops; by which, long experience has now ſatisfactorily demonſtrated, that ground may be preſerved in a tolerable ſtate of heart with a conſiderably leſs ſupply of manure than under other circumſtances.

It has been ſtated by a late writer, in his "Syſtem of Practical Huſbandry," that the injurious conſequences of cropping land with grain, and other kinds of crops, which exhauſt it in a high degree, may probably be prevented in the beſt manner on the more ſtiff and retentive ſorts of land, whether of the clayey or loamy kinds, by the interpoſing of bean and clover or tare-crops between them; as the experiments detailed above have ſhown the former to poſſeſs the power of ameliorating the condition of ſuch ſoils, and the latter ſeems not leſs calculated for the ſame purpoſe, as it is known to grow well on theſe ſorts of land; and on thoſe of a more light and dry quality, whether ſandy, or of a gravelly nature, the intermixing of turnip, pea, and other crops of the ſame ſort with thoſe of corn may be equally ſucceſsful. In many caſes, eſpecially on the more heavy kinds of ſoil, it may be highly beneficial to take two green crops for one of grain. This, it is remarked, is a practice that the reſults of the trials, juſt detailed, place in an advantageous point of view, and which has extended itſelf over a conſiderable tract of country, with great ſucceſs.

Various rules have been laid down by writers on huſbandry for regulating and proportioning the different ſorts of crops to different kinds of ſoil. In the "Agricultural Survey of the County of Middleſex," the following are adviſed as the moſt ſuitable under the different circumſtances and caſes of ſoils: viz. For the *beſt* ſorts of land, alternate green and white crops. For thoſe of a *full medium* quality, three green crops for two of the grain or white kind. For *ordinary* land, two of the green for one of the corn kind. And, for the worſt or moſt exhauſted, as downs and ſheep-walks, three green crops for one of the white or grain kind. Theſe may be arranged as below to a ſtill greater number of green crops.

Course. I. *Alternate Green and White Crops.*—1. Turnips. 2. Barley. 3. Clover. 4. Wheat.

Course II. *Two Green Crops to one of Grain.*—1. Corn, or peaſe. 2. Clover, or beans. 3. Peaſe, or corn.

Course III. *Three Green Crops to one of Grain.*—1. Corn. 2. Clover. 3. Tares, or peaſe. 4. Turnips, or beans. Which affords four crops in three years.

Course IV. *Four Green Crops to one of Grain.*—1. Tares. 2. Potatoes, or cole, for ſheep-feed. 3. Turnips. 4. Corn. 5. Clover. Which affords five crops in four years.

Course V. *Five Green Crops to one of Grain.*—1. Peaſe. 2. Beans. 3. Corn. 4. Clover. 5. Tares. 6. Turnips. Which affords ſix crops in five years.

It is ſuggeſted, that by cropping in theſe ways and proportions, the land may be kept perfectly clean from weeds, and in a high ſtate of cultivation; and that under ſuch a ſyſtem it might be continued in a perpetual ſtate of tillage, with a conſtant ſucceſſion of large products. And that in addition, the farmer would be more certain of obtaining plentiful returns for his labour, expence, and exertion. The variations of courſes which are capable of being made uſe of under different ſtates and ſituations of land are very numerous, but the following are generally allowed to be the beſt.

### I. *On ſtrong wet Soil, where a Fallow is intended.*

| Course. | | Course. |
|---|---|---|
| 1. Fallow, | or | 1. Fallow. |
| 2. Barley, | | 2. Barley. |
| 3. Beans, | | 3. Clover. |
| 4. Wheat, | | 4. Beans. |
| 5. Tares, | | 5. Wheat. |
| 6. Barley, | | 6. Cabbages. |
| 7. Clover, | | 7. Oats. |
| 8. Beans, | | 8. Tares. |
| 9. Wheat, | | 9. Barley. |

It is the moſt improved practice in theſe caſes to let the fallow be the preparation for the firſt corn-crop, depending on ſome kind of green crop for thoſe that follow, without any repetition of it. Other courſes in this caſe may be as below:—1. Fallow. 2. Barley. 3. Clover. 4. Wheat. Or in caſes where manure is in plenty, it may be better thus:

| | | |
|---|---|---|
| 1. Fallow, | or | 1. Cabbage, beans, or peaſe. |
| 2. Wheat, | | 2. Barley or oats. |
| 3. Beans, | | 3. Clover. |
| 4. Barley, | | 4. Wheat. |
| 5. Clover. | | |
| 6. Wheat. | | |

Otherwiſe,

| | | |
|---|---|---|
| 1. Cabbage, | or | 1. Beans. |
| 2. Oats, | | 2. Wheat. |
| 3. Beans, | | 3. Cabbages. |
| 4. Wheat, | | 4. Barley. |
| | | 5. Clover. |
| | | 6. Wheat. |

And in ſome caſes, where the culture is well executed, the courſe may run in this way:—1. Turnips. 2. Oats. 3. Vetches. 4. Wheat.

In converting lands of theſe kinds to the ſtate of tillage from that of graſs or ſward, by means of paring and burning, the proper courſe may be:—1. Cole. 2. Beans. 3. Wheat. 4. Beans. 5. Wheat.

By theſe methods of cropping, with proper regard to the eating off green crops on the ground, where it can be effected without injury; or to the removing them to be conſumed in the fold-yards, or other places, in order to the manure being afterwards applied; the ground may not only be ameliorated, by being rendered more rich and friable, but be preſerved perfectly free from all deſcriptions of weeds. In the generality of the heavier kinds of land of this deſcription, when brought into tillage from the ſtate of old ſward, it would ſeem that beans would be the moſt ſuitable crop to begin with, notwithſtanding the uſual practice has been to have recourſe to oats in ſuch caſes; as, from the gradual decay of the turfy and graſſy materials, the growth of the beans may be greatly promoted, and large crops thus produced. Beſides, the roots of the bean-plants, by their penetrating deeply, render the land more mellow, and at the ſame time improve it, bringing it more expeditiouſly to the proper ſtate for wheat. Where, however, the quality of the land is more light and mellow, peaſe are introduced with greater benefit as a firſt crop after breaking up. However, in very old ſward, from worms, grubs, and ſlugs, being often prevalent in them, great injury may be ſuſtained by the firſt crops from theſe cauſes; conſequently the proceſs of paring and burning ſhould be adopted, or the uſe of the trench-plough, that theſe and the graſſy material may be got quit of as much as poſſible. And in this view it has likewiſe been adviſed, as of much advantage, to have ſuch lands kept as cloſely fed down as poſſible before the time of breaking them up; as by ſuch a practice leſs *ova* may be depoſited by the fly, and conſequently fewer of ſuch injurious animals generated. But in all ſuch caſes, beans are conſiderably leſs liable to ſuffer injury in this way than peaſe.

II. *On Soils of the ſound Loamy Kinds, where Fallows are excluded.*

| COURSE. | | COURSE. |
|---|---|---|
| 1. Turnips, | or | 1. Turnips. |
| 2. Barley, | | 2. Ruta baga. |
| 3. Clover, | | 3. Barley. |
| 4. Wheat, | | 4. Clover. |
| 5. Cabbages, | | 5. Beans. |
| 6. Oats, | | 6. Wheat. |
| 7. Tares, | | 7. Beans. |
| 8. Barley, | | 8. Wheat. |
| 9. Beans. | | |
| 10. Wheat. | | |

On theſe courſes it may be obſerved, that the ſoil muſt be in a high ſtate of fertility to ſupport the frequent recurrence of theſe exhauſting grain-crops; and that more green-crops will frequently be required.

III. *On the rich Kinds of ſandy Soils.*—1. Turnips. 2. Barley. 3. Carrots. 4. Barley. 5. Clover. 6. Wheat.

It would appear to be the practice of the beſt arable diſtricts, on theſe two laſt ſorts of ſoils, to have recourſe to turnips as a preparation for barley, and clover that for wheat, in this way:—1. Turnips. 2. Barley. 3. Clover. 4. Wheat.

But in this courſe it may ſometimes be proper to ſubſtitute oats in the place of the barley, as well as tares, chicory, or ſome other kind of artificial graſs-feed, in the room of the clover. In bringing lands of theſe kinds into a ſtate of tillage from that of graſs or ſward, where the practice of paring and burning is employed, the proper courſe may be this:—1. Turnips. 2. Barley. 3. Clover. 4. Wheat. 5. Turnips. 6. Barley. 7. Clover. 8. Wheat. 9. Turnips. 10. Barley, with ſeeds.

But, where the land is only to be kept a ſhort time under the tillage-ſyſtem, a more proper courſe may be:—1. Turnips. 2. Barley. 3. Clover. 4. Wheat. 5. Turnips. 6. Barley, with graſs-ſeeds.

In caſes where paring and burning are not practiſed, which is not ſo common, it may be the beſt plan to begin with peaſe, or peaſe dibbled; and then go on as above. But in caſes of this kind, the turnip and clover crops are conſtantly to be eaten off, upon the land, by ſheep, or ſome other kind of live-ſtock. In the more dry and light ſoils of this deſcription, pea-crops may likewiſe be had recourſe to as a firſt crop, eſpecially the white ſort under the dibbling practice; then going on with the other crops in the above manner. In caſes where potatoes are begun with, it will be requiſite to have more of the ameliorating crops, in conſequence of their greater effect in exhauſting and injuring the land, as has been ſhown by the experiments ſtated above.

In particular diſtricts, on ſome ſoils, merely of the ſandy ſort, it is alſo the practice to make turnips the preparation for both graſs and grain; and experience has ſhown that there are few of theſe ſoils ſo light as not to afford ſuch a crop. In caſes of this kind, the courſe is uſually this: 1. Turnips. 2. Barley. 3. Graſs-ſeeds. Here the graſſes, being raiſed in the view of ſheep-feed, ſhould of courſe be ſuch as will ſtand for ſome time, as it is not by any means a good method to break up the land again too ſoon; for the flocks fed upon the turnips in the winter ſeaſon, are not provided with a due quantity of food on ſuch *new layers* for their ſummer ſupport.

In the county of Suffolk, as appears from the Agricultural Report of that diſtrict, on the better kinds of ſandy ſoils, the layers are frequently planted with peaſe by dibbling, to much advantage, after being broken-up, without being fed with ſheep during the ſummer ſeaſon; the ſucceeding crop of wheat being, in ſuch methods, much larger. The following is conſidered as an excellent courſe on ſuch ſorts of ſoil:

1. Turnips.
2. Barley.
3. Trefoil and ray-graſs.
4. Peaſe dibbled.
5. Barley.

Or, where the ſoils are poor, or of the nature of heath or ſheep-walk, to bring them into cultivation,

1. Pare and burn for turnips.
2. Turnips.
3. Barley, with graſs-ſeeds.

Where they are intended to be kept in tillage longer than this courſe, the turnip, barley, and graſs, crops, may be alternately had recourſe to, until the fifth or ſeventh year, or even longer, where it is ſuppoſed neceſſary. And here likewiſe, when potatoes are employed as the firſt crop after breaking-up, from their deteriorating property being conſiderable, they muſt be ſucceeded by more numerous improving crops, as turnips and graſſes, as ſhown in the above courſes. In ſoils of this nature, which are of the poor, light, blowing, kind, their want of tenacity muſt be corrected by the uſe of earthy ſubſtances of the clayey kind in ſuitable proportions, and the conſuming of the crops upon the land by ſheep. But, where theſe means cannot be had recourſe to, the courſe given above will be found highly proper and beneficial.

IV. *On the more dry Sorts of Soils, as the Limeſtone or Calcareous Kinds, and thoſe of the Gravelly and Flinty Deſcriptions.*

COURSE. 1. Turnips. 2. Turnips. 3. Barley. 4. Saintfoin for ten years or more, then pared and burned for, 5. Turnips. 6. Barley. 7. Peaſe. 8. Wheat. The dry, gravelly, and flinty, ſoils, where of the lighter deſcriptions, ſhould be cropped in ſuch a way as that their moiſture may be preſerved in them in the moſt perfect manner, and their fertility be impaired in the leaſt poſſible degree. In this ſituation, two or more of the green ſort of crops for one of grain may often be proper, as in the above courſes; or, in the following manner:—1. Turnips. 2. Barley. 3. Clover. 4. Wheat. 5. Turnips. 6. Barley, with graſs-ſeeds.

And in many ſituations and circumſtances of ſuch lands, peaſe, tares, and cole, may be had recourſe to in the courſes with great propriety and benefit. And where flints are abundant, from having been ſuppoſed incapable of being performed with facility, it has been ſuggeſted that the turnips ſhould be ſown thin, and a portion of cole-ſeed be blended with them, by which an abundant ſupply of ſheep-food may be afforded. It has been alſo adviſed in theſe ſorts of ſoils, that the corn-crops, particularly thoſe of the ſpring kind, ſhould be conſtantly ſown early, where the land is ſufficiently dry, that they may be ſo forward as to cover the ground well before the hot ſeaſon ſets in, and thereby prevent the injury that muſt be ſuſtained by too much diſſipation of their moiſture. But that, on the heavier ſorts of ſoils of this nature,

ture, beans or peaſe may often be made the preparation for barley, or even occaſionally, for wheat, in this way:—1. Beans or peaſe. 2. Barley. 3. Clover. 4. Wheat. And the courſe may be further varied, by having recourſe to tares and turnips, according as the ſtate of the land may be ſuitable.

In regard to the thinner deſcription of chalky ſoils, and ſuch old down-lands as are become ſo unproductive of herbage, as to be incapable of being continued any longer in the ſtate of ſheep-walk or paſture, it has been propoſed, as the beſt method of cropping them when brought under the plough, to make turnips, or ſome other luxuriant green crop, which, while it keeps the land clean, and affords a large ſupply of green food for the ſupport of ſheep or other ſort of live-ſtock, is highly beneficial by preſerving the humidity, which in ſuch ſorts of land is liable to be too rapidly carried off, the preparation for corn. The courſe in this view may ſtand thus:—1. Turnips. 2. Barley. 3. Clover. 4. Wheat. Or, in particular inſtances, as where ſeed-weeds are apt to prevail in a high degree, two crops of turnips may be grown before any grain-crop with much benefit. And, in caſes where ſuch lands are deſigned to be kept for a greater length of time in the ſtate of tillage, two crops of turnips may be again taken after the wheat, which will leave the land in a perfect ſtate of preparation for barley; after which ſaintfoin may be introduced, as affording an excellent ſheep-paſture for a number of years. But in theſe caſes the turnip and clover crops muſt always be fed off by ſheep, which ought not to be removed from the land during the whole of the time the crops are in conſumption; ſuch other ſorts of food as may be neceſſary being conveyed to them on the ground. In this way, it is imagined, the land will be left in the beſt ſtate poſſible for the growth of barley, without the great trouble and expence which muſt otherwiſe be incurred for manure.

In caſes where the ſoil is ſufficiently friable and mellow in its nature, the method of cropping may be in this way:—1. Peaſe. 2. Oats. 3. Turnips. 4. Barley, with graſs-ſeeds. Or, where it is intended to continue the courſe, it may be done by going on with turnips or peaſe, as before; concluding the courſe with ſaintfoin, as ſupplying a paſture for ſheep for a number of years. By properly attending to theſe directions in the courſes of cropping, and the mode, of managing ſuch ſorts of land, very conſiderable improvement may be made, both in rendering them capable of producing excellent crops of the grain kind, and in affording a much larger ſupply of green food for the ſupport of ſheep, and other ſorts of live-ſtock, than is commonly the caſe under other modes of cropping and conſuming their produce.

### V. *On the Peaty Kinds of Soil, and ſuch as have been long under the Syſtem of Grain-crops.*

Course.—1. Cole-ſeed, or turnips. 2. Cole-ſeed, or turnips. 3. Oats. 4. Ruta baga, or Swediſh turnips. 5. Barley. 6. Graſſes. 7. Graſſes. 8. Graſſes. 9. Graſſes. 10. Potatoes. 11. Barley. 12. Tares, or peaſe. 13. Barley, with graſs-ſeeds. In the buſineſs of cropping ſoils of the peaty, moory, and fenny, kinds, it has been recommended by ſome writers, after freeing them by ſuitable draining from injurious moiſture and wetneſs, that a difference ſhould be made according as they are deep, or the contrary, in the ſuperficial peaty covering. It is ſuggeſted that, in the former kind, the moſt ſuitable method may be that of making turnips, potatoes, cabbages, cole, or any of ſuch ſorts of crops, the plants of which produce much ſhade; and which, by preſerving the moiſture in the more ſuperficial parts of the land, may promote their decompoſition and decay, the preparation for corn; in which intention the courſe may be:—1. Turnips, cabbages, or cole. 2. Oats. 3. Turnips, cabbages, or cole. 4. Oats. 5. Clover. 6. Wheat. 7. Turnips, &c. 8. Oats, with graſs-ſeeds, to remain ſome years.

It may be remarked here, that potatoe-crops, though they have been conſidered objectionable by ſome farmers from their great exhauſting quality in this kind of land, have been ſhown by experience to be highly beneficial and proper. Where this ſort of crop is in uſe, the courſe may be:—1. Potatoes. 2. Oats. 3. Turnips, cole, or cabbages. 4. Turnips, cole, or cabbages. 5. Oats, with graſs-ſeeds.

On this deſcription of ſoil in the northern parts of Scotland, the uſe of potatoes, as a firſt crop, has been found, the author of Modern Agriculture ſays, by much the moſt certain and beneficial mode; the ſucceeding oat-crops being not only in moſt caſes more certain, but greatly more abundant and productive. But on the thinner kinds of ſoils of this nature, as thoſe of the moory and fenny ſorts, with the ſubſoil of a ſtiff and retentive quality, it may be the moſt adviſeable to commence with cole, making it the preparation for corn, in this manner:—

| | |
|---|---|
| 1. Cole, | 1. Cole. |
| 2. Oats, | 2. Oats. |
| 3. Cole, | 3. Beans, with dung. |
| 4. Oats. | 4. Potatoes. |
| | 5. Wheat. |
| | 6. Cole. |
| | 7. Oats. |

But in the latter of theſe courſes, in conſequence of potatoes and wheat coming together, it is probable they may be too much for the land, as the experiments ſtated above have ſhown them to be highly exhauſting crops; a better plan may be, therefore, that of ſubſtituting beans in the place of the potatoes, in this manner:—1. Cole. 2. Oats, with manure. 3. Beans. 4. Wheat. 5. Cole. 6. Oats. And it is not improbable but that, in ſome caſes of this nature, clover-crops may be introduced as a preparation for the wheat.

In thoſe circumſtances where the dry quality of ſuch ſoils, and their diſpoſition to the production of a good turf or ſward, is ſuch as to admit of their being cultivated under the convertible ſyſtem, or that of alternate grain and graſs, which is often a moſt advantageous method, it will be proper, in directing the courſe of cropping, not only to conſider the particular quality of the ſoil, but the growth of ſuch ſorts of roots and plants, or other crops, as may, while they tend to clean, improve, and prepare, the ground for the production of crops of grain and graſs, be the moſt ſuited to the feeding, rearing, and maintaining, of thoſe deſcriptions of live-ſtock which are capable of affording the moſt regular and abundant ſupplies of human food, at the different ſeaſons or periods when they are the moſt wanted.

This is a ſyſtem which may often be carried on to great advantage upon the loamy, gravelly, and fenny, as well as the thinner ſorts of peaty, ſoils; as, in conſequence of their having a great number of different green-crops fed off upon the ground, a degree of amelioration and improvement is effected, while they are under the tillage-ſyſtem, which muſt be highly beneficial for the production of graſs; and by being occaſionally laid down to graſs for a ſhort interval, and thickly ſtocked with ſheep, they muſt become in an excellent ſtate for being again brought under the plough. This is in ſhort a ſort of huſbandry which has been found extremely beneficial in many diſtricts. It is practiſed with great advantage in the county of Northumberland; it having been there found that, on the ſandy and dry light loamy ſoils, excellent grain-crops, eſpecially oats, may be grown by the lands remaining three years under graſs, cloſely eaten with ſheep, which could never be done while they were managed according to their old method of practice.

Under this ſyſtem of management, on the more wet and ſtiff kinds of loam, where there is conſiderable fertility, the courſe of cropping may be as below, after firſt breaking-up:—1. Beans, or oats. 2. Turnips. 3. Barley. 4. Clover, or winter tares. 5. Wheat. 6. Turnips. 7. Barley. 8. Graſs-ſeeds for three, four, or more, years.—Or, 1. Oats. 2. Beans. 3. Wheat. 4. Fallow, and graſs for four or five years. On the drier kinds of theſe ſorts of ſoil, it is ſuppoſed better to begin in a ſomewhat different way :—1. Peaſe, or turnips. 2. Barley. 3. Clover. 4. Wheat. 5. Turnips. 6. Barley, with graſs-ſeeds for not leſs than three years.—Or, 1. Oats. 2. Turnips. 3. Barley, with ſeeds to remain three or four years. But in caſes where large ſupplies of green food are in demand, or danger is apprehended from the wire-worm grub, &c. the courſe may be commenced with more propriety by turnips or cabbages.

In Cumberland, where different plans of cropping, in this view, are ſtated to have been attempted, the courſe of,—1. Turnips. 2. Barley. 3. Clover. 4. Wheat, is ſaid to have been made uſe of till there was an evident falling off in the crops, eſpecially in thoſe of the green ſort; in which circumſtances the only means of reſtoring the lands has been found to be that of permitting them to remain, after they have been three years under the plough, the ſame length of time in the ſtate of graſs; it being diſcovered that by this mode nature has time to prepare a ſufficient lea clod, which, being turned up for the turnip-fallow, will inſure a vigorous crop of turnips, as it is well known they always flouriſh upon freſh land, or where they find the remains of a lea clod to vegetate in.

Where the land, after ſome time, is to be reſtored to the condition of ſward, and the practice of horſe-hoeing had recourſe to for preſerving the different crops in a perfectly clean ſtate; and the various green crops, as turnips, peaſe, and beans, are at the ſame time cultivated in double rows, on ridges of three feet in breadth, and thoſe of the cabbage kind in ſingle rows on the ſame ridges; the courſes given below have been ſtated to anſwer well for any length of time, in all the different kinds of ſoils.

*On Clays.*—1. Turnips or cabbages. 2. Oats. 3. Beans and clover. 4. Wheat. 5. Turnips or cabbages. 6. Oats. 7. Beans and vetches. 8. Wheat.

*On clayey Loams.*—1. Turnips or cabbages. 2. Oats. 3. Clover. 4. Wheat. 5. Turnips or cabbages. 6. Barley. 7. Beans. 8. Wheat.

*On rich or ſandy Loams.*—1. Turnips or potatoes, or beans or turnips. 2. Barley. 3. Clover, or peaſe, or clover. 4. Wheat. 5. Beans, or wheat for any length of time, or potatoes. 6. Barley. 7. Peaſe. 8. Wheat.

*On peaty Earth.*—1. Turnips. 2. Barley. 3. Clover. 4. Wheat. 5. Potatoes. 6. Barley. 7. Peaſe. 8. Wheat.

*On a chalky Subſoil.*—1. Turnips. 2. Barley. 3. Clover. 4. Wheat. 5. Potatoes. 6. Barley. 7. Peaſe. 8. Wheat. In caſes of this kind it is ſuggeſted that ten acres in each hundred ſhould be laid down with ſaintfoin for eight or ten years.

*On Gravels.*—1. Turnips. 2. Barley. 3. Clover. 4. Wheat. 5. Potatoes. 6. Barley. 7. Peaſe.

*On light Lands.*—1. Turnips. 2. Barley. 3. Clover and rye-graſs. 4. Clover and rye-graſs. 5. Clover and rye-graſs. 6. Peaſe. 8. Wheat or rye. 7. Wheat.

It is remarked by the ſecretary to the Board of Agriculture, in his excellent Survey of the County of Norfolk, that, in that great corn diſtrict, the principles of cropping, which have been conſtantly attended to for a long time, are thoſe of avoiding the taking of two corn-crops in ſucceſſion, and of making turnips the preparation for barley, and graſſes that for wheat and other ſorts of grain. The courſes uſually had recourſe to on ſandy lands and turnip-loams, are the following:

| | | |
|---|---|---|
| 1. Turnips, | | 1. Turnips. |
| 2. Barley, | | 2. Barley. |
| 3. Seeds, | But, if the ſeeds | 3. Vetches. |
| 4. Seeds, | fail, change to | 4. Turnips. |
| 5. Wheat, | | 5. Barley. |
| 6. Turnips, | | 6. Turnips. |

By which, in the ſixth year, the variation ceaſes, and it comes, as in the former, to turnips again. It is however added, that to this ſyſtem there are two great objections: in the fourth year the farmer has no ſummer food for ſheep, and, what is as bad, he doubles his quantity of turnips; he alſo loſes wheat in the courſe. To have two ſucceſſive years of vetches appears to be a better ſyſtem, and a much leſs interruption, or rather none at all. If the firſt vetches are to be fed, graſs-ſeeds might be ſown with them for the ſecond year, and this would ſave the expence of ſeed, vetches, and tillage, for that year.

Sir Mordaunt Martin's courſe is as follows :—1. Turnips. 2. Barley. 3. Clover. 4. Wheat. 5. Potatoes, mangel wurgel, or vetches, &c. 6. Turnips. 7. Barley. 8. Trefoil and ray. 9. Peaſe. 10. Potatoes, mangel wurgel, vetches, &c. But it is ſaid that Mr. Overman, of Burnham, has found, from many obſervations, that peaſe do not ſucceed well if ſown oftener than once in twelve years; where he has known them return in ſix or eight years, they have never done well. He ploughed up a layer of four years, and drilled wheat upon it, then ploughed for winter tares; ploughed the ſtubble once for a ſecond crop of wheat; a very fine produce, and as clean as a garden. Three crops of great profit, on only three ploughings, and yet the land kept perfectly clean. Not a little reſulting from four years ſheep feeding with folding from it.

His common courſe is,—1. Turnips. 2. Barley. 3. Seeds. 4. Ditto. 5. Ditto. 6. Wheat. 7. Turnips. 8. Barley. 9. Seeds. 10. Ditto. 11. Peaſe. 12. Wheat. But with the variation of having part of the twelfth under peaſe on the three years layer, and alſo ſome tares. This courſe is partly founded on the experience of peaſe not doing well if ſown oftener than once in twelve years.

And by Mr. Coke:—1. Turnips. 2. Barley, drilled at 6¾ inches. 3. Seeds. 4. Ditto. 5. Wheat, drilled at nine inches. 6. Turnips. 7. Barley, drilled at 6¼ inches. 8. Seeds. 9. Ditto. 10. Peaſe, drilled at nine inches, or tares at ſix inches. 11. Wheat, drilled at nine inches.

Mr. Purdis, of Eggmore, has a very uncommon variation from the general huſbandry :—1. Turnips. 2. Barley. 3. Seeds. 4. Ditto. 5. Tares. 6. Wheat. It is ſaid that upon a large part of this fine farm, the former courſe or rotation included a ſummer-fallow, which afforded little food for live-ſtock; tares now occupy the place, and ſupport great herds of cattle and ſheep. What a noble ſpectacle, ſays Mr. Secretary Young, is this farm: three hundred acres of turnips, three hundred of barley, ſix hundred of ſeeds, three hundred of tares, and three hundred of wheat; 1800 acres arable, the crops luxuriant, much the greater part of the farm very clean; all of it except the layers, on which, however, are ſome thiſtles, too difficult to extirpate.

Mr. Thurtell, near Yarmouth, prefers the four-ſhift, returning to turnips always after the wheat; for he thinks that nothing is ſo bad as taking a fifth crop. But at Caiſtor in Fleg, the land excellent, they follow the five-ſhift of Eaſt Norfolk; that is :—1. Turnips. 2. Barley. 3. Clover. 4. Wheat. 5. Barley. With two variations: viz. 1. Cole-ſeed, inſtead of turnips and barley. 2. Ditto. 3. Wheat. 4. Barley, but not a great crop, and then turnips again. The other variation is to ſubſtitute peaſe inſtead of clover, followed by wheat; and then, in the four-ſhift, to come again to turnips. But a remarkable circumſtance in the rotation of crops here is, that ſpring-corn will not ſucceed well after wheat, which follows cole-ſeed; they will give an excellent ſummer-fallow for this crop: ſpread fourteen loads of fine dung per acre, and ſowing wheat after the cole get the fineſt crops; yet, if barley or oats follow, the produce is ſeldom tolerable; oats better than barley, but neither good.

By ſome farmers, the courſes or rotations are,—1. Turnips. 2. Barley. 3. Seeds, (clover once in ten or twelve years.) 4. Wheat. 5. Peaſe, or oats. 6. Wheat. It may eaſily be ſuppoſed that the wheat of the fourth year is much better than that of the ſixth. The courſe cannot be defended on any ground.

The following courſe is followed at South Walſham: —1. Turnips. 2. Barley. 3. Seeds, one or two years. 4. Wheat. 5. Barley or oats. 6. Peaſe. 7. Wheat. The variation of the ſeeds is to prevent clover coming two rounds together, as the land here, as elſewhere, is ſick of it. Upon a part, white clover trefoil, and ray, are ſubſtituted, and left two years; about one-third of the wheat is on a two-years layer. If the clover be a good crop, the wheat is better than after the other ſeeds. The barley after wheat (if that followed a two-year's lay) is better than after turnips. But if the land is foul after the firſt wheat, then turnips are ſown. Sometimes peaſe on a two-years lay, and then wheat. At Catfield, Mr. Young found a variation; there the courſe is a ſix-ſhift huſbandry:—1. Turnips. 2. Barley. 3. Clover, &c. 4. Clover, &c. 5. Wheat. 6. Barley. And Mr. Repton, at Oxnead, has been, from the year 1773, regularly in the ſixth-ſhift huſbandry of,—1. Turnips. 2. Barley. 3. Seeds-hay. 4. Seeds-ollond. 5. Wheat. 6. Barley; which is common throughout the county. There are many other courſes, or modes of cropping, detailed by the ingenious ſecretary; but it is unneceſſary to notice more of them to the judicious practical farmer, whoſe own obſervation and experience muſt at laſt direct him in the modes beſt adapted to his own particular farm; and in doing which the foregoing examples muſt be found of extenſive utility.

When, therefore, the arable land is brought into a thorough ſtate of amelioration, the ſeed might with confidence and ſafety be put into the ground, and profitable crops will be ſure to follow. The crops now moſt generally in uſe for harveſting, are Wheat, Rye, Barley, Oats, Beans, and Peaſe. Of each of theſe, therefore, we ſhall briefly ſpeak, as far as regards their management in the courſe of huſbandry; but the natural hiſtory, different ſpecies and varieties, both foreign and domeſtic, and approved modes of cultivation at the preſent time, will be found under their generic names in this Encyclopædia.

### Of WHEAT.

This moſt valuable ſpecies of grain, "THE STAFF OF LIFE," is ſown with the greateſt certainty of ſucceſs where the land has received the preparation of a complete ſummer-fallowing; but it may nevertheleſs be grown to advantage after many different kinds of green-root and other crops. In this way it may be ſown after clover, tares, peaſe, beans, turnips, potatoes, and many ſimilar crops, according to the quality and ſtate of the land. But in whatever method, or after whatever kind of crop, it be cultivated, the ſoil ſhould conſtantly undergo that degree of preparation that may be ſufficient to bring it into a ſtate of pulverization and mellowneſs; though this cannot be done in any caſe ſo well as by ſummer-fallowing. When a crop of wheat follows clover, the land ſeldom undergoes more than one ploughing, which is given immediately before the ſeed is ſown. But as the graſs and weeds, in many caſes where this mode is adopted, are very apt to riſe and injure the crops, it is better to ſkim off and turn the ſward and root-weeds into the bottom of the furrow, where they are immediately covered with the looſe mould, to ſuch a depth that little inconvenience will be ſuſtained from them, while the land is thus rendered capable of being harrowed in a more perfect manner than where one ploughing only is employed. Beſides, perhaps a better bed of mould is turned up in this way for the ſeed to vegetate in, provided the furrow is not made of too great a depth and breadth, and remain ſome time before it be ſown, which ſhould conſtantly be attended to by the farmer in preparing this ſort of ground for wheat-crops. But it is the cuſtom of ſome places, where the land is often continued for nearly two ſeaſons in the ſtate of clover, to break them up about the latter end of June in the ſecond, giving them two, and ſometimes three, ploughings. Where the ſituation is favourable, and the weather turns out ſuitable for reducing the ſoil to a proper ſtate of tilth, this may be an advantageous practice, as by ſuch means great benefit may be obtained by cutting the graſs in the beginning of the ſeaſon in which it is to be ploughed up; but, where circumſtances of ſo favourable a nature do not occur, ſuch a method of preparation muſt be leſs beneficial than that of giving only one ploughing.

Wheat-crops ſometimes ſucceed thoſe of the pea kind; but this is a practice that may probably be purſued with the moſt propriety and ſucceſs in thoſe diſtricts that are from the nature of their ſituation ſufficiently early to admit of the land being fully cleaned and prepared by repeated ploughing and harrowing after ſuch crops have been removed, before the time arrives for ſowing ſuch grain. For, where they are ſo late as only to allow of the land being prepared by one ploughing before the period of ſowing, it is an extremely hazardous practice for wheat, and ſhould never be attempted. It is a better practice, where wheat is to be ſown after either peaſe, beans, or tares, to plough the land in a ſhallow manner, and then harrow out the roots and weeds, and burn them on the ground; the field being, after this, formed into proper ridges for the reception of the ſeed by a ſecond ploughing.

Wheat is occaſionally cultivated after turnip-crops; and may in many caſes be practiſed to advantage on the heavier turnip-ſoils, eſpecially where they have been kept clean from weeds, and fed off by ſheep at ſuch early periods as to admit of the ground being prepared by once ploughing in a light manner. The late crops on the lighter ſorts of land may be more properly managed by ſowing them with ſpring-wheat, or leaving them for barley, for either of which they may be prepared by two or three ſhallow ploughings. Spring-wheat in this mode of preparation has, in ſome caſes, been found nearly to approach that of the autumnal ſowing. Where the turnips cannot be conſumed in ſufficient time for the land to be prepared ſo as for the ſeed to be put in before December, it is the ſafeſt method to let it remain to be ſown in the ſpring, as by ſuch means there will be an opportunity of getting the ground into a proper ſtate of preparation for the reception of the ſeed, which could not otherwiſe be the caſe. And under ſuch circumſtances, it is undoubtedly the moſt advantageous plan to employ that ſort of wheat which is uſually known by the name of ſpring-wheat, as from its early nature it is more adapted to be ſown at ſuch a ſeaſon.

Where this ſort of crop is intended to be cultivated after potatoes, which, as they have a great tendency to lighten the ſoil in a very great degree, as well as to exhauſt it, ſhould never be the caſe on the lighter ſorts of land in backward ſituations, or under any circumſtances where a ſufficient proportion of manure has not been applied for the potatoe-crops, one light ploughing, immediately before the ſeed is put in, may be in moſt caſes an adequate proportion; as, where proper attention has been beſtowed in the culture of ſuch crops, the ſoil is generally left in a ſufficiently clean condition. The cauſe of wheat not ſucceeding well after potatoe-crops in many inſtances is, that, beſides the land being rendered too light and porous by the growth and cultivation that are requiſite for them, the wheat is more expoſed to the injurious attacks of the grub, earth-worm, and other inſects; and in ſome expoſed ſituations, from ſeed-time being too long protracted, the practice becomes obviouſly improper.

With regard to the beſt time for ſowing, there is little doubt but the earlier the ſeed can be committed to the ſoil in reaſon, the greater chance the young plants will have of being well rooted before the froſts take place, and on which the welfare of the crop in a great meaſure depends. Beſides, the ſtate of the land, and that of the ſeaſon, is much more favourable for the proceſs of vegetation when the crop is put in at an early period, than when it is delayed to a late one; the ſtate of the weather in the latter caſe often admitting of only a very languid and imperfect growth until the ſpring, by which the crop muſt be expoſed to much danger from various cauſes. Indeed experience has abundantly ſhown that late-ſown wheats ſeldom ſucceed ſo well, or afford ſuch plentiful crops, as thoſe that are put in early. From the beginning of September to the end of October, may certainly be conſidered as the moſt favourable period for this buſineſs. This is, indeed, confirmed by the eſtabliſhed practice of the beſt farmers in almoſt every diſtrict of the kingdom, where wheat is much grown. If ſown earlier, eſpecially on the heavy kinds of ſoil, the land is for the moſt part in too hard and lumpy a ſtate to allow of the ſeed being properly covered by the harrow; and in the lighter ones in too dry a condition for the grain to vegetate in a proper manner; and, when delayed later, the ground in one caſe is apt to become too wet and cloſe by the falling of the autumnal rains, and in the other too looſe and porous from the action of the early froſts. There are, however, circumſtances that often render the times of ſowing different from the above; as where the ſoils are of the rich, fertile, loamy, chalky, or gravelly, kinds, it may be better to defer it in many inſtances to a ſomewhat later period; for when ſuch warm ſorts of land are cropped too early, they are apt to put the plants forward in ſuch a rapid manner that they become weak and ſpindling in the early ſpring-months; and at the ſame time, the crops are more liable to be infeſted with weeds, on account of the ſeaſon being then more favourable to their growth.

The quantity of ſeed to be ſown on an acre muſt often depend upon a variety of different circumſtances; but in general from two to three buſhels, according to the ſtate of the ſoil, the nature of the climate, and the period in which it is to be ſown, may be eſteemed the moſt ſuitable proportion for ſoils of a medium degree of fertility, under the broadcaſt method of huſbandry; but, where the drill ſyſtem of culture is practiſed, a conſiderably leſs proportion will be ſufficient for the purpoſe.

On the rich ſoils of Glouceſterſhire, the quantity generally ſown has been ſtated to be about ſeven pecks; while in many other diſtricts, as Yorkſhire, it is from eight to twelve. Where the lands are in a ſuitable ſtate of tillage for receiving crops of this grain, ten pecks have been adviſed as the medium proportion. Larger quantities are likewiſe frequently ſown in the northern parts of the kingdom; but it is obvious, that, where ſuch large proportions of ſeed are made uſe of, the plants muſt be liable to be drawn up too much, and the crops in conſequence to become weak and imperfectly fed, as well as ſmaller in the ſize of the ears. There may alſo be diſadvantages from making uſe of too ſmall proportions of ſeed, from the ground not being properly covered with plants; but, where care is taken in the after-culture of the crops, leſs danger is probably to be apprehended from this than the other extreme, as a great number of plants will be ſupplied by the tillering or ſhooting-out of new ſtems from the joints about the ſurface, in conſequence of the mould being laid up againſt them.

As the crops advance towards maturity, they muſt be kept perfectly clean and free from weeds, which not only injure the crop in its growth, but leſſen the value of the ſample at market. The ſtirring of the mould on the ſurface among the plants, may frequently be uſeful in other intentions beſides that of preventing the growth of ſeed-weeds; for, as in the heavy kinds of ſoil, that are moſt adapted to this grain, the more ſuperficial parts are liable to become ſo hard and baked as not to be eaſily penetrated by the new-formed or coronal roots of the plants in the early ſpring-months, eſpecially when they are very dry and have been preceded by much wet, the looſening of the earth by means of the harrow muſt be of conſiderable utility. This effect is generally ſhown to have taken place by the appearance and progreſs of the crop, which becomes of an unhealthy yellow colour, and advances but little in its growth. Where the crops are thin and of feeble growth, this operation may alſo produce beneficial effects, by affording a ſort of earthing-up of the weak plants, and thereby promote a more vigorous growth, at the ſame time that a number of new ſhoots are ſent off from the joints thus covered, and the crop, in conſequence, rendered more full and abundant; and, where the grain is too thick upon the ground, it may alſo be uſeful by drawing out and deſtroying many of the plants.

Rolling the land, either without having recourſe to the harrow, or after it has been employed, eſpecially where the ſurface is cloddy, and the operation is performed when the ground poſſeſſes a medium degree of moiſture, may be of utility in the ſame way, as well as by forcing the roots of the wheat into the earth, and by that means cauſing new ſtems to riſe. On all the light thin ſoils, when this ſort of grain is cultivated upon them, much benefit may alſo be produced by the uſe of the roller, by the roots of the plants being thereby prevented from being ſo eaſily looſened and thrown out of the ground.

The feeding of wheat-crops, where too forward or luxuriant in the early ſpring-months, by means of ſheep, is a practice that has been found of much benefit in many caſes. The good effects in ſuch inſtances are ſuppoſed to ariſe from the removal of the upright central-ſtems, by which means different new lateral ſtems or root-ſcions are ſent off or brought forward with more vigour, by the acquiſition of a larger proportion of nutritious matter from the joints in conſequence, that muſt otherwiſe have been exhauſted in ſupporting the central ſtems. This practice has been found by experience to be the moſt uſeful on ſuch ſtrong and fertile lands as are apt to produce a larger proportion of ſtraw than can be properly ſupported. In theſe caſes advantage has frequently been derived by feeding off the blade at two or more ſucceſſive times; but, in managing the buſineſs, great care is neceſſary to ſee that the whole is completed before the crop begins to ſpindle, otherwiſe more injury than good will be produced. On lands that are very light, and the crops thin, injury may frequently be done by the plants being pulled up on account of the cloſeneſs of the bite of the ſheep. They ſhould therefore never be ſuffered to remain upon the crops when the weather is wet, and the ſurface of the ground much looſened, or after ſudden froſts and thaws; as in ſuch caſes much harm may be done by the plants' being pulled up and deſtroyed. The treading of the ſheep, is however, of great ſervice in all the light ſorts of land, and where the crops are thin; as by that means the earth will not only be preſſed more cloſely about the roots of the plants, but the ſtems in many inſtances ſo forced into the ground and covered up, that new ſhoots will be ſent off laterally, and the crops be thus rendered more full on the land. But, where the ſoils are more ſtiff and adheſive, the growth of the crops may be checked and retarded by the practice, and of courſe the ſhoots thus cauſed become weak, affording only ſmall ears and light grain. It is a practice with ſome farmers, who contend that much advantage is derived from it, to turn ſheep upon the crops where danger is apprehended from worms, ſlugs, or other inſects; in order that, by keeping them conſtantly in motion, ſuch animals may either be wholly deſtroyed, or ſo fixed in the ſurface-mould, as to cauſe their more gradual decay.

Notwithſtanding that wheat is the hardieſt of all grain, yet it is ſubject to many diſeaſes, ſuch as mildew, blight, blaſt, and ſmut. Long as theſe evils have been known to injure, and partly deſtroy, our wheat-crops, it is remarkable that the nature of them is to this day ſo little underſtood, and that their cauſes have not been more deeply inveſtigated.—But ſee under the article TRITICUM, in this Encyclopædia.

The SMUT ſeems of late years chiefly to have prevailed among the wheat, in which a ſort of black meal is produced in the place of ſeed. It has been aſcribed to many different cauſes by writers on agriculture. It is remarked in the Memoirs of the Bath Agricultural Society, that this is a diſeaſe that only occurs when the weather is wet during the period of flowering, in which the antheræ may burſt, and the farina be waſhed away. The diſeaſe is there ſuppoſed not to be produced by any infectious ſubſtance, or the ova of inſects that may adhere to the grain, as ſmutty ears and ſound ones are found proceeding from the ſame root, and, in ſome inſtances, both ſmutty and ſound grains to be contained in the ſame ear; ſome of the corns having even one end ſmutty, and the other ſound. The enquiries of a late writer are, however, highly in favour of the opinion, that the malady is produced by the attacks of an inſect; and that, though unqueſtionably infectious, it may be prevented, or cured, by the uſe of different kinds of ſteeps, ſuch as brining, &c. Others have ſuggeſted that ſteeps, prepared with aloes, tobacco, and hellebore, may be uſeful for the ſame purpoſe, when applied during the growth of the crop, by means of a piece of flannel immerſed in them, and drawn different ways of the ridges, by two perſons walking in the furrows, ſo as to touch the ears. The proper time of performing this buſineſs is when the weather is fine and dry.

The facts and obſervations on which theſe intereſting concluſions are founded, are detailed in the following manner by Mr. Somerville, in the ſecond volume of Communications to the Board of Agriculture. Some years ago, he ſays, he collected a quantity of ſmutted ears from one field of wheat, in which they were very numerous, and a number of healthy well-filled ears from another field, in which there was no ſmut. The grains were rubbed out of both, intimately mixed, and kept in a box for two months, at the end of which they were rubbed between the hands in ſuch a manner as to break the whole of the ſmut-ball. The parcel was then divided into two equal parts, one of which was three or four times waſhed with pure water, and well rubbed between the hands at each waſhing, and afterwards ſown in a drill in his garden; the other half was ſown in another drill without any waſhing or preparation whatever; the ſoil and every other circumſtance was equal. Both parcels vegetated at the ſame time, and for about two months afterwards there was no viſible difference in their appearance; about that period he however obſerved, that many of the plants in the drill, that had been ſown without being waſhed, were of a darker colour than the others; theſe, when narrowly examined, were of a dirty green. The plants in the drill that had been waſhed were all of one colour, and ſeemingly healthy; as the ſeaſon advanced, the difference in colour became more ſtriking, and continued to increaſe till the grain was fairly out of the blade; about which time many of the dirty green ears began to exhibit ſymptoms of decay. As ſoon as the ear was fairly ſhot out, the whole of thoſe in the unwaſhed drill, that had the dirty green appearance above deſcribed, were found to contain nothing but ſmut; and theſe ſmutted ears were in the proportion of more than ſix to one of the healthy ones; while, on the contrary, the drill in which the waſhed grains had been ſown, and which conſiſted of ſeveral hundred grains, had hardly a ſmutted or unhealthy ear in it. The ſame experiment was repeated the following ſeaſon, and with nearly the ſame reſult. Satisfied with knowing that complete waſhing would be found a remedy for the diſeaſe, he made no farther enquiry upon the ſubject till laſt autumn, when he was employed in making obſervations upon the blight, in the courſe of which he met with a good deal of ſmut in many fields; and, being at the time poſſeſſed of ſome excellent magnifying-glaſſes, he carefully examined ſome of the ſmutted plants. This at firſt was done more as a matter of amuſement than from an expectation of diſcovering any thing that might contribute to throw light upon the ſubject. Upon a near inſpection with the glaſs, he found that the dirty green colour of the blades of the ſmutted ears was owing to a number of ſpots infinitely ſmall, and bearing a near reſemblance to thoſe upon blighted ears; his obſervations were continued throughout the whole period of the ripening, in the courſe of which he made no additional diſcovery, except obſerving, that the leaves and ſtalks of the ſmutted ears decayed ſooner than ſuch as were healthy.

About the end of autumn, however, having one day brought home ſome ſmutted ears of rather an unuſual appearance, he examined them very narrowly, and obſerved that the balls were perforated in many places with ſmall round holes, a thing he had not before obſerved in any that he had met with; this he aſcribed to vermin; and upon ſticking one of the grains upon a pin, and placing it under the glaſs in a very bright ſun, he could diſtinctly obſerve ſeveral ſmall tranſparent ſpecks upon the beard, or downy part of it. He examined ſeveral more, and met with exactly the ſame appearance; but, being called haſtily away upon buſineſs, he was under the neceſſity of leaving them upon the table, without being able to aſcertain whether the objects he had ſeen were eggs or inſects. In the evening, when he came home, he reſumed the inveſtigation by candle-light; in the courſe of which, as he was under the neceſſity of holding them very near the candle, the heat ſoon relieved him from his embarraſſment, by putting them in motion, and he then diſcovered that the ſpecks above-mentioned were real inſects, reſembling wood-lice in ſhape. Next day he repeated the ſame trials by ſun-light with new ſmut-balls, and diſcovered the ſame appearances, but without being able to make any of the inſects ſtir. Diſappointed and vexed at not being able to ſee them in motion with ſun-light, and recollecting the heat of the candle, he threw the concentrated rays of the ſun upon them with a burning-glaſs, which completely anſwered his purpoſe of putting them in motion, and ſhowing them in every different point of view. To deſcribe minutely an inſect ſo ſmall as not to be diſtinguiſhable by the naked eye, would, ſays he, be no eaſy matter; it is ſufficient to ſay, that its general appearance is very ſimilar to the wood-louſe, though infinitely ſmaller.

As ſoon as he was clearly aſcertained of the exiſtence of the inſect, his mind was, he ſays, perfectly at eaſe with regard to the cauſe of the diſtemper; but though he could very readily conceive that vermin, in the early ſtages of the growth of a plant, might ſo injure the ſtamina as to render it unfit to produce any thing but ſmut, he could not ſo well underſtand how it was poſſible for the mere touch of the black earth contained in the ſmut-balls to produce the ſame effect.

After ſome reaſoning, he however, gives it as his opinion, that ſmut is occaſioned by the ſmall inſect above deſcribed, as ſeen by the glaſs in the downy part of the grain; and that, when the balls are either broken in the operation of thraſhing, or come in contact with clean healthy grains, the inſects leave the ſmutted grains, and, adhering to ſuch as are healthy, are ſown with them, and wound the tender ſtem in ſuch a manner as to render the plant incapable of producing any thing but ſmut. It is not an eaſy matter to account for the manner in which this takes place; but a little attention to the circumſtances he is now to mention will perhaps throw ſome light upon it. It is known that plants of very oppoſite natures and qualities will grow and produce abundantly upon the ſame ſoil, where the nouriſhment is ſeemingly the ſame. This effect is alſo known to be owing to the ſtructure of their veſſels, by the action of which the juices that circulate through them are differently prepared in every different plant. From this ſtriking difference, owing confeſſedly to organization, is it not, ſays he, preſumable, that the ſmut in wheat is produced by the inſects wounding the veſſels of the plant in ſuch a manner as to render them incapable of taking up any other principle from the ſoil but the ſmut contained in the balls, which upon examination ſeems to have no quality different from the fineſt vegetable earth? This opinion he thinks is ſtrongly ſupported from the circumſtance of certain pickles being found a cure for the malady. The effect of theſe pickles is, however, completely miſunderſtood; for in the place of ſuppoſing, as is erroneouſly done, that they operate by ſtrengthening the grain, and thereby removing that debility which has been by ſome conſidered as the cauſe of ſmut, their benefit depends upon the powers they poſſeſs of deſtroying the inſects above deſcribed; but, to ſhow the abſurdity of the commonly-received opinion in a more ſtriking point of view, it is only neceſſary, he adds, to ſtate, that many of theſe preparations, which are ſuppoſed to be ſo friendly to vegetation, are, in fact, highly inimical to it, unleſs they are uſed with the utmoſt caution; even ſtale urine, which has long been conſidered as a ſafe and innocent remedy, is, under certain circumſtances, highly pernicious. After he had diſcovered the inſect, he made trial of all the ſubſtances commonly uſed, and found all of them, when properly applied, deſtructive to it. Is it not therefore, continues he, more agreeable to plain common ſenſe to ſuppoſe, that the virtue of theſe preparations conſiſts more in the power they have of deſtroying vermin, than in any ſtrengthening quality they poſſeſs?

Wheat is known to be ready for the reaper, by its ſtraw turning of a yellow colour, its ears beginning to bend in the neck, their having no greenneſs in the middle of them, and the grain becoming hard and plump. The quantity of wheat produced upon the acre muſt vary conſiderably, according to the circumſtances of ſoil and preparation, as well as the ſtate of the ſeaſon; for it has been found, that ſome years the yield is under twenty, while in others it is upwards of thirty, buſhels the acre, the ſoil and culture being in every reſpect the ſame. The average return of this crop throughout the whole of the kingdom, is probably not more than from three to three and a half quarters. In Middleſex, the greateſt crop of wheat of which the author of the Report of that diſtrict has any account, is, he ſays, ſixty-eight buſhels per acre; the leaſt about twelve. The medium between theſe extremes is forty, which, he thinks, would be the average of land highly conditioned. But the average produce of Britain does not, he ſuppoſes, exceed one half of this quantity; and yet, ſays he, wheat is as certain a crop as any that is cultivated. This, he thinks, affords a clear proof that "the lands of England are reduced conſiderably below par, which," in his opinion, "can only have happened by a too frequent repetition of corn-crops, and general bad management, which has of courſe leſſened the quantity of live-ſtock, and with that, the beſt means of raiſing manure. Let farmers," continues he, "be induced to ſow crops to be eaten on the land by cattle, ſo that they may there leave their dung and urine, and corn will then be grown in double quantity; and the live-ſtock, ſupported by ſuch green crops, be clear gain to the community."

In order to aſcertain the goodneſs of a ſample of wheat, it is neceſſary to judge by the eye whether the berry be perfectly fed, or full, plump, and bright, and whether there be any adulteration proceeding from ſprouted grains, ſmut, or the ſeeds of weeds: and by the ſmell, whether there be any improper impregnation, and whether it has been too much heated in the mow; and finally, by the feel, to determine if the grain be ſufficiently dry, as when much loaded with moiſture it is improper for the uſes of the miller. Where the ſample handles coarſe, rough, and does not ſlip eaſily in the hand, it may be decided not to be in a condition either for grinding or laying up in the granary. The ſame means may alſo ſerve to determine the weight; but conſiderable experience is neceſſary to decide with much correctneſs. It is obſerved by the author of the Synopſis of Huſbandry, that "it is a good ſample of wheat where the weight of a ſack, at eight gallons the buſhel in meaſure, arrives at four buſhels three and a quarter pecks in weight, or 2 cwt. 1 qr. 18lb. If," continues he, "a ſack of this meaſure weigh half-buſhels and quarter, the ſample is not bad, which is 2 cwt. 1 qr. 4lb." In the technical language of the farmer and miller, it is uſual, he adds, "to drop the buſhels, and mention only the odd weight; thus, in the firſt inſtance the wheat weighed three pecks four, and in the latter half-buſhels four. If there are no odd pounds, it is ſaid to weigh half-buſhels; or if from large meaſure the weight comes to 2 cwt. 2 qrs. then it is ſaid to weigh five buſhels."

We have often obſerved, with concern, the little pains taken by farmers in harveſting their wheat, to ſecure their ſhocks of corn from the effects of rain when ſtanding in the field. Heavy ſhowers in time of harveſt are not unuſual; and much injury is often cauſed by them, and much trouble occaſioned by opening the ſheaves. The hint ſuggeſted, therefore, in the following ſhort extract, on the uſe of cap-ſheaves, we would recommend to general attention; particularly as it will enable the farmer without fear to give his crop field-room, and prevent his hurrying it, before it is thoroughly dry, into the barn or ſtack.

Wheat, as harveſted by Mr. William Elmhurſt, near Horncaſtle. "I like to have my wheats cut rather green, not to ſtand till ripe, ſo as to ſhake; and I always have mine bound in ſmalliſh ſheaves, ſet eight only together; four of the largeſt, two againſt two, and the two ſmalleſt at the ends; ſo that they prop and ſupport each other, and the two longeſt tied ones opened well and drawn up cloſe to each other over the ſix; and, by ſo doing, I ſcarcely ever have a ſtack blown down, even with a very ſtrong wind; the two cap-ſheaves muſt be tied together by twiſting, and a little of the butt-ends of the ſheaves (on both ſides) together; and when that is done and the cap-ſheaves ſpread nicely over the other ſix, neither wind nor rain will hurt the wheat if it ſtands out for three, four, or five, weeks, being ſo well covered below the ties; for no one practical failing, in a farmer, is greater, or more ridiculous and injurious, than carrying his crops, of any ſort, too haſtily; as there is ten times more corn injured by being in too great a hurry, than by its ſtopping too long in the field; and, when wheats are cut rather green and covered as above, the ſtraw will feed the corn, and make the flour better and finer."—For the natural hiſtory and different ſpecies of wheat, various modes of culture, &c. ſee the article TRITICUM, in this Encyclopædia.

## OF RYE.

This is a ſpecies of wheat, capable of being cultivated on moſt kinds of land; but the light ſandy ſoils, that cannot well be converted to the purpoſe of wheat or barley, are, perhaps, the only ones on which it can be grown in this kingdom to advantage, becauſe its produce and value are not equal to other kinds of corn. It can of courſe therefore only be introduced on ſuch lands as are incapable of being turned to better account. Even upon ſome of the pooreſt ſorts of ſandy ſoil, wheat is ſuppoſed in ſome diſtricts to be grown with more benefit to the cultivator, the quality of the land being the ſame, than this grain. It is moſtly grown after early-fed turnips, clover, peaſe, and other ſimilar products, as well as after naked fallows, in particular caſes.

This crop, like that of wheat, requires the land to be floury, or in a tolerable ſtate of pulverization. In many diſtricts, when intended to ſtand for a crop, it is the cuſtom to put it in upon ſome ſort of fallow; but, where it is only to be fed off by ſheep, ſeldom more than one ploughing is given, the land being broken up and fallowed for turnips immediately after the crop has been ſufficiently eaten down by ſheep, &c. The periods of ſowing rye are pretty much the ſame as thoſe of wheat; but, when cultivated for green food, it may be advantageous to ſow early, as in Auguſt and September; but it may be ſown in October, and during the winter months, until the beginning of March, in particular caſes, as where the early ſowings have failed, or there is an intention of having a ſucceſſion of this ſort of feed for ſheep. The allowance of feed, where the crop is to remain for harveſt, is in moſt ſituations from about two buſhels to two and a half; but, when the intention is to feed it off, three, or even more, may be a better proportion, as the plants in ſuch caſes ſhould ſtand conſiderably thicker upon the ground, in order that the largeſt poſſible quantity or green food may be provided. As the proceſs of germination in this ſort of grain is rather ſlow, it may be adviſable to put it into the ground when it is in a tolerably dry condition, otherwiſe much of it may periſh, eſpecially in wet ſeaſons. It is ſometimes the practice of farmers, when rye is intended to ſtand for a crop, to feed it with ſheep in the early ſpring, as in the beginning of March; but this ſhould never be done except where the crop is very luxuriant, and at ſo early a period as that there may not be any danger of deſtroying the new-formed ear.

In the ſouthern parts of England rye is often cultivated for the uſes of thoſe engaged in the buſineſs of tanning leather; but more frequently as a green food for ſheep in the ſpring, before the turnip-crops are ready. When grown in this view, it is neceſſary to have attention to different circumſtances, in order to derive the utmoſt advantage from the crops. As this grain begins to ſhoot out, or ſpindle, much earlier than wheat, care muſt be taken that the feeding of it down is begun at a ſufficiently early period, as the latter end of February or beginning of March; otherwiſe the ſtem becomes firm and ſticky, and the ſucceſſion of green feed, after the firſt eating, extremely ſmall. Indeed this may be done earlier than the firſt of theſe periods, in caſes where the ſeaſon is mild and open, and perſevered in till the end of April. In all caſes it is, however, adviſable to let the crop be ſo advanced in its growth as to cover the ground tolerably before the ſheep are turned in. As this ſort of green food is ſaid to have much effect in promoting the flow of milk in ſuch ewes as have lambs, probably from its ſucculency, and its ſtimulant properties being applied immediately after the ſeverity of the winter ſeaſon, when the bodies of animals are known to be more capable of being excited by the action of ſtimuli, and when there is ſcarcely any other ſort of green feed that can leſſen its operation by being taken along with it, the culture of it muſt be the moſt advantageous where ſheep-huſbandry is extenſively combined with that of tillage, eſpecially that department of it which relates to the feeding of lambs; as by this means, from the quantity of ſucculent nutritious food that is provided, the lambs are prevented from being ſtinted in their growth while young, which is a matter of the utmoſt importance in their future feeding. —See the article TRITICUM.

### OF BARLEY.

From the tender and delicate nature of barley, eſpecially in the early ſtages of its growth, it is incapable of being cultivated with advantage on the ſtiff, heavy, and wet, deſcriptions of ſoil, or ſuch as are of a cold and tenacious quality. It is found to grow in the moſt perfect manner in a loamy ſand, or ſuch ſoils as are moderately dry, and ſufficiently light. The moſt plump and thinneſt-rinded grain is aſſerted to be produced on ſuch lands as are dry, light, and mellow; and theſe are the qualities that are conſidered as the moſt eſtimable. Light poor land, when dry and warm in reſpect to ſoil and ſituation, is even capable of affording barley that is much ſuperior in quality to ſuch as is grown on ſtrong lands, that are of a cold and moiſt nature.

This ſort of grain is cultivated after almoſt every kind of crop; but it has been found to ſucceed to the moſt advantage after thoſe of the green or ameliorating kind; as turnips, potatoes, carrots, peaſe, tares, &c. However, from the nature of grain-crops, it can ſeldom be cultivated to much advantage after wheat, rye, or oats: in ſuch caſes it has generally been obſerved that the crops were blighted and imperfectly fed, even upon ſoils the moſt favourable for barley. But after whatever ſort of crop this grain may be ſown, as the root is extremely tender, and requires much ſupport during the firſt ſtages of its growth, from the quick manner in which the proceſs of vegetation is carried on, the ſoil requires to be reduced into a ſtate of much fineneſs and pulverization, ſo as to become properly open and porous, in order to ſecure a more certain, equal, and perfect, vegetation.

In ſowing this grain after peaſe, or other pulſe, it is cuſtomary to give the firſt ploughing in the autumn; which ſhould always be performed in ſuch a manner, as that the greateſt poſſible extent of ſurface may be expoſed to the influence of the atmoſphere and the action of the froſts; the ridges being at the ſame time ſo laid up, as that no injury may be produced by the wetneſs that may take place during the winter ſeaſon. The ſecond earth or furrow is moſtly given about March. By this ploughing, two different purpoſes are effected in many caſes; the root-weeds, ſuch as thoſe of couch, and other noxious plants, may be looſened, ſo as to be more readily extirpated by the application of the harrows immediately afterwards, and the ſoil reduced to ſo fine a tilth, as that thoſe of the ſeed kind may be induced to vegetate freely, and in conſequence be more perfectly removed by the action of the plough and harrow at the period of putting in the ſeed. If this kind of grain be introduced after wheat, or other corn crops, which, as has been ſhown, is by no means a practice to be recommended, the preparation of the land is moſtly conducted in the ſame manner as the above.

In dry and unkindly ſeaſons, barley is apt to be much injured by the attacks of the worm; which is known from the ſudden change in the appearance of the crop, from a healthy green to a yellow caſt. On the firſt appearance of this change, the uſe of the roller ſhould be had recourſe to, in order that the ſuperficial parts of the ſoil, which are probably become looſe and porous, may be effectually preſſed, and thereby rendered too cloſe and compact to admit the worm to prey upon the tender roots of the young plants. That this effect may be produced in the moſt effectual manner, the roller ſhould be of ſuch a ſize, or ſo loaded, as to afford a preſſure equal to the draught of three or four horſes, which ſhould be yoked double, in order to increaſe the effect by their treading. It has been ſuggeſted, that, if by this method the injury can be counteracted until ſuch time as rain falls, there need not be any apprehenſion of the crop, as the plants will ſoon puſh forward in ſuch a manner as to become too ſtrong to be in further danger.

The produce of this grain, like that of moſt others, varies conſiderably according to the ſtate of the ſoil, climate, and the cultivation that is employed; but the average over the whole kingdom is probably from about twenty-ſeven to thirty buſhels the acre. In the county of Middleſex, according to the Report of that diſtrict, the average produce is about four quarters of grain and two loads of ſtraw to the acre; and in Yorkſhire, on the turnip-lands, the produce is nearly the ſame; but in many other diſtricts it does not average more than three and a half. Barley ſhould conſtantly remain out in the field until it be perfectly dry and free from moiſture, otherwiſe it is liable to heat in the ſtack, and the ſample be thereby greatly injured both for the purpoſes of ſeed and malting.—For the beſt time of ſowing, proportions of ſeed, different ſpecies, and moſt approved culture, ſee the article HORDEUM, p. 278–282, of this volume.

### OF OATS.

The AVENA, or Oat, is a grain ſo hardy, that it may be cultivated upon almoſt any kind of ſoil; but, like all other corn, it is the moſt productive on ſuch as are ſtrong, rich, and adheſive, and which have been newly-broken-up from the ſtate of graſs. It is ſuggeſted, that, though this ſort of grain generally ſells lower than barley, yet, from its being a more certain crop, the ſuperior utility of the ſtraw for the food of cattle, and the increaſe in the quantity of produce, it is at leaſt equal to barley for medium loams. And that for ſtronger ſorts of lands, and thoſe of the fen kind, it is greatly ſuperior to it, though apt to leave the land more foul. On the cold, tenacious, fenny, and wet, ſoils, the oat may in many caſes be ſown with more advantage than any other kinds of crop, and likewiſe where lands cannot be put in a proper condition for barley-crops.

Oats ſucceed well after almoſt every ſort of green and root crops, but ſhould not be cultivated after wheat, rye, or barley, where it can poſſibly be avoided, as the ſoil by ſuch cropping would be too greatly exhauſted. It has been obſerved, that, in diſtricts where improved methods of huſbandry are adopted, oats are generally grown upon ſuch lands as have been newly-broken-up from the ſtate of graſs, and that the practice is ſhown to be perfectly correct, by the abundance of the produce in ſuch caſes. The old cuſtom of cultivating oat-crops in ſucceſſion for ſeveral years is equally abſurd and improper, and ſhould be generally exploded.

In regard to the preparation for an oat-crop, it is recommended by an intelligent cultivator, when it is intended to be grown after cole, tares, early peaſe, or ſuch other crops as do not come off the ground later than the beginning of June, on ſoils that are too wet to admit of being ploughed in the winter ſeaſon, to make an early baſtard-fallow, laying the land up into ridges proper for being ſown early in ſpring. Or, when after ſuch clean crops as come off too late to admit of baſtard-fallowing, to plough only once, which ſhould be as early as the buſineſs of the farm will admit, into ridges proper for putting the ſeed in. As this kind of grain is ſuppoſed to be more liable than moſt others to degenerate, by being too long ſowed on the ſame land, it is the practice of many diſtricts to change it for ſuch as has been imported from foreign countries. It is probable, however, that, by collecting and ſowing the beſt and moſt perfect of our own produce, this expenſive practice may be rendered unneceſſary. By ſimilar attention moſt of the different ſorts of oats are alſo capable of being greatly improved, both in the quality and appearance of the grain.

It is moſtly conſidered by good farmers as a better and more correct practice to ſow graſs-ſeeds with oats than with barley, as the tillage requiſite for the latter may diſpoſe it to become rank and be lodged, by which the graſs will be drawn up weak through it, and in that way be greatly injured, as well as the barley, by the humidity thus produced, require a longer time in the field, and in that way be expoſed to more danger in caſe of a wet ſeaſon ſucceeding; while with oats there is little riſk in theſe reſpects, as the ſtraw is much ſtiffer and more firm. Where oat-crops are thin upon the ground, they grow ſtrong, and are conſequently better capable of ſupporting themſelves without falling on the ground.—For the natural hiſtory of the Oat, its ſeveral ſpecies, moſt profitable time of ſowing, and experiments of its culture, ſee the article Avena, vol. ii. p. 552–555.

### Of PEASE.

Piſum, or Peaſe, may be grown upon almoſt any ſort of ſoil; but are found to ſucceed beſt on ſuch as are dry, and poſſeſs a middling degree of lightneſs, and being perfectly clean. Pea-crops are moſtly put in after wheat, barley, oats, or other kinds of grain. They may likewiſe ſucceed clover or ſaintfoin in many caſes with advantage; and on old ley-grounds, when newly-broken-up, they may often be found a beneficial crop. The varieties of peaſe adapted to field-culture, are generally diſtinguiſhed into two kinds, the early and the late: of the former are the early Charlton, the golden hotſpur, and the common white: of the latter, all thoſe of the gray kind, as the Marlborough-gray, the horn-gray, the maple-gray, &c. the firſt of theſe ſorts is generally conſidered the beſt for field-huſbandry.

In ſowing peaſe, much muſt depend upon the intentions of the cultivator; when the peaſe are intended for podding, in order to be ſent green to the market, which may be the moſt advantageous appropriation of the crop near large towns, where they can be readily diſpoſed of, they ſhould be put in ſucceſſion at the diſtance of ten days or a fortnight from about the middle of January to the latter end of March, beginning with the lands that are moſt dry and mellow, and proceeding to ſuch as are more moiſt and heavy. In this mode of culture, regular ſupplies may be kept up for the daily conſumption of the markets. The white early ſorts are in theſe caſes to be employed. But for the general crops, when the farmer has no view of the above kind, they may be ſown as early in March as the ſoil can be put into a proper ſtate of preparation. In theſe caſes the gray ſorts are moſtly employed. When the ſeed is put in at a later period, as in April, the white kind ſhould conſtantly be preferred, as the produce becomes more early, which is a matter of importance in pea-crops.

The quantity of ſeed allowed to an acre muſt vary according to the difference of the circumſtances under which the crop is cultivated, the manner in which it is put in, and the intention with which it is propagated. When the ſeed is put in on rich ground in the autumn, with the deſign of pulling the pods green, it may be in the quantity of three buſhels and a half, or four buſhels, to the acre; a larger proportion than in other caſes being generally allowed. The peaſe in thoſe caſes ſhould be put in in rows, at the diſtance of about three feet from each other, in order that proper cultivation may be applied afterwards. This mode of practice is common about Dartford in Kent, where the green-pea ſyſtem of huſbandry is carried on extenſively, and with much profit to the farmer. But for the general ſowings, when the land is in tolerable condition, from three to three buſhels and a half is the common allowance, the earlier ſowings requiring rather the moſt ſeed.

It is uſual with many farmers to ſow the ſeed broadcaſt, but the drill-ſyſtem is certainly to be preferred, as being more regular, ſaving conſiderably in the proportion of ſeed, and admitting of cleaning the ground with more eaſe and advantage. In this laſt method two buſhels, or two buſhels and a half, may often be a ſufficient allowance of ſeed. The proper diſtance of drilling peaſe is moſtly about twelve or ſixteen inches for hand-hoeing; but, where the horſe-hoe is to be employed, from two to three feet; and the depth to which the ſeed is depoſited, from two to three inches. The uſe of the hoe too, in ſtirring the intervals, and earthing up the young plants, is of eſſential advantage in promoting their growth, and protecting them from the injuries of the ſeaſon.

There are many inducements to the cultivation of this crop, in the vicinity of large towns, where the demand for green peaſe is conſiderable; ſuch as the ready ſupply of money that is thus provided for the other expenſive operations during the ſummer-months, the facility of thus rendering the land proper for the growth of turnips, and the large ſupply of fodder that is afforded by the ſtems of the plants when properly ſecured; notwithſtanding the danger of ſuch crops during the winter, and even in the ſpring-months, when the ſeaſons prove unfavourable, and the heavy expences incurred in the gathering and diſpoſal of them. The cultivation of peaſe, however, except in the above view, is generally found to prove an unprofitable ſpeculation.—For further information on the culture of peaſe, *particularly of the garden kind*, ſee the article Piſum, in this Encyclopædia.

### Of BEANS.

Different kinds of beans are cultivated with equal ſucceſs in different diſtricts, according to the intentions of the farmers, and the nature of the ſoils in which they are grown; but they may be ſufficiently diſtinguiſhed by dividing them into field and garden beans. Of the firſt ſort the common horſe-bean is the moſt generally cultivated on the ſtrong lands, as it is found to grow to a greater height in the ſtem, and of courſe to cover the ſurface of the land more effectually. The tick-bean is, however, ſuppoſed to afford a more abundant produce. The large ticks are the ſort moſtly grown in the county of Kent, where the bean-huſbandry is practiſed to conſiderable extent; but in Eſſex, where the ſyſtem of cultivating beans alſo prevails, the *ſmall* ticks are held in the higheſt eſtimation, as on the ſtrong lands of that diſtrict they are moſtly found to afford ſtill more abundant produce; and in the market this is the ſort that generally produces the beſt price.

Some of the later or garden kinds have been recently introduced into the field huſbandry. Of theſe the mazagan and Mumford, the long-pod, and the Windſor, are the ſorts that are chiefly cultivated. Theſe large kinds of beans, however, cultivated in the field, except within reach of the London market, where they can be ſold in the pods green, anſwer no good purpoſe.

The ingenious author of the Synopſis of Huſbandry, remarks, that the proper time for planting beans is early in February; though it may be done to advantage till the latter end of March, if the weather prevent their being got in at an earlier ſeaſon; but in general it is beſt to embrace the firſt opportunity of ſowing them after Candlemas, as they often miſcarry if the ſeaſon be procraſtinated beyond that time, eſpecially if a dry ſummer ſhould ſucceed. In purchaſing beans for ſeed, care ſhould be taken to chooſe ſuch as are *hard* and *bright*, without being ſhrivelled in their appearance.

Beans are for the moſt part ſown broadcaſt, either on the ſtubble, before ploughing, or on the new-turned-up furrows. Sometimes beans are planted in the bottom of every ſecond or third furrow, and afterwards horſe and hand hoed. In a few diſtricts they are ſown with a drill-machine, and at ſuch diſtances in the rows as to leave ſufficient ſpace, either for hand-hoeing, when that only is intended, or for horſe and hand-hoeing, when it is purpoſed that both theſe operations ſhould be performed. It muſt at once appear obvious, that either of theſe laſt-mentioned methods is preferable to ſowing the ſeeds broadcaſt, as a better opportunity is not only afforded of cleaning the ground properly, but a more abundant return, and a produce of ſuperior quality, inſured.

Mr. Young thinks, that, on land which is inclined to moiſture, the preparation for this crop ſhould be as follows: Early in autumn lay on the manure, and immediately plough the land into ridglets of two feet ſix inches wide; in which ſtate let it lie until the ſeaſon for planting, when the ſeed may be dibbled in, one row of beans into the middle of each ridglet, at the diſtance of about three inches from bean to bean. They ſhould be immediately covered; which may be done by children, with a garden rake or hoe, or, ſhould the ſurface of the land be dry and crumbly, a horſe with a buſh-harrow ſhould be uſed. The diſtance between the rows will not prevent the crop from completely covering the ground, eſpecially if the land was manured for them, as they will branch out ſideways three or four ſtout ſtems from each root. They ſhould be early planted, in order to their getting ſufficient root-hold of the land, and procuring ſhade againſt the hot weather ſets in. It is alſo ſome ſecurity againſt the inſect called the *black dolphin*, which is the greateſt enemy the bean is expoſed to. They require a ſoil that can ſeldom be worked without damage during the winter and ſpring; conſequently it ought to be manured and gathered into ridges in the autumn.

Mr. Young, however, remarks, in the Survey of Suffolk, that it is there uncommon to give more than one earth for beans, and generally improper, as they love a whole firm furrow, and never thrive better than on a layer. But there are many different methods of planting beans. Some ſow this pulſe by broadcaſt, which is by no means an eligible way, ſince much of the ſeed will be left above ground, and a great part of that which is covered by the harrow will not be covered to a proper depth; and many other objections may be urged againſt this method of ſowing at random. In ſome diſtricts, as Middleſex, Surrey, &c. the method is, to plant this pulſe in rows ſtricken out by a line, by which a great ſaving is made in the article of ſeed, a circumſtance which is thought to compenſate for the extraordinary charge of this mode of huſbandry; and thus far it may be fairly acknowledged, that the method of planting beans by the dibble is greatly to be preferred to that of ſowing the ſeed at random. The rows are marked out one foot aſunder, and the ſeed planted in holes made two inches apart; the lines are ſtretched acroſs the land, which are formed about ſix feet over, ſo that, when one row is planted, the ſticks to which the line is faſtened are moved by a regular meaſurement to the diſtance required, and the ſame method purſued till the field is completed. Such is the method of planting beans by the dibbler; but the neateſt and moſt expeditious way of ſowing them, eſpecially the field-bean, is that purſued by the Kentiſh farmers. The uſual courſe in that county, is to plough up the oat or barley erſhes or grattens, which are deſigned for beans, ſoon after the wheat-ſeaſon is finiſhed, in which condition the fallows are to lie till towards Candlemas, or later, as the ſtate of the weather or the farmer's occaſion may require, and then to ſtrike out the furrows.

Eleven furrows to a row's breadth is the uſual width of ſetting out the rows, though ſome prefer a wider ſpace, whilſt others ſtrike them ſtill narrower; and this difference in the width of the rows is the cauſe why the farmers vary ſo eſſentially in reſpect to the quantity of ſeed to be ſown on the ſame given ſpace of ground; for, whilſt ſome will content themſelves with an allowance of two buſhels per acre, others will throw a ſack of beans upon the ſame compaſs of land. When the furrows are ſtruck at the diſtance mentioned, two buſhels and a half of middle-ſized tick-beans are ſufficient to ſeed an acre, and on good land (for if the ground be not either rich in itſelf, or rendered fertile by manure, it is of little conſequence to attempt the cultivation of this crop,) a farmer ſtands a fairer chance for a crop when the beans are thinly planted, than when a more liberal quantity of ſeed is allowed; for, when beans ſtand ſo very thick in the rows, they never pod ſo well as when the ſtalks are leſs crowded; and, although the crop of haulm may be more abundant, the increaſe will not be adequate to the large bulk of ſtraw.

In Suffolk, Mr. Secretary Young ſays, beans have been dibbled by ſome a row on every flag; by others, on every other flag. He has found it more advantageous to plant in cluſters of four or five beans in every hole; and eight or nine inches from hole to hole, which admits of much better hoeing than when more thickly ſet. Dibbling, ſays he, is the moſt effective method of cultivating beans. He objects to the drill-plough for beans; for as theſe pulſe, eſpecially the larger ticks, are very unequal in ſize, they cannot be let out of the hopper with ſufficient regularity; and by this inequality many yards of ground in the length of a furrow will be often left vacant from the caſual obſtruction of a large bean; and, when this is removed, numbers of a ſmaller ſize crowd to the chaſm, and ſhoot out of the hopper for a conſiderable ſpace, till another large bean intervenes to obſtruct the paſſage, and thus the crop makes a very unſightly appearance in the rows, and at the time of harveſt is very unequal; the injury in large fields being not inconſiderable; for, in thoſe parts of the furrows where no beans had been ſown, an increaſe cannot be expected; and thoſe which are huddled together by a quart or more in a ſpot, will, from the thickneſs of their growth, in courſe, come to little.

In the Synopſis of Huſbandry it is recommended as a good method to roll and harrow beans in the latter end of March. By the roller, the clods are broken ſo as to afford freſh nouriſhment to the roots; and the harrows following this operation pulverize and looſen the ſurface, flattened and baked down by the rains in the preceding month; by which the beans are conſiderably aſſiſted in the future progreſs of their growth. Soon after this the crop ſhould be edge-hoed, and afterwards *braked*; which method of braking is a piece of huſbandry peculiar to the county of Kent, and in every reſpect claims the preference to that of hoeing the whole ſpace between the rows; not only becauſe the braking is performed at an inferior expence, but it is likewiſe more efficacious, as well for extirpating the weeds that may have ſprung up between the rows, as in furthering the advances of the beans in growth, by looſening the ſoil, and conveying freſh earth to the ſtalks. This operation of braking may be continued at the interval of three weeks or a month, from the beginning of May till the crop becomes in bloom. When it is propoſed to earth-up the beans, this may be effected with great facility by fixing a ſmall block of wood on the brake; and, according to the diameter of this block, the earth may be thrown to different elevations on the bean-ſtalks, as they advance in growth.

It is remarked in the Survey of Middleſex, that beans are ſeldom ripe enough to cut till the latter end of Auguſt, and the proper time is when the *kids* are turning black, about ten days before they would begin to open at the ends. Though in ſome parts of the field the kids may not be ſo black as in others, this ſhould not prevent their being cut; for they will ripen and harden after that is done, by ſetting the ſheaves upright, and leaving them in the field for a week or ten days. If they are cut long before they are ripe, they will ſhrink and ſhrivel; and, if too ripe, they will ſhed conſiderably; though there is much leſs danger in reaping them too early, than in letting them ſtand too long. Thoſe that are over-ripe ſhould be cut with the dew on them, and carried to the barn in the ſame ſtate; the green parts of the crop being cut in the middle of the day. When the intention is to ſow wheat or tares after beans, they ought to be ſet up ſo as to occupy as little ſpace as poſſible, that the vacant ground may be immediately prepared for the next crop. The beſt method, is to cut the beans when the major part have ripened; and, by ſuffering the ſhocks to remain ſome time in the field, the upper part of the ſtalks will be ſufficiently withered, ſo as to prevent any ill effects from their humidity when laid in the barn or ſtack; nor will the beans from thoſe unripened pods be of any injury to the ſample.

As the object of the Kentiſh bean-huſbandry is that of a preparation for wheat, the farmers are particularly attentive to the ſeveral operations of hoeing and braking the ground during the growth of the beans; for, as the land in that county is of a nature ſo fertile as not to require the intervention of a ſummer-fallow, they ſpare no pains in the cultivation of their bean and pea-grounds, in order to render it as clean and well pulverized as poſſible by means of the hoe and brake, ſo that this latter inſtrument is ſcarcely ever out of the field, from the beginning of May till the time when the beans are advanced to that height as to obſtruct the working of it; by which the ground becomes ſo intimately divided, that every particle of ſoil in the interſpace is expoſed to the beneficial influence of the ſun and air, and at harveſt ſcarcely a weed is perceptible throughout the crop. In order to deſtroy what few weeds may remain in the rows, and to give that part of the ground its due ſhare of pulverization, and to cleanſe it from the bean-haulm, a plough is ſet to work ſoon after harveſt to ſpuddle the gratten; and for this purpoſe a plate of iron is fixed acroſs the ſhare at about four or five inches from the point, and the ſame axle-tree and wheels are made uſe of that were before employed for ſtriking out the furrows; and with this plough and two horſes three acres of ground may be ſpuddled in a day, by ſetting the ſhare-point in the interval, ſo that the iron or fin may embrace a row on each ſide; and, when the whole field is thus ſpuddled, the harrows and roller are to ſucceed, by which the haulm and weeds will be completely extricated at a trifling charge, and the ground be laid in readineſs for ploughing the ſeed-furrows, at which time thoſe beans or peaſe which may have been ſhed will have vegetated, and are deſtroyed by the plough; ſo that the farmer may, from this mode of huſbandry, be not leſs confident of growing a clean ſample of wheat, than if his ground had been really ſummer-fallowed.

On thin, chalky, or gravelly, grounds, notwithſtanding what has juſt been urged of the good effects of ſpuddling, Mr. Young obſerves, that it would perhaps be more prudent to omit that work, leſt it might contribute towards looſening the ſoil beyond a due medium; for on theſe ſoils the chief aim ſhould be to cloſe them as much as poſſible, that at wheat ſeed-time the ſurface may be perfectly cloſe; and therefore to roll and harrow the bean and pea-ground on ſuch ſoils, in order to rid the field of the haulm, &c. and when it has lain ſome time to plough the ſeed-furrows, are the whole proceſs neceſſary to prepare it for the ſucceeding crop of wheat; and this ſhows, he thinks, the advantage of ſowing with this grain, or with peaſe, that part of the farm which is moſt free from weeds, and in the beſt heart; not only that theſe pulſe, both of them (eſpecially beans), require to be ſown on good land, and on ſuch as has been improved by manure, but likewiſe that the erſhes or grattens may be ſo perfectly clean, as not to require the operation of ſpuddling.

In Kent, they cut their beans with a hook, and bind them into ſheaves with rope-yarns. Theſe ſheaves are ſet up in ſhocks of various forms, either five on each ſide, in the manner of wheat-ſhocks, or in a circular form, four ſheaves to the ſhock. But many farmers, in ſuch years when the hops have failed, cut up the bind, and reſerve it as a ſubſtitute for rope-yarns to tie their bean-ſheaves. Mr. Marſhall, however, recommends the pulling-up the beans in preference to cutting; for, he ſays, the benefit the ſoil receives will more than pay for the extra labour in clearing. Another advantage ariſing from their being pulled, is the ſtubbornneſs of the roots keeping the mow open, and admitting a circulation of air. And he ſays further, that by experience he found pulling up by hand far preferable to cutting with ſickles; as they may be pulled up not only much faſter, but much cleaner from weeds and graſs, than when cut, beſides leaving the land in a ſtate greatly ſuperior. The waſte is alſo leſs, ſo much ſo as to loſe ſcarcely a bean; and the bean-ſtalks are immediately ready to bind and ſet up; and, by the roots lifting them from the ground, the air acquires a free circulation. The work is alſo eaſier to the labourer, who ſtands more upright, and the power required is much leſs, eſpecially in dry weather. The ſoil in the drills, inſtead of being bound by the roots, and encumbered by the ſtubble, is left as looſe as a garden, and the ſurface free from obſtructions; and, if thoroughly hoed, is as fit as a fallow to be ſowed with wheat on one ploughing.

In Berkſhire, where they ſow triple rows of beans at eight or nine inches, and leave intervals of two furrows width, it is the practice to plough two furrows up each interval from the beans, making a ridge in the middle, by a ſmall light plough contrived for the purpoſe, which is drawn by one horſe, a moiſt ſeaſon being choſen for the buſineſs. After this the ridges are to be harrowed by means of a triangular harrow, by which the ſuperficial parts of the ſoil are rendered light and mellow, ſo as to admit the natural fibres to ſhoot in it with facility, and draw forth ſupport for the crop more effectually; this is admitted to be a good method.

In ſuch ſummers as are dry, beans are frequently liable to be much injured by the attacks of the black fly, called by the farmers the *dolphin*; the whole field in particular caſes being in danger of being deſtroyed in the courſe of a few days. In order to prevent this miſchief, it is the practice in ſome places to cut off the tops by means of a ſcythe or other ſharp implement, as it is moſtly on the tops of the plants that the inſect firſt appears. When this method is adopted, it ſhould be performed on the very firſt appearance of the fly, otherwiſe little benefit can be produced; as perhaps by removing the firſt inſects that ſhow themſelves, their propagation may in ſome degree be prevented.

Beans, like peaſe, are every where an uncertain crop, conſequently the average produce difficult to eſtimate. In Middleſex, it is ſtated to be from three and a half to four quarters the acre. And in Yorkſhire, when cultivated as a preparation for wheat, from four to ſix quarters the acre; but, where the crop precedes a fallow, only from two to three quarters. In Kent, where the bean-huſbandry is more perfect, the common tick-beans are ſaid to afford from two to ſix quarters, according to circumſtances; the mazagan, and other ſmall beans of the ſame ſort, from three to five quarters, and ſometimes conſiderably more; and the Windſor, long-pod, and other large ſorts, from three to four to ten quarters the acre. Taking it throughout the whole kingdom, it is aſſerted by an able writer, to vary from ſixteen to forty buſhels the acre; but that a good average crop can ſeldom be ſtated at more than twenty.

The ſmaller kinds of beans are principally employed in the feeding of horſes, hogs, and other animals; and, as they contain a third more meal in a given portion than oats, and at the ſame time probably afford a more durable nouriſhment, it muſt be economical to make uſe of them in the feeding of labouring horſes. And on the ſame principles they muſt be advantageous when uſed in the fattening of cattle, &c. But, when hogs are fed with this ſort of food, it is aſſerted that the pork is indifferent from the meat becoming hard, though for bacon it is extremely good.

## OF SOWING, BOTH BROADCAST AND BY THE DRILL.

BROADCAST SOWING is that mode of cultivation by which the ſeed is committed to the ſoil by the hand of man, without the aid of machinery; and is the method which prevails in almoſt every part of the kingdom. In this method of performing the buſineſs, the moſt uſual practice, eſpecially where the ridges are equal in breadth, and not of too great a width, as five or ſix yards, is that of diſperſing the ſeed regularly over each land or ridge, in once walking round; the ſeedſman, by different caſts of the hand, ſowing one half in going, and the other in returning. In doing this, it is the cuſtom of ſome ſeedſmen to fill the hand from the ſeedlip, which they carry along with them, as they make one ſtep forward, and diſperſe the ſeed in the time of performing the next; while others ſcatter the ſeed, or make their caſts, as they are termed by farmers, in advancing each ſtep. It is evident, therefore, that, in performing this buſineſs with regularity and exactneſs, much care, and thought, and uninterrupted attention, are neceſſary. It is therefore of great importance for the farmer either to perform the operation himſelf, or to ſelect ſuch perſons as are converſant with the buſineſs, and on whom he may ſafely depend, otherwiſe he might incur conſiderable loſs in the waſte of ſeed, and run no ſmall riſk in reſpect to the evenneſs and ſufficiency of his crops at harveſt.

It has been obſerved, that in this way of ſowing, even with the moſt expert ſeedſmen, where the lands or ridges are irregular, or broader at one end than the other, a great waſte of ſeed muſt always be the conſequence; as when turning repeatedly on the ſame ridge, and at different parts, they cannot poſſibly ſcatter the ſeed with equal regularity as if it was of the ſame breadth, or nearly ſo. And, from the ſeed in this kind of ſowing being ſcattered at random, and vegetating or coming up without any regularity, the crops cannot derive any advantage by hoeing or after-culture, except in the way of clearing them from weeds by the hand, which is often, through careleſſneſs, deſtructive to the crop.

Sowing by broadcaſt is peculiarly adapted to ſtrong, adheſive, clayey, ſoils, where machinery will not work, nor the ſurface bear much treading after the ſeed is committed to the ground. It is alſo obliged to be adopted on all other kinds of ſoil where a great ſtroke of buſineſs is carried on, from the facility with which it is performed, and time will not permit nice methods to be perſiſted in. Hence, in the extenſive wheat-counties, ſowing by broadcaſt is ſtill found chiefly to prevail.

In ſowing by the DRILL, many advantages are, under particular circumſtances, unqueſtionably to be derived; but it is not always that theſe are in the habit of preſenting themſelves. The drill is the engine that plants the corn and other ſeeds in rows; it makes the channels, and ſows the ſeeds in them, and covers them with earth when ſown, and all this at the ſame time, and with great expedition. The principal parts of the drill are the ſeed-box, the hopper, the plough, and its harrow. The ſeed-box is the chief of theſe; it meaſures, or rather numbers out, the ſeeds which it receives from the hopper, and is for this purpoſe as an artificial hand; but it delivers out the ſeed much more equally than can be done by a natural hand. The plough and hopper are drawn by a horſe, and by theſe the ground is opened, and the ſeed is depoſited in it: the harrow follows, and lightly rakes in the earth over them. When the ground is fine, and the ſeeds ſmall, a hurdle, with ſome prickly buſhes faſtened to its under part, will ſerve better than the harrow.

Hence it will be ſeen, that the Drill Huſbandry affords the means of diſtributing the ſeed with a much greater degree of exactneſs, both in reſpect to the depth and the regularity of the rows, than by broadcaſt; whence the crops not only vegetate and grow up in a more equable manner, but by cultivation are capable of being more effectually aſſiſted in their after-growth, and at the ſame time there is a conſiderable ſaving in the quantity of ſeed. And as the grain by ſuch means is neither too thickly crowded, nor too thinly ſcattered in the drills, there cannot be any injury in the weakneſs of the crops from the former cauſe, or loſs from the too ſcanty number of ſtems and ears in the latter, which muſt always be more or leſs the caſe in the broadcaſt method of management. Beſides, from the equality of the depth to which the ſeed is depoſited by the drill, in addition to the other advantages that have been noticed, the crops will become ripe in a more equal and uniform manner.

Aſſiſting the growth of the crop by the frequent hoeing and breaking the ground, muſt alſo be advantageous in different ways. By turning the earth in different directions, the mould becomes not only more completely pulverized, but alſo newly and more fully aërated; in conſequence of which, various nutritious materials are abundantly provided; while, at the ſame time, the ſoil is rendered more eaſily penetrable by the ſuperficial roots of the grain, and the power of tillering, or ſending forth new roots and ſtems, increaſed by the earth being laid up to ſuch of the joints of the corn-ſtems as are immediately above the ſurface. There are likewiſe other points of utility to be derived from this method of management; as by the more complete deſtruction of weeds that takes place, and the harveſting of the crops, in conſequence of it, being accompliſhed with more certainty and leſs trouble and expence, as well as by the land being left in a more mellow and productive ſtate for the growth of future crops, much may be added to the account of profit.

But, though this method of ſowing ſeems to afford advantages in all theſe different views, it has not by any means been generally adopted; the reaſons of which ſeem to be, the difficulty of bringing common labourers to adopt the practice, the incorrectneſs of the machinery commonly employed in delivering the ſeed, and the expence with which it is at firſt attended; but there are others which have probably had an equal if not greater effect in retarding its progreſs; as the applying it to lands in an improper condition, both in reſpect to quality and the ſtate of tillage, and the either wholly or partially neglecting the *after-management* of the crops, upon which, it is obvious, much muſt depend. It is probable alſo, that by attempting too great ſavings in the quantity of ſeed, and allowing it to be ſown too thin, both in reſpect to the drills and the diſtances of the rows, the practice may in many inſtances have been brought into diſrepute. It is, however, ſufficiently ſhown by numerous comparative experiments, that where the nature of the ground and the ſtate of tillage are ſuch as to admit the implements to perform the buſineſs in a proper manner, and where a regular attention is beſtowed on the after-management of the crops, it is a method that has not only advantages in the ways that have been mentioned, but much ſuperiority in the quantity and quality of the produce, as well as the more perfect tillage of the land.

The ſorts of land on which this method of ſowing may be had recourſe to with the greateſt probability of ſucceſs, are thoſe of the lighter and more mellow kinds, that are not ſo ſtrong as to obſtruct or impede the operation of the drill, and ſuch of the heavy deſcriptions as have been brought into a ſtate of tolerable fineneſs, and are not too wet or ſtiff to hinder the action of the machine; but it can ſeldom or ever be employed to much advantage on ſoils of a very ſtony nature, becauſe the ſtones will conſtantly be liable to derange the operation of the drill, and render the diſtribution of the ſeed irregular and incomplete. In very wet ſeed-ſeaſons too, it muſt probably give way to the broadcaſt method, as the operations of the drill in a wet ſeaſon would ſcarcely ever be performed with that regularity and exactneſs which is neceſſary. But in whatever kind of ſoil, and wherever the method of ſowing by the drill is attempted, it will invariably be proper, beſides ſuiting the crop to the quality of the ſoil, to proportion the quantity of ſeed to the nature of the land, and the diſtance of the rows to that of the crop, and likewiſe keep up a conſtant and minute regard to the culture of the crop during its growth.

In the ſowing of crops by means of drill-machines, different diſtances in the rows and intervals have been recommended, according to the particular intentions of the farmer. It is obvious that inconveniences muſt be experienced by their being either too large or too narrow; as in the former there muſt be a great loſs of ground, and in the latter little advantage can be derived in the culture of the crops while growing. The nature of the land muſt probably have conſiderable influence in regard to the diſtance of the rows, and the manner of drilling. On the dry light ſorts of ſoil, whether loamy, gravelly, or chalky, that can be conſtantly ploughed and kept upon the flat, as is the cuſtom in the eaſtern parts of Kent, cloſe drilling is probably to be preferred as the moſt advantageous. But on ſuch ſoils as require ridging, ſomewhat wider diſtances may be proper. An ingenious experimenter on this ſubject, found, that drilling three rows eleven or twelve inches aſunder, on three-bout ridges, generally ſucceeded well. The three-bouts, in this way, form a ridge about four feet and a half in breadth; the three rows at the diſtance mentioned occupying two feet, and the horſe-hoe, paſſing on the ſide of each outſide row, at the diſtance of three inches, leaves the ridge two feet and a half broad, and the intervals between the ridges about two feet. It is, however, further ſuggeſted, from remarking that in theſe caſes the outſide rows always afford the moſt vigorous and healthy plants, that two rows only, on two-bout ridges, would be equally productive, and leave the land in better condition. But whatever may be the moſt ſuitable diſtances, which experiment does not ſeem to have yet fully ſhown, the very wide intervals of the early practice are to be avoided as improper for all ſorts of grain, both on account of the loſs that muſt unavoidably be ſuſtained by the largeneſs of the ſpaces, and becauſe the intervals or ſpaces between rows, at much leſs diſtance, can, in the improved methods of horſe-hoeing, be ſtirred with equal facility and exactneſs. For various kinds of green-crops, ſuch as cabbages, potatoes, and others of a ſimilar nature, wide diſtances muſt obviouſly be the moſt proper. But the width of the intervals, and the proportion of ſeed, that have appeared the moſt eligible for wheat, rye, barley, oats, and vetches, on ſuch ſoils as are not very wet, are equidiſtant rows of one foot, on five or ten feet ridges. And for beans, peaſe, and turnips, on three-feet ridges, two rows on each, nine inches apart, with intervals of twenty-ſeven inches.

In reſpect to the proportion of ſeed, it is obſerved, that ſuch lands as are in high tilth, and on five-feet ridges, will only require three pecks of ſeed of either wheat or rye, five pecks of barley, oats, or vetches, and one buſhel of beans or peaſe, to the acre. It is ſuggeſted, however, that theſe proportions ſhould be varied, in the quantity of a peck to the acre, according to the quality of the ſeed, and the richneſs of the land. It is remarked alſo, that in reſpect to wheat and barley, the diſtance of the rows and the quantity of ſeed muſt greatly depend on the quality of the ſoil. Where it is poor, the diſtance between the rows ſhould not be more than about eight inches, nor the quantity of ſeed more than about nine pecks, being depoſited to the depth of two inches and a half. If of a middling quality, the diſtance between the rows may be about nine inches, and the proportion of ſeed eight pecks; and where it is rich, the diſtance of the rows ſhould not ever exceed ten inches, with a quantity of ſeed of about ſeven pecks. In the ſowing of turnips, rape, &c. on the poorer ſorts of ſoils adapted to them, ten inches are found to be the propereſt diſtance, and on thoſe of the richer deſcription, twelve. When they are ſown at greater diſtances, they are apt to grow too luxuriant for keeping any great length of time. If ſown at a wider diſtance, which may, notwithſtanding, be proper on ſuch ſoils as are particularly rich, they ſhould be eaten off before the ſeverity of winter ſets in, as large turnips are very liable to be deſtroyed by froſts. In the putting in of carrot-crops by the drill, fourteen inches between the rows is recommended as the moſt proper diſtance, the land being ſlightly harrowed over after the drilling is finiſhed.

## OF NATURAL AND ARTIFICIAL GRASSES.

Under the article GRASS, in our Eighth Volume, we have enumerated thoſe ſpecies which are highly uſeful for the improvement of meadows and paſture-lands, and for ſweetening and enlarging the crops of hay. Our attention will now be directed to thoſe graſſes which, from their great ſucculence, and early diſpoſition to vegetation, are found ſo valuable in providing a ſupply of ſpring-food for ewes and lambs, and other rearing-cattle. Theſe have been judiciouſly ſelected by experienced agriculturaliſts, and may be arranged in the following order:

WHITE CLOVER.—This is one of the moſt valuable of the graſſes, where a flock of ſheep is kept. It will flouriſh on dry, ſandy, and loamy, ſoils, as well as in the clayey and peaty lands, where they have been well drained from moiſture; but on the wet and poor loamy and clayey lands, it is not by any means ſo proper or uſeful, as it is not laſting, but gives place to aquatic weeds, and ſoon dies. It is erroneouſly ſuppoſed by ſome not to afford ſo ſweet a herbage as broad clover; the eagerneſs with which it is fed upon both by ſheep and other cattle, and the proof they make upon it, confirms its great utility. That which comes up naturally by the application of manure, is ſaid to be much more hardy than that which is ſown, as well as more laſting in the ſoil. It has been juſtly remarked, as a proof of good land, that it runs quickly, of its own accord, to this plant. It may be introduced with moſt ſorts of ſeeds, and contributes greatly to the ſucceſs of the ſheep-farmer.—For the natural hiſtory and beſt modes of cultivation of this graſs, ſee the article TRIFOLIUM repens, in this Encyclopædia.

COW-GRASS.—This is alſo called by ſome farmers *marl-graſs*, and affords a very luxuriant herbage. It is ſaid to be a more laſting plant than the common red clover. On clayey ſoils and loamy ones of the ſtronger kind, it is found to ſucceed to the greateſt certainty; and its cultivation has been attempted on thoſe of the ſandy deſcription,

ſcription, with ſuch ſucceſs as to afford good crops. The feed can always be procured with facility wherever it grows. It is ſaid to ſucceed well on all the heavier ſorts of ſoil, and to be of great utility when ſown with other graſſes, where the lands are to remain in a ſtate of graſs for the occaſional paſturage of cattle.—See, for its culture and valuable properties, the article Trifolium medium.

**Trefoil.**—This is conſidered likewiſe as one of the moſt uſeful of the graſſes, being capable of ſucceeding on ſoils of different deſcriptions. It may be objected to as being only a biennial; but, as it annually ſheds much feed, it is ſaid ſeldom to wear out of the lands on which it is eſtabliſhed. This plant is often diſtinguiſhed by the titles of Nonſuch, Yellow Clover, &c. As it is always of much importance to the farmer to have the land he lays down for paſture to produce an ample crop the firſt year; and as there are ſome graſſes or plants which require two or three years to eſtabliſh themſelves, and acquire their perfect growth, while others arrive at their extreme growth and expanſion the firſt year after they are ſown; ſome of the latter ſort ſhould be choſen, among which trefoil will be found extremely ſerviceable. This proves the advantage of mixing it with other ſown graſſes, and converting it, like white clover and cow-graſs, into an artificial graſs.—For its culture, and valuable properties, ſee the article Medicago lupulina, in this Encyclopædia.

**Rib-grass, or Rib-wort Plantain.**—This is graſs much reliſhed by horned cattle and horſes; and on grounds that are rather ſoft and porous, as ſands and loams, in good heart, and which have a tendency to moiſture, it affords a large produce of herbage; but on thoſe that are dry and binding, its produce is but ſcanty. It has been long eſtabliſhed in ſome diſtricts, where it is in much eſteem for ſheep-feed, but from its ſucculent nature improper for hay. It is ſaid to be a valuable plant for thickening the bottom of meadows and natural graſs-paſtures. Cattle are ſaid to diſreliſh it; but an attentive obſerver may ſoon ſee how eagerly it is eaten by all ſorts of ſtock. It comes early in flower, and flouriſhes even in moſs-lands that have been drained, affording feed in great plenty. The *graſs-leaved plantain* is alſo a plant capable of being employed with advantage in the laying down lands to paſture. It is ſaid to ſucceed on barren ſoils and clays. It has the property of reſiſting the effects of the winterly ſea-air; and, as growing well on land liable to be overflowed with ſalt-water, may be a valuable plant in ſuch ſorts of ground. Its leaves, from their ſmallneſs, have the appearance of the thicker and better ſorts of graſs. Cattle, ſheep, and horſes, feed upon its leaves with much avidity, but particularly ſheep, which pare it as cloſe as poſſible.—For its culture and management, ſee the article Plantago lanceolata, and tenuifolia.

**Burnet.**—This plant may be cultivated for horned-cattle; but its principal uſe is for ſheep-paſturage. It ſucceeds on moſt ſorts of ſoils, as thoſe of the ſandy, clayey, and peaty, kinds. It forms a large proportion of the natural paſturage of the moſt fertile parts of the South Downs; and abounds on moſt other downs of the calcareous kind. Its moſt beneficial application is in the way of an early green feed for ſheep, or other ſorts of ſtock. It ſhould be always made uſe of while in a young and tender ſtate of growth, as being better reliſhed by cattle. In ſoils that are fertile and ſuited to its cultivation, it is ſaid, under proper management, ſometimes to afford good paſturage in the latter end of January, and through the whole of the two following months. The ſevere weather in winter affects it leſs than moſt other herbaceous plants; being ſo hardy as in ſome caſes to vegetate in that ſeaſon, when the weather is a little open. If not fed down, it may be cut at the above period as a green food. Its property of reſiſting the effects of drought in the ſummer ſeaſon, is likewiſe a circumſtance of much importance in its favour. It has alſo the quality of growing thicker and cloſer on the land by time. For the purpoſe of hay, it is ſaid to afford a large produce, but requires to be cut early, to prevent its coarſeneſs. The feed is ſaid to be of much advantage in feeding of horſes, and alſo the chaffy material. In the culture of burnet, it is of vaſt importance to have good feed, and that which is of the proper ſort. It may be the beſt procured by ſelecting a part where the plants are good, as they afford it in a large proportion. Where the land is intended as a ſheep-paſture, it ſhould be ſown broadcaſt over the ground; but in other caſes, it admits of being cultivated in drills, in the ſame manner as lucerne.—See farther under Pimpinella.

It is in general believed that thoſe artificial graſſes which afford much foliage, may be the moſt nutritious. The ſuperior utility of thoſe that run much to ſtem, as well as of broad clover, tares, and other ſimilar plants, in the ſupport of different ſorts of ſtock, ſeem to countenance the ſuppoſition. And it is probably on the ſame principle that the firſt crops of hay are better capable of ſupporting work-horſes, than thoſe which ariſe from the ſoft herbage of the aftermath.

As all the beſt graſs-feeds may now be purchaſed in the feed-ſhops, there will of courſe be much leſs difficulty in laying down land with proper graſſes than was formerly the caſe. In reſpect to the proportion of feed that may be the moſt proper and advantageous under different circumſtances, it muſt depend in a great meaſure upon the nature of the ſoil, the ſituation of the land, the ſtate of preparation to which it has been brought, and the intentions of the farmer in its application. But old tillage-lands will in general require a much larger proportion of feed than thoſe which have been more recently broken-up. Cold expoſed ſituations alſo ſtand in need of a greater quantity of feed than thoſe that are low and warm; and where the lands are deſigned for paſture, a larger proportion muſt be allowed than where hay is the principal object.

With reſpect to the ſeaſon of putting in the graſs-feeds, the moſt uſual has been in the ſpring, at the time that the grain-crops are ſown; but, where the ground has been brought to a ſuitable ſtate of preparation by means of green or other fallows, the latter end of the ſummer, as about Auguſt, is by far the better time. In the former caſe they are commonly put in with the grain-crops; but, in the latter, without any other ſort of crop. There has been much diverſity of opinion among agricultural writers with regard to the ſuperior utility of theſe different ſeaſons of introducing the feeds, as well as with regard to their being ſown with or without other ſorts of crops. The advantages of the autumnal over thoſe of the vernal ſowings are contended to be, thoſe of the graſs-plants being leſs expoſed to danger from the ſhade, cloſeneſs, and choaking, that muſt neceſſarily occur at the latter ſeaſon; there being leſs riſk of ſtocking the ground with noxious weeds in caſe of the feeds of hay-chambers being indiſcriminately ſown; their being put in upon a better preparation and more mellow and fertile ſtate of the land; their growth being more ſtrong and vigorous from their not being robbed of their proper nouriſhment by other exhauſting crops, and the great ſuperiority of the hay-produce; while on the contrary it is maintained in ſupport of the vernal ſowings, that, beſides their being leſs precarious, ſhade is neceſſary in the early growth of the plants to protect them from the effects of heat; the moiſture is better preſerved in the ſoil for their ſupport; ſmall annual weeds more effectually prevented from riſing to injure them; and the loſs the farmer muſt ſuſtain from the want of the grain-crop guarded againſt.

But though ſome of the arguments urged on both ſides of this controverted point may be objected to, the autumnal ſowings not preventing the perennial weeds from riſing and ſhedding their feeds in the following ſummer, nor the great cloſeneſs of grain-crops being without injury to the growth of the young graſs-plants; there are facts that render it not improbable but that each method may have advantages under particular circumſtances. In the more ſouthern diſtricts, where the ſeverity of the winter is later in its approach, the autumnal ſeaſon may frequently be made uſe of with advantage, after fallow-crops, for ſowing graſs-ſeeds, eſpecially in caſes where the lands are in too high a condition for the ſucceſsful growth of corn. But in the more northern parts of the kingdom, and expoſed ſituations, where the froſts ſet in at an early period, it may be in general the moſt adviſable practice to put the ſeeds in, in the vernal months, with ſuitable crops of the grain kind. An experienced agriculturiſt has indeed obſerved, that graſs-ſeeds anſwer almoſt equally well in either method; he prefers the Auguſt-ſowing without corn, though the ſucceſs of his trials in the different ſeaſons has not juſtified any deciſive concluſion. It is even admitted that in moory and mountainous ſituations, where the ſnows come early, autumnal ſowings are not adviſable, or to be performed later than the very early part of Auguſt; the vernal ſeaſon with oats for being cut young for ſoiling, or hay, is conſtantly to be preferred.

Where the vernal ſowing with other ſorts of crops is had recourſe to, barley is that which is the moſt uſually recommended, and there ſeems to be no queſtion that barley is in general the fitteſt grain to be ſown with graſs-ſeeds. The ſame tilth which anſwers for the one is requiſite for the other. Barley has a diſpoſition to looſen the texture of the ground in which it grows; a circumſtance highly favourable to the vegetation of graſs-ſeeds, which require a free and open ſoil to extend their roots in; the tender and delicate fibres of which have much difficulty in contending with the reſiſtance of a ſtubborn ſoil. And this points out the reaſon why graſs-ſeeds ſo frequently fail on ſtrong land not in a proper ſtate of cultivation. In the choice of barley, that ſort ſhould be preferred which runs leaſt to ſtraw, and which is the ſooneſt ripe. But as from the graſſy nature of the ſtem, and the large ſize of the ear, in this ſort of grain, a conſiderable degree of cloſeneſs and ſhade muſt conſtantly be kept up, it ſhould never be ſown ſo thickly as in other caſes where there are no graſs-ſeeds. Some object to ſowing graſs-ſeeds with barley on other principles, as thoſe of its drawing its nouriſhment from the ſurface, which is alſo the caſe with the graſs-plants, and that in conſequence they muſt be greatly retarded in their growth from the want of due ſupport. Where the land is in a proper ſtate of preparation and tillage, if ſown with oats, they will be apt to become ſo luxuriant as to greatly injure, if not wholly deſtroy, the young graſs-plants by the cloſeneſs of their ſhade. In ſome caſes however, they ſucceed beſt with this ſort of crop. On the ſtronger kinds of land the ſowing of graſs-ſeeds has been found to anſwer well with thin crops of beans.

The importance of having the ſurface-mould in a fine ſtate, in order to the more regular diſtribution and more perfect vegetation of the graſs-ſeeds, muſt be obvious to the practical farmer. But to effect theſe purpoſes in the moſt complete manner, the ſeedſman ſhould be accuſtomed to the buſineſs, and the ſeeds, as being of different weights, as little mixed with each other as poſſible. It is much better to have more caſts than to blend the ſeeds together for the ſake of diſpatch. But the ſowing ſhould never be attempted in ſuch a wet ſtate of the land as produces any great degree of tenacity in the mould, as under ſuch circumſtances the ſeeds would be apt to come up in a tufty unequal manner. Nor for the ſame reaſon ſhould the lighter ſorts of graſs-ſeeds ever be ſown in windy weather; as the delivering them in an equal and regular manner, is a point of conſequence to the forming of good graſs-land. In the covering-in of the ſeeds, care ſhould be taken that none are left in an expoſed ſtate on the ſurface of the ground, as when that is the caſe many of them will periſh, and the ſward appear patchy. This buſineſs is executed in the moſt complete manner by a pair of light ſhort-tined harrows at one tining. The practice of employing buſh-harrows is improper, as in that way the ſeeds are liable to be drawn into lumps. In all the lighter and more ſpongy deſcriptions of land, it may be advantageous to paſs a light roller over the ſurface immediately after the ſeeds have been well harrowed in. In caſes where the tenants and not the proprietors of the lands are to lay them down to graſs, it may be the moſt adviſable practice for the latter to procure the ſeeds; but at the expence of the former; eſpecially where they have a ſufficient intereſt in ſuch lands; as, without this precaution, from their general propenſity to keep the grounds under the plough, and their indifference in reſpect to the obtaining of the moſt proper ſorts of ſeeds, there may be danger of the buſineſs' being improperly performed.

As the ſurface of ſuch grounds as have been newly laid down to the ſtate of ſward is, from the previous tillage which they require, extremely tender, and readily broken into holes, the turning-in of cattle with the view of feeding them down, muſt in moſt caſes be highly prejudicial. The beſt practice is therefore to ſuffer no ſort of ſtock to be put upon ſuch lands till the ſpring after their being laid down; or, where the farmer finds it abſolutely neceſſary to turn upon the lands, the lighteſt ſort of ſtock ſhould conſtantly be ſelected for the purpoſe.

There appears to be a ſtrong difference of opinion among agriculturiſts, as to the earlier management of theſe crops; ſome maintaining the ſuperiority of keeping the ground cloſely fed down by ſheep or horned-cattle, while others conceive mowing or feeding as preferable. There ſeems little reaſon to doubt but that feeding is a much better practice than thoſe of either mowing or ſeeding; the chief difficulty is in reſpect to the ſort of ſtock that is the moſt proper. On the more dry and firm ſorts of ground a mixed ſtock may be the moſt advantageous, as horned-cattle and ſheep, as in that way the new paſture may be fed down in the moſt regular manner; but on thoſe that are of a more open, porous, and leſs firm, quality, ſheep, by their eating ſo cloſely, may do much harm, eſpecially in the firſt years of the new lay, by pulling up the young and imperfectly-eſtabliſhed graſs-plants. In lands that are more inclined to moiſture, the conſuming of the produce by horned-cattle muſt conſtantly be liable to do miſchief, except in very dry ſeaſons; they muſt of courſe be principally fed down by ſheep. And in all caſes where the new lay is chiefly conſtituted of the more coarſe ſort of graſſes, ſheep would ſeem to be the moſt proper kind of ſtock, as the graſſes are thereby conſtantly becoming finer and ſweeter. The ſweetneſs of the paſturage on many ſheep-downs has been remarked to depend more on their being kept cloſe fed down than any other circumſtance, as, on being neglected in this reſpect, it becomes coarſe, and is rejected. It has been well obſerved, indeed, that ſheep-feeding not only ameliorates by enriching the ſoil, and fining the herbage, but alſo by deſtroying weeds.

It has been long the practice in many diſtricts with the moſt improved cultivators, to have recourſe to the method of ſheep-feeding for ſome time after laying the lands down to graſs, as two years or more. And, where ray-graſs and white clover are intended to remain ſome years, it is found advantageous to eat them the firſt year by ſheep, in cloſing, thickening, and rendering them more permanent. Theſe facts are all in evidence of the great propriety and utility of the practice of feeding new graſs-lands. It muſt however be obſerved, that, in order to render the practice as ſafe and beneficial as poſſible, the new lays ſhould not be fed during the autumn, or the ſtock turned into them at too early a period in the ſpring. Nor ſhould they be too heavily ſtocked, or the ſtock kept in the paſtures too long, eſpecially when it conſiſts principally of ſheep, as they may do much harm by paring and eating the plants ſo cloſely down, as to expoſe their roots too much to the effects of drought. And in caſes where the graſſes have run up much to ſtem, if the lands be ſufficiently ſtocked with plants, it may be an uſeful method to cut them over by means of a ſcythe before their ſeeds are formed, as by this means they will become more ſtrong and vigorous; but, in the contrary circumſtances, they are better left for the purpoſe of providing a more abundant ſupply of young graſſes, as the benefit obtained in this way will more than counterbalance the injury ſuſtained by the running up of the old plants.

But, though the practice of feeding new-laid graſſes in the firſt years appears to be the moſt advantageous and proper mode of management, eſpecially for lands intended for paſture, there are many caſes in which they may be mown with great ſucceſs. This practice is perhaps always the moſt beneficial and proper, and indeed the only one that can be ſafely adopted in ſuch ſoils as poſſeſs any great degree of moiſture, as under ſuch circumſtances the feeding them down with any ſort of live-ſtock muſt in moſt ſeaſons be injurious to the ſward. And, beſides, where the object and intention of the farmer is chiefly hay, the graſs-plants, by being kept cloſely eaten down by live-ſtock for a conſiderable length of time before the ſcythe is applied, may, from their becoming thereby diſpoſed to a low and lateral ſpreading growth, be afterwards more unfit for the production of hay-crops. On theſe principles it may be a more judicious practice to manage lands deſigned for hay without having them for any great length of time, previouſly to their being mown, fed down cloſely with ſtock, as in this way a larger produce of hay may be afforded.

Where the new lays are mown the firſt year after being laid down, which is not a method to be generally recommended, it is an excellent practice to apply a moderate coat of manure over them in the autumn, eſpecially when the ſtate of the land and the ſeaſon is ſuch, in reſpect to dryneſs, as to admit of its being done without injuring the ſurface-ſward; as by this means the graſs-plants not only become more ſtrong and vigorous, but better eſtabliſhed in the ſoil, and of courſe bear cutting with much leſs injury.

In regard to the application of manure to new-laid-down graſs-lands, though it will ſeldom be abſolutely requiſite, where they have been returned to the ſtate of ſward under the degree of fertility and preparation that has been already adviſed, it may in many caſes be had recourſe to with great advantage, as it is probably one of the beſt means of preſerving a good cloſe ſtate of ſward when judiciouſly employed. It is a fact however, that, though in general no manure will be wanted till the land has been mown for hay, there can be little doubt but that great additional improvement will be produced where manure of any ſort can be applied, and that, the oftener the land is manured, the greater will be the improvement. If the lands have been laid to graſs with corn-crops, the application of a ſlight dreſſing of manure in the autumn following will be of great utility in fixing and encouraging the growth of the young graſs-plants; but in other caſes the latter end of the ſummer-fallowing, or very early in the autumn, are ſuppoſed to be the moſt beneficial periods for the purpoſe; but as at theſe times, in many inſtances, much loſs of manure may be ſuſtained, both by evaporation and the waſhing of heavy rains and ſnows, it may be a better and more adviſable practice to perform the buſineſs in the early ſpring-months, eſpecially where the lands are to be conducted under the ſcythe, as in this way the enriching material will be ready to exert its influence at the moment the young plants begin to ſend forth their new ſhoots; and thus not only afford more aſſiſtance in thickening and invigorating the new ſward, but be leſs in danger of being uſeleſsly diſſipated and waſted.

The effects of *watering* have likewiſe been found powerful in the reproduction of ſward; and, where it can be had at command, land may with great facility be broken up for corn, and afterwards returned to a ſtate of meadow. See the article IRRIGATION. See alſo the article GRASS, vol. viii. p. 795–799, and the correſpondent Engravings.

Thus we ſee, the introduction both of natural and artificial graſſes between thoſe of the corn kind, is a practice of the greateſt utility and importance, as the lands are thereby not only prevented from being ſo much exhauſted as would otherwiſe be the caſe, and at the ſame time rendered fit for the growth of particular kinds of grain without the neceſſity of fallowing, but a much larger proportion of green and other food than could otherwiſe be obtained, is provided for the ſupport of live-ſtock.

**RED CLOVER** is one of the beſt and moſt general of the ARTIFICIAL GRASSES. It is capable of being cultivated on almoſt all the more heavy and dry deſcriptions of land which are in a tolerable ſtate of fertility, and it is ſaid to ſucceed on the deeper kinds of gravelly, chalky, and ſandy, ſoils. In reſpect to preparation, it is leſs nice than many other herbaceous plants; yet, the finer the mould the land has been brought into, the better it ſucceeds. And, as wheat is the grain-crop that moſtly follows clover, it may be the moſt advantageous practice to apply manure for the crop with which it is grown, as by that means the ground will be in the moſt ſuitable condition for that crop. It is of much conſequence, in raiſing crops of clover, to ſow ſuch ſeed as is perfectly good, freſh, and well ripened; as, from its being kept in the ſhops for a conſiderable time, much of it becomes in a ſtate unfit for vegetating. That which is good has a bright appearance, ſlides eaſily in the hand, ſmells ſweet, and has the purple-coloured ſeeds greatly prevailing over thoſe of the yellow caſt.

On the richer ſorts of ſoil that are clean from weeds, ten or twelve pounds of ſeed may be a ſufficient quantity for the acre, while ſixteen or eighteen pounds will not be too much for thoſe that are of a more ſtiff quality, and poſſeſs a leſs degree of fertility. Where the land is to be converted to the purpoſe of paſturage for two or more years, it may alſo be advantageous to ſow a larger proportion of ſeed than where it is to be broken up in the following ſeaſon. And where it is to be cut for hay, it is better to be ſown rather thin, as the plants will be in leſs danger of being drawn up weak.

When it is ſown with oats, the moſt common time of putting it in is about the beginning of March; but with barley it is performed at a later period, as in April. It may therefore, perhaps, be more properly ſown with this crop than oats in the later diſtricts, where it might be apt to ſuffer from the froſts in the preceding months. On the richer ſoils, as from the luxuriance of its growth too much of it is frequently cut with the barley, ſo as to keep it in the field ſo long as to expoſe it to danger, eſpecially in bad ſeaſons, or from the barley becoming rank and lodging, great injury may be done to the clover, it may be more adviſable to ſow it with the oat, or over wheat-crops. But on the thinner ſoils there is ſeldom any danger to be apprehended in this way. In order to prevent its proving hurtful to the barley in its early growth, by the rapid progreſs which it makes in ſome caſes, it has been recommended not to ſow it till the barley has ſprouted to the height of two or three inches, as it may then be performed to equal advantage as at an earlier period, the barley being rather benefited than injured by the ſlight harrowing which would be neceſſary. In ſowing it among wheat it is the beſt method, eſpecially in the ſouthern diſtricts, to have the buſineſs performed at as early a period in March as the land becomes ſufficiently dry to admit of harrowing.

Clover-crops may likewiſe be advantageouſly raiſed without being mixed with thoſe of the grain kind. In very rich ſoils this may indeed often be the beſt practice, as the danger of either crop being injured by the other will be fully obviated. The ſowing in this caſe ſhould be executed as early in the ſpring as the ſtate of the land and that of the ſeaſon will with ſafety permit. When it is ſown with grain-crops, on the more fertile and better prepared lands, with the intention of being kept in the ſtate of paſture for ſome time, the grain ſhould always be ſown much thinner, or in leſs proportion, than is uſual under other circumſtances, as in this way the danger of its lodging and injuring the clover-plant may be avoided. In putting clover in with grain-crops, the moſt common practice is to perform the buſineſs either immediately, or as ſoon as poſſible, after the grain has been covered in, as all ſmall ſeeds vegetate in much the moſt perfect manner when put in ſoon after the ſoil has been moved.

With whatever ſort of crop the clover-ſeed is ſown, it ſhould be diſperſed in as regular and even a manner as poſſible over the ſurface of the ground, after it has been rendered perfectly fine by the harrowing in of the grain-crops. And in order that this may be effected in the moſt complete manner, it ſhould be performed, if poſſible, when the mould is in ſuch a ſtate of dryneſs as to work well under the harrow. But it ſhould on no account be executed when the ſoil is in ſuch a ſtate of moiſture as to ſtick much together, becauſe under ſuch circumſtances the ſeed will neither vegetate well, nor be covered in in a regular manner, being liable to be drawn into heaps by harrowing. In covering it in, a light ſhort-tined harrow is the beſt adapted to the purpoſe, which in the freer and more mellow ſorts of land ſhould only be paſſed over once in a place, but in thoſe of the ſtiffer and more heavy kinds *twice* may be neceſſary. The ſeed ſhould never be buried to much depth, as its vegetation would by that means be greatly retarded. The uſe of the tined harrow is much preferable for this purpoſe to that of the buſh kind, as by the latter the ſeed is not only leſs perfectly covered in, but liable to be drawn ſo together as to riſe in tufts. The merely rolling over the land, though ſometimes employed, is a practice never to be depended upon.

Where the clover is ſown among the green-wheat, harrowing it in with ſuch light harrows once in a place is the beſt practice in all caſes, except where the wheat is very thin, and the ſoil too looſe about its roots to permit it with ſafety. In all the more light deſcriptions of land, the uſe of the roller after the ſeed has been covered by the harrow muſt be of great utility, as well in cloſing the particles of the ſoil round the ſeeds as in leveling the ſurface, and rendering it leſs penetrable by drought.

With ſome it is a practice, when the land is intended for the purpoſe of early paſturage, and in ſome caſes where the object is hay, to ſow rye, rib, and other ſimilar graſſes, with the clover. In the firſt intention the practice may be beneficial, as the rye-graſs riſes early, and may contribute to afford a more full and better herbage for the ſtock at ſuch periods, eſpecially on the later ſorts of ſoil; but with the latter view it ſhould perhaps ſeldom be made uſe of, as the clover will in general produce a ſufficiently abundant crop of itſelf; and from other ſorts of plants being mixed with it, on account of their drying in an unequal manner, it may ſuſtain injury as hay. It is probably for ſome reaſon of this ſort that ſuch clover-hay as is mixed with other graſſes is leſs ſaleable, and of conſiderably leſs value in the London markets, than that which conſiſts ſolely of clover. Some cultivators, however, ſuppoſe, that by blending rye-graſs with clover, in a ſmall proportion, a ſtrength and body is given to the crop. It has been ſuggeſted as an improvement where rye-graſs is mixed with clover, to ſow the latter a week or two before the other, as, from the clover-plants having a tender weak ſtem in their early growth, they may in that way be prevented from being injured by thoſe of the rye-graſs claſping round and ſhading them.

From red clover, a large quantity of hay for the purpoſe of feeding working-horſes may be procured with but little expence or trouble. In theſe caſes the crops ſhould be mown as ſoon as moſt of the heads are in full blow, before they begin to turn of a brown colour and die away. The moſt proper time may be known by attending to the foliage on the bottom parts of the plants, as, when the leaves on theſe begin to drop off and decay, the crop ſhould be cut as ſoon as poſſible, as by ſtanding afterwards it will loſe more in the bottom than it can gain in the top. The crops uſually attain this ſtate ſome time about the middle of June, according to the nature of the ſoil. Though it is ſuppoſed by ſome that clover takes leſs harm by ſtanding, after it is in a condition for being mown, than many other ſorts of graſs, it is always the beſt practice to cut it rather early, as by remaining on the ground it not only loſes its heads and lower leaves, and becomes reduced in quantity, but the plants are rendered hard and ſticky, and ſo exhauſted as to remain a great length of time after mowing before they ſend up new ſhoots and afford good herbage. After it has been cut, the ſwaths ſhould not be thrown out, as is the common practice with meadow-graſs, but ſuffered to lie in the ſtate the ſcythe leaves them, until they are dried about two-thirds through, which, if the ſeaſon proves favourable, will be in about three days; and, if the weather ſhould then appear promiſing, they may be turned with rakes immediately after the dew is off. If there be no rain, the clover thus ſpread out will be ready to cock up the next morning, or on the fourth day, as ſoon as the dew is fully gone, and may be carried in as ſoon afterwards as is convenient. And, if this be done as ſoon as the dew is well off, the leaves will be juſt ſufficiently tough to preſerve them, whereas when this operation is omitted in the morning, and performed in the heat of the day, they will be too dry, being reduced to powder, and loſt in heaping and loading. When, however, it is heaped ſufficiently early in the morning, the loading and ſtacking may continue through the day. Where a part of the produce is become rather over-dry, there is a method adopted by expert haymakers of putting the rows into heaps without rubbing the leaves off. It is performed by rolling the ſwaths over with rather larger forks than uſual in a very gentle manner, keeping them from being ſeparated or broken, and then laying them lightly into the cock, being careful to avoid breaking and toſſing the hay about, putting it along the ground, or beating it down flat. In this mode of converting clover into hay, there will not only be much leſs loſs, but the hay be of a much better colour and finer flavour; which are circumſtances of great importance both in its ſale and uſe as fodder.

Where a ſecond crop is to be taken for the ſame purpoſe, all cattle ſhould be kept out of the field, in order that it may be in full bloſſom and ready for the ſcythe about the laſt week in Auguſt. It muſt be made into hay in the ſame manner as the firſt, and ſhould not be delayed later, on account of its loſing in weight, and the danger of not getting it into the ſtack before the heavy dews and rains ſet in. Beſides, by getting the hay off as early as poſſible, there will be more ſheep-feed previous to ploughing the land up in the autumn for wheat. The quantity of produce in the ſecond crop is in general conſiderably leſs than in the firſt, and not by any means ſo good in quality; conſequently, if hay be not much wanted, it is a better practice to feed it, eſpecially where the ſoil is ſufficiently dry, than make it into hay.

It is ſometimes a profitable practice to let the crop ſtand for ſeed. In this caſe, the method is either to eat it well down in the early part of the ſpring, till about the latter end of May, by ewes and lambs, or other ſorts of ſtock, or to let it ſtand for a firſt crop of hay, and depend upon the ſecond crop for ſeed. The firſt appears, however, by much the beſt practice, as the land is leſs exhauſted, conſequently in a better ſtate for the ſucceeding crop; and, at the ſame time, the farmer has the great advantage of an early green-feed for his ſtock in the ſpring-months. And it ſeems not improbable but that ſeed of a better quality may thus be obtained in a greater abundance, as the plants by being mown muſt be rendered more weak and leſs proper for affording good ſeed; while, by feeding down, they will not only ſuffer leſs in this reſpect, but throw out more flowering-ſtems, and, of courſe, afford a larger proportion of ſeed. Where the latter method is followed, the firſt cut ſhould be made as early as poſſible. It is always neceſſary to take off the firſt growth in one of theſe ways, as the clover-plant does not perfect its ſeed early in the ſummer. The crop thus reſerved for ſeed muſt be ſuffered to remain till the huſks, or bloſſoms, become perfectly brown, and the ſeeds have acquired a conſiderable degree of firmneſs. It ſhould then be cut, and harveſted in the ſame method as the common crop, but let remain in the field till it is more perfectly dry and criſp, in order that the ſeeds may become more fully hardened. It may then be laid up dry, in order to the ſeed being threſhed out in the winter ſeaſon at the farmer's convenience.—For the botanical properties, and further management, of Red Clover, ſee the article TRIFOLIUM pratenſe, in this Encyclopædia.

SAINTFOIN.—This valuable plant, though leſs generally introduced into cultivation than clover, is not leſs important or uſeful to the ſheep-farmer. It is on the lighter and thinner ſorts of calcareous ſoils, what clover is on all thoſe of the ſtrong, heavy, and more deep, kind; and it has the ſuperiority of being more durable. It is equally advantageous for the purpoſes of hay as thoſe of paſturage, and in the latter method has not, it is ſaid, the dangerous property of *hoving* or *ſwelling* the cattle that feed upon it, as is the caſe with clover. Its laſting properties on poor barren ſoils in hilly ſituations, where other ſorts of herbage are deficient or ſcarcely to be procured at all, likewiſe render it particularly beneficial in ſupplying a valuable green food for different ſorts of ſtock.

The ſoils moſt proper for this ſort of graſs are thoſe of chalky loams, or any of a mixed quality, provided they be not wet, and have a hard calcareous bottom, to check the roots at the depth of a foot or fifteen inches below the ſurface; otherwiſe they are apt to exhauſt themſelves in running down. On this account it is improper for being ſown where there is great depth of mould. It is aſſerted to afford a large produce even on thoſe of the pooreſt quality; and on ſuch as are of a more rich and friable nature it is often very abundant. It is only, however, in the calcareous ſoils, or ſuch as have been well impregnated with that ſort of matter, that this plant ſucceeds in a perfect manner, or becomes durable. In regard to the preparation of the ground, it cannot be made too clean or too fine before the ſeed is ſown; of courſe it generally ſucceeds beſt after turnips or other ſimilar crops which require a fine clean culture while they are growing. The proportion of ſeed which is neceſſary muſt be different according to the circumſtances of the land; but about four buſhels are probably in general the moſt proper quantity, as on theſe ſorts of ſoil it is better to have the plants thick; ſome, however, think half the above proportion ſufficient.

The earlier the ſaintfoin crops are ſown in the ſpring the better, becauſe there will be the more chance of their vegetating in a luxuriant manner, from the greater proportion of moiſture in the ſoil, than when performed at a late period, particularly ſhould a dry ſeaſon follow; for then much of the ſeed would be prevented from growing, and the young plants be more expoſed to the attacks of the fly. The latter end of February or the beginning of March may anſwer beſt in moſt caſes. It is, however, by ſome agriculturiſts ſown in the autumn with the wheat-crop; but the practice is by no means to be recommended.

Saintfoin may be ſown either alone, or with any of the ſpring corn-crops; but with barley after turnips is conſidered the beſt method. Where the barley is drilled, the ſaintfoin may afterwards be put in, in the ſame manner, but in a contrary direction. If ſown over the wheats, it ſhould be harrowed in, and afterwards rolled. In whatever method it is ſown, as the ſeeds are larger than thoſe of moſt other graſſes, they ſhould be covered in with more care, and to a greater depth. In moſt caſes, eſpecially in all the more light ſorts of land on which this crop is ſown, the uſe of the roller may likewiſe be neceſſary.

On the early management of the crop, a great deal of the ſucceſs in the culture of this plant depends. Many experienced farmers adviſe its being cut for hay, inſtead of being paſtured; but others think it more advantageous neither to cut nor paſture it in the autumn of the firſt year. It is probable that both practices may be proper under different circumſtances; as in the richer ſorts of ſoil, where this plant moſtly affords a tolerable crop when ſown alone the firſt year, it may be mown without much injury being done to the plants; but in thoſe of the more barren kinds, where the crops are in general the firſt ſeaſon but thin on the ground, it may be advantageous to let them remain without being cut or fed down by ſtock, as by this means they will tiller more, and form a better and more cloſe ſward in the following year. By the plants in this caſe being ſuffered to remain, beſides the advantage juſt mentioned, they will have acquired a great vigour of growth, and the ſucceeding crops be greatly increaſed from the ſhedding of their ſeeds. In all caſes, in the ſucceeding ſummers a crop of hay may be taken, and the after-graſs be fed down by any ſorts of cattle except ſheep, till towards December; care being taken that they do not eat it in too cloſe a manner, as, where that is the caſe, they may be in danger of injuring the crowns of the plants. In the following autumns there will, however, be leſs riſk in this reſpect; and ſheep, as well as other cattle, may be turned in, and kept upon the paſtures till they are well eaten down, being always careful to ſhut them up as early as poſſible in the beginning of the year. When made into hay, ſaintfoin is an extremely nutritious fodder for working-horſes, as well as other ſorts of cattle. And the after-graſs is highly valuable for weaning and ſupporting lambs.

The application of manure upon ſaintfoin-lays is of great utility, when put on in the latter end of the ſecond autumn after they have been laid down. For this purpoſe peat-aſhes are the beſt material where they can be procured. Other ſorts of aſhes are likewiſe found beneficial. They ſhould be applied ſo as to form a thin even dreſſing; ſoot has alſo been found of great utility when ſpread evenly over theſe lays about the beginning of January, in the proportion of about twenty-five buſhels to the acre; and malt-duſt has been employed in the ſame way with ſucceſs. Where top-dreſſings of this ſort can be applied every third year, the ſaintfoin-crops, when well eſtabliſhed in the ſoils, may be preſerved in a ſtate of vigorous growth for ten or fifteen years, and the land be conſiderably improved by the roots. It uſually attains its perfect growth about the third year; and begins to decline towards the eighth or tenth, or ſooner, if not well aſſiſted by manure in the manner mentioned above.

In letting this crop ſtand for ſeed, it ſhould remain on the land till the huſks become of a ſomewhat brown colour, and the ſeeds are perfectly plump and firm; as by theſe means they will not only be better, but in leſs danger of being injured in the field from the little time that it will be neceſſary for them to remain, and alſo leſs in danger of being hurt by heating when laid up. After this degree of maturity is attained, the crop ſhould be mown as ſoon as poſſible, and remain expoſed in the ſwath till the upper ſurface is fully dried; it muſt then be turned over in a very careful manner, ſo as to prevent the ſeed from ſhedding. This ſide being rendered perfectly dry and criſp in the ſame way, the crop is either threſhed out upon cloths in the field, or laid up in ſtacks to be threſhed at leiſure.

Upon the whole, ſaintfoin is a plant of vaſt utility to the farmer, not only in providing a full ſupply of fodder for the ſupport of ſtock, but of abundant feed for the latter part of autumn, in ſoils that are adpated to its culture, as it is capable of affording a large produce, even on thin poor lands, that under other circumſtances yield only a very ſcanty product either in herbage or hay. And in ſuch as are of the better and more fertile kinds, the quantity of crop is incomparably abundant. Its culture ought, therefore, to be extended to all thoſe extenſive tracts of lands in different parts of the kingdom that afford little or nothing under other ſyſtems of huſbandry or modes of cropping, and which are not adapted to the growth of clovers. This is particularly deſirable, as it is an artificial graſs that ſucceeds well in the ordinary methods of ſowing, without the trouble or expence of either the drill or the hoe. It ſeems extremely probable, from different trials that have been made with this plant, that it is not by any means ſo confined in reſpect to ſoil as has been generally ſuppoſed, though there can be little doubt but that it anſwers beſt on thoſe of the calcareous and loamy kinds. On ſuch as have occaſionally applications of lime, it has been known to ſucceed in a perfect manner.—For further information on the culture and value of ſaintfoin, ſee the article Hedysarum onobrichis, vol. ix. p. 305.

Lucerne is an artificial-graſs, that is often cultivated with much profit and advantage, as affording a large produce of ſucculent green food, for the ſupport of different ſorts of ſtock, and likewiſe of hay for the winter-fodder of horſes, or other cattle. The ſoils moſt ſuitable to the culture of it are thoſe of the more deep, rich, and drier kinds, as thoſe of the ſound, mellow, loamy, gravelly, and ſandy, deſcriptions; but on ſuch as are retentive of moiſture it ſhould not be attempted, as the roots are liable to be deſtroyed by the ſtagnation of water about them. Weeping gravelly lands, and all ſuch as are not well drained, are of courſe improper for this ſort of culture. It is ſuppoſed by ſome, that, for the ſucceſsful cultivation of this crop, it is neceſſary that there ſhould be a ſubſtratum of ſuch a ſort as is capable of ſtopping the deſcent of the roots at a certain depth, in order to prevent their exhauſting themſelves; but the depth of the mould, in this caſe, ſhould be conſiderably greater than for that of any other graſs, a foot and a half or two feet being moſtly requiſite.

In the preparation of the land, the ſoil ſhould always be brought into as fine a condition of mould as poſſible. This may be effected by repeated ploughing and harrowing, and the previous growth of ſuch crops of the green kind as have a tendency to clean and render the land more fine and mellow. In this intention, ſome adviſe the taking of two crops of turnips, carrots, or cabbages, either in ſucceſſion or alternating with each other; the turnips, in the heavier loams, being eaten off upon the land in the ſecond autumn, before it is ploughed up. In either of theſe caſes, from the hoeing and conſtant culture which are neceſſary while the crops are upon the land, it will be left in a ſuitable ſtate of cleanneſs and friability. Others recommend fallowing as a better practice, the root-weeds of every kind being carefully pricked out in the different ploughings and harrowings. From the great length of time that the ground muſt remain unemployed in this mode of preparation, it is probably, however, only capable of being practiſed with advantage where the lands are heavy and full of weeds. The proportion of ſeed muſt be varied according to the nature of the land, and the manner in which the crop is to be cultivated. In the broadcaſt method, which has been found very ſucceſsful, from eighteen to twenty pounds may be proper, while in that of the drill it will be conſiderably leſs, according to the diſtances at which the rows are placed. In two-feet equidiſtant rows the uſual allowance is about ſix pounds; in thoſe of eighteen inches, about eight pounds; in thoſe of twelve inches, ten or twelve pounds; and in nine-inch rows, which are by much the beſt, from twelve to ſixteen pounds may be neceſſary.

The moſt proper ſeaſon for ſowing lucerne, is as early as can be done in the ſpring-months. The latter end of March for the more ſouthern diſtricts may be the moſt proper period, and the beginning of the following month for thoſe of the north. If the plants be intended to be tranſplanted out in the garden method, it will alſo be the beſt practice to ſow the ſeed-bed as early in the ſpring as the froſts will admit, in order that they may be ſtrong and fit to ſet out about Auguſt. With regard to the mode of putting in the crop, it muſt vary with the circumſtances of the ſoil, and the mode of after-management that can be adopted with the moſt convenience. Where much attention cannot be beſtowed in the buſineſs of hoeing and keeping the crop clean, the beſt method is that of ſowing the land broadcaſt; though in this method the crop may not laſt ſo long in the ground. But, in caſes where the crops are capable of being kept in a ſufficiently clean condition by repeated hoe-culture, the drill may be more adviſable, eſpecially at narrow diſtances.

The ſeed may be ſown either alone or with grain-crops, in the ſame manner as clover; each method has its advocates, and it is probable that they may both be uſeful under different circumſtances, as in the deeper and more fertile ſorts of lands the firſt may be the moſt beneficial method, and in thoſe of the lighter and leſs deep kinds the latter; alſo in the deep rich ſorts of land there may be leſs loſs of time in procuring the green produce for the uſe of horſes or other ſorts of ſtock, as well as the greater certainty of the crop ſucceeding; but in the lighter and more porous ſoils, by being ſown with corn, the plants may be better protected in their early growth, as well by the ſhade as the moiſture that will in that way be preſerved. Some indeed ſpeak of its ſuperior utility, on the ground of long experience, in its being better preſerved from the fly. Wherever this mode is made uſe of, the grain ſhould however be ſown thinner than is uſually the caſe, in proportion as the ſoils are more rich. Oats are preferable to barley for the purpoſe, as being leſs liable to lodge. From five or ſix pecks to three buſhels, ſown as evenly as poſſible, may be the beſt proportions, the ſmalleſt quantity being neceſſary on the richeſt ſoils. After the grain has been ſown and harrowed properly in, the lucerne-ſeed ſhould be immediately ſown by a regular even caſt over the fine ſurface, covering it in with a light ſeed-harrow; but it ſhould not be too deeply covered in, two inches is fully ſufficient. In the drill-method the ſame ſyſtem ſhould be followed, the lucerne-ſeed being drilled in, either lengthways or acroſs, at ſuitable diſtances, immediately after the corn has been ſown.

As this crop advances to maturity, much care and attention muſt be employed in keeping it clean and free from weeds, and not allowing it to be too early fed. After the grain-crop has been removed, in the firſt year, all ſorts of heavy ſtock ſhould be prevented from coming upon it. In a dry ſeaſon, if there be occaſion, the field may however be fed a little by calves and other light ſtock, but they ſhould never be kept long upon the plants at one time. When the ſecond cutting has been made in the following year, if any graſs ſhows itſelf, the land ſhould be harrowed over in a moderate manner by a harrow which is not too heavy or too long in the tines, twice or more times in different directions. This buſineſs ſhould be executed as ſoon in the early part of the ſpring as the ſtate of the ground will permit, as dry a period as poſſible being taken for performing the work. In the ſucceeding years two ſuch harrowings may frequently be required, one in the early part of the ſpring-ſeaſon, and the other in the cloſe of the ſummer. But in theſe caſes, eſpecially where there is much graſs appearing, a heavier ſort of harrow ſhould be ſubſtituted. Where the crops are thin and patchy, ſeed in proportion to the deficiencies ſhould be ſown over ſuch places before the harrowings commence each time. In every caſe the roller ſhould be applied immediately after the operation has been performed, not only for the purpoſe of preſſing the mould about the roots of the plants, but to render the ſurface perfectly level and fit for the ſcythe.

When the ſoils on which this plant is grown are not of conſiderable fertility, the occaſional application of manure may be of great advantage in thickening the bottom, and increaſing the quantity of crop. For this uſe clean well-rotted dung is probably by much the beſt manure, as where earthy compoſts, aſhes, or ſoot, are employed, they are apt to promote the growth of common graſſes too much. The culture of lucerne is obviouſly attended with conſiderable expence, both in its firſt eſtabliſhment, and the after-management which is neceſſary to enſure its ſucceſs. The inexperienced farmer ſhould not therefore commence this kind of huſbandry too haſtily, without conſidering how far it may ſuit his purpoſe.

As this is one of the moſt forward of the natural graſſes, it frequently attains a ſufficient growth for the ſcythe towards the end of April or beginning of the following month, and in ſoils that are favourable for its culture will be in a ſtate of readineſs for a ſecond cutting in the courſe of a month or ſix weeks longer; being capable of undergoing the ſame operation at nearly ſimilar diſtances of time during the whole of the ſummer ſeaſon. In this laſt ſort of ſoil, with proper management in the drill method, it has been found to riſe the height of a foot and a half in about thirty or forty days, affording five full cuttings in the ſummer. But in the broadcaſt crops, there are ſeldom ſo many cuttings afforded in this ſeaſon, three or four being more common, as the growth is much leſs rapid than by either of the other modes. In order to have new ſucceſſions of this graſs conſtantly becoming ready to be cut, it has been recommended, for the purpoſe of ſoiling, to have the ground formed into ſo many diviſions as that one of them may be cut daily; as about ſixty, and thoſe of the drilled and tranſplanted kinds into from thirty to forty, according to the nature of the land, conſuming them in the ſame manner. Theſe cuttings muſt however be varied in proportion to the differences in the growth of the crops and the conſumption. The moſt economical mode of cutting the produce is without doubt by means of the ſcythe, though the reaping-hook has been made uſe of by ſome. After being cut, the food ſhould be conveyed as ſoon as poſſible to the cattle.

An acre of lucerne, it is ſaid, when under proper culture, will ſupport from three to five or ſix horſes, or other cattle, during the ſix ſummer months. Its greateſt recommendation, therefore, is that of ſoiling horſes, horned cattle, and hogs; and as an early food for ewes and lambs, it may be of great value in particular caſes. In its application alſo in the ſoiling of cows in the fold-yards, and in the feeding and fattening of oxen, its importance is equally great. It is found that, in ſoiling cows, the proportion conſumed in twenty-four hours is from about ſixty or ſeventy to upwards of a hundred pounds, in thoſe which are of the middling-ſized kinds; an acre maintaining in the proportion of about four cows for twenty weeks. In feeding cattle with this food in its green ſtate, care is neceſſary, however, not to give them too largely at a time, eſpecially when it is moiſt, as they may be hoven with it in the ſame way as with clover.

Though lucerne ſhould not, at particular times, be fed cloſe with ſheep, yet it may be applied as an early green proviſion for ewes and lambs with great utility and convenience, as it is fit to feed much ſooner than any other kinds of artificial graſs crops, eſpecially in ſoils of the rich, dry, and warm, deſcriptions; being often ready for the purpoſe ſoon after the middle of March, affording a good bite through the whole of the following month, the moſt difficult period for the providing of ſuitable ſupport for a breeding flock. The benefit produced in the healthy growth and improvement of the lambs in this mode, will much more than counterbalance any loſs ſuſtained in the firſt cutting for ſoiling of horſes. The ſheep ſhould not, however, remain on longer than while the firſt ſhoots are eaten down.

Lucerne ſeems to have the advantage of all the other artificial graſſes in its duration in the ground, continuing from ten to fifteen and even twenty years, according to the ſtate and nature of the ſoil, and the attention that is beſtowed in the after-management. This is, undoubtedly, a circumſtance of the higheſt importance in caſes where the cultivator wiſhes to avoid the trouble and expence of grain crops, as he can keep a ſuitable extent of land under lucerne, for the purpoſe of ſoiling his ſtock, while with clover it is utterly impoſſible. Where the proportion of land is ſmall, and the quantity of cattle and horſe-ſtock diſproportionately large, it is a graſs admirably calculated for the cultivator's purpoſe, when grown conveniently to the farm-yards, and kept in due order by proper cultivation. It has alſo been recommended on dairy-farms, as of great utility in ſupporting the cows and increaſing the quantity of milk. When made into hay, it produces a moſt valuable and plentiful winter fodder.—See, for further information concerning Lucerne, the article MEDICAGO ſativa, in this Encyclopædia.

### OF PREVENTING HAY-RICKS FROM TAKING FIRE.

It is a lamentable reflection, that, after the labour and expence of getting a fine hay-crop together, for want of a little care and attention in the farmer, the whole ſtack ſhould take fire, and his property be thus unexpectedly conſumed. To ſave ricks of hay from ſuch ſudden conflagrations, the following explanation of the cauſe, and method of prevention, are laid before the public: If the hay be heaped together when it is damp, a violent heat takes place, which the farmers term *ſweating*, by which the hay frequently becomes black, and may be rubbed into powder. This heat is generated in a much leſs degree when the hay is thoroughly dry. Hence it is plain that the water is the cauſe of this heat. The proceſs of ignition in a hay-ſtack is as follows: The putrefactive fermentation is attended with the decompoſition of the water; and the air, thus formed, reſides in the maſs. The oxygen, or baſis of pure air, connects itſelf with the principle of heat, and immediately unites with the coal (carbo) of the hay, forming fixed air, which again liberates a large quantity of caloric, which remains in the maſs, and gradually increaſes. This fixed air is frequently obſerved at a certain diſtance from a hay-ſtack, in the direction of the wind. The inflammable air, the other component part of water, being now free, and being rendered, by the heat of the hay, ſuſceptible of ignition, burſts into a flame, by the acceſs of freſh air. This takes place with more difficulty where the hay is cloſely packed together, although the heat and fermentation be then moſt active. Great care ſhould therefore be taken not to increaſe the evil by haſtily endeavouring to remedy it. The inmoſt and warmeſt part of the hay ſhould be taken gradually down from the rick, expoſing it as little as poſſible to the external air, and never ſuddenly. The writer of this produces ſeveral inſtances where this mode had the deſired ſucceſs. He found, by the heat of a hay-fork, which exceeded that of boiling water, after it had been for ſome little time ſtuck in the middle of the ſtack, that there was immediate danger of ignition. He warned the farmers not to be too precipitate, but, beginning at the top, very gradually to proceed, and to admit a ſufficient quantity of atmoſpheric air to cool, and not to enkindle, a flame. By theſe means the danger was prevented, and the rick ſaved. We are anxious that theſe facts ſhould be more generally known, becauſe we think that a rational explanation of the cauſe, may quicken diligence to guard againſt theſe frequent and fatal loſſes.

### *Of MANURES and COMPOSTS.*

Whatever may be the richneſs or poverty of the ſoil in a man's farm, if the grand buſineſs of cultivation is to go on in regular ſucceſſion, he never will cut any figure in his crops, unleſs he has regular and ample recourſe to the aid of manure. It is a fundamental miſtake to ſuppoſe, with Tull, that tillage may be ſubſtituted in the place of manure. Manures will indeed be of little avail without it;

but although good tillage, by ſeparating the ſoil, may bring a greater number of nutritious particles within the reach of the crop, yet the ſoil cannot poſſibly continue to be ſo completely divided as it is by the fermentation excited by dung and other manures; which are found to enrich the beſt pulverized ſoil again and again, after it is exhauſted by crops; and therefore promote vegetation by increaſing the quantity of vegetable food.

Every ſubſtance that, when laid on land or mixed with the ſoil, promotes vegetation, or increaſes its fertility, is called a *manure.* Manures operate in all the different ways by which vegetation is promoted. By communicating to the ſoil with which they are mixed the vegetable food which they contain. By communicating to it a power of attracting this food in greater plenty from the air. By enlarging the vegetable paſture. By diſſolving the vegetable food which it is already poſſeſſed of, and fitting it for entering the roots of plants. Some manures afford nouriſhment only: as rape-duſt, ſoot, malt-duſt, pigeons'-dung, and in general all top or hand dreſſings. Others give nouriſhment, and alſo add to the ſoil; as animal dungs, and all rotten animal and vegetable ſubſtances. Others again open the ſoil, and do not nouriſh in their own nature: as lime, light marls, ſand, &c. Laſtly, other manures ſtiffen the ſoil, and at the ſame time nouriſh a little: as clay, clay-marls, and earth.

Some manures loſe part of their ſtrength by being long expoſed to the air. Thus, after dung is ſufficiently fermented, the longer it lies, the leſs is its value. Cow-dung dried on the paſture, gathered and laid upon other land, has ſcarcely any effect; whereas the ſame quantity carried from the cow-houſe, or collected by folding the cattle, enriches the land. Hence this kind of manure contains the vegetable food in itſelf, and does not receive it from the air.

Other manures on the contrary operate ſooner and with greater violence, the longer they are expoſed to the air before they are uſed. Lime and marls are of this kind. They are obſerved to have a ſtrong power of attracting certain qualities from the atmoſphere; and operate by communicating to the ſoil with which they are mixed a power of attracting vegetable food from the air.

Again, ſome manures exhauſt land of its vegetable food, and do not reſtore it again when immediately applied. This is thought to be the caſe with lime. Land thoroughly limed, after having carried many very good crops, ſeems to be exhauſted, and reduced to a worſe ſituation than before. When in this caſe lime has been applied a ſecond time, its effects have been found to be far inferior to what they were when firſt applied. This manure, therefore, ſeems to operate by diſſolving the vegetable food which it meets with in the ſoil, and fitting it for entering the roots of plants. It ought however to be remarked, that exhauſtion of land by lime is owing to bad management and unmerciful forcing of it with continued white crops. It is not certain that land will not bear a ſecond liming. It is certain that the effect of the lime may be long kept up by the proper application of dung and other oily manures; and there have been inſtances of the effect of lime continuing forty, fifty, or even a hundred, years.

Manures may be divided into ſimple and compound. Simple Manures are ſuch as ariſe from the agency or decompoſition of animal, vegetable, foſſil, or ſaline, ſubſtances. Compound Manures, or Compoſts, are ſuch as ariſe from the combination of different ſubſtances.

### OF SIMPLE MANURES.

ANIMAL SUBSTANCES.—Subſtances of the animal kind, when reduced by the proceſs of putrefaction, or other means, into a ſoft, pulpy, or mucilaginous, ſtate, are found, by the experience of the moſt correct and able agricultors, to afford thoſe matters which are ſuited to the nutrition and ſupport of plants with greater readineſs, and in more abundance, than moſt other bodies that can be employed. By chemical analyſis it has been ſhown, that the component materials of theſe ſubſtances, ſo far as agriculture is concerned, are principally water, jelly, or mucilage, and ſaccharine oleaginous matters, with ſmall portions of ſaline and calcareous earthy ſubſtances. Hence animal matters, though they agree in ſome circumſtances with vegetable productions, each having in common water ſaccharine and calcareous matters, are far more compounded; and in animal ſubſtances, ſome of theſe materials are in large proportion, while in vegetables they only exiſt in a very ſmall degree; and the jelly, which in ſome meaſure reſembles the gum and mucilage of plants, differs likewiſe from them, in its having much leſs tendency to become dry, as well as in its property of attracting humidity from the atmoſphere, and of running with great rapidity into the ſtate of putrefaction and decay. All theſe principles of animal ſubſtances are reſolved by their ultimate decompoſition into other matters, ſuch as different gaſeous fluids, carbon, phoſphorus, lime, &c.

It would ſeem probable, too, that in animal ſubſtances of different ſorts there may be differences in regard to the proportions of theſe ſeveral ingredients or principles. Some kinds affording one or more of them, in greater abundance than others; while others again are deficient in theſe, but abound in ſome of the others. On this ſuppoſition, the different effects of ſubſtances of the ſame claſs, when applied to ſoils of the ſame kind, may be eaſily accounted for.

Animal ſubſtances of every kind, on being deprived of their vital principle, have a quick tendency to take on or run into the ſtate of putrefaction, a proceſs which is conſiderably affected and influenced by the circumſtances under which it is produced. But in the horny and more compact animal matters this tendency to putrefaction and decompoſition is, under ſimilar circumſtances, much leſs rapid than in ſuch as are of a leſs firm and denſe texture The proceſs of putrefaction is, however, greatly expedited by the conditions under which it takes place being favourable; ſuch as the ſubſtance, of whatever kind it may be, poſſeſſing ſufficient moiſture, being expoſed to the free action of atmoſpheric air, and a moderate degree of heat. On various accounts it would likewiſe appear, that the decompoſition of ſuch ſubſtances may be promoted by moiſtening them with water ſlightly impregnated with common ſalt, and perhaps ſome other ſaline ſubſtances, ſuch as the muriats of magneſia and ſoda, or ſea-ſalt, as ingeniouſly ſuggeſted by the earl of Dundonald.

*Dung* is the moſt common, general, and upon the whole the moſt efficacious, of all manures. It is properly the excrement of animals, but is uſed alſo to ſignify all rotten vegetables, when uſed as manures. Dung promotes vegetation by increaſing the vegetable food, by enlarging the paſture of plants, by communicating to the ſoil a power of attracting the vegetable food from the air, and by preparing the vegetable food for the nouriſhment of plants.

Dung of quadrupeds, is the moſt common manure in uſe. Stable-dung is uſed either freſh or putrified; the firſt is called *long*, the ſecond *ſhort*, dung. It abounds in animal matter, eaſily putrifies, and ſerves to haſten the decay of other dead vegetable ſubſtances. Its fermentation is promoted by frequent turning and expoſure to the air; yet it ſhould be covered to prevent water from carrying off moſt of its important ingredients; or at leaſt the water that imbibes them ſhould not be loſt. Farm-yard dung conſiſts of various vegetables, chiefly ſtraw, ſometimes weeds, leaves, fern, &c. impregnated with animal matter; it ferments more ſlowly than ſtable-dung, ſhould be piled in heaps, and ſtirred from time time; fern in particular putrifies very ſlowly.

When any conſiderable quantity of ſtable or yard dung, or other mixture of animal and vegetable ſubſtances, is collected together in a heap, and ferments; when this proceſs is completed, if the maſs be examined, we find that the vegetables of which it was originally compounded are decompoſed, and in a ſituation to nouriſh new plants. The more completely therefore theſe ſubſtances are ſubmitted to the proceſs of fermentation, the more beneficial will be their effects upon the ſoil. Hence it is an object of the firſt importance to farmers to have their dunghills ſo ſituated and conſtructed as to promote their fermentation, and retain all the uſeful parts of them. Theſe circumſtances have been very little attended to; the greater part of dunghills being either placed in hollows, and ſurrounded with water, which effectually prevents fermentation by chilling them; or upon declivities, where every drop of moiſture runs away; cattle are allowed to ſpread it by trampling, weeds to exhauſt it, and carts and waggons are driven over it. Thus the middle, from being hard and preſſed, will be imperfectly fermented; and the ſides, from being ſcattered about and dried, will not be fermented at all, but in a condition little better than dry ſtraw.

To promote fermentation in dung, air and moiſture are neceſſary. It is well known to gardeners, that, in making hot-beds, by laying the dung lightly in heaps, and watering it gently, fermentation is immediately brought on; and that hot-bed dung is as completely fermented in a fortnight as that in a farm-yard generally is in ſix or eight months. The farmer ſhould imitate this practice as nearly as the nature of his ſituation will admit; and, inſtead of having his dunghill in the yard, and allowing carts, cattle, &c. to diſturb it, he ſhould place it in ſome diſtinct ſituation, convenient for his offices, where the urine may be kept with it, or elſe run into a receptacle, whence it may be thrown back into the dung to enrich it and promote the fermentation, or be carried off in carts to manure his land.

When dung is carried to the dunghill, it ſhould not be driven over the heap as is commonly practiſed, becauſe the feet of the horſes and the weight of the carriage will preſs it ſo hard as to exclude the air, and thereby prevent the fermentation; when the quantity alſo is conſiderable, the horſes are ſtrained, and the harneſs damaged, by the exertions neceſſary to drag a loaded carriage over a hill of ſuch looſe materials. Every load therefore ought to be laid down by the ſide of the dunghill, at leaſt after the work has made ſuch progreſs as to render paſſing over it a matter of difficulty, and afterwards thrown up lightly with a fork; the labour of which is trifling in compariſon with the advantage reſulting from it. If dung laid up in this manner contains a ſufficient proportion of moiſture, it will immediately begin to ferment; if therefore it is too dry, it ſhould be watered, and in ſummer this will frequently be found neceſſary; it will thus be completely fermented in ſix or ſeven weeks, and will be more valuable by half than that which is made in the common ſlovenly manner. The ſituation beſt calculated for a dunghill is that which is neareſt to a level, with a bottom capable of retaining moiſture, and covered with a ſhed. If the whole be incloſed with a wall, except an open ſpace at one end for carting away the dung, it will be a great improvement. The wall on the ſouth ſide ſhould be of ſuch a height as entirely to prevent the ſun's rays from reaching the dung; on the other three ſides ſix feet in height from the ground will be ſufficient. The roof may be thatched, and ſupported on pillars. If the bottom be not clay or chalk naturally, it muſt be laid with one of thoſe ſubſtances, and the upper part ſhould be paved with broad flags or common paving-ſtones. At the end oppoſite to the opening a reſervoir may be dug to receive the moiſture; it ſhould be water-tight, and a pump ſhould be put into it to draw off the moiſture daily. This may be thrown back on the dung-heap, or drawn into a barrel on a cart, and either ſpread immediately on the land, or mixed with other ſubſtances in a compoſt.

Dung is applied indiſcriminately upon all ſoils, at almoſt any ſeaſon, and for every crop. Of all manures commonly in uſe, none can be conſidered as a more immediate food for plants; and, when applied to vegetables in a growing ſtate, they immediately begin to thrive. On this theory it ſeems abſurd that great quantities of rich dung ſhould be laid upon the fallows at the end of autumn, and ſtill worſe about midſummer, there to remain till the enſuing ſpring before it can be of any uſe to the plants; for, if the fallow be ſown with wheat or any other winter-crop, the growth of the plants being ſtationary, they need little nouriſhment; in the mean time the ſalts contained in the dung, after having been ſpread abroad a month, or perhaps ſix weeks, diſſolving readily in water, are carried off by the winter rains; and when, the ſpring arriving, the plants begin to vegetate, a great part of what was deſtined for their nouriſhment has been waſhed away and loſt.

Farther, where fallows have been well wrought, and the ſoil thus completely reduced, mixing it with dung in that ſtate prevents it from acquiring a ſufficient degree of compactneſs to ſhelter the roots of the plants, eſpecially if the ſoil be naturally of a light open texture, and the dung full of half-rotted ſtraw, as is commonly the caſe. The operation of the winter's froſt renders it ſtill looſer, ſo that in ſpring it is nearly in the ſtate of a mole-hill; the baneful effects of which to a wheat-crop are obvious. Now, were a portion at leaſt of the dung withheld till the ſpring, the land would be more compact, the plants leſs liable to be thrown out of the ground by the froſt, and, the dung being applied as a top-dreſſing at the time when vegetation was commencing, the uſeful parts of the dung would be taken up by the plants, every time it was moiſtened, as the crop in its progreſſive growth moſt wanted it. In this mode of application no part of the dung would be loſt, and, a leſs quantity being required for the dreſſing, three times the quantity of land might be dreſſed annually; and, being applied in a quantity ſufficient only for the nouriſhment of the crop, the plants are fed in the ſame manner as the animal body, every ſmall doſe operating like a meal.

Some are of opinion that the firſt rank quality of dung is highly beneficial, and its principal virtue. Mr. Belcher, on the contrary, is inclined to think that it is more or leſs injurious, greatly ſo in horſe-dung, which is evidently unfit for plants when new. In his opinion the beſt mode of uſing all dung, except in compoſt, on cold ſtiff ground eſpecially, is to carry it on rough, and to fallow that and the ſoil together; whereby, at the ſame time that they are incorporated, the ſeeds of weeds are forced into vegetation, and completely deſtroyed.

It is ſtated by a very correct practical obſerver, that the dung of fat animals is unqueſtionably more rich, and conſequently poſſeſſes greater powers of fertilization, than the dung of lean ones; and that the quality of the dung of every ſort of animal will, in a great meaſure, be proportioned to the goodneſs or poverty of its food. Thus, when the animal is fed on oily ſeeds, ſuch as lint, rape, and others of a ſimilar nature, it will be the moſt rich; when kept on oil-cake, or thoſe ſeeds which have been deprived of part of their oily matter, the next ſo; on turnips, carrots, and ſuch like vegetable-roots, the next; on the beſt hay, next; on ordinary-hay, next; and on ſtraw, perhaps, the pooreſt of all. The dung of lean hard-working cattle, feeding on ſtraw, muſt, he conceives, be poor indeed.

The common practice is to ſet the dung upon the land in ſmall heaps or hillocks, and to ſpread it by a man ſtanding on the ground. In ſome of the midland counties the prevailing cuſtom is to ſpread it out of the carriage, as it is brought into the field, by a man or men ſtanding in the carriage.

Dung ſhould never be moved in ſummer. The immediate action of the ſun's rays exhauſts it of its moiſture, and it is an erroneous idea that this evaporation carries off merely aqueous particles; the ſalts, the oils rendered miſcible with water by alkaline ſalts or calcareous earth, and the inflammable air, are all diſſipated with the water. To turn a dunghill over, then to throw it into carts, expoſe it in heaps, and to ſpread it a ſecond time in ſummer, is to give the ſun a power of nearly exhauſting its virtues. A Hertfordſhire farmer on the contrary never carries dung out to chooſe in winter, thinking that the rains, &c. damage it much; but in ſummer he does not think its being expoſed to the ſun a detriment, ſuppoſing the heat to exhale only the watery particles. He has found one load laid on at Midſummer as good as two or three at Chriſtmas. The freſher the dung is uſed, the better he thinks it for any crop, even for graſs, provided it be laid on early in autumn. He has found long dung of only one or two months old to be better, load for load, than black ſpit-dung for turnips. In forming a dunghill, he ſays, the dung will not rot if the carts drive on to it; but if the dung be ſhot out of the hill, and then thrown up, without any trampling, it will rot much ſooner and better. This alſo is the Norfolk practice.

Perhaps there is no way in which dung is uſed where its effects are ſo certain and viſible as upon potatoes and turnips. For potatoes it is laid on when the ſpring is pretty far advanced, after which there are few heavy rains, of courſe the ſtrength of the dung is not impaired by waſhing, and the crop is left in quiet poſſeſſion of the whole of its fertilizing powers. For turnips the caſe is nearly the ſame; indeed the advantage is ſtill greater, dung not being laid upon turnip-land ſooner than June, after which there is ſeldom much wet weather till autumn; and by that time the crop is in full vigour.

As to laying dung upon meadows, farmers differ in opinion; ſome preferring the ſpring, for producing an early vegetation and a plentiful crop; others thinking, that, though dreſſings of ſoot and fine aſhes at that ſeaſon are of much uſe, yet that dung ought to be laid on at the end of autumn, not to taint the juices of the enſuing crop. It is thought to be a good practice by ſome to ſpread the dung as ſoon as the hay is cleared. If laid on in the winter, or early in the ſpring, the froſt will take effect upon the manure before the graſs can reap any advantage; and the rains, coming whilſt the manure is expoſed on the ſurface, waſhes away its virtues before vegetation is awakened by the ſun. But in July, if there be any ſhowers, the quick growth of the after-graſs will ſhelter and protect the manure; and nothing is to be feared but a ſevere drought. In this caſe, however, this after-growth ſhould be left through winter, to be fed in the ſpring, when the value of ſuch feed will be great, and the dung, by means of ſuch a covering will be guarded againſt the froſt in the beſt poſſible manner. Mr. Miller, however, reprobates the dreſſing of graſs-ground in ſummer, ſoon after the crop of hay is taken off the land; becauſe before Michaelmas the ſun will have exhaled moſt of the goodneſs, if the dreſſing be of dung, or any other ſoft manure.

It is moſtly the cuſtom to collect manure of every deſcription into one heap. Hence ſubſtances very oppoſite in their nature, and which may be wanted at different times and for different purpoſes, are laid together, and, inſtead of forming a uſeful combination, perhaps prevent the dung from fermenting as it ought. Every farmer therefore ſhould have at leaſt two or three dunghills, to be prepared for uſe according to the time at which the contents of each may be wanted, and the articles of which they are reſpectively compoſed.

If earth, moſs, ſhovellings of highways, &c. can be procured, the bottom of any dunghill compoſed of rank ſtable-dung or ſhort excremental dung may be laid three or four feet deep with theſe ſubſtances. This will increaſe the quantity of manure, for the moiſture that is preſſed out during the fermentation will ſink into the earth, &c. and impregnate it with its ſalts; and, if the whole be afterwards turned and incorporated, what was laid in the bottom will be found of nearly equal value with the dung itſelf.

Some diſtinctions are to be made reſpecting the different ſorts of animal dung. Horſe-dung is more diſtinguiſhed for the readineſs with which it ferments, than for its intrinſic richneſs. Stable-muck, or horſe-dung mixed with ſtraw, properly fermented, is of primary uſe in the kitchen-garden, where it ſupplies the want of the ſun's heat in winter; affording at an early ſeaſon many eſculent plants which we could otherwiſe have only for a ſhort time in the middle of ſummer, and others which our moiſt and cold climate would not produce at all in any perfection; as aſparagus, cucumbers, melons, cauliflowers, ſalad-herbs, &c. See Hot-Beds, under the article HORTICULTURE, p. 402, of this volume.

Horſe-dung is one of the beſt improvements for cold lands that can be procured in any quantity; yet alone, or when it is too new, it is prejudicial to ſome plants; and, if it be ſpread thin over lands in the ſummer-time, it is of very little ſervice, becauſe the ſun draws out all the goodneſs of it, and it becomes little better than thatch or dry ſtraw. Although too much of it can ſcarcely be uſed in a kitchen-garden, yet it may be a fault to lay too much on corn-land, becauſe it may be apt to make the corn run too much to ſtraw. In very moiſt cold land, crops will ſucceed better, if new horſe-dung, as it comes from the ſtable, be buried in it, than if the ground be dreſſed with very rotten dung. Horſe-dung, in a raw ſtate, is well calculated for potatoes, becauſe it leaves room for the roots of that plant to ſpread. But, if it be not fermented, it contains much undigeſted vegetable matter, and conſequently the ſeeds of many weeds which may have got into the food of the animal.

Cow-dung is very uſeful for lean, dry, hot, ſandy, or gravelly, ſoils. The excrement of a ruminating animal is held to be preferable to that of horſes at graſs, owing to the quantity of animal juices mixed with their food in chewing; but, ſince it does not contain much undigeſted matter, it will hardly heat. The beſt way of managing it is to lay it together, and keep it moiſt till it is ſufficiently putrified. Being mixed with horſe-dung it makes a good manure for moſt ſorts of ſoil, and with mud for ſome.

Sheep's-dung and deer's-dung differ not much in quality, and are eſteemed by ſome the beſt manure for cold clays. Some recommend them to be uſed as top-dreſſings to autumn and ſpring crops, four or five loads to an acre, in the ſame manner, with aſhes, malt-duſt, &c.

In Flanders they houſe their ſheep at night in places ſpread with clean ſand, laid five or ſix inches thick, ſome being added every day, and the whole cleared out once a-week. This mixture makes an excellent dreſſing for ſtrong or cold ſtiff land. This method has been adopted in his majeſty's farm at Windſor. In hard weather the flock is penned in a fixed fold, made large, and divided into two parts, pitched in ſome ſheltered ſpot, laid a foot thick with maiden-earth, and daily littered with leaves, moſs, fern, ſtubble, &c. When the ſheep leave this fold, a layer of lime, chalk, or peat-aſh, is put upon the top, and the whole being mixed together makes excellent manure for a turnip-crop. Six hundred loads of excellent compoſt have thus been made in three months from ſix hundred ſheep. In Holland, ſheep's-dung is carefully collected, cut into ſmall pieces, and ſold in baſkets at a high price.

Swine's-dung is a good manure for fruit-trees, eſpecially apples and pears, in a light ſoil; and is a very rich manure for graſs. Mr. Miller affirms that he has often uſed it to fruit-trees, when it was well rotted, and found it the moſt beneficial of any manure: night-ſoil muſt, however, be excepted: ſwine's-dung is richer in proportion as the animal is fatter; it is of an oily and ſaponaceous quality; it ſhould be uſed with caution on arable lands however, becauſe it is apt to be full of weeds.

Pigeon's-dung is certainly a rich manure, but not laſting; it muſt therefore be renewed the oftener. It is moſt applicable to cold and deep ſtiff land. Sometimes it is ſown upon wheat-crops in the ſpring. It ſhould always be broke very ſmall, and ſown during moiſt weather; and, if circumſtances will admit of its being harrowed in, ſo much the better. Poultry-manure is of the ſame nature, and, where it can be had in any quantity, is an excellent top-dreſſing, particularly for cold land. Columella ranks it next, in point of value, to the dung of pigeons. The dung of pigeons, poultry, and geeſe, is alſo a great improver of meadow-land; but, before it is uſed, it ought to lie abroad ſome time, that the air may ſweeten it a little, and mollify the fiery heat of theſe dungs. They ought to be dried before they are ſtrewed, being apt to clod in wet; and they ſhould be mixed with earth, ſand, or aſhes, to keep them from clinging together, that they may be ſtrewed thin, being naturally very hot and ſtrong. They are recommended as the beſt manure for aſparagus, ſtrawberries, and any ſort of flowers; but for the latter they ſhould be rotted and well mixed with earth. They are ſaid to be good for trees whoſe leaves are apt to turn yellow; for this purpoſe they ſhould be ſpread an inch thick at the foot of the tree in autumn. Conſiderable quantities of valuable manure might be raiſed by thoſe who, living near large commons, keep great flocks of geeſe, if they were regularly houſed at night, and the place were littered with ſtraw, fern, ſaw-duſt, aſhes, or ſand. The ſame advantage might be reaped by littering the places where other kinds of poultry rooſt. Every three or four weeks the places ſhould be cleaned out, and the dung laid in heaps to ferment, either alone or mixed with ſoil.

Rabbit's-dung appears, by an experiment of Mr. Arthur Young, to be ſuperior even to that of pigeons, and to laſt the longeſt. But this experiment ſhould be repeated before we can give credit to what ſeems improbable.

Human ordure, night-ſoil, or privy-manure, ſays Mortimer, is of all ſorts of dung the greateſt improver of land, eſpecially if mixed with other dung, ſtraw, or earth, to give it a fermentation, and to render it convenient for carriage. It ſells in foreign parts at a much greater rate than any other ſort of manure. In London it may be bought for 5s. a-load. Dr. Hunter affirms that it is the richeſt manure that can be introduced into the field; that in Flanders they uſe it with great ſucceſs, either ſtrewed upon the land in the form of powder, or diſſolved in water and thrown on with a wooden ſcoop; but that it may be beſt prepared as a top-dreſſing by filling the pits of neceſſaries with earth or lime.

In China and Japan wonderful attention is paid to ſaving this manure, which in thoſe countries is preferred to all others, both on account of its richneſs, and its being free from weeds; inſomuch that Thunberg, the famous botaniſt, paſſing through Japan with the Dutch embaſſy, could ſcarcely find any other plants in the corn-fields but the corn itſelf. In thoſe countries, the laws prohibit the waſte of human excrement, and every houſe has reſervoirs for it, to the great annoyance of the traveller through their towns.

The illuſtrious Swede's account of the proceſs of manuring in Japan is worth tranſcribing. "There is no part of the world, ſays he, where manure is gathered with greater care than it is here, inſomuch that nothing which can be converted to this uſe is loſt. The cattle are fed at home the whole year round, ſo that all their excrements are confined to the farm-yards; and it is a common ſpectacle to ſee old men and children following horſes on the road with a ſhell faſtened to the end of a ſtick, to collect the dung, which is carried home in a baſket. Urine is carefully collected in large earthen pots, which are ſunk in the earth here and there in different parts, not only in the towns, but even beſide the highways. The Japaneſe does not carry out his manure to be dried up in a fallow-field by the ſun, but gives himſelf the diſguſting trouble of mixing up the various excrements of man and beaſt with water and urine, together with every kind of refuſe from the kitchen; this he carries in two large pails into his field, and with a ladle pours it upon the plant, when it has attained the height of about ſix inches, and receives the whole benefit of it, the liquor at the ſame time penetrating immediately to the root. By this mode of manuring, and at the ſame time by the farmer's indefatigable weeding, the fields are ſo completely cleared of weeds, that the moſt ſharp-ſighted botaniſt would be ſcarcely able to diſcover a ſingle plant of another ſpecies among the corn."

Mr. Young found the effect of night-ſoil (from 160 to 320 buſhels on an acre) prodigious, trebling the produce on land unmanured; and he aſſerts that, in all the experiments he has made with this manure, he has found the reſult almoſt uniform. Mr. Middleton obſerves, that the herbage produced by it is capable of fattening the largeſt cattle in leſs time than any other. And we know, from repeated experiment, that the fineſt garden-vegetables may be produced by it, when properly employed, without the leaſt injury to their taſte, even in the moſt delicate of them, ſuch as cauliflower, white brocoli, &c. Inſtead of a bad taſte being communicated to herbage by the uſe of this manure, it would ſeem, probably, that it conſiderably improves its flavour, as it has been obſerved that the patches of ſuch paſtures as had been manured with this ſubſtance were conſtantly eaten quite cloſe by horſes, cows, and young cattle, while in other places there was much longer graſs. See Tranſ. of the Society of Arts, vol. xvii. and Annals of Agriculture, vol. i.

From theſe facts, the importance of this ſubſtance, as a manure, is evidently ſuch, that every poſſible means ſhould be contrived to prevent its loſs, which is ſhamefully permitted, at preſent, to take place in many large towns, to the aſtoniſhing extent of more than two-thirds of the whole; and ſome method made uſe of to render its conveyance and application more general and convenient, which cannot be a matter of much difficulty, if once the attention of practical agriculturiſts be properly excited upon the ſubject, as we ſhall have occaſion farther to remark when we come to conſider the means of improving and increaſing manures.

*Urine* of every ſort is found to be of great uſe when laid upon graſs or young crops early in the ſpring. The moſt convenient way of applying it ſeems to be in the form of a compoſt, with earth and a ſmall proportion of lime. In this ſhape it is a good manure for moſt ſoils, particularly ſuch as are light, ſandy, or gravelly. Great quantities of this article might be ſaved, and judiciouſly uſed would inſure one or two good crops; about all farms and great towns it might be collected into reſervoirs, with other excremental matters, without much trouble. In ſome countries this is an object of police, eſpecially in the towns where reſervoirs are eſtabliſhed for collecting it. The farmers carry it away in barrels, and either ſpread it immediately upon their fields, or mix it into compoſts.

Mortimer obſerves, that, if urine be deſtructive to vegetables, it is the indiſcreet uſe of it in too large a quantity; and that there is nothing which will improve land, or increaſe the ſtrength of manure, or help the fermentation of dung, more than urine; for which reaſon, in Holland they are as careful to preſerve this as dung; and Mr. Hartlib, in his legacy, commends it as a great improver of land.

No ſtable ought to be without a barrel or ciſtern ſunk at the extremity of the paved channel into which the urine runs. The rich juices of dunghills, ſays Mr. Belcher, ought to be ſtrictly attended to; for which purpoſe layers of lime, chalk, or its rubbiſh, ſhould be ſpread under the litter in the farm-yard. Theſe are better than earth, which is apt to be poachy, unleſs of a very dry nature; ſomething however ſhould be laid to abſorb the urine The great product, ſays Mr. Young in one of his experiments, which attends the addition of urine to dung, affords a very important leſſon; which is to manage dunghills in ſuch a manner, as to ſave, if poſſible, every drop. This is a point too much neglected, and indeed by moſt common farmers very little attended to.

*Bones* are uſed as a manure, both by themſelves, and with other ſubſtances. The common way of treating them, is to break them with a mill into pieces about the ſize of a marble or nutmeg; they are afterwards laid upon the field in ſmall heaps, at regular diſtances, and covered with earth; after remaining in this ſtate for ſome time, they are ſpread on fallows, on graſs, or on turnip-land. The conſtituent parts of bones are oil, alkaline ſalts, and animal earth, united by fixed air. The oil is in much greater proportion than the alkali, which renders bones rather a heavy manure.

It does not appear that much pains is taken in adapting them to the ſoil for which they ſeem beſt calculated, being laid indiſcriminately upon lands of every deſcription, and for the moſt part unmixed with any other ſubſtance. But bones, being kept together by fixed air, unleſs they are either laid upon ſoils poſſeſſing principles that are capable of depriving them of this air, or have ſomething of that kind previouſly mixed with them, the texture of their parts will remain unbroken, and they will be of little uſe. In Hertfordſhire however, they are found to be an excellent manure for clay-ſoils.

To render bones uſeful, they ſhould be ground as ſmall as poſſible. At Sheffield it is a trade to grind bones for the farmer, who will give 16d. a buſhel, and ſend ſixteen miles for them. Some ſubſtance muſt then be mixed with them that is capable of diſlodging the fixed air, and diſuniting the principles contained in the bone. For this purpoſe nothing will be found ſo uſeful as quick-lime. Where there is no opportunity of grinding them, they may be mixed with lime in a heap, and will thus ſoon be reduced to powder. It is alſo a judicious practice to mix aſhes with them, a cart-load to thirty or forty buſhels of bones; turning the whole when it has heated twenty-four hours, it may be laid on ten days afterwards.

Bones are ſometimes burnt for the aſhes; in this operation they are freed from the oil and mucilage, and are merely phoſphoric acid united to lime or phoſphat of lime; in this ſtate they are merely a ſtimulating manure. In their unburnt ſtate they are both nutritive and ſtimulating. Of all manures bone is perhaps the moſt permanent. What is here ſaid of bone in its recent and burnt ſtate, applies to horns, hoofs, wool, feathers, and hair; like bone they conſiſt of phoſphat of lime, animal oil, and mucilage.

When bones are uſed in their ſimple ſtate, without the addition of earth or lime, they ought never to be laid upon any but the ſharpeſt and moſt active ſoils; ſuch as limeſtone, chalk, or gravel; upon all theſe they will meet with more or leſs calcareous earth, which will in ſome degree diſengage their fixed air, and diſſolve the oil contained in them; but upon deep clays, tills, or loams, they ſhould never be applied in that ſtate. But, when made into a compoſt, they may be applied with advantage upon ſoils of every deſcription, by laying it upon or near the ſurface, when the crop is in a growing ſtate. Upon wheat it ſhould be uſed early in the ſpring without harrowing; upon barley and oats it may be harrowed in along with the grain. For drill-crops, ſuch as turnips, beans, &c. they are particularly convenient, as they admit of being put into the drill at the ſame time with the ſeed, more readily than moſt other manures.

Dr. Hunter, of York, having laid down to graſs a large piece of very indifferent limeſtone-land with a crop of corn, ſelected three roods, which he dreſſed with bones broken very ſmall, at the rate of ſixty buſhels to the acre. The crop of corn was greatly ſuperior to the reſt. The graſs next year was alſo ſuperior, and has preſerved the ſame ſuperiority ever ſince, inſomuch that in ſpring it is green three weeks before the reſt of the field. He dreſſed two acres with bones in two different fields prepared for turnips, ſixty buſhels to the acre, and found the turnips greatly ſuperior to the others managed in the common way. He dreſſed an acre of graſs-ground with bones in October, and rolled them in. The ſucceeding crop of hay was an exceeding good one. However, he found from repeated experience, upon graſs-ground, that this kind of manure exerts itſelf more powerfully the ſecond year than the firſt.

He recommends the bones to be bruiſed by putting them under a circular ſtone moved round upon its edge by means of a horſe, in the manner that tanners grind their bark. To aſcertain the comparative merit of ground and unground bones, he dreſſed two acres of turnips with large bones in the ſame field where the ground ones were uſed. The reſult of this experiment was, that the unground materials did not perform the leaſt ſervice, whilſt thoſe parts of the field on which the ground bones were laid were greatly benefited.

All kinds of bones will anſwer the purpoſe of a rich dreſſing, but thoſe of fat cattle are the beſt. The London bones are frequently boiled, and muſt therefore be much inferior to ſuch as retain their oily parts. Mr. Young however, in his experiments on manures, ſays that the effect of the London bones was ſo very great, that he bought all he could get at 10s. 6d. a waggon-load of ninety-ſix buſhels in London. With a dreſſing of twenty-five cart-loads the crop was ſuperior to that which had fifty. The land was a miſerable ſoil, which with a ſummer-fallow yielded but thirty buſhels of wheat; but with a moderate manuring of bones yielded ſixty-three buſhels. On barley he obſerves, that bones hold a moſt decided ſuperiority, and that, expenſive as they are, they pay very amply.

*Horns* of every kind are an uſeful manure when cut into ſmall pieces; in their natural ſtate they produce little effect. The proportion proper to be employed varies with the ſize of the chips or ſhavings; fewer being neceſſary when ſmall, but the effect of the larger are longer felt. If they are of a middling ſize, about ſixty ſtone to an acre is a reaſonable quantity. If more be uſed, the grain is apt to be too luxuriant, and too long in ripening; it is alſo liable to be hurt by mildew. The ſmall pieces are chiefly turners' ſhavings, are bought in London at 12s. or 13s. the quarter, and are much the moſt uſeful. The large ones are refuſe pieces of horn, coſt about 2s. leſs the quarter, and are generally ploughed in three months before ſowing wheat or barley. They both anſwer in moſt ſoils and ſeaſons, except very dry ones.

*Hoofs* are of the ſame nature with horn, and anſwer the ſame purpoſe. Hair is likewiſe uſed with much the ſame effect. Hog's-hair is ſometimes to be had in London at about 9s. the quarter. Wool cannot well be applied as manure in its native ſtate; but very well after it has been wrought into cloth.

*Feathers* would be a good manure, if they could be had in any quantity. A field being ready for ſowing wheat, one acre was manured with ten buſhels of old feathers procured from an upholſterer, ploughing them in as they were ſpread; the acre thus manured produced near forty-eight buſhels, and the other part of the field not twenty-eight buſhels on an average.

*Recent animal ſubſtances*, as blood, and the whole refuſe of ſlaughter-houſes, ſhambles, &c. afford a very rich manure. Mixed with earth and freſh horſe-dung, they make a very rich compoſt. Blood mixed with ſaw-duſt makes a good land-dreſſing to be ſown upon wheat in the ſpring. Blood is often recommended to be buried at the roots of fruit-trees.

*Putrid animal ſubſtances* are good manures if properly managed; when uſed alone, they ſhould always be laid upon the moſt active ſoils, ſuch as chalk, lime-ſtone, &c. Upon ſtrong clays or deep loams, they ſhould only be uſed in form of a compoſt. The moſt proper way of preparing them for uſe, is to mix them with chalk or quick-lime; the mixture ſhould be laid in heaps of three or four cart-loads each, and covered with earth; after remaining in this ſtate for eight or ten days, the heap ſhould be turned over, and ten cart-loads of earth added to each cart-load of the mixture. It ſhould then remain for a month in the heap, and then may be applied as a top-dreſſing, or harrowed in with the ſeed.

*Fellmongers' cuttings*, or *poake*, uſed in Surrey and Kent, and about Dunſtable. Compoſed of ſheep's-trotters, hair, ſcrapings of the pelts, lime, &c. There are two ſorts, the white and the brown; the white is much the beſt, having more oil, lime, and hair, in it; but they are both good, and go farther in dreſſing land than almoſt any manure, in the proportion of four to one. About Dunſtable the price is 6d. a buſhel, and they uſe from twenty to forty buſhels an acre.

*Furriers' clippings*, bought in London at 12s. or 13s. the quarter, weighing about two hundred weight and a half. They are ſown by hand from the ſeed-ſcuttle on land intended for wheat or barley, and immediately ploughed in; the pieces that are left above ground are pricked in by a ſtick, to prevent their being devoured by dogs or crows. From two to three quarters are uſed on a ſtatute-acre. They anſwer well on light dry chalk or gravelly ſoils, where they hold moiſture, and help the crop greatly in dry ſeaſons.

*Greaves*, or the reſiduum which is left after the making of candles, is a ſubſtance that poſſeſſes great powers, when employed as a manure; and, although it is a ſubſtance which is generally procured at a high price, yet, from its going a great way, and being a laſting manure, it may probably be more frequently had recourſe to than has hitherto been the caſe. It is moſtly procured in the ſtate of hard compreſſed ſquare cakes, though ſometimes in a ſoft condition without having undergone any preſſure. When in the former ſtate, the cakes muſt be broken down and reduced into as great a ſtate of diviſion as poſſible, which may be rather a troubleſome and expenſive proceſs, except a mill, or ſome proper machine for the purpoſe, be employed. But when it has been even reduced to the fineſt ſtate poſſible, it will ſtill be improper for application as a manure, until it has been mixed and incorporated with three or four parts of good vegetable mould, according to the condition of the land, to one of the greaves, and then ſown as a top-dreſſing on graſs-land, where it has never failed to produce a full crop of hay, conſiderably greater than that by the uſual dreſſings of dung, and a rich ſweet after-graſs, or ſuch as cattle were remarkably fond of feeding upon.

Dr. Wilkinſon, of Enfield, found greaves very powerful and durable in their effects. From one ton to a ton and a half, he conſiders as ſufficient for an acre, according to the ſtate of the land. They are, he conceives, peculiarly adapted to promote the growth of graſs, turnips, and the leguminous plants. Eight acres of pebbly loam were, he remarks, manured with dung, at the rate of ten loads of the common Middleſex carts per acre, except one acre of the pooreſt and moſt gravelly, which was dreſſed with a ton and a half of greaves. The turnips where the greaves were ſpread, and the ſucceeding barley, (which were the crops on the whole piece,) were thicker and more vigorous than where common dung had been laid. He has obſerved graſs rendered ſo rank by the uſe of greaves as a manure, that cattle would not touch it till mellowed by the winter's froſt; and even in the ſucceeding year he was able to trace, by the ſuperior verdure of the graſs, to what extent this manure had been ſpread.

The ſame gentleman alſo uſed with ſucceſs ſalted-fiſh, and particularly herrings, which had been ſpoiled on ſhipboard, and found them equal to the greaves. In the ſame manner he uſed ſalted-meat that had become putrid on a long voyage. His general mode of application has, he ſays, been to mix them with mould raiſed from the headlands of the field where they were intended to be ſpread. By letting them lie for ſome time, the earth imbibes the ſtrong ſmell and virtues of the animal manure. Over theſe he ſpread, with advantage, the liquor drawn from the greaves, and the waſhings of the caſks of ſalt-meat which had been ſpoiled. When ſprinkled immediately over graſs in the ſpring, he has alſo obſerved this liquor attended with conſiderable efficacy in producing a plentiful crop of hay.

In the year 1800, he ſays, he uſed with ſucceſs a combination of lime and greaves, mixed with mould from the headlands, in the proportion of about fifty buſhels of lime to a ton of greaves. This compoſition, he obſerves, reſembles ſugar-ſcum, which conſiſts of lime and bullocks' blood.

From the large experience which he has had of the benefits ariſing from ſugar-ſcum, he thinks this combination of lime and animal matter deſerves further inveſtigation. Upon the whole we may conclude, that, of all manures, animal ſubſtances, when well digeſted and putrified, are the moſt powerful promoters of vegetation. In this ſtate almoſt the whole becomes volatile, and is ſo far attenuated, ſubtilized, and refined, as to be rendered capable of entering the veſſels of the minuteſt plants. Inſomuch that it appears to ſome, that, as the animal kingdom is ſupported by the vegetable, ſo the vegetable is by the animal; and that each is reciprocally the ſupport of, and is ſupported by, the other.

VEGETABLE SUBSTANCES.—Vegetable, as well as animal, ſubſtances, when deprived of their vital principle, or life, are ſoon rendered fit, by the ſeparation, reduction, and ultimate decompoſition, of their conſtituent principles, for the nouriſhment and ſupport of new plants. In this proceſs, which we have already ſeen to be greatly promoted in all kinds of ſubſtances by the materials being expoſed to the free influence or agency of atmoſpheric air, moiſture, and a middling degree of heat, various matters are ſet at liberty, by which different new combinations take place, that are capable of promoting vegetation in different degrees, and upon which their utility as manures, perhaps, chiefly depends.

In vegetable productions the changes are, however, leſs rapid than in thoſe of the animal kind, and probably much more varied, according to the various ſtates and textures of the particular ſubſtances; for it is obvious, from numerous facts and circumſtances, that the more luxuriant and juicy vegetables are much more readily decompoſed than ſuch as are dry, and have a ligneous ſtructure. Hence it is, that freſh vegetable matters are much more quickly converted to that ſtate of decay which is ſuitable for the ſupplying of vegetable nouriſhment, than ſuch as ſtraw, hay, wood, and other dry materials of the ſame nature. It ſeems likewiſe probable, that ſome vegetable matters may yield ſome of the ſubſtances that are taken up by the abſorbent roots of vegetables in much larger proportions than others; as it has been found that different ſorts of grain vary conſiderably in the proportions of mucilaginous and what is termed vegeto-animal matter, which they contain; and that grain, potatoes, carrots, and many other roots of the ſame kind, on being conſumed in the open air, afford much larger quantities of alkaline ſalts than hay, ſtraw, or wood. It is undoubtedly from theſe and ſimilar cauſes, that ſome ſorts of vegetable matters, when reduced by means of putrefaction, are found to be ſo much more effectual as manures than others, when applied under the ſame circumſtances, and to ſoils in every reſpect ſimilar. There is alſo another circumſtance which ſeems neceſſary to be attended to in ſubſtances of this claſs, which is, that in general, when reſolved by the ultimate proceſs of putrefaction, they yield larger proportions of earthy materials to the ſoils on which they are depoſited, than moſt ſubſtances of the animal kind, and conſequently add more effectually to the ſtaple of the land. And as this vegetable mould, or earth, from various cauſes, is conſtantly becoming more extenſively and more intimately blended with the other materials of the ſoils, and, of courſe, forming new combinations, by which ſome of thoſe matters which ſerve for the nutrition of plants are ſet at liberty, and brought into the ſtate moſt proper for being abſorbed by the roots of vegetables; we ſee why thoſe manures, which are principally compoſed of vegetable ſubſtances, are more durable in their effects than ſuch as are prepared from many animal materials.

The ſubſtances of the vegetable kind that may be advantageouſly converted into manure, are ſo extremely numerous, that it is impoſſible to deſcribe the whole of them. All kinds of green vegetable productions may be employed in this way; ſuch as the luxuriant weeds of rivers, lakes, ponds, and ditches; fern; and the refuſe of different kinds of garden-vegetables. Where green materials of this nature are made uſe of, they ſhould always be cut down while in their juicy ſtate, juſt before their flowers begin to appear, in order that they may be in the moſt ſuitable condition for becoming quickly putrid, and to prevent the injury that might otherwiſe be ſuſtained from the vegetation of their ſeeds. They are afterwards to be collected into heaps of a moderate ſize, and their putrefaction promoted by their being thrown together as lightly as poſſible, and the occaſional ſprinkling of them with water, if the ſeaſon be hot and dry; and as lime is found, when applied to vegetables in their green moiſt ſtate, to diſengage from them both hydrogen and azot, by the combination of which volatile alkali is produced, it may be advantageous to blend a portion of lime at firſt with the heaps, and afterwards add a ſuitable quantity of peat-earth, or good vegetable mould, for the alkali thus formed to act upon. By this method, the quantity of manure from ſuch ſubſtances may be greatly augmented, and rendered more valuable. But with dry materials, ſuch as hay, ſtraw of different kinds, fern, and ruſhes, ſuch additions cannot be had recourſe to with equal ſucceſs, unleſs where much of the dung and urine of animals have been incorporated with them; but their reſolution and decay may be greatly promoted by their being kept in a ſtate of moiſture, without the water being ſuffered to ſtagnate upon them, and by their not being permitted to be trodden down too much by cattle, or other means, in the farm-yards.

Another beneficial means of vegetable manure, which is yet far from being ſufficiently practiſed, is that of providing full crops of ſucculent green vegetables, ſuch as clover, buck-wheat, tares, vetches, ſpurry, peaſe, beans, turnips, and many other ſimilar plants, to be turned down by the plough, in order that they may undergo the putrefactive proceſs under the ground, and by that means be converted into manure, and ſupply the nutrition of plants. In this practice it is probable that great advantages might be obtained, on the principles which we have juſt ſtated, by the ſpreading of a ſmall portion of lime and peat, or rich vegetable earth, over ſuch crops, and then rolling them down, that they may be completely turned in and buried by the plough; an operation which ſhould be performed as quickly as poſſible afterwards, and, where the crops will admit of it, in the ſummer or the early part of autumn, while the ſun has the power of promoting the decay of ſuch vegetable matters. By this means, it ſeems probable, that the putrefaction of ſuch crops would not only be much expedited, but the principles thereby ſet at liberty be capable of exerting their influence much more extenſively than where the plants themſelves are only employed; and little additional expence be incurred by the farmer.

Where crops of green plants can be turned down, when the ſeaſon is ſufficiently hot to enſure their ſpeedily running into the putrid ſtate, there cannot be any doubt but that it is a better and more advantageous practice, eſpecially where manures of other kinds are ſcarce, than that of procuring it by the conſuming of ſuch crops by the feeding or ſoiling of cattle.

*Sea-weed* is another vegetable production which is capable of being employed as a manure with great advantage, and ſhould never be neglected where it is within the reach of the farmer. In ſome places it is the practice to ſpread it upon the lands as ſoon as poſſible after being cut from the verges of the rocks on the different ſea-coaſts, or collected after being left by the tides, and to plough it in; where this method is adopted, as little time as poſſible ſhould be ſuffered to elapſe after cutting, or collecting, of the weed, before it is ploughed down; for, as the plant in its green or ſucculent ſtate readily decays and becomes putrid, if there be any conſiderable delay in the performance of the buſineſs, eſpecially when the weather is hot, much of its valuable properties as a manure is diſſipated and carried away by means of evaporation, as is ſufficiently evinced by the pungent and diſagreeable ſmell that iſſues from it, on its being thrown upon the land while undergoing the proceſs of putrefaction; and, beſides, when it is ſuffered to become dry and hard before it is turned into the ground, the parts of it that remain are conſiderably longer before they become decompoſed and reduced into the ſtate ſuitable for affording the nouriſhment and ſupport of vegetable-crops. It is moſt probably on theſe accounts, as well as that of the weed affording but little earthy matter in proportion to its bulk, on its decompoſition, that it is found, in general, to be leſs permanent in its effects as a manure, than ſome other vegetable matters. Something may likewiſe depend on the goodneſs and luxuriance of the weed itſelf, and the ſtate which it is in when gathered from the ſhores, or cut from the ſides of the rocks. This, like moſt other plants, will undoubtedly be in the moſt proper condition for the purpoſes of being converted into manure, when cut or collected in the moſt ſucculent ſtate of its growth. Another practice, which prevails in ſome diſtricts where this weed is employed for the purpoſe of manure, is that of collecting it into large heaps, and letting it remain expoſed in that ſtate to the influence of the weather until it be completely rotten, and in a condition to be put upon the land; but, as the plant contains in its compoſition a large proportion of ſaline matters, which during the ſtate of its decompoſition or decay are brought into activity, it is obvious that by ſuch a method of proceeding much loſs muſt be ſuſtained, not only from the diſſipation of the volatile and more fluid parts by the action of the ſun and wind, but by the rains diſſolving and carrying away the ſaline materials that may have been formed. When this weed is, therefore, not to be immediately applied as a manure, it would ſeem to be the moſt economical and advantageous plan, eſpecially where the weed is freſh, to firſt blend a portion of quicklime with the heaps, and then have a ſufficient quantity of freſh good earth, mould, or other ſimilar matters, placed beneath them, as well as mixed with and covered over them, in order that the ſubſtances afforded by the diſſolution of the weed may not only have ſomething to mix with and act upon, but likewiſe be prevented from being waſhed away by rains. By this means the quantity of manure may be very much increaſed, and its effects rendered conſiderably more permanent. In rhe iſlands of Jerſey and Guernſey, where this weed is extenſively employed as a manure, it is cut in the early part of the ſpring, and about the month of July: the firſt cutting is, in moſt caſes, immediately made uſe of as a manure for barley and paſture lands; but the latter principally converted to the purpoſe of fuel, the aſhes only being employed as manure. By this practice of conſuming the plant in its dry ſtate, however neceſſary it may be in theſe iſlands, from the great ſcarcity of fuel, the loſs in reſpect to manure is extremely great, as the quantity of aſhes that are thus produced bear but a very ſmall proportion to that of the weed which is conſumed. The weed which is collected after having been thrown upon the ſhore by the tides, is found to be much inferior as a manure to that which is cut from the rocks and made uſe of in its juicy ſtate; which fully confirms the opinion which has been advanced above.

*River-weed.* In ſummer great quantities might be gathered in lakes, in rivers where the water is deep and has no current, and in all wet ditches. Its effects upon wheat and other grain, as well as upon turnips, cabbages, and other green-crops, are well aſcertained. It may be laid on the land green, and ploughed in, or it may be mixed with earth and dung. The beſt way of preparing it for manure is to let it lie in ſmall heaps for a day or two, to drain off the ſuperfluous moiſture. It may then be put into large heaps of three or four cart-loads each till the fermentation is over; each heap ſhould then have three times the quantity of earth or mud mixed with it. Incorporate them well, and let them remain for a week or ten days; turn them, adding at the ſame time a quantity of hot new-ſlacked lime. This compoſt will be ready for uſe in a month.

A conſiderable quantity of river-weed, being laid on the bank to drain and ferment, ſhrunk to one-third of its firſt bulk, and underwent a high putrefaction, breeding an amazing variety and multitude of inſects. In this ſtate it was carted on two ſmall pieces, together about two acres and a half, that had been folded for wheat. The crop on that ground had evidently the ſuperiority in groſſneſs and colour. Cattle were fond of eating it. River-weeds being put in to every furrow that was at the next turn filled up by the plough, on one acre of a piece deſigned for turnips; by the moiſture and fermentation of the weeds the ſeeds vegetated much ſooner than on the reſt of the field, which was manured in the common way. They alſo grew quicker, and were ſuperior both in the ſize of the roots and luxuriance of the leaves, ſo as to render the ſpot very conſpicuous in the field. But in the ſucceeding crop of barley there was a manifeſt inferiority in this piece to the reſt of the land. River-weeds being ploughed in at the end of October on part of a peaſe ſtubble, and wheat ſet by hand upon it, the whole field was a good crop, and the part on which the weeds were laid not at all inferior to the reſt, on which ſtable-dung had been ſpread in the uſual mode.

*Mud*, whether from the ſea, rivers, or ponds, is an excellent manure on any ſoil, both alone, and with lime, &c. Its greateſt value is upon thin ſoils, the fertility of which it increaſes amazingly, at the ſame time adding to the ſtaple of the land.

All manure of ſea-ouſe, or ouſie mud, ſays Mortimer, and the mud of rivers, lakes, or the bottom of ditches, the waſh of paſtures, fields, commons, roads, ſtreets, or back-ſides, in any place where water meets with reſt, or that rain-water has a long time ſettled, or that ſinks run into, are of very great advantage to all ſorts of land, eſpecially dry gravels or ſand, and are mixed with dung. The ſcouring of old ditches, the mud of ponds, and the ſediment of all ſtagnant waters, are particularly excellent upon graſs-land. Maiden-earth, with one-ſeventh of lime, and another ſeventh of rotten dung, added to it, will make it very proper manure for moſt kinds of paſture.

Mud ſhould not be laid on freſh, or as ſoon as it is dry, but it ſhould be well turned over and fermented with dung, or mixed with lime, to make the ſeeds in it vegetate, or to deſtroy their vegetation. Innumerable ſeeds fall or are carried into the water, ſink to the bottom, and, not being aquatics, if they have much oil in them, are embalmed in the mud for years or ages, to vegetate whenever they ſhall happen to come within reach of the atmoſphere in a proper matrix. It may be dug between hay-time and harveſt, and either made into a compoſt when dry, or, being turned over and levelled, and expoſed to a winter's froſt, may be dug in ſpring and planted with potatoes. When this crop is cleared, it may be carted upon paſture, and will produce a luxuriant crop of graſs.

In Yorkſhire and Lincolnſhire they have what is called *Warp-land*, or land enriched with the ſediments of rivers or arms of the ſea, when the banks are overflowed. This generally takes place in the winter or early in the ſpring; they cannot therefore ſow wheat, but great crops of ſpring-corn are raiſed. In Cheſhire, the ſoil depoſited at the extremity of ſalt-marſhes, commonly known there under the name of *ſea-ſludge*, after it has been graſſed over for a few years, is ſaid to be the moſt productive and laſting of any ſort of manure, containing all the ſtrength of marl and the richneſs of black dung.

Many of our rivers'-mouths would doubtleſs ſupply, in an inexhauſtible abundance, a ſaponaceous ſilt impregnated in ſome degree with ſalt, which would be an admirable manure.

*Sweeping of ſtreets* is a mixture of moſt ſubſtances valuable in agriculture, and needs the aſſiſtance of fermentation leſs than any of them to render it fit for uſe; being made up principally of the offal of houſes, dung of horſes and cattle, aſhes, &c. It may be either ploughed in as dung, or uſed in the ſpring to invigorate wheat that is weak from not having been ſufficiently manured or from any other cauſe. It may be employed in general as a top-dreſſing, or put into the furrow with drilled-crops.

The dung and ſand ſwept-up, or dirt ſhovelled-up on turnpike-roads, would make an excellent manure, and at the ſame time remove a great annoyance to travellers. Where roads are made with limeſtone, this manure will be particularly valuable; and, where they are made with flints, it anſwers for graſs-land.

The backs of ditch-banks, the borders of fences in general, the ſides of lanes, and the nooks of yards, &c. &c. which are ſuffered to remain from generation to generation the nurſery of weeds, turned up into ridges, to rot the roots, &c. make an excellent manure. As does alſo the rubbiſh of old buildings, called in Norfolk *mergin*. Sea-ſtone walls afford a great quantity of this valuable article; which, from its immediate effect and duration jointly, is conſidered by ſome as ſuperior to marl, mould, or even dung itſelf, eſpecially upon ſcalds and hot burning ſoils. It is ſometimes mixed with dung, but more commonly ſet on alone. The rubbiſh of old lath-and-plaſter buildings is incomparable manure for clover-lays or graſs-lands, two loads to an acre. It is ſaid to laſt twenty years. Lime-rubbiſh is uſe by gardeners to bottom gravel-walks, to mix with earth for tulips, &c. and to plant vines and figs. Mud or earth walls acquire conſiderable fertility, and, as they moulder, or fall away, become uſeful in compoſt dunghills.

*Malt-duſt*, or *coombs*, is reckoned one of the moſt efficacious manures. It is the duſt that ſeparates from the malt in the act of drying; and is uſed as a top-dreſſing for barley, for clover, turnips, &c. Mortimer ſays it is a great improver of barley, allowing forty buſhels to an acre, but that it laſts only one crop. A piece of land being manured with malt-coombs, at the rate of four quarters to the acre, and ſowed with clover and barley; the barley produced near ſeven quarters on an acre, and the crop of clover was one of the fineſt that ever was ſeen. About Dunſtable, malt-duſt coſts 1s. a buſhel. It is ſown by hand, from twenty-four to thirty-two buſhels on an acre, at the ſame time with barley, and harrowed in with the ſeed. It ſuits moſt ſoils and ſeaſons; but quickly ſpends itſelf, and is therefore never ſown with wheat. As a top-dreſſing to wheat in March, about thirty buſhels to an acre, it probably would ſucceed. Black malt-duſt, or ſuch as falls through the kiln-plate in drying, is greatly preferred to the white, on account of the ſeeds of charlock, with which it abounds, being deſtroyed by the heat.

*Oak-bark*, or *tanners'-bark*. Oak-bark, after the tanners have uſed it for tanning leather, when laid in a heap and rotted, is an excellent manure, eſpecially for ſtiff cold land; in which one load of this manure will improve the ground more, and laſt longer, than two loads of the richeſt dungs; yet it is very common to ſee large heaps of this remaining in the tanners' yards for many years, in ſeveral parts of England, where manure of other kinds is very ſcarce, and often carried to a great diſtance. Of late years this has been much uſed for hot-beds in ſeveral parts of England, and is found greatly to exceed horſe-dung for that purpoſe, the fermentation being moderate and of long continuance; ſo that a bed of tan, when rightly made, will continue in a moderate temperature of heat for three or four months; and when the heat begins to decay, if it be ſtirred up with a dung-fork, and ſome freſh tan added to it, the heat will renew again, and laſt for ſome months, ſo that theſe beds are by far the moſt kindly for exotic plants; and whatever plants are plunged into theſe beds, if they are permitted to root the bottom of the pots, they will thrive more in one month after, than they did in four months while they were confined to the pots. Many plants that root through the pots into the tan, ſend forth roots upwards of twelve feet each way in leſs than three months, and the plants advance in proportion.

After the tan is uſed for a hot-bed it may be ſpread on the ground for manure, and will greatly enrich it; but it is beſt for cold ſtrong land, becauſe it is of a warm nature, and will looſen and ſeparate the earth. When this manure is laid upon graſs, it ſhould be done ſoon after Michaelmas, that the winter rains may waſh it into the ground; for, if it be laid on in the ſpring, it will burn the graſs, and inſtead of improving will greatly injure it, at leaſt for that ſeaſon. Where it is uſed on corn-land, it ſhould be ſpread on the ſurface before the laſt ploughing, that it may be turned down for the fibres of the corn to reach it in the ſpring; for, if it lies too near the ſurface, it will forward the growth of the corn in winter; but in the ſpring, when the nouriſhment is chiefly wanted, it will be nearly conſumed, and the corn will receive little advantage from it. Nor will it be proper to have this manure lie too near the roots of any plants, for when this happens it is prejudicial to moſt of them, but eſpecially to bulbous and tuberous-rooted flowers. But, when it is buried juſt deep enough for the fibres of the roots to reach it in the ſpring, the flowers have been exceedingly improved by it; and in ſome places, where this manure has been uſed in kitchen-gardens, it has greatly improved the vegetables.

In proceſs of time tan is certainly converted into vegetable-mould. When it becomes rotten and is ſpread pretty thick, it has been found of great uſe to graſs-ground. But the moſt likely method of rendering it uſeful is to mix it with lime, or perhaps with ſalt. Or after it is taken out of the tan-pit, and waſhed, mix it with an equal quantity of freſh horſe-dung, including the litter, and cover it from rain, but let the whole be kept moiſt. When the heat is gone off, mix it with a freſh quantity of horſe-dung, to renew the heat; when that is gone off, the whole, being made into a compoſt with chalk, will form a very enriching manure.

The refuſe or pulp of pears and apples, which have been ground, and the liquor ſqueezed from them, may likewiſe be converted to the purpoſe of a manure in the cider-diſtricts. When employed in this way, however, ſome heavy ſubſtance, ſuch as good earth with a little dung, ſhould probably be mixed with it before it is put upon the ſoil, as by being blended with ſuch materials it may be more conveniently and more extenſively applied. All decayed vegetable ſubſtances are uſeful as manure. Some probably are little more than common earth or mould; but others have oily and other particles in them of conſiderable value. Mortimer reckons the rotten wood of hedges and coppices to be a great improver of the ſoil, and inſtances the earth where piles of faggots ſtand. Miller remarks, that rotten wood, and ſaw-duſt when rotted, are a very good manure for ſtrong land, becauſe they looſen the earth and render it light. Saw-duſt freſh from the pit is not worth the carriage, although in a well-rotted ſtate it becomes an excellent manure. All theſe ſubſtances may be added to ſtrong heating dunghills; as may alſo the graſs mown from lawns. Leaves of trees may be collected at the fall, and formed into a heating dunghill. They have been found to anſwer as a manure for potatoes. The ſurface-earth of woods, coppices, and plantations, being formed chiefly of rotten ſticks and leaves, is very uſeful to the gardener for his flowers, mixed with ſand, loam, and rotten dung.

*Rags.* Woollen-rags in London are from 3s. 6d. to 4s. 6d. the hundred-weight (in Berkſhire about 5s.) or about 4l. 17s. the ton. Being generally in large pieces, they are chopped ſmall, about an inch or two ſquare. They are ſown by hand, and ploughed in three months before ſowing wheat or barley, and the quantity uſed is from ſix to ten hundred-weight on a ſtatute-acre; if with dung, three hundred-weight. Mortimer ſays they are a great improvement of chalky binding lands; that in his time many loads were fetched from London to Dunſtable; that they coſt 4d. a buſhel in London; that they chopped them ſmall and ſowed them juſt after the ſowing of the corn, allowing four ſacks (of ſix buſhels each) to an acre. Woollen-rags hold moiſture, and are adapted to dry, gravelly, and chalky, ſoils; and ſucceed in dry ſeaſons better than moſt manures; but do little good on wet ſoils. London rags are beſt; but the danger of catching the ſmall-pox in chopping and ſowing them, deters many farmers from their uſe. In Berkſhire they are uſed for dreſſing wheat and clover-lays, and even upon light ſoils produce abundant crops. They are ſaid to produce very ſenſible effects five or ſix years after they are laid on, and to be better the ſecond or third year than the firſt. In Northamptonſhire they are found to anſwer well as a preparation for barley.

*Maiden or untried earth,* ſuch as is found ſix or ſeven inches deep under turf on commons, headlands, and by the ſides of roads in many places, when it is of a good quality, is of ineſtimable value as a manure for fruit-trees, raiſing ſhrubs and trees in nurſeries, all ſorts of crops in kitchen-gardens, and ornamental flowers, as well as corn and graſs. The nurſery-men near London ſend many miles for a loamy maiden-earth, as abſolutely neceſſary for their purpoſe. Mr. Lawrence recommends it in preference to dung for both fruit and kitchen-garden, particularly for aſparagus, laid a foot and a half deep, without any dung whatſoever. Mixed with dung or lime it makes excellent manure for corn or turnips.

*Fullers'-earth,* being of a very fat nature; though not much uſed for the improvement of land, on account of the profit it yields for cleanſing and ſcouring the woollens, &c. is recommended as a great improver of ſome ſorts of land, by ſir Hugh Plat, Markham, Mortimer, and others.

Doubtleſs there are many ſorts of earth that might be employed with ſucceſs, beſides thoſe in common uſe, if they were examined by men ſkilled in their reſpective properties, and applied by thoſe who are verſed in their operations.

Fossil Substances.—Subſtances of the calcareous kind, which are to be conſidered under this head, produce effects more or leſs powerful in promoting the growth of vegetable-crops, in ſome meaſure, acccording to the ſtate and quantity in which they are applied, the nature of the ſoils on which they are employed, and the properties of the matters with which they are combined. For, though calcareous materials have been made uſe of as manures for a very great length of time, and been applied in various ways, difficulties ſtill remain concerning the manner of their operation, in many caſes, which ſeem principally, however, to proceed from the want of proper diſcrimination in reſpect to the ſtate of the different calcareous ſubſtances at the time of their application, and their being made uſe of to different ſoils, without a ſufficient diſtinction of the properties of the materials of which they are conſtituted or compoſed. There is likewiſe another circumſtance, which the ingenious experimental enquiries of a late author (Mr. Tenant, in the Phil. Tranſ.) have ſhown to be neceſſary to attend to, which is, the ſubſtances the calcareous material is combined with; as he has found that, where magneſia is in union with the calcareous matter, it is not by any means ſo beneficial for the purpoſes of manure and promoting vegetation, as where no ſuch mixture or combination is preſent, eſpecially when uſed in the ſame proportions. From ſand entering largely into the compoſition of limeſtone or other calcareous matter, in ſome caſes, as it is a ſubſtance of much greater ſpecific gravity than pure cauſtic lime, conſiderable differences in its effects as a manure may likewiſe be produced. On all theſe accounts, therefore, though lime may be produced from chalk, marble, different lime-ſtones, coral, and ſhells, by ſubjecting them to ſuch degrees of heat as is neceſſary to expel or diſengage the carbonic acid or fixed air that they contain, which is apparently of the ſame quality, it may vary in its effects when employed in agriculture.

*Lime*, when newly burned, or before it becomes loaded or ſaturated with the moiſture and carbonic acid, or fixed air, contained in the atmoſphere, which, from their ſtrong tendencies to combine or unite with it, generally ſoon takes place, is in its moſt active ſtate, and, from the power which it poſſeſſes of breaking down and deſtroying the texture and organization of ſuch animal and vegetable ſubſtances as come in contact with it, is termed *cauſtic* or *quick lime*.

Quicklime, like ſalts and earths, perhaps is not itſelf nutritive; but, like alkaline ſalt, ſtimulates the vegetable, and thereby accelerates its growth, applied in due quantity and at a certain period of vegetation. If it be applied in larger quantity, it kills animals in the ſoil, and alſo ſmall vegetables; and from the deſtroyed and decayed animals and vegetables a ſoil is rendered fertile, becauſe impregnated with mucilage. The ſuperabundant lime does not prove hurtful, becauſe it becomes mild calcareous earth, by attracting carbonic acid from the atmoſphere. A moſt ſatisfactory example of the effect of lime is to be found in Derbyſhire, about Buxton, &c. where, by throwing lime upon the heath, that ſhrub has been deſtroyed, and excellent graſſes, particularly white clover, have ſprung up in its room.

When pure lime is mixed with clayey ſoils which do not poſſeſs too great a degree of humidity, it is likewiſe capable of rendering them leſs ſtiff and tenacious, conſequently more ſuitable for admitting the ſmall fibrous roots of vegetables, not only by the evolution of heat and other elaſtic matters, during the period of its becoming ſaturated with the moiſture and fixed air, or carbonic acid, which they may contain, but alſo by being thereby moſt intimately and minutely mixed with them, from the fine impalpable powdery ſtate to which it is neceſſarily reduced. Where, in ſuch ſoils, the ſulphuric acid abounds, it may likewiſe produce good effects, by forming with it a kind of gypſeous compound, and, where other acids are preſent that are prejudicial to vegetation, by the power which it poſſeſſes of neutraliſing them. And, where the lime has been burnt from the magneſian lime-ſtone, it may probably be ſerviceable when applied to clayey or other ſoils that contain the ſulphuric acid, which are uſually denominated *ſour lands* by farmers, by forming a ſort of Epſom ſalt in the ground, a ſubſtance which the experiments of Dr. Home have long ſince ſhown to be highly favourable to vegetation when uſed in ſmall quantities.

Lime, on expoſure to the atmoſphere for ſome time, undergoes a conſiderable change, being rendered mild by the abſorption of carbonic acid or fixed air from it. In this ſtate of combination it is termed, by modern chemiſts, *carbonat of lime*, or *effete lime*; its power or capability of acting upon, and deſtroying or breaking down, the texture of organized bodies, being greatly diminiſhed. It ſtill, however, promotes their diſſolution and decay, by aiding and forwarding the natural proceſs of putrefaction, as is ſufficiently proved by thoſe compoſt dung-heaps with which it has been mixed becoming much more quickly in the ſtate to be applied to land than where no ſuch ingredient had been employed; by this means it therefore contributes greatly to the ſupport of vegetation; and it has been lately obſerved, that, where incorporated or blended with ſuch compoſts of ſoil and manure as are in the ſtate of generating nitrous acid, it arreſts the acid as it forms, by which means a calcareous nitre is produced, and thus the exhalation and ready eſcape of a nutritious material is guarded againſt and prevented.

Two ſorts of lime are in uſe: the Breedon lime, burnt from a very hard ſtone, and of ſingular ſtrength as a manure; and the common lime, burnt from common ſtones, and called Ticknall or Walſal lime. The load-heaps are generally watered as they are thrown down from the waggon; and always turned over to complete the falling more effectually. If a quantity of lime be fetched in autumn or early in winter, to be uſed in the ſpring, when team-labour is more valuable, it is thrown up into a regular roof-like heap or mound, and thatched as a ſtack; a ſmall trench being cut round the ſkirts to catch, with an outlet to convey away, rain-water. Thus the heap is prevented from running to a mortar-like conſiſtence by the ſnows and rains of winter, which would render it uſeleſs as manure.

A turnip-fallow was manured with Breedon lime, in general five quarters to an acre; part had double that quantity, and part had none. The turnip-crop received no obvious advantage, but its effects on the barley were evident. The part not limed was the worſt crop, nearly in the proportion of four to three; but the part limed with ten quarters to an acre was the beſt crop. Whence the common notion, that more than five quarters of Breedon lime to an acre is ruinous to crops, ſeems to be ill-founded.

The general method of applying lime is to let it fall in large heaps, and to ſpread it out of carts upon fallowed ground either for wheat or barley. The quantity ſet on is about three chaldrons an acre; the price 9s. or 10s. a chaldron. From experiments made on turnips, barley, and wheat, it appears that lime does not act as a manure until it has been thoroughly ſlacked in the ſoil; and it ſeems as if the rains of ſummer were neceſſary to promote its operation.

The benefit of lime to graſs is a matter of diſpute; it is even thought by ſome to be detrimental. It ſeems however to be a generally-received idea, that lime laid on graſs is not thrown away; for, whenever the land is turned up again, its benefit to corn will have full effect.

Lime falling in the open air breaks into ſmall cubical maſſes, which, being once buried in the ſoil, remain in it for ages, without being mixed intimately with it. Lime ought therefore to be ſpread in a ſtate of perfect powder. It is therefore the practice of judicious huſbandmen to ſet lime upon the land in load-heaps, and ſpread it over the ſoil out of carts, as ſoon as it is ſufficiently fallen. Or the load-heaps are turned over, not ſo much to finiſh the falling, as to gain an opportunity of burying the granulous ſurface of the heaps; by which means the fragments are at leaſt leſſened, if not reduced to powder.

It is evident, from the various trials that have been made by practical farmers, that the more intimately and the more minutely lime is blended and incorporated with the ſoils on which it is applied, the more full and complete are the effects which it has in ſupporting the growth of different ſorts of crops. Thus it has been remarked by a very intelligent writer, that if a heap of lime of a conſiderable thickneſs ſhall have been ever ſo long on one ſpot, and be afterwards carried clean away from it, ſo that none of the particles of the lime remain to be mixed with the ſoil, that ſpot will not be richer, or carry more luxuriant crops, than the places around it; which, every one knows, is not the caſe with regard to dung. And again; that, if lime be ſpread upon the ſurface of the ſoil, and allowed to remain there without being ploughed in, its effects will ſcarcely be perceived for ſeveral years, till it has had time gradually to ſink through the ſward, and mix with the ſoil; after which its effects begin to be perceived, although much leſs ſenſibly than if the ſame quantity of lime had been intimately mixed with the ſoil by means of the plough and harrow. He obſerves, that he is not a ſtranger to the improvements that have been made in Derbyſhire by means of lime, without the plough; but this is no exception, he thinks, to what he has ſaid. The effects are ſlow, though certain. Thoſe who inhabit countries that admit of the plough, are often, he ſays, adviſed to lay lime upon the graſs, and are made to believe that their paſture will be inſtantly mended by it, nearly in the ſame perceptible manner as if it had been dunged. This he has tried, and has ſeen it tried by others; but always found that the graſs for the firſt year was rather hurt than benefited by it; nor was it ſo much improved in ſucceeding years, as if the ſame quantity of lime had been applied, and intimately mixed with the ſoil. In this mode of applying lime, it is long, he thinks, before it yields a proper return; and is not to be recommended to a poor man, unleſs where neceſſity obliges him to practiſe it. *Anderſon's Eſſays*, vol. i.

On theſe grounds it is likewiſe conceived, that lime may be employed much more advantageouſly, when made uſe of even in ſmall proportions, than ſuch calcareous ſubſtances as have been reduced into the ſtate of powder without calcination. It is well remarked, however, by the ſame author, that much muſt depend on the mode in which the lime is applied. "If," ſays he, "it is ſpread as ſoon as it is ſlacked, while yet in a powdery ſtate, a very ſmall quantity may be made to cover the whole ſurface of the ground, and to touch an exceedingly great number of particles of earth; but, if it is ſuffered to lie for ſome time after ſlacking, and to get ſo much moiſture as to make it run into clods, or cake into large lumps, it can never be again divided into ſuch ſmall parts; and therefore a much greater quantity is neceſſary to produce the ſame effect, than if it had been applied in its powdery ſtate. But if the ſoil is afterwards to be continued long in tillage, (as theſe clods are annually broken ſmaller by the action of the plough and harrows,) the lime muſt continue to exert its influence anew upon the ſoil for a great courſe of years; it will produce an effect nearly ſimilar to that which would be experienced by annually ſtrewing a ſmall quantity of powdered lime over the whole ſurface of the ſoil; but as the price of the lime muſt, in the firſt caſe, be paid by the farmer all together at the beginning, which only comes to be ſucceſſively demanded in the other caſe, this deſerves to be attended to, as it may become a conſideration of ſome importance where lime is dear, and money not very plentiful."

There is another circumſtance that requires to be conſidered in reſpect to the application of lime, which is, the quantity that may be neceſſary to be employed. The opinions of practical writers are much at variance in regard to this point, ſome contending that a ſmall quantity can only be applied with ſafety and advantage, while others maintain that ſcarcely too great a proportion can be made uſe of. It is obvious, however, from the differences that take place in ſoils, that no particular proportion can be ſuitable in every caſe, but that it muſt be varied very conſiderably according to the circumſtances that have been already ſtated, as well as from the ſituation or condition of the land on which it is laid, and the proportion of real calcareous matter that may be contained in the lime that is to be applied. As it has been ſhown that lime, when in its moſt active ſtate, ſoon becomes reduced ſo as to be perfectly mild, by its property of abſorbing moiſture and the carbonic acid from the air, there can be little danger of injury from its cauſtic quality, though it may, on its firſt application, have a tendency to unite with and deſtroy ſuch green or other vegetable productions as may be preſent.

It is remarked, however, by a late practical writer, that "moſt kinds of ſtone-lime ſhould be applied with a ſparing hand, and with a conſiderable degree of caution, as the cauſtic quality is many times greater in this than in lime made from chalk." He has had many opportunities, he aſſerts, of ſeeing total barrenneſs induced by a too liberal uſe of it; very generally at the ſeveral places where the carts were ſtopped for the men to ſpread it; at the bottoms of every heap; and once an entire cloſe. *Middleton's Middleſex*, p. 308.

It has been employed in different proportions, from one to ſix or ſeven hundred buſhels on the acre, on various ſorts of ſoil, by ſome very accurate agricultors, under ſimilar circumſtances, with benefits in proportion to the quantities applied in augmenting the fertility of the ſoil. And accidental experiments have demonſtrated that it may be uſed in ſtill larger proportions with advantageous effects. In ſhort, it is concluded by Anderſon, that, "on ſoils which do not naturally abound with chalk, or other calcareous matter, there is leſs danger in giving too much lime than in applying too little, except in thoſe caſes where an over-luxuriance is dreaded." *Eſſays*, vol. i.

The duration of the beneficial conſequences of the uſe of lime in promoting the growth of vegetable-crops muſt be different, according to the differences of circumſtances in the land to which it is applied; the proportion of it that is employed, the kind of crop that is cultivated, and a variety of other cauſes of the ſame nature. But it is evident from the facts that have been ſtated by practical writers, in reſpect to its continued powers of prediſpoſing lands on which it has been laid to the growth of particular ſorts of crops in preference to others; of rendering the operation of other kinds of manure, and other methods of culture, more effectual than where it has never been uſed; that it muſt produce very uſeful permanent changes in the ſoils to which it is applied. An additional proof of this is likewiſe met with in the well-known circumſtance of the quality of the grain from ſuch lands as have been limed being much improved, having a thinner ſkin, and yielding much more flour than from ground where it has never been made uſe of; which is ingeniouſly ſuppoſed, by an able author, to proceed from its containing more ſtarch and leſs mucilage, on account of the tendency of the lime to promote the converſion of the latter ſubſtance into the former, by haſtening the ripening of the ſeed. *Darwin's Phytologia*, p. 220.

As there are conſiderable differences in reſpect to the purity or goodneſs of lime-ſtone, or other calcareous matters, it is obvious that there muſt be much variety in regard to the lime that is produced from them. Where it has been prepared from the purer kinds, when brought into the ſtate of powder by being ſaturated with water, it is perfectly ſoft, ſmooth, and impalpable; while in other caſes it feels coarſe and gritty, according to the different degrees of impurity. In general, ſo far as the purpoſes of agriculture are concerned, that lime which has the greateſt levity, is the ſofteſt and ſmootheſt to the touch, and has the whiteſt colour, is the moſt advantageous.

In the carriage of lime for the uſes of the farmer, it may ſometimes be neceſſary, where the diſtance is conſiderable, to pay attention to the nature or ſtate of it; as, without that, much expence may be incurred to no purpoſe. When the lime is pure, it will be the moſt economical method to convey it in the ſtate of ſhell, as by that means nothing will be carried but what is uſeful; whereas, if it were carted in a ſlaked condition, a large proportion of water, and other matters, muſt be conveyed with it. But where lime is impure, and adulterated with other ſubſtances, or imperfectly prepared, it may be a more ſaving method to carry it in the ſtate of powder; otherwiſe much matter may be conveyed that will never ſlake or fall down into lime.

Dr. Anderſon is very copious upon the ſubject of lime, both as a cement and a manure, in his Eſſays relating to Agriculture. It is remarkable that Mr. Miller has not mentioned lime as an article of manure; though Mortimer and other old authors on huſbandry have written ſenſibly about it.

*Lime-ſtone*, and other hard calcareous ſubſtances, without being ſubjected to the proceſs of calcination by heat, may, in many caſes, as where fuel cannot be procured to burn it into lime, be beneficially employed for the amelioration of land, as has been ſhown by the experiments of Monſ. Du Hamel, and others. When thus uſed, it ſhould be well pulverized, by ſuch mechanical means as can be cheaply performed; much of the advantage to be derived from it probably depending upon its being reduced into a conſiderable degree of fineneſs, by which it may be more minutely blended with the ſoils on which it is applied, and thereby act upon and afford nutritious principles more extenſively for the ſupport of crops; and at the ſame time render the heavy and more coheſive ſoils lighter, by being more uniformly incorporated with their clayey and earthy materials. But as calcareous ſubſtances can never be reduced, by any ſort of machinery, to the fine powdery ſtate to which they are capable of being carried by means of calcination, it is probable that, when employed upon land, they will be leſs beneficial, in many caſes, than when uſed in the ſtate of lime. It is on the above principles too, moſt probably, that the ſcrapings of roads, made with calcareous and other ſubſtances, are found ſo beneficial in different inſtances, a large portion of them being in the ſtate of an extremely fine powder, from the attrition of the wheels of carriages, and other cauſes.

The experiments of Mr. Tennant, which have been already noticed, ſuggeſt, that even where magneſian limeſtone is made uſe of in this ſtate of reduction, without being converted into lime, it may not be ſo friendly to vegetation as that which is perfectly calcareous, eſpecially when employed in the ſame proportions; a circumſtance which may, in ſome degree, account for the difference which has been obſerved in the utility of ſuch ſubſtances as manures. Such lime-ſtones as contain the largeſt proportions of argillaceous earth in their compoſition, when employed in this reduced ſtate, will be the moſt proper for the thin light ſoils; as by that means the ſtaple of them may be increaſed to the great advantage of the crops. In the application of this ſort of material to land, the farmer ſhould conſtantly be attentive to the ſtate or condition to which it is reduced, as well as the nature of the ſoil, and put it on in ſuch proportions as may be moſt ſuitable to them.

*Lime-ſtone gravel*, a ſubſtance which has been ſucceſsfully laid upon land in Ireland, and which is a kind of ſtony marl, might moſt probably be equally or more beneficial, in conſiderably leſs quantities, if the ſtony lumps which it contains were firſt more perfectly reduced; for it has been remarked, that, where the pieces are large, a much greater proportion is required, and the effects are ſlower, than where they are ſmall.

*Chalk* is another material of the calcareous kind, which is capable of producing good effects on land, when applied in a ſuitable manner in its uncalcined ſtate. From its having a portion of argillaceous or clayey matter united with it in ſome caſes, it partakes of the nature of marl. Where it is made uſe of to the more ſtiff, clayey, loamy, and heavy, ſorts of ſoils, it ſhould, in moſt caſes, be as much pulveriſed and reduced as poſſible before it is laid on, in order that it may be ſpread with greater exactneſs, and be more regularly mixed and blended with the ſtiff and compact materials of ſuch lands; from which they may be rendered more capable of admitting the fibrous roots of vegetable-crops to ſpread themſelves in them, and thereby take in more perfectly the nutritious matters which are preſented to them. That this practice is of much utility and advantage, is evident from the circumſtance of farmers, in moſt of the diſtricts where chalk is employed as a manure, finding that it is conſiderably more beneficial when made uſe of in the ſpring, after having been dug up in the autumn, and expoſed to the froſt and moiſture through the following winter, and by that means much pulveriſed and broken down, as well as by their carefully breaking and reducing the larger pieces. It would probably, however, be a ſtill more advantageous practice to break it down, and apply it as quickly as poſſible, after digging it out of the pit; as by leaving it expoſed to the atmoſphere for ſome length of time, it not only becomes hard, but likewiſe leſs ſoluble, and therefore leſs proper for the purpoſes of manure. Hence it probably is, that farmers, where the chalk-huſbandry is practiſed, find the dreſſings more efficacious when the chalk is dug from a conſiderable depth, than where it lies near the ſurface of the ground. In the dry and light ſoils, too, it may probably be more ſerviceable in this reduced and powdery ſtate, from the circumſtance of its poſſeſſing more moiſture, on account of a more extended ſurface being expoſed to the air, and the particles of the ſoil, from which it may abſorb and attract it, and afterwards part with or afford it in a more regular and uniform manner to the abſorbent roots of the growing vegetable-crops. The obſervations of practical farmers, however, invariably ſhow, that on ſuch ſoils it is much more beneficial when made uſe of in the form of compoſt, either with rich peat or vegetable-earth and mould, or with good dung; as by this means a great defect in ſuch kinds of land, the want of well-reduced vegetable matter, is remedied, and a greater proportion of nutritious materials afforded for the ſupport of crops.

When this manure is employed upon the more wet and poachy kinds of ground, there is probably not the ſame neceſſity for its being reduced to a great degree of fineneſs, as it may be apt, under ſuch circumſtances, to diſſolve, and ſink down too much by being ſo greatly diluted with water, while in the rounder ſtate it may be retained nearer the ſurface, and thereby be capable of abſorbing and taking away the ſuperabundant ſurface-moiſture more effectually. But even in ſuch ſoils, where the principal intention is the deſtruction of moſs, ruſhes, and other coarſe plants, the growth of which depends upon a great degree of ſuperficial wetneſs, it may be employed moſt advantageouſly in a ſtate of conſiderable reduction, as, from its greater readineſs to ſink down, it may the more quickly take away from their roots the exceſſive moiſture that ſupports them. It may, perhaps, neutraliſe acids too, when they exiſt under certain combinations in theſe ſoils, more readily when applied in its comminuted or pulveriſed ſtate than in the lumpy one in which it is commonly uſed.

The proportion in which this ſubſtance is to be applied to the ground muſt depend, in a great meaſure, upon the ſtate of the ſoil, the nature of the crop, and the purpoſe for which it is employed. In many of the ſouthern counties it is laid on the ſtiff clayey ſoils in large quantities, as from twelve to fourteen or fifteen waggon-loads, of from fifteen to twenty hundred-weight each, to the acre; and on the ſandy ſoils in ſome parts of Kent, at the rate of a hundred and ſixty buſhels to the acre. But, as chalk cannot, by any means, be reduced to that ſtate of powdery fineneſs that is the caſe with lime, and conſequently cannot be ſo equally ſpread out, or ſo minutely blended with the ſoil, it is evident that much larger proportions of it muſt be employed to produce the ſame effects on the ſoil; perhaps ſeldom leſs than three or four times the quantity will be required.

Where chalk muſt be carried from a great diſtance in its wet heavy ſtate, it will generally be the moſt economical practice to have it firſt converted into lime.

*Marl* is a calcareous ſubſtance, found under very different forms, and in different places, and made uſe of as a manure with much advantage, both on the thin light ſoils, and ſuch as are more heavy and compact. It is diſtinguiſhed, from its particular appearances, into *ſhell*, *clay*, and *ſtone*, marl. The firſt is evidently of animal origin, from its being compoſed of teſtaceous or ſhelly matters, in greater or leſs degrees of attenuation, from the gradual decompoſition which they have undergone during the ſucceſſion of ages, with a ſmall portion of earthy ſubſtances mixed and blended with them. It is conſtantly found in ſuch ſituations as have been covered with water, from which, as the ſediments or depoſitions of mud or other earthy materials, in ſuch caſes, muſt have been different from various cauſes, ſuch marls muſt be more or leſs pure, or contain greater or leſs proportions of calcareous matter, according to ſuch circumſtances; in general, however, they contain a larger proportion than the ordinary ſorts of lime. In the ſecond kind there is much clay uſually combined with the calcareous matter, from which circumſtance it abſorbs and retains moiſture more ſtrongly than moſt of the other kinds. The clayey ſorts of marl vary greatly in reſpect to their colours, being met with of a brown, blue, red, and yellow, tinge. The third ſort, or ſtone-marl, has different proportions of ſand united with the calcareous matter and the clay, upon which depends the differences in regard to its hardneſs. Where this ſort of marl has a thin laminated ſtructure and flakey appearance, it is frequently denominated *ſlate-marl*. From the portion of clay that is contained in theſe marls, they become capable of being gradually ſoftened by the action of water, and ultimately fall down into the powdery ſtate. All marls contain ſome portion or other of clay, in combination with the calcareous matter, as has been long ſince ſhown, while in lime it is moſtly ſand which is united with that ſubſtance.

Notwithſtanding theſe differences in the appearance and conſtitution of marls, they all agree in being reduced into a pulverulent or powdery ſtate, by expoſure for ſome length of time to the influence of the atmoſphere, by which means they are rendered capable of being intimately blended with the different materials of the ſoils upon which they are applied; but as this general property of falling down into ſmall particles, in conſequence of the abſorption of moiſture and carbonic acid, or fixed air, from the ſurrounding atmoſphere, is much greater in ſome kinds of marl than others, it may cauſe ſome difference in their utility as manures. Where ſubſtances of this kind are laid upon land for the purpoſe of ſupporting an immediate crop of either corn or graſs, there can be little doubt but that the moſt crumbly, or thoſe the moſt readily reducible into a powdery ſtate, are the moſt proper; but, where they are laid on with the intention only of aſſiſting future crops, or of producing more laſting effects, thoſe that are more hard, and leſs diſpoſed to fall into pieces, may be more advantageouſly employed. The former ſeems to be ſhown to be the caſe, by the common obſervation of practical huſbandmen in marling diſtricts, that marl does not exert its full effects on the ſoil until it has been well mixed and incorporated with it by frequent aration, and by the practice of letting it remain ſome time on the ſurface of the ground before it is turned down, from which it becomes much pulveriſed and reduced; and the latter, by the circumſtance of the harder ſorts of marl remaining a great length of time upon or within the ground, before they are fully decompoſed or broken down.

This kind of manure produces beneficial effects on moſt ſorts of ſoil in its different forms; the ſhell, ſtone, and thoſe kinds of marl which abound moſt with calcareous earth, or which have ſand in their compoſition, are the moſt adapted to the ſtrong, ſtiff, clayey, ſoils, as by the inſinuation of ſuch matters they are not only rendered more light and friable, but a great part of the injurious moiſture which they contained is removed. But thoſe in which clay is conſiderably predominant are found more advantageous in the light, dry, ſandy, gravelly, and loamy, ſoils, as by ſuch ſubſtances the defects of lightneſs are remedied, and the neceſſary moiſture in ſome meaſure preſerved. On the ſtronger ſorts of loamy ſoil, clayey marl will moſtly be improper, as it has much tendency to render ſuch ſorts of land more wet and adheſive, by which they may be greatly injured. Theſe have been found to be the effects reſulting from the application of it even upon a temperate loam, in ſome parts of Suſſex. And beſides it is ſometimes apt to bring up coltsfoot, a weed which is difficult to be eradicated.

In the quantity or proportion of theſe ſubſtances that is applied, there is conſiderable difference in different diſtricts, a circumſtance which, in ſome degree, depends upon the nature of the ſoils; the heavy, clayey, or loamy, requiring in general a much larger proportion than the light, ſandy, or gravelly. The general quantity employed may probably be eſtimated at from about two to four or five cubic roods of ſixty-four yards to the ſtatute-acre, according to the ſtate of the marl, and particular nature and condition of the grounds on which it is laid. It may, however, in many caſes, be the moſt adviſable practice not to apply too thick a covering at one time, but to have recourſe to light dreſſings more frequently, as by ſuch a method the fertility of the land may be better preſerved and kept up, and the crops be rendered more abundant.

This manure is employed both on lands in a courſe of tillage, and graſs-lands, from different ſeed-crops. On the former it is generally made uſe of as a preparation for barley, turnips, and other ſimilar crops, or applied upon clover or other new lays, previous to their being ploughed up for wheat; in which modes of making uſe of it, the common practice is to leave it ſpread out upon the ſurface for ſome length of time before it is turned in, in order that it may be well reduced into a powdery form; for, the more perfectly the marl is broken down and ſpread out, the more effectual it is found in promoting the growth of the crops. In its application in the latter caſe, it is frequently laid on in too large quantities, or left too long in its lumpy ſtate; from both which circumſtances diſadvantages are produced to the growth of the graſs, when either to be cut for hay or fed off by cattle; as by the former, where the marl contains much of the argillaceous material, a kind of cruſt is formed, that prevents its ſpringing, as happens where the ſtiff mud of ponds, and ſuch-like manures, are too thickly laid on lands; and from the latter, the graſs is not only injured by the ſmall clods, as is experienced where imperfectly-reduced clayey earth is applied, but the effects of the manure are prevented from being fully exerted, on account of its not being well-broken, and carried down to the abſorbent roots of the graſſes, by the frequent rains that may take place after its application.

Some farther attention ſeems likewiſe requiſite in the uſe of this manure, as well as to the mode of cropping with it. When employed in large proportions, whether upon the heavier or lighter ſorts of land, a conſiderable ſpace of time appears, from experience, to be required to elapſe, before it can with advantage be had recourſe to again; for, if this circumſtance be not properly attended to, or too many white crops be ſucceſſively taken, a very great degree of exhauſtion is ſoon produced, as has been experienced in many of the marling counties of England, and in Forfarſhire in Scotland. Theſe injurious conſequences are, however, found to be eaſily prevented, by adopting the alternating ſyſtem of corn and graſs, or other green crops. And it is probable, that by taking corn and graſs-crops in ſucceſſion, or, after having one or two grain-crops, letting the land be laid down for two or three years with artificial graſſes, the application of marl in ſmall quantities might be more frequently renewed, to the great advantage of the farmer, and the improvement of the land. In ſome of the places where this kind of manure is made uſe of, as in Lancaſhire, ſomething of this practice is adopted with much benefit. And when mixed with dung and other ſubſtances, in the form of compoſt, it is generally found capable of being repeated, at ſhort intervals, with the moſt beneficial effects. From theſe facts it would therefore ſeem probable, that ſuch injuries are rather to be aſcribed to the mode of cropping, than to the nature of the manure. Something may alſo, perhaps, depend on the manner in which it is applied, as it has been found to be more efficacious when well mixed and incorporated with the ſoil, than where this has not been the caſe; and, as it has been found highly advantageous in promoting and bettering the condition of the graſs-lands in ſome diſtricts, while in others it has been objected to as injuring them, it is ſtill farther probable that much depends on the ſtate and manner of its being put in or upon lands, and that it is only where it is laid on in a moderate ſuitable proportion, and after it has been well broken down and reduced into a fine powdery form, ſo as that it may be very minutely and intimately blended with the ſoil, that its beſt effects can be exerted.

Dr. Hunter has an elaborate eſſay on the nature and properties of marl. From his analyſis and experiments it appears, that marl conſiſts of clay, or a mixture of clay and ſand; and of a real calcareous earth, differing in no reſpect from that of limeſtone and the ſhells of animals. According to him, the eſſence of marl conſiſts in this calcareous earth. All bodies however which have calcareous earth are not marl. To entitle them to this name, they muſt fall into powder upon being expoſed to the air. Hence the purity of marls will be in proportion to the quantity of calcareous earth in their compoſition.

The different proportions of the conſtituent parts of marl in the ſeveral varieties of it, making a choice of marls for particular ſoils a matter of conſequence; it is deſirable to know the proceſs for diſcovering this proportion. Having dried and powdered the marl to be examined, pour upon any given weight of it a ſmall quantity of water. To this mixture well ſhaken add a little acid of ſea-ſalt, or any other mineral acid, except the vitriolic; and, when the efferveſcence is over, add a little more. Repeat this addition at proper intervals, till no more efferveſcence enſues. Then put the whole, with an equal or greater proportion of water, into a filter of grey paper, the weight of which is known. When all the fluid parts have paſſed through, fill up the filter again and again with warm water. Thus the diſſolved particles of calcareous earth, adhering to the reſidue, or entangled in the pores of the paper, will be waſhed away, and nothing but what is really inſoluble will remain in the filter. This reſidue, with the filter muſt be dried and then weighed. The difference between its weight and the original weight of the filter, gives the weight of inſoluble parts. This being known, the proportion of calcareous earth in the ſame marl is evident. The proportions of clay and ſand in it are diſcovered by ſubjecting the reſidue to a proper elutriation or waſhing, which is thus performed: Having weighed the dry reſidue, mix and ſhake it well with a ſufficient quantity of water. After allowing a little time for the ſubſiding of the groſſer parts, let the water, with the fineſt particles of clay ſuſpended in it, be gently poured off. Add more water to the remainder, and, after ſufficient mixture and ſubſidence, pour that off likewiſe. In the ſame manner repeat the operation again and again till the water comes off perfectly pure. The ſubſtance which then remains is ſand, mixed perhaps with ſome flakes of talc; and whatever this ſubſtance wants of the weight of the reſidue, is the weight of pure clay, carried away by the water in the waſhing. The efferveſcence enſuing upon the application of acids to marl, although it ſhows the exiſtence of calcareous earth, yet is no indication of the quantity of it; for the efferveſcence varies according to the ſtrength of the acid employed; but ſtill more according to the penetrability and other more latent qualities of calcareous bodies.

The calcareous earth of marl is equally calcinable to quicklime, whether it is expoſed to the action of fire before or after its ſeparation from the other earths which it contains. Marl indeed has a very intimate affinity to limeſtone. A gentle gradation from one to the other may be eaſily traced out; and it will be difficult to eſtabliſh the preciſe limits of either. Both are found in continued ſtrata; both diſſolve in part with conſiderable efferveſcence in acids, and both yield by calcination a quicklime. There are however two remarkable differences: marl, by being expoſed to air, falls into powder; limeſtone retains its original ſtability. On the contrary, limeſtone, after undergoing the action of fire, is reduced to powder by the application of water; marl ſuffers no change.

The expence of marl at ſome places is very great. About Yarmouth, in Norfolk, it is 7s. 4d. a cart-load. About Colcheſter they have it from Kent; it coſts them from 7s. to 9s. a waggon-load, they carry it ten miles, and lay ſeven waggon-loads on an acre.

Marl has been much uſed in Staffordſhire for ages back. In many places, they ſay, the land has been over-marled, and is rendered harſh; this is reſtored by fallowing and liming. It is in general only in loamy ſoils that a true marl is found; in mixed gravelly ſoils they have a friable brick clay, which is uſed on ſuch ſoils with good effect; the quantity laid on is generally one hundred and twenty-eight cubic yards on an acre, which adds nearly an inch to the ſtaple of the ſoil; the expence is about 25s. an acre, beſides carting out, which is worth 50s. an acre more. It is thought to be much more adapted to tillage than paſture, and its good effects on corn-lands are long viſible; in thin light lands it endures for ever, as it not only conſolidates the ſoil, but gives it ſtaple.

Marl is the foundation of improvements in agriculture in Lancaſhire and Cheſhire. They have ſeveral varieties of it, valuable in proportion to the calcareous matter which they contain, or the nature of the ſoil to which they are to be applied. To ſtiff clay-lands the blue or reddiſh ſlate-marl, or ſhell-marl, containing much calcareous earth with ſome ſand, are more beneficial; but to light ſands ſtrong clay-marl is more genial.

Barren ſands and poor heaths have been rendered productive by marl, but at a great expence; indeed there is reaſon to believe that the greateſt part of the ſouthern diſtrict of Lancaſhire has been reclaimed by it.

The general cuſtom is to lay upon the great Cheſhire acre of eight yards to the rood, from three to ſeven roods of ſixty-four ſquare yards each. From four to five roods may be conſidered as the average quantity; but it ought to be in proportion to the quality of the ſoil and of the marl. A Cheſhire acre contains two acres eighteen perches and a half ſtatute meaſure. They lay it upon graſs-land which is intended to be broken-up the enſuing ſpring. Sometimes a coat of marl is ſpread upon the green-ſward, and left unploughed many years; in this caſe the graſs ſometimes receives conſiderable detriment, the marl ſinking down in a body without incorporating with the ſoil; though, when marl has lain ſeveral years in this ſtate, the ſubſequent crops of corn have been enormous.

Mr. Macro, of Barrow, in Suffolk, is convinced, that about ſeventy ſquare yards or loads of marl is the propereſt quantity to be laid on an acre, pole meaſure. If more be laid on, it will be longer before it incorporates with the ſoil, and therefore before any benefit can be received from it. The effect however of a larger quantity will continue longer.

In open fields marling ſeldom anſwers the expence, for this is only a beginning of improvement; by going on directly with a courſe of ploughing, which cannot well be avoided in ſhiftable fields, the marl is often buried and loſt before it mixes properly with the ſoil, eſpecially if turned in too deep the firſt earth, of which great care ſhould be taken. Marling therefore can only or chiefly anſwer on incloſed land, that can be managed as the occupier pleaſes. In that caſe, it ſhould be laid down with clover, ray-graſs, and trefoil, the ſpring twelvemonth before laying on the marl, and remain at leaſt ſix months after, that it may have time to ſink into the flag before it is ploughed up, and then there will be little danger of loſing it, as it will be in ſome meaſure incorporated with the ſoil. No pains ſhould be ſpared to break all the lumps, and to get it fine by repeated harrowings and rollings, and to have the ſtones picked and carried away, that the graſs may get through, for ſtock to be grazing upon it, which is the great and finiſhing improvement.

Let us not ſuppoſe either that marl is of modern application in agriculture, or that no one before our times could make an experiment. That good old practical writer Walter Blith calls it a *gallant manure*; he obſerves that ſlipperineſs or greaſineſs is no infallible ſign of its goodneſs, but that the trueſt ſign is its *incompoundneſs*; "and if it ſlack immediately after a ſhower, and ſhortly after turn to duſt after it is dry again, and doth not congeal and conglutinate like to tough clay, but diſſolve, fear not the operation, adventure the experimenting of it, the fruit will be anſwerable to thy hopes."

He then relates an experiment of his own upon a miſerably-poor gravelly paſture with ſome red marl, which he found in an old clay pool. On part he laid the mud from the pool, ſome he dunged, ſome he folded, the reſt he marled, except one land which he did not manure at all. He brought the whole into good tillage, and ſowed it with wheat and rye mixed. The folded land produced the beſt crop, the next that which was dunged, the mudded land came in third, and the marled land laſt, though the crop on that was reaſonably good; but on that he laid nothing, he reaped nothing, not ſo much as ſtraw. The next year he ſowed barley, and upon his marled land was moſt gallant corn, ſo was his mudded land, the mucked land was the worſt by far; on the unmanured land he ſowed oats, and reaped nothing. Then he marled the lands that had been mucked, and the land which had not ſoil laid upon it; which brought forth as gallant corn as England yielded. After three or four crops, the mud decayed alſo; he then marled it, and had the ſame fruit as aforeſaid. The marled land he kept in tillage nine years, without any addition of compoſt or ſoil, and had as goodly corn as ever grew; and ever ſince, with ſome ſmall addition of fold or manure, that has outſtripped all the reſt.

*Crag* is a ſort of ſhell-marl, being chiefly ſhells whole or in a decaying ſtate mixed with calcareous earth, which probably is nothing but the ſhells perfectly decayed. The benefit of it, in Suffolk, for turnips, on a poor ſand, has been found equal to that of dung; yet the greateſt effect was on a moory bottom. The Sandlings, a tract of ground in that county near Woodbridge, ſeems to be upon a foundation of this red ſhell-marl, or crag. There are very large deep pits on every farm in this diſtrict, whence immenſe quantities were dug for its improvement, when firſt broken-up from its waſte ſtate of heaths at 4d. an acre, to fields covered with fine crops of turnips, carrots, and corn, at 5s. 10s. and 15s. an acre. The uſe of crag is however dropped here, except for taking in walk-land, as they call it, or ſheep-walks. On old improved lands they never lay it on alone, but mix it with dung, earth, or ouſe; thinking that it makes light lands blow more.

Mr. Young, in his Eaſtern Tour, ſays, that crag is dry, and not in the leaſt ſoapy; that it does not effervеſce in acids, and does not fall in water; that, notwithſtanding this, all the effects and even more, produced in Norfolk by ſixty, eighty, and a hundred, loads of marl, are gained in Suffolk by ten or twelve of this; and that it laſts even longer, which they have diſcovered from an idea, probably a falſe one, that land once cragged will not bear a repetition of it, except in a compoſt with dung; and accordingly they have many fields, in which it has laſted, with ſuch additions, fifty, ſixty, and even one hundred, years. The nature of the poor ſands in that country is quite changed with it, and they gain an adheſion which they retain for ever. It is alſo a great fertilizer, as appears from the great and ſudden increaſe in the crops after it.

*Sand* can ſcarcely be conſidered as a manure; it is however beneficial upon all clays, and other tenacious ſtiff land, by ſeparating their parts, and deſtroying their coheſive quality; by which means the ſun, air, and froſt, penetrate them the better. Sand is likewiſe of great uſe upon rough coarſe meadows; nothing fines the ſurface more, or produces a thicker ſward of Dutch clover. The beſt ſand is that which is waſhed out of highways, or from hills by the rains, or that which lies in rivers.

Mr. Bligh adviſes, for the increaſing of ſoil in winter, where ſheep cannot be folded, to have a ſheep-houſe to feed them in, into which he would have brought twice a-week ſeveral loads of ſand out of the highways, ſtreets, or ſand-pits, which by the fatneſs of the ſheep's-dung and urine will make an excellent manure for cold clay lands.

*Sea-ſand* and *ſhells* are in ſeveral parts of England uſed to great advantage, eſpecially in Devonſhire, where they are at the expence of fetching the ſand and ſhells on horſes' backs twelve or fourteen miles. The land on which they lay this manure, is a ſtrong loam inclining to clay.

Coral, and ſuch kinds of ſtony plants as grow on the rocks, are very beneficial to land; but, as theſe bodies are hard, the improvement is not the firſt or ſecond year after they are laid on the ground, becauſe they require time to pulveriſe them before they can mix with the earth to impregnate it. Therefore dreſſings of this kind are ſeldom uſed by tenants, who want to reap the fruit of their labour as ſoon as poſſible. But theſe manures are much better for cold ſtrong land than for that which is light and ſandy. In ſome countries, at a great diſtance from the ſea, have been diſcovered great quantities of foſſil-ſhells, which have been dug out of the earth, and uſed as manure, which have improved the ground a little, eſpecially ſtrong land.

Where the land lies near the ſea, ſo that either ſand, ſhells, corals, wrecks, or ſea-weeds, can be obtained at an eaſy expence, they are by far the beſt kinds of manure, becauſe they enrich the land for ſeveral years; for, as their ſalts are cloſely locked up, they are communicated by degrees to the land, as the heat and cold cauſes the bodies to pulveriſe, and fall into ſmall parts; ſo that, where ſand and ſmaller kinds of ſea-weeds are uſed, if they are laid on land in proper quantities it will enrich it for ſix or ſeven years; but ſhells, corals, and other hard bodies, will continue many years longer.

Mortimer mentions three ſorts of ſea-ſand uſed in the weſt of England for manure. That about Plymouth and the ſouthern coaſts is blue or grey like aſhes. Weſtward, near the Land's End, it is very white, and in Scilly gliſtering. On the North Sea, from about Padſtow, and eaſtward to Lundy, it is of a brown, reddiſh, yellowiſh, colour. In Falmouth, near St. Mawe's, there is a ſand, or rather coral, that lies under the ouſe; the red is reckoned the beſt, the blue next, and the white worſt. All theſe ſands are compoſed chiefly of ſhells. When they lie near, they put on about ſixteen tons upon an acre; and leſs, as low as one ton, as the diſtance is greater. They ſpread it as ſoon as it is got home; commonly take four crops of corn from it; and then lay the land down for paſture for ſix or ſeven years before they plough it up again.

Shell-ſand is very common on the eaſt coaſt of Scotland. All along the coaſt of Fife, eſpecially about St. Andrew's. On the north coaſt of Aberdeenſhire. In Banffſhire, and all along the coaſt of Sutherland and Caithneſs, the ſands upon the ſhore conſiſt almoſt entirely of ſhells. Cockle-ſhells are laid on ſtiff clays in the Iſle of Shepey, thirty cart-loads to the acre.

All ſhells are principally calcareous earth, and when burnt afford the beſt of lime. In a recent ſtate they are of little value as a manure, unleſs they are broken very ſmall; but in a decayed ſtate they reſemble ſhell-marl. Upon deep loams and ſtrong clays their operation is ſimilar to chalk or marl; but upon light gravels or ſands, little benefit is to be expected from them, unleſs they are previouſly made into a compoſt with dung, clay, or loam. When ſuch lands are in graſs, top-dreſſings of ſuch a compoſt will produce great effects; and, if judiciouſly treated afterwards with dreſſing of any of the different earths, their value will be much improved; and the thinner the ſoil, the greater will be the profit ariſing from this management. On clay paſtures, ſhells in their ſimple ſtate will correct acidity, deſtroy ruſhes, and render the ſoil leſs retentive of moiſture. When ſhells are burnt, they are in the ſtate of lime, and muſt be uſed as ſuch.

Sea-ſand is an excellent manure on a ſummer-fallow for wheat; but, being repeated two or three times, loſes much of its good effects, without a change of tillage. Straw being ſcarce at Yarmouth, they litter their ſtables with ſea-ſand; as the bed becomes ſoiled or wet, freſh ſand is ſcattered on, until the whole is in a manner ſaturated with dung and urine; the ſtall is then cleared, and a freſh bed of ſand laid in. Thus muck of a quality ſingularly excellent is produced.

Sea-ſand is much uſed by floriſts in Holland, where they draw their parterres into ridges before winter, and ſpread it on the tops of them.

*Clay*. As ſands are an improvement to clays, ſo, on the contrary, clays are an improvement to gravelly and ſandy lands, by making them more ſolid and tenacious. Mr. Legrand, of Guilton-houſe, near Sandwich, has uſed clay with aſtoniſhing ſucceſs upon a ſoil almoſt entirely ſand; but, it is not a ſingle or ſlight dreſſing that will do any good; one hundred and ſixty loads an acre make a wonderful improvement.

It muſt be remembered that marl and clay are often confounded, and that marling is frequently called claying. The extent to which claying has been carried in the ſand-diſtricts of Suffolk is very conſiderable. An excellent cultivator near Bury, though not on a very large farm, has carried 140,000 loads. But, when this clay is not of a good ſort, that is, when it has very little clay in it, but is rather an imperfect hard chalk, there are great doubts how far it anſwers, and in many caſes it has been certainly ſpread to little or no profit. The uſual quantity is from ſixty to eighty, and ſometimes a hundred, loads, of thirty-two buſhels, to an acre. The duration, and indeed the whole effect, depends much on the courſe of crops. If the plough be too freely uſed, and corn ſown too often, it anſwers badly, and the effect is ſoon loſt; but with good management it laſts twenty years. In many caſes, a courſe of fallow and rye or light oats is converted to fine barley, clover, and wheat, and the produce multiplied twenty fold; but the caſes in which the return has been inadequate are not a few; and on ſoils that will yield ſaintfoin, it is more profitable to cultivate that, than clay the land for corn.

In ſtiff deep clays, where manure is not to be had in ſufficient quantities, and fuel is cheap, it may be no bad proceſs to burn ſome of the clay, which will not only break the coheſion of the ſoil and make it more eaſily cultivated, but will alſo render it leſs retentive of moiſture, and thus more friendly to vegetation. Upon thin ſoils, it is evident, any attempt at burning would be highly improper. Mr. Belcher found a ſurpriſing effect in half-baking earth, which renders dead barren earth immediately productive. It muſt be only half-baked; for if fully baked, it in a great degree reverts to its priſtine ſterility. He does not mention whether it was clay or vegetable earth that he baked; the nature of the latter we know from paring and burning, but we have not had experiments enough to aſcertain the effects of burning clay.

*Gypſum*, or *plaſter of Paris*, is calcareous earth united with the vitriolic acid. It does not effervеſce with acids, and is not without difficulty ſoluble in any. When heated a little below ignition, it undergoes a motion ſimilar to that of ebullition, from the diſſipation of its aqueous parts, and falls into powder. If taken up when this motion ceaſes, and ſprinkled over with water, it ſoon concretes, and hardens by reaſon of its ſudden cryſtallization. It is entirely ſoluble in a large quantity of water, and may be compoſed by ſaturating the vitriolic acid with calcareous earth. What we commonly call *hardneſs* in water, is owing to gypſeous ſelenites diſſolved in it.

Gypſum has lately been extolled in ſeveral foreign publications, as a manure of the higheſt value in Germany, and particularly in America, where, according to Mr. Chancellor Livingſton, of New York, it has produced a new era in agriculture. This gentleman, after having continued his experiments three years, concludes, 1. That gypſum in ſmall quantities has no viſible effect on wheat or rye. 2. That it is uniformly beneficial to Indian corn, unleſs in very rich or wet ſoils. 3. That it is beneficial to flax, on dry poor ſandy land. 4. That it is peculiarly adapted to the growth of clover on all dry ſoils, or even on wet ſoils in a dry ſeaſon. 5. That limeſtone pulverized has ſimilar effects with gypſum. 6. That the effects of gypſim as a manure are hardly perceptible in the vicinity of the ſea.

In the experiments of George Logan, eſq. it appears that gypſum was uſeful even to crops of wheat and rye. This gentleman remarks, 1. That there is no difference between the American gypſum and that which he had from Europe. 2. That it acts as an immediate manure to graſs, and afterwards in an equal degree to grain. 3. That one dreſſing will continue in force ſeveral ſucceeding crops.

He adds, that its not producing any remarkably beneficial effects, when uſed as a top-dreſſing to grain, may ariſe from two cauſes: firſt, from the ſmall quantity made uſe of, which is loſt in the rough ground; and, ſecondly, from the ſhort time of its application. That it has been found of advantage to Indian corn; but that it is neceſſary to apply it immediately to the corn as it appears above ground, and that in a conſiderable quantity. That early in April is preferable to any other ſeaſon for applying it to paſture; for, the graſs being juſt ſhooting at this ſeaſon, the ſmall particles of the gypſum are retained about the roots, and prevented from waſhing away. On ſtiff clay ſoils it will produce an increaſe of vegetation, but not ſufficient to pay the expence of the manure.

In general it is ſaid to have had great effects on what they call their worn-out lands in America. After having broken the plaſter into ſmall pieces by a hammer or ſtamping-mill, they reduce it to powder in a common griſt-mill, and in this ſtate ſpread it upon the ground in a calm day. In miſty weather it will ſpread to moſt advantage. The moſt approved quantity for graſs is ſix buſhels to the acre. It has been uſed in the ſtate of Pennſylvania ever ſince the year 1778, if not ſooner, and laſts from ſeven to ten years, but its continuance very much depends on the nature of the ſoil to which it is applied. By a letter to Capel Lofft, eſq. it appears that gypſum was come into general uſe as a manure in Pennſylvania, in the year 1789; and that the grounds within ten miles of New York, which were deemed old worn-out fields, have by the uſe of this manure been ſo recovered as to ſupport fifty head of cattle, where in its former ſtate one could not live.

It is ſaid to have been diſcovered as a manure in Europe by Mr. Meyer, a clergyman of uncommon merit, in Franconia, in the year 1768. It has been applied with ſignal ſucceſs in Germany, Swiſſerland, France, &c. and, if it has not met with the ſame ſucceſs in England, it muſt probably be, becauſe the calcareous principle prevails here ſo generally. Sir Richard Sutton and others, who have tried gypſum here, have not been able to trace any effects from it. Mr. Proctor Anderdon, of Henlade, Somerſetſhire, concludes from ſome experiments, that on many plants, or in many ſoils, gypſum-powder will have no effect; but that it has ſome effect on old clover in a loamy ſoil; and that a greater effect may reaſonably be expected from it, when applied to younger plants of the ſame ſort or nature. This agrees with the American accounts, clover there being the crop more benefited by gypſum than any other. Calcareous earth indeed is generally acknowledged to be favourable to the growth of clover; but the addition of the vitriolic acid, a ſuſpected poiſon in agriculture, would naturally have induced the agricultural chemiſt to have rejected gypſum as a manure.

According to Kirwan, the rationale of its effects may be deduced from its extraordinary ſeptic power, for it is found to accelerate putrefaction in a higher degree than any other ſubſtance. Mr. Smith, of Woodſtock, near Sittingbourne, in Kent, affirms (in the year 1795), that from the trials he has made of it for three years paſt on chalky and dry calcareous ſoils, laid down with ſaintfoin or clover, the effects have been aſtoniſhing, and entirely correſpond with the American accounts. He applied ſix buſhels to an acre; the Americans ſeem to have been uſing ſmaller quantities, even ſo low as one buſhel to an acre.

In the few inſtances where gypſum has hitherto been uſed in England, it is ſaid to have produced aſtoniſhing effects in ſome, in others no viſible advantage has been derived from it, and in ſeveral it ſeems to have done miſchief. Upon lands where no ſtimulating ſubſtance has been applied, and which contain little or no calcareous earth, gypſum will be a good manure; accordingly in America, where the ſoil in moſt places is compoſed almoſt entirely of vegetable-earth, from decayed herbs, leaves, and branches, and where ſcarcely a particle of calcareous earth is to be met with, gypſum will produce good effects; but upon lands which have been long in a ſtate of cultivation, which have been frequently manured with ſubſtances containing much alkaline matter, its effects will not be perceptible; and, where acid prevails, its bad effects will be viſible at once. Gypſum therefore is a manure that can ſeldom be uſed with advantage in this country upon arable lands; there being few ſituations in which the ſoil does not either contain calcareous matter in itſelf, or has received it as a manure. Yet in diſtricts where gypſum can be conveniently procured, and in which limeſtone is wanting, it is probable that it may be found a valuable acquiſition to the huſbandry of ſuch diſtricts; and it certainly appears to us unaccountable that more progreſs has not been made in England toward aſcertaining its real value.

SALINE SUBSTANCES.—Subſtances that contain much ſaline matter in combination with their earthy and other ingredients, are found in many inſtances, when properly employed as manures, to contribute greatly to the ſupport of vegetation. The materials principally made uſe of in this way are the refuſe of different manufactures, ſuch as bleaching and ſoap-boiling, where they can be procured in ſufficient quantities, as in the vicinity of large towns, and where ſuch manufactories are carried on in an extenſive mannner; the aſhes remaining after the combuſtion or burning of various green vegetable matters, wood, pit-coal, peat, &c. and, laſtly, ſalt itſelf.

It is moſt probably to the different alkaline principles contained in theſe ſubſtances, from the great facility and power which they poſſeſs of acting upon and diſſolving the parts of animal and vegetable matters, eſpecially ſuch of the latter kind as have been rendered inſoluble by the abſorption of the oxygen, or pure air, of the atmoſphere, from long or frequent expoſure to it, and by this means forming new ſaline compounds which are ſoluble, that their beneficial effects as manures are chiefly to be aſcribed. But theſe ſubſtances, beſides their forming in the ſoils, or the earthy materials with which they are mixed, ſuch compounds as are beneficial in promoting the growth of vegetables, may be uſeful in many caſes when properly applied, and uſed in ſufficient quantity, in correcting acidity, in altering the ſtate or condition of the lands, as by the taking away of moiſture from the ſurface where it prevails in an over-proportion in meadows and paſtures, and thereby ſupports crops of coarſe vegetables, and by rendering the texture of ſuch grounds as are under the plough more open and friable, conſequently more ſuitable for the reception of the roots of corn-crops.

A conſiderable part, if not the whole, of what is uſed in manufactures, glaſs excepted, will be uſeful as a manure, after the purpoſe of the manufacture is ſerved; particularly in bleaching; the alkali of which will be found improved, in conſequence of the mucilage or oil which it has imbibed from the cloth.

*Bleacher's aſhes* or *refuſe*, conſiſt principally of the hard undiſſolved parts of pot-aſh, kelp, weed-aſh, and barilla. Alone they are too ſtimulating, and ought never to be uſed but with earth or earth and dung; they anſwer well with blood, garbage, and putrid animal ſubſtances. They are generally laid upon fallows for wheat. The greateſt advantage derived from them is upon clay or deep loams. Upon ruſhy-grounds, or coarſe wet meadows, they will be found particularly uſeful.

*Soap-aſhes* are in ſome meaſure the ſame as the refuſe of bleach-fields. They principally conſiſt of lime, which is uſed by ſoap-makers to deprive the alkaline ſalts of their fixed air; the addition of lime to ſoap-aſhes is therefore unneceſſary. They are generally made into compoſts with earth and well-fermented dung, in the proportion of two loads of dung to one of earth; the aſhes are then added, in the quantity of one load to ten of this mixture, turning and incorporating the whole completely. The quantity neceſſary for ſtrong clays or deep loams is ten cart-loads to an acre. If the dung has been well fermented, perhaps the moſt profitable way of uſing this compoſt will be as a top-dreſſing harrowed in with the grain; taking care however that the cauſtic quality of the aſhes is properly blunted by a ſufficient mixture of dung and earth. Theſe aſhes, when beat ſmall, may be made into a rich compoſt with oil and earth, and uſed as a top-dreſſing for young crops. They will deſtroy ſlugs and vermin of every deſcription; and are therefore highly valuable on lands where the early wheat is injured by the worm. Laid upon graſs-lands in the end of autumn, this manure produces a deep verdure during the winter, and an early vigorous vegetation in the ſpring; it is therefore particularly calculated for cold wet paſtures.

*Soap-boilers' waſte*, or *aſhlep*, is much commended as a manure, both for corn and graſs, by ſir Hugh Plat. It contains fifty-ſeven in the hundred of mild calx, eleven of magneſia, ſix of argil, and twenty-one of ſilex. The effect on cold ſward is ſaid to be very great. Mortimer ſays, he was told of one by Ware, who had a piece of land run over with broom and furze, which he manured with ſoap-aſhes, and ſowed ſix years together with wheat, and had incredible crops. An Eſſex farmer, in the Bath papers, informs us, that in April he top-dreſſed half a field of clover with ſixty buſhels to the acre of this manure, and that this half produced near double the quantity of hay that the other did. He alſo uſed it with great ſucceſs on cold wet ſpongy meadow-land. It apparently dried it, and made it produce much greater crops of graſs.

*Soap-ley* conſiſts of alkaline ſalts and oil, and is produced by the ſolution of ſoap in water. The quantity of this that is daily waſted is immenſe, and forms a contraſt to the ſtrict economy of the Chineſe, where even the ſoap-ſuds of the barbers are ſaid to be carefully preſerved. It ſhould all go to enrich the compoſt dung-hill.

The *aſhes*, or earthy ſaline matters, which remain after the combuſtion of different freſh vegetable products, are all of them beneficial when judiciouſly employed as manures; but, as this means of producing manure is much too waſteful and uneconomical a practice to be adopted, except in particular inſtances, as where wood and other vegetable productions are very abundant, and uſed commonly as fuel, or where they cannot be readily cleared away by other more advantageous methods, as ten or fifteen parts, and in ſome caſes conſiderably more, of ſuch materials are diſſipated and loſt during the proceſs, they can but ſeldom be made uſe of in the way of dreſſings for land. Where they can be procured in ſufficient quantities for theſe purpoſes, they may, probably, be employed to the greateſt advantage by being mixed with a good portion of rich vegetable mould, or peat-earth, and a quantity of well-fermented dung; as, in ſuch a compound ſtate, they are capable of being applied more extenſively, and at the ſame time in the moſt favourable condition for the ſupport of vegetation. When made uſe of on the heavy ſoils, the quantity of aſhes in the compoſt ſhould be much greater than on thoſe of the lighter kinds; they are, in general, the moſt effectual when applied as a top-dreſſing to graſs-lands, eſpecially ſuch as are commonly termed ſour, or have much tendency to the production of moſs.

*Pot-aſh*, or *fixed vegetable alkali*. From experiments that have been made it appears, that 200lb. of pot-aſh are ſufficient for an acre of ſtrong land; for lighter ſoils much leſs is required, if laid on by itſelf; on theſe however a compoſt of this and oil, incorporated with mould, will be the beſt way of employing it. Upon ſtrong clays and deep loams however, it ought always to be applied by itſelf. When the expence of carriage is conſidered, pot-aſh will often be found a cheaper manure than lime. In one reſpect it is ſuperior, for the union of pot-aſh with all the different acids forms a neutral, which is in ſome degree uſeful in vegetation; whereas, when lime meets with the vitriolic acid, it is almoſt entirely loſt.

*Kelp* is a mixture of foſſil alkali or ſoda, and ſea-ſalt, beſides earth or ſtones. All marine plants abound with this alkali. The operation of kelp depends upon the ſame principles as lime, pot-aſh, &c. Like them, it produces the beſt effects upon deep loams or clays; and the benefit will be ſtill farther increaſed, if lime be made uſe of along with it. Kelp ſhould be broken very ſmall with large hammers, or by paſſing it through a mill.

*Fern-aſhes.* No vegetable affords ſo much pot-aſh as fern, but it is better to uſe it as litter for manure than to burn it for the aſhes. Fern-aſhes ought not to be uſed by themſelves, unleſs upon the heavieſt and deepeſt ſoils, for corn-crops, or upon wet ſour meadows; upon other lands they ſhould be mixed with dung and earth. Fern ought to be cut before it decays, either for litter or the aſhes; for all plants that contain much fixed alkali, when withered, are liable to be robbed of it by every ſhower that falls.

*Peat-aſhes* are principally employed as a top-dreſſing upon clover or clay-lands; and, when rain falls immediately, the crop is benefited by the uſe of them; but upon thin ſoils, when dry weather ſucceeds, they produce no effect, or even do harm, eſpecially if they have been prepared from the richeſt ſort of peat.

The peat of ſome moſſes contains a conſiderable quantity of fixed alkaline ſalts, whilſt that of others contains ſcarcely any. All peats however agree in affording more or leſs alkali when burnt, and the value of their aſhes depends entirely upon the quantity of fixed alkali which they contain; for the burning of peat, like every other vegetable ſubſtance, is utter deſtruction to its other component parts; the oil being diſſipated in ſmoke, and the vegetable earth rendered entirely uſeleſs. The fixed alkali contained in peat is from a twenty-ſecond to a thirty-ſecond part of its weight. Where the peat is ſo rich as to afford a twenty-ſecond part, it is an object to burn it for the aſhes; but leſs trouble and very ſmall expence will ſubject it to the proceſs of fermentation, by which the oil and vegetable earth will be ſaved. This however can be done only in the neighbourhood of a moſs, the carriage of the peat in ſubſtance to any conſiderable diſtance being too heavy an expence.

Eight or ten buſhels of rich peat-aſhes are ſufficient to dreſs an acre. They ſhould be laid on in the ſpring, before the plants have attained any great ſize, in wet or at leaſt cloudy weather. Or they may be ſown and harrowed in with the grain; in which caſe a greater quantity will be requiſite than when they are uſed as a top-dreſſing.

Aſhes burnt from fat black peat, ſuch as is dug about Newbury in Berkſhire, and in ſome parts of the Iſle of Ely, are ſo rich, that farmers are afraid to lay them on barley, nor do they dreſs their wheat with them till late in the ſpring. If ſown too thick, and a dry ſeaſon ſhould enſue, they are apt to burn the tender fibres of the corn. They deſtroy ſlugs on peaſe, &c. better than any thing.

Peat-aſhes are an excellent improver of graſs-lands, particularly of clover and ſaintfoin; the quantity from fifteen to twenty-five buſhels, according to the condition of the land. They are bought on the ſpot from 2d. to 4d. a buſhel, according to their goodneſs. This manure has been known in Berkſhire near a century; they fell into diſuſe from having been laid on in quantities too great, but are now generally adopted by every farmer within a reaſonable diſtance of the Berkſhire peat-moſſes. Peat-aſhes are delivered on the land about Dunſtable, at 4½d. the buſhel, ſtruck; forty buſhels is a complete dreſſing for an acre, and coſts about 16s. They greatly improve dry chalk ſoils, but do little good on wet land or cold ſward, or on hot ſandy lands.

Peat-duſt, or peat ground to powder, anſwers equally well with the aſhes, in the ſame quantity. It is eſteemed the beſt manure for aſparagus, onion-beds, and flowers, mixed with dung; and deſtroys thiſtles, if laid on in ſufficient quantity, or repeated.

*Wood-aſhes* are uſeful as a manure, principally on account of the pot-aſh which they contain. The aſhes of fir, pine, &c. have very little of it; but oak, aſh, and moſt of the hard woods, abound in pot-aſh. Except upon the ſtrongeſt and moſt tenacious ſoils, the rich kinds of wood-aſhes are too ſtimulating, and are beſt uſed in a compoſt with earth and dung, or any animal ſubſtances. They effectually correct ſour ſoils; conſequently, upon poor meadows or ruſhy grounds, they produce effects ſimilar to lime; and, if mixed with quicklime, their beneficial effects will be heightened.

*Coal-aſhes* are well adapted to clays and deep loams, by breaking the tenacity of the ſoil. On light ſoils they ſhould never be uſed but in form of compoſt with earth, or earth and dung. Where much ſea-weed, or the refuſe of muſtard manufactures, can be obtained, an excellent top-dreſſing may be made with theſe, the ſhells of the muſtard-ſeed, and lime. Coal-aſhes coſt in London from 6s. to 14s. the waggon-load. They are diſtributed on the land about Dunſtable with a ſhovel from a cart or wheelbarrow; but the common way is to ſow them by hand. From fifty to ſixty buſhels is a complete dreſſing for a ſtatute-acre. They ſucceed well ſown on clover in March or April, on dry chalk lands; and do much good to ſward, applied during any part of the winter or ſpring. They are never uſed, about Dunſtable, on wheat. In very dry ſeaſons they do little good except on cold ſward, which they always improve. They require rain after being ſown to ſet them to work.

Coal-aſhes are of great uſe in the kitchen-garden, where the natural ſoil is too ſtrong and ſtubborn. Mortimer and Bradley both agree that they are one of the beſt and moſt laſting manures for cold lands; and the fitteſt to kill worms, &c. Even ſo early as Worlidge's time they were thought to form an excellent compoſt with horſe-dung; and to kill moſs and ruſhes in wet grounds.

Aſhes from kilns of any ſorts, but particularly where wood, ſtraw, or furze, are burnt, are a good manure for moſt kinds of ſoil. In ſhort the aſhes of all vegetables are an excellent manure; ſo that, where ground is overrun with buſhes, brambles, heath, &c. if theſe be grubbed up in ſummer, and ſpread abroad to dry, then gently conſumed to aſhes, and theſe aſhes ſpread on the land, they will greatly improve it.

It is much to be lamented that farmers ſuffer thiſtles and other great weeds to grow on headlands and in waſtes till they fill the fallows with ſeeds; when by cutting them down in full vigour, and either fermenting them with dung, or burning them for the aſhes, they might obtain a quantity of valuable manure.

*Soot* is another ſubſtance that experience has ſhown to be of conſiderable utility, where it can be collected in ſufficient quantities and applied to land as a manure. The beneficial conſequences reſulting from the uſe of this ſubſtance depend, probably in a great degree, on the quantity of alkaline ſaline matter which it contains; which, by its action on the rich vegetable mould of the ſoil or earth with which it is mixed, may render it more capable of ſupplying the nutrition of plants; and it may bring the thick oleaginous matter of the ſoot into ſuch a ſtate as to be capable of ſolution or diffuſion in water, and thereby in a condition to be taken up by the abſorbent roots of vegetables. The earthy matter of this ſubſtance, as well as that of different kinds of aſhes, may probably be rendered more ſuitable for the purpoſe of promoting vegetation, by their having been expoſed to the action of fire, as is well known to be the caſe with clay. The great ſtate of tenuity or fineneſs in which ſoot is found, may likewiſe be ſerviceable, as by that means it becomes capable of being more regularly and more extenſively mixed with the ſoils on which it is applied. Indeed the good effects of moſt ſubſtances employed as top-dreſſings depend, in ſome meaſure, upon this circumſtance. Soot, as it contains alkaline ſalt in a conſiderable proportion, might probably be uſed with greater advantage by being well mixed or blended with rich mould, or peat-earth, and by ſuch a method the quantity of manure would be greatly increaſed. This ſhould not however be attempted where the deſtruction of inſects forms any part of the deſign of the farmer.

Soot, ſays Mortimer, is very good both for corn and graſs, eſpecially on cold clays, or lands much overrun with moſs; but ſea-coal ſoot is the beſt by much; forty buſhels are commonly allowed to an acre, but ſome lands require more. A hundred buſhels have produced an extraordinary crop; but it was a dry ſeaſon; if much rain had followed, being laid on ſo thick, it might probably have diſſolved the roots and ſtalks of the plants entirely. If the weather prove dry, a ſmall quantity has little effect, being evaporated or diſperſed by the ſun and winds.

About Baldock, they bring ſoot from London, three hundred buſhels to a waggon-load. The price is from 7d. to 9d. a-buſhel, very ſhort meaſure, which makes the price from 9d. to 11d. the Wincheſter buſhel, ſtruck. It is laid on a heap on the lands. From this a common ſeed-ſcuttle is filled, and a man walking the length of the lands ſows the ſoot as they do corn. The quantity uſed on a ſtatute-acre is from twenty to forty Wincheſter-buſhels. In general, thirty buſhels are reckoned a complete dreſſing, when dung or other manure has not been uſed; but, when the land has been dunged, half the quantity of ſoot is ſufficient. Soot is found to anſwer beſt on wheat in April. It likewiſe ſucceeds on peaſe or clover in the ſame month; and has a good effect ſown with barley in the beginning of April, and harrowed in. A ſlight dreſſing of ſoot is uſed at any time in the ſpring, when grubs or worms appear to injure the young corn. Thinly diſtributed on newly-ſown turnips, juſt before they come up, it prevents the fly or grub from injuring them, provided no rain falls to waſh it into the ſoil; but, if ſown after the plants come up, it greatly injures them, particularly if the ſeaſon comes dry. Soot anſwers beſt on light dry chalk ſoils, and in moderately-wet ſeaſons; it does little good on ſtrong or wet land, or in very dry ſeaſons, unleſs ſown earlier than uſual. The London coal-ſoot is generally mixed with cork-duſt, coal-aſhes, or ſweepings of the ſtreets; yet, even in this adulterated ſtate, it is found to anſwer much better than country ſoot from wood.

In Norfolk, near towns, ſoot is uſed as a top-dreſſing for wheat in February or March. If it be ſown early, and the froſt catch it, the ſtrength is thereby lowered; if late, and no rain fall to waſh it in, it is thought rather injurious than beneficial. And it is not, in any caſe, found of much, if any, ſervice, to the ſucceeding crop of barley. The quantity ſet on is forty buſhels an acre. Their manner of ſowing it is this: A favourable opportunity being embraced, when the wind blows gently in the direction of the lands or ridges; the waggon, which is kept under cover till wanted, is drawn in a furrow againſt the wind; while a man, ſtanding on the outſide of the waggon, ſpreads the ſoot, with a ſhovel, ſeveral yards wide on either ſide of him; the height of his ſituation at once enabling him to ſpread it wide and even. As he reaches the windward end of the lands, the team wheels round under the hedges, and takes a freſh width.

Soot is commonly reputed to deſtroy clover, while it encourages the growth of ray-graſs. Dr. Anderſon informs us, that this opinion is erroneous. He ſays, however, that, although it does not deſtroy clover, yet it promotes not in any ſenſible degree the growth of it; and, that he has uſed ſoot as a top-dreſſing for clover and ray-graſs in all proportions, from one hundred to ſix hundred buſhels on an acre, without perceiving the clover to be in the leaſt degree more luxuriant than in the places where no ſoot had been applied. But the effects of this manure upon ray-graſs is amazing, and increaſes in proportion to the quantity. Hence, in fields dreſſed with ſoot, the ray-graſs ſo far overtops the clover, that the latter is not ſeen, and the whole crop ſeems to be ray-graſs; although in fact there is as much clover as if it had not been manured at all.

Where ſoot, aſhes, or any other material that contains ſaline matters, is to be employed as manure, it ſhould always be preſerved in ſheds, or other convenient places, from rains, or the accidental application of water to it; as, where this practice is neglected, the ſaline ſubſtances are ſoon diſſolved and carried away in a liquid form. It is chiefly from this cauſe that ſubſtances of this kind, which have been long expoſed without being covered, are often found ſo inferior in their effects to thoſe which are freſh or newly made. On this account alſo, if ſuch ſubſtances are laid on land at too early a period of the ſeaſon, they will be liable to have much of their valuable properties carried away by the rains that may take place.

*Muriat of ſoda*, or *ſea-ſalt*. It is a ſubject of diſpute whether this, or any other neutral ſalt, be of any uſe as a manure. There are many experiments and concluſions on both ſides. In thoſe which are favourable, it was the refuſe, that is, the part moſt loaded with bittern, that was uſed. From ſir John Pringle's experiments, it appears that ſea-ſalt, if below or exceeding a certain proportion, is a powerful ſeptic. Now, whatever promotes putrefaction muſt be a manure. But the ſeptic quality of ſea-ſalt is far inferior to that which the bittern or muriat of magneſia, and the muriat of lime, ſalts which abound in the refuſe of ſea-ſalt, poſſeſs. Theſe are perhaps the moſt ſeptic of any bodies with which we are acquainted, and from their extreme attraction for water, have a tendency to keep land perpetually moiſt. Reaſoning then from the qualities of bodies, we ſhould eſteem the refuſe of ſalt at leaſt, a powerful manure. But, applied in ſuch quantity as to ſaturate the ſoil, it would kill every plant, and continue to prevent vegetation until its exceſs were waſhed away. However this may be, ſo much is certain, that, ſown upon paſtures, ſalt, or its refuſe, if it did not increaſe the herbage, would at leaſt render it highly palatable to cattle.

*Nitre*, or *ſaltpetre*, as appears from Dr. Home's experiments, mixed in the proportion of one ounce to ſix pounds of earth, rather retards than promotes vegetation; yet, when added in ſmall quantities diſſolved in water, it promoted vegetation conſiderably. When a plant is ſo ſituated, that it is compelled to draw up any ſalt into its ſubſtance, or when the roots cannot extend themſelves without coming in contact with ſaline particles, it ſoon languiſhes and dies; yet every proceſs by which the ſaline ingredients in a ſoil are made to decompoſe, and aſſume new arrangements, contributes highly to its fertility. Of theſe no proceſs is more beneficial than that by which nitre is formed. Although therefore this ſalt ſhould not of itſelf greatly promote vegetation, yet the putrefactive proceſs excited in the ſoil, and which generates nitre, is the real cauſe of its fertility.

Any ſalt whatever that is capable of exciting putrefaction, and that powerfully attracts and retains moiſture, may be uſefully applied as a manure. No ſalt promotes vegetation by entering into the ſubſtance of plants, but acts upon the ſoil itſelf. Many other ſalts poſſeſs the properties of nitre in a greater degree, and the moſt beneficial of them may be procured at ſmall expence. All ſalts with metallic baſes, being of a cauſtic nature, muſt be excepted.

Refuſe ſalt may be had in London for 3l. 10s. the ton. It is therefore much cheaper than oil-cake. Would it not anſwer better? Might it not be ſown and harrowed in March or April on land intended for turnips? but certainly never with the ſeed, as oil-cake is. There can be no doubt of the propriety of throwing ſalt into all dunghills, when they are turned over; or when the yard-dung is ſhovelled on to heaps. Suppoſe ten loads to be the quantity of dung for an acre; five, with a quarter of a ton of ſalt, would probably be better; but, great attention would be neceſſary in mixing and ſpreading. The reſult of ſome experiments made by Mr. Young were highly in favour of ſalt when diſſolved in water, and added to dung; and ſuggeſt an important leſſon for the addition of ſalt-water to dunghills.

Mr. Legrand, of Guilton-houſe, near Sandwich, having tried foul ſalt upon a ſandy ſoil, found ſixteen buſhels to be a proper quantity for an acre. He uſed it upon a barley-tilth; ſowing the ſalt immediately after the barley. The event was perfectly ſatisfactory. It is noxious both to weeds and vermin.

Salt remaining after it has been uſed for preſerving pilchards, has been employed with great ſucceſs in Cornwall, in the cultivation of turnips.

In whatever way ſubſtances of the ſaline kind may produce their effects in promoting vegetation, when employed as manures, it is evident, from their containing in themſelves little or nothing of ſuch matters as are capable of affording nouriſhment to plants, that they may in moſt caſes be made uſe of to the greateſt advantage by being mixed and incorporated with ſuch ſubſtances as they are capable of acting upon and reducing to a ſtate proper for the ſupport of vegetable crops; ſuch as rich earthy materials, imperfectly-reduced dung, and other matters of a ſimilar kind. Where ſubſtances that contain the muriat of ſoda, or ſea-ſalt, are employed, they might probably be applied to much advantage by being mixed with imperfectly-burnt clay, when reduced to the ſtate of powder. And if, upon trial, they ſhould be found effectual in this form, they might be very conveniently made uſe of in the way of top-dreſſings to graſs or grain-crops in the ſpring. And, as every where in the vicinity of the ſea a ready means of obtaining this ſaline material in unlimited quantities offers itſelf, it may deſerve more particularly the notice of the agriculturiſt; and more eſpecially as many other ſubſtances that are known to contain or be impregnated with it, ſuch as the weed thrown up by the tides, and the ſand over which they flow, can be eaſily procured.

## COMPOUND MANURES, or COMPOSTS.

It is evident, from what has been already obſerved on the nature of the different ſubſtances that are capable of being made uſe of as manures, that they may frequently be mixed and blended with each other, or with ſubſtances of other kinds, and by ſuch means be not only conſiderably increaſed in quantity, but in many caſes rendered more effectual and more ſuitable for application than in their ſimple ſtates; but, at the ſame time, that ſome of them may be mixed and incorporated in this way with much more advantage than others; for, though the general experience of farmers has fully ſhown the great importance and utility of employing compound manures, or compoſts, little attention has, till lately, been paid to the compounding or mixing together of ſuch ſubſtances as are, from the principles which they originally contain, or which are formed from them in the changes which they undergo in the different ſtages of their decompoſition, adapted to act in the moſt ſuitable manner for producing ſuch combinations or alterations in the materials as are capable of being beneficial in the promotion of vegetation when they are employed as manures.

Farm-yard manure, which is the moſt general application of any, from its being formed by the decay of various kinds of vegetable matters, ſuch as hay, ſtraw, fern, and many other materials of a ſimilar nature, with which the dung and urine of animals is incorporated and combined, muſt be conſidered as a compound ſubſtance. And from the large proportion in which ſuch vegetable productions enter into its compoſition, and the quantity of earthy materials that is in moſt caſes, eſpecially where the management is upon a judicious plan, added by the laying of ſuitable bottoms, it is not ſo frequently neceſſary to be blended with other ſubſtances that are uſually employed in forming compoſts. But from moſt of the vegetable materials that conſtitute the chief part of this ſort of manure, being made uſe of in a dry and hard ſtate, they do not ſo quickly ferment or run into the ſtate of decay, notwithſtanding the proportion of animalized matters that may be mixed with them; it therefore becomes an uſeful practice to turn them over, by which their complete putrefaction may not only be promoted, but the different materials be more minutely blended together, on both which accounts they may become more uſeful when applied as manure upon land. In the forming of this manure, care ſhould alſo be conſtantly taken that the heaps be ſo ſituated as that they may not become too dry, or too much ſoaked in water, as in either caſe they muſt be greatly injured. Whenever it may be requiſite to incorporate any earthy material with this ſort of manure, the agricultor ſhould always carefully attend to the ſtate or richneſs in which it may exiſt in the yard, and proportion ſuch additions accordingly. It will however never demand nearly ſo large a proportion, as ſuch manures as conſiſt almoſt wholly of animal matters.

It is ſuppoſed that the richeſt compoſts may be made in the farm-yard, which ſhould be made deepening all round from the ſides to the middle in form of a hollow ditch or baſon. When the yard is made in this form, little of the urine or liquid part of the manure can run off or be waſted. When the dung is carried from the ſtables, cow-houſes, &c. into the farm-yard, it ſhould not be thrown careleſsly in heaps, each ſort by itſelf, but carried in carts or wheelbarrows, and laid regularly, and ſpread all over the yard. Upon this ſhould be ſpread a thin layer of earth, mud, the ſcowerings of ditches and ponds, green vegetables before they run to ſeed, and other ſuch materials as are moſt ſuitable to the nature of the land to be manured with them. The racks and cribs out of which the cattle are foddered ſhould be frequently moved over the yard, that the offal ſtraw and hay may be equally diſperſed, and trod in by the cattle. This method of ſpreading the dung and other materials being continued, the whole will be incorporated with the urine of the cattle, and make an extraordinary rich compoſt. It is ſuppoſed that the only inconvenience of this kind of compoſt, is its being filled with the ſeeds of weeds, from the earth mixed with it, the hay, ſtraw, and dung, of the cattle. It is therefore a manure beſt ſuited to graſs-grounds, and to ſuch arable lands as are to be hoed, as turnips, cabbages, carrots, potatoes, beans, &c. as theſe weeds will in a great meaſure be deſtroyed by good hoeing; or a proper attention to the after-culture of the crops.

Where animal matters are collected and thrown together in any quantity, there can be little doubt but that a great increaſe of good manure may be provided by mixing with them, as has been already obſerved, rich ſurface-mould, peat-earth, or the ſcrapings of old ditches and roads; as, by ſuch a practice, the ammonia formed during the decompoſition of the animal ſubſtances is prevented from eſcaping, as would otherwiſe be the caſe, which, by combining with and acting upon the earthy materials, quickly renders them proper for the purpoſes of manure. As ſubſtances of the animal kind have been ſhown to run very rapidly into the ſtate of putrefaction, they may frequently be incorporated with ſuch vegetable materials as are little diſpoſed, or with difficulty made to rot or become putrid; and by ſuch means uſeful compoſts be more expeditiouſly formed. In making uſe of ſuch earthy ſubſtances as have been mentioned, it may be of much advantage to have them expoſed to the influence of the atmoſphere for a conſiderable length of time, frequently turning them over before they are mixed with the manures, as by ſuch means they become in a more pulverized ſtate, and are capable of being more intimately blended with ſuch materials, and afterwards ſpread over the land with much greater equality, a circumſtance upon which their effects very much depend. If, in performing this buſineſs, the earthy ſubſtances be formed into a ſort of ridge, about five or ſix feet in height, and nearly the ſame breadth in the bottom, they will be in the moſt proper ſituation for being united with dung, or other matters that may be employed.

Animal Substances with Lime.—Lime is a ſubſtance that has often been too indiſcriminately made uſe of in the formation of compoſts, but which, by attending to the following circumſtances, may admit of being employed extenſively and with more beneficial effects. Where the deſtruction or decay of green or freſh vegetable matters, eſpecially thoſe of the more coarſe and hard kinds, is intended, it ſhould be uſed in its cauſtic ſtate in ſmall quantities; as in this condition, thus ſparingly employed, it reduces more expeditiouſly the ligneous and more hard parts of ſuch matters to an earthy ſtate; and as, during its action in this way on theſe ſubſtances, ſuch elaſtic matters are ſet at liberty, as by their ſubſequent combination afford ammonia or volatile alkali, it may frequently be a beneficial practice to blend ſuch earthy ſubſtances as have been juſt mentioned with them, and thereby prevent the elaſtic matters from being diſſipated and loſt. If a portion of rich farm-yard dung be afterwards incorporated with theſe materials, a valuable compoſt will be formed.

Quicklime is likewiſe found uſeful ſometimes in bringing the hard parts of dead vegetable matters, as tanners' bark, fern, ſtraw, cabbage-ſtalks, leaves, &c. quickly into the ſtate of earth or mould; but, whenever it is made uſe of in this way, it ſhould be had recourſe to only in a very ſcanty proportion to thoſe of the matters with which it is mixed, as when it is employed in large proportions it is liable, from the heat that is extricated or diſengaged by its combining with the moiſture of ſuch ſubſtance, being ſo augmented during its ſlaking, to convert them into a coaly ſubſtance that is inſoluble, and at the ſame time to force off, in the form of gas, their elaſtic principles, except ſuch a quantity of carbonic acid as may combine with the lime during the proceſs.

By the common practice of blending quick or cauſtic lime with farm-yard dung, much loſs is frequently ſuſtained; as, by its violent operation upon ſuch ſubſtances, ſome of the elaſtic matters are not only ſet at liberty and quickly conveyed into the atmoſphere, but, with what remains, inſoluble ſaline compounds are formed which cannot aſſiſt vegetation.

There can be little doubt but that, by combining lime with animal ſubſtances, they may be rendered highly active as manures, eſpecially when applied on ſoils that have a ſufficiency of thoſe earthy ſubſtances on which they can exert their full influence. Lime might thus be combined with bones or woollen-rags, or with a compoſt of earth and night-ſoil; and would certainly greatly facilitate their converſion into manure, as well as render them more active in producing their effects in the ſupport of vegetable crops. And by ſome of their properties being abſorbed by the lime, during the time of their decompoſition, and afterwards parted with more ſlowly in the ſoil, they may alſo by ſuch means be probably rendered more durable and laſting as manures. Lime thrown into a privy will make an excellent compoſt with the excrement, and at the ſame time take off the ill ſmell and noxious vapours of it. Saw-duſt, peat-moſs, or any common earth, will be highly uſeful in abſorbing the urine. Lime will alſo render the excrement ſo ſhort and dry, that it may be uſed as a top-dreſſing. Two cart-loads of ordure mixed with ten loads of earth and one of lime will be a ſufficient top-dreſſing for an acre, and is excellent upon light lands for wheat or barley; for the former of which it ſhould be uſed early in the ſpring; and for the latter, it may be either ſcattered upon the young crop, or harrowed in with the ſeed. It is particularly convenient for all drill-crops.

Mr. Wight, in his Survey of the Huſbandry of Scotland, mentions a compoſt of two parts lime, and one part pigeons'-dung, to remain mixed until a conſiderable fermentation advances, which is known by the effluvia. Six bolls of this compoſt, he ſays, is ſufficient for an acre, and will mark itſelf for many years. There are many combinations of this nature that may be ſucceſsfully made uſe of for the purpoſes of agriculture, but which have not yet been ſufficiently attended to, to aſcertain their different effects.

Various animal ſubſtances of the fiſh kind, as the blubber remaining after the preparation of oil from the whale, and other large fiſhes, and different ſorts of ſmall fiſh, both of the ſhell and other kinds, may be employed as manures; and alſo the offals of ſuch animals, where they can be procured in a large quantity, as in large towns, ſea-diſtricts, and where they are cured or prepared in great numbers for the market. Theſe ſubſtances may be readily reduced to that ſtate which is proper for manure, by mixing with them a ſmall portion of the carbonat of lime, and afterwards, according to circumſtances, a quantity, two or three times more than the whole, of good vegetable mould. Shell-fiſh, ſuch as muſcles, are commonly applied without being mixed with earthy matters; but this is certainly a waſteful practice, as much of their valuable principles is diſſipated and loſt, as is evident from the highly diſagreeable ſtench that aſſails the neighbourhood of the ground on which they have been applied. By mixing good vegetable mould or peat-earth with them, as has been mentioned above, the quantity of the manure would not only be greatly increaſed, but the offenſiveneſs attending the uſe of ſuch manures in a great meaſure corrected, and the effects of them in promoting the growth of vegetables probably rendered more advantageous.

The refuſe of ſlaughter-houſes and butchers'-ſhops may likewiſe be prepared, and made uſe of in a ſimilar manner to that of fiſh. For, as the manures that are formed from theſe animal materials are capable of affording much elaſtic volatile matters during their decompoſition, they of courſe require to be well mixed and blended with ſuch earthy ſubſtances as they can combine with, and render ſoluble, and in proportion ſuited to their powers, in order to produce the moſt beneficial effects on vegetation.

*Oil-Compoſt.*—Freſh oil alone, ſo far from being a manure, is a poiſon to vegetables. Mixed however with lime or alkaline ſalts, it becomes the richeſt of manures, being thus made miſcible with water; or, made to putrefy with animal or vegetable ſubſtances, it will become a manure.

Oil-cake, or rape-cake, has long been uſed as a manure in Norfolk. Being ground, or broken into ſmall pieces, it is ſown by hand out of a common ſeed-box, upon the laſt ploughing but one of a ſummer-fallow for wheat. Alone it anſwers beſt on chalky and limeſtone ſoils; on heavy loams and clays, much of it will remain inactive, unleſs it be mixed with lime, &c. If it be intended for a hand-dreſſing, ſix parts of rape-duſt and one of lime will make an excellent compoſt for ſoils of every decription. The lime ſhould be mixed with the rape-duſt at leaſt ten days before it is uſed, and turned every day. It may thus be applied to wheat as a top-dreſſing in the ſpring. On calcareous ſoils it may be uſed without lime.

On thin limeſtone at a diſtance from dung this is an invaluable manure, at the rate of three quarters an acre for barley, and four for wheat, ſown by hand, and harrowed in with the grain; if rain fall within a week or ten days after ſowing, the crop is generally good; but, if no rain fall till long after, it is but little benefited by this expenſive dreſſing; nor is the crop of the ſucceeding year benefited by it.

The price of this manure having advanced ſo much as to render it doubtful whether it will anſwer to the farmer, Dr. Hunter has invented an oil-compoſt that comes cheap, and is of eaſy carriage. It is made of American pot-aſh, twelve pounds, broken into ſmall pieces, and put into a convenient veſſel with four gallons of water. When it has ſtood twenty-four hours, add of coarſe train-oil fourteen gallons. In a few days the ſalt will be diſſolved, and the mixture upon ſtirring will become nearly uniform. Then take fourteen buſhels of ſand, or twenty of dry mould; upon theſe pour the liquid ingredients. Turn the compoſition frequently over, and in ſix months it will be fit for uſe. The above quantity is ſufficient for an acre. For the convenience of carriage, no more earth is here directed to be uſed than will effectually take up the liquid ingredients. But, if the farmer chooſes to mix up the compoſt with the mould of his field, he may uſe a larger portion of earth, by which means he will be enabled to diſtribute it with more regularity upon the ſurface. This oil-compoſt is only intended to ſupply the place of rape-duſt, ſoot, woollen-rags, and other expenſive hand-dreſſings. It is in all reſpects inferior to rotten dung; where that can be obtained, every kind of manure muſt give place to it. For, at the ſame time that dung affords nouriſhment, it opens the pores of the earth; whereas hand-dreſſings give food to plants, but contribute nothing towards looſening the ſoil. This is an uſeful and practical diſtinction.

Dr. Hunter recommends it, but with the diffidence of a true philoſopher, who depends ultimately upon experience, to be ſown immediately after the grain, and both harrowed in together. He thinks it will anſwer beſt for winter crops; for, from the unctuouſneſs of its nature, it is more than probable that it ſhould lie expoſed for a long time to the influence of the weather; which benefit it is deprived of when uſed for barley, and ſuch crops as are ſown late in the ſpring. For this reaſon the compoſt upon turnips has proved generally unſucceſsful; but then thoſe parts of the field on which it had been ſpread produced the beſt crops of grain the following year. From this ſlow manner of giving out its virtues, it ſeems to be an improper dreſſing for all plants that have a quick vegetation.

All lands that have been exhauſted by frequent crops, are robbed of their oily particles, and thus become barren. The oil-compoſt, by plentifully reſtoring particles ſimilar to thoſe which have been carried off, ſhould ſeem to be a proper reſtorative. To lands under ſuch circumſtances, lime is the worſt manure that can be applied.

Dr. Hunter has followed up his theory with experiments. For corn and horizontal feeders he recommends it to be ſown upon the ſurface with the hand; for cabbages, hops, beans, carrots, and all tap-rooted plants, it is beſt to be worked into the ſoil by the plough or ſpade. When diſtributed upon the ſurface it is ſoon meliorated by the action of the air, rains, and dews; but when worked into the ſoil it is deprived of thoſe neceſſary influences.

Some injudicious enquirers have placed a handful of the compoſt cloſe to the roots of a cabbage-plant; hence death or a feeble vegetation enſued; and an argument was raiſed againſt the nutritive power of the compoſt. Lime, the aſhes of burnt vegetables, ſtale urine, gooſe and hog dung, when improperly applied, are all poiſons.

Chriſtopher Baldwin, eſq. of Clapham-park, Surrey, purchaſed ſixty gallons of the bottoms or foots of oil, and a rich thick South-Sea whale-oil at 14d. the gallon; and, having made a bottom of twenty loads of mould with eight loads of dung on it, he carried on three loads of light ſandy mould, and one load of brick-and-mortar rubbiſh ground fine; having mixed theſe well, he made a kind of diſh of it about five feet wide and ten feet long; into this he put half the oil in Auguſt; the heat of the ſun ſoon made the thick oil ſink into the compoſt, when it was directly thrown up into a heap, broke down again, and by five or ſix turnings well mixed together, and left in a heap two days, when it was ſpread equally over the whole dunghill; twenty loads more of good mould were then carried on, eight loads of dung, and the remaining thirty gallons of oil were mixed as before in ſandy mould and mortar rubbiſh, and equally ſpread over, and the whole was covered by trimming the four ſides of the dunghill, and throwing it on the top.

Thus it lay more than two months, when it was cut down by mattocks, carefully broke, well mixed, and turned over. The end of March it was carried on a five-acre field, ſpread and ploughed in; it lay a fortnight, the land was then ploughed again, and on the 22d of April the field was drilled with barley, two buſhels to an acre. The crop was ſixty buſhels on an acre of the beſt quality; five quarters were ſent into Norfolk for ſeed-barley, under the denomination of fifteen-coomb barley; and it weighed 220lb. the ſack, or 55lb. the buſhel, Wincheſter meaſure. This barley followed oats upon a lay of ſix years old. The oats had ſuffered much from the wire-worm, which this manure completely deſtroyed, the barley not ſuffering from it in the leaſt. Mr. Baldwin uſed this oil-compoſt with ſucceſs on ridges of ſummer-cucumbers, and on cabbages.

Mr. Baldwin had not the ſame ſucceſs in Hampſhire on a ſix-acre piece of ſtrong land, with large ſtones, very poor, that had never been dunged. Five acres were chalked, and the whole was ſown with oats. December following it was ploughed. In January the oil-compoſt was carried on that part of the field which had not been chalked, and over half an acre of the chalked part; the remainder was dunged. In February it was ploughed; and in March drilled with hog-peaſe. The chalked part was the beſt; the unchalked part, where the oil-manure was put, though good, was not to compare to the chalked part; and the half-acre chalked and oiled appeared no better than the dunged part.

Dr. Wilkinſon, of Enfield, uſed Dr. Hunter's oil-compoſt as a top-dreſſing in ſpring, on two acres of wheat, the ſoil a pebbly loam on a gravelly ſubſoil, very poor, and never remembered to have borne a crop of wheat. The produce however was nearly three quarters to an acre. The ſtraw was ſhort and light, but the ear was full and heavy. The quantity of manure to an acre was 12lb. of pot-aſh diſſolved in four gallons of water, and mixed with twenty buſhels of dry mould, and fourteen gallons of train-oil. This gentleman tried the ſame quantity of this manure on two acres of turnips; the ſoil a wet loam on a clayey bottom. It was all dreſſed with twelve loads an acre of rotten dung. When the turnips were ſown, the two acres had an additional covering of the oil-manure. The whole crop ſuffered from the fly, but the part where the oil had been laid recovered the ſooneſt. The two acres retained their ſuperiority, and the eye could eaſily trace where the oil had been laid by the more luxuriant vegetation.

A Norfolk gentleman-farmer recommends an oil-compoſt of materials different from Dr. Hunter's. Of rape, or train-oil, ſix gallons. Sea-ſand, ſix buſhels. Coarſe ſalt, two buſhels. Malt-coombs, twenty-four buſhels. Spread the coombs on the floor four inches thick; ſprinkle the ſalt level; throw on half the quantity of ſand, and half the quantity of oil out of a watering-pot; turn it and rake it well; add the reſt of the ſand and oil; turn it well till thoroughly mixed, and then throw it in a heap for uſe. The ſand and ſalt not only occaſion it to imbibe the oil more freely, but give it a better body for ſpreading on the land.

Vegetable and Earthy Substances with Lime.—The following is a receipt for making manure from green vegetable matter, decompoſed by quick or freſh burnt lime, thus:—A layer of vegetable matter a foot thick, then a very thin layer of lime beat ſmall, and ſo on; firſt vegetable and then lime alternately. In a few hours the decompoſition will begin, and, unleſs prevented by ſods, or a forkful of vegetables, it will break into a blaze, which muſt be prevented. In twenty-four hours the proceſs will be complete. Weeds of every deſcription will anſwer. Vegetables, with 2l. worth of lime, will produce manure for four acres. Uſe the vegetables as ſoon after cutting as poſſible, and the lime as freſh from the kiln as the diſtance will allow.

As *peat-moſs* contains an acid nearly in proportion of one-fourth of its weight, its other valuable parts, oil, alkaline ſalts, and vegetable earth, are not only locked up, but the whole maſs is prevented from fermenting, by which proceſs alone it can be rendered uſeful. To bring on the deſired fermentation, dry the peat-moſs well, break it into ſmall pieces, and lay it on the ground to the thickneſs of three or four inches. Let the whole of the dung from the ſtables be laid over it. The moiſture of the dung will ſink down, and not only correct the acidity, but ſaturate the peat-moſs completely with the valuable properties of the dung. Turn the dunghill over, and mix the dung and peat-moſs carefully together, throwing them up lightly, and a gentle fermentation will come on. After a few weeks turn it over again; adding one load of lime to five loads of moſs; the whole being well broken and accurately mixed. The addition of the lime will haſten the putrefaction of the moſs, diſſolve the oil contained in it, and give a due degree of activity to the whole.

Another way of effecting this is, to pour the urine of cattle, the moiſture of the dunghill, ſoap-leys, and offal of the houſe, upon the peat-moſs; and afterwards to mix it with ſtable-dung and lime.

A third way of rendering peat-moſs uſeful as a manure, is to mix it with pot-aſh, kelp, lime, or chalk. In diſtant parts of the country, in the neighbourhood of bogs where peat-moſs abounds, and other manures are ſcarcely to be obtained, it may be highly important to know, that eighty or a hundred pounds weight of pot-aſh is ſufficient to ſaturate a quantity of peat-moſs that will manure an acre of land; and that, if it be well dried, a much ſmaller quantity of pot-aſh will ſuffice. For this purpoſe diſſolve the pot-aſh in boiling water, half a pound to a gallon, and ſprinkle it over the peat-moſs, broken ſmall, and laid a foot thick, till it is ſaturated with the ley; then lay on a freſh ſtratum, treating it in the ſame manner. Leave the heap to itſelf ſome weeks, and then turn it, adding a quantity of the freſheſt and moſt active lime, worked well into the moſs with the ſpade; after ſome time it ſhould be again turned, and every part of it broken as ſmall as poſſible. In a month or ſix weeks, the whole will be ready for uſe. Upon thin gravels or ſharp active ſoils, ſuch as chalk or limeſtone, this compoſt will be highly beneficial, not only as a manure, but alſo for thickening the ſtaple.

Mr. John Horridge, of Raikes, near Bolton in the Moors, Lancaſhire, received from the Society for the Encouragement of Arts, Manufactures, and Commerce, in 1802, a ſilver medal for the following communication to the ſecretary, on the ſubject of compoſts:

“Permit me to requeſt you to lay before the Society for the Encouragement of Arts, &c. the following memorial of the improvements and experiments which I have made in a quantity of land.

“In the firſt place, I muſt ſolicit your attention to a new and cheap method of planting potatoes, and which I never knew to be attempted by any one but myſelf. The following is the manner in which I tried the experiment: A quantity of land in my farm wanted draining, and I had occaſion for a large main-drain for that purpoſe; in the cutting thereof I found a quantity of earth, in a ſolid bed, reſembling *peat*, but of a more ſolid ſubſtance than peat generally is. I threw it into heaps, and, after the ochery water had left it, mixed it with lime, which appeared to me to form with it an excellent manure. After this, I fallowed a field of a gravelly ſoil, drilled it for potatoes, and put the ſame quantity of this compoſt into the drills as I ſhould otherwiſe have done of black dung; and the produce from eight ſtatute-acres was 864 loads, of thirteen ſcore to the load. I then ploughed it for wheat, and had a moſt excellent crop; ſowed it with white clover and graſs-ſeeds, and let it lie for graſs; it has been, and is now, one of the beſt paſtures in the neighbourhood. The land, before the improvement, was worth about 1l. 10s. an acre; and, after taking two very great crops from it, is now worth about 3l. per acre. The general opinion of the country was againſt the uſe of lime in the ſetting of potatoes; it has, however, anſwered beyond expectation; and had I been under the neceſſity of procuring dung for my potatoes, inſtead of this compoſt, it would have coſt me ſix times as much money.

“Having made the above experiment with potatoes and wheat, I was inclined to try the ſame ſort of compoſt upon graſs-lands. In a little valley between two ſmall hills in my farm, I found a very large bed of peat, compoſed of decayed vegetable ſubſtances, which was boggy, and in ſome places upwards of nine feet in depth. This I drained, and drew off the ſtagnant water with which it was filled; it appeared to me the whole bed, in conſequence of being laid dry, had fermented; for, when we afterwards cut it, we found it converted to very fine mould. I cauſed it to be trenched to the next ſtratum, which was marl, and mixed it with lime hot from the kiln; but very ſoon found that I muſt ſlack the lime before mixing, or it would have burnt it to aſhes, by undergoing a freſh degree of fermentation. The quantity I mixed was nine thouſand tons with 1327 horſe-loads of lime, which coſt me about 160l. and I gave one penny per cubic yard for the trenching and mixing. Having about thirty acres of gravelly ſoil, I began in October to cover my land with this compoſt, which, in a very ſhort time, proved advantageous; for the graſs began to ſpring as if it had been April, and ſoon produced a very luxuriant paſture of about four acres in extent. This I covered firſt, and turned into it eight milch-cows, about the 15th of December. They fed thereon till the 1ſt of March, and gave me a very great quantity of milk and butter; and the butter was rich and yellow, like ſpring-butter. The cows, while in this paſture, had very little hay, and that during the night, of which they would eat only a very few pounds. Since I took out my cows, I have paſtured the land with twenty in-lamb ewes, of the large white-faced or Malham breed. They are now paſturing; and I doubt not but it would feed ſheep very fat. I have now covered about twenty-ſix acres more, which promiſe to be as ſucceſsful as the other, and amounting to in the whole thirty acres. This, prior to the improvements, was worth 2l. 10s. per acre, and is now worth 4l. per acre.

“This compoſt is, I believe, equal to the beſt manure I could obtain, and the advantage ariſing from peat-compoſt with lime, when laid upon gravel, ſandy, or clay, ſoils, is almoſt invaluable. The quantity of this compoſt, which I have now ready prepared, together with what I have uſed, amounts to nine thouſand tons, which has been raiſed ſince laſt ſummer; and the total expence is 530l. The quantity per acre is one hundred and forty tons, which coſt me about 8l. per acre. Had it been dunged the common way, it would have coſt me ſixteen guineas per acre, and would not have anſwered ſo well. The remainder of my compoſt is upwards of four thouſand tons; I have thirty acres more to cover, the greateſt quantity of which I intend to plant with potatoes. By the ſtatement above you will ſee the annual value of the land at preſent, and what its value was prior to thoſe improvements."

The following method of making a compoſt, is from Martyn's improved edition of Miller's Gardener's Dictionary: In a field conveniently ſituated, plough and harrow a headland, till the ſoil is well divided and in fine tilth; then take a cart-load or forty buſhels of lime freſh from the kiln, and place it in little heaps, about a buſhel in each, along the middle of the headland, at four feet diſtance from each other. Cover the heaps with four or five times their quantity of pulverized earth, and pat it down cloſe with the back of a ſhovel, ſo as to exclude both rain and air. In a few days the moiſture of the earth will have diſſolved the lime, and reduced it to a powder. If the heaps have any fiſſures in them, they ſhould from time to time be filled up, by having more earth thrown upon them, and patted down cloſe. When the lime is perfectly reduced to a powder, that and the earth muſt be chopped down with a ſpade, and intimately blended together. This is moſt conveniently done in form of a long bank or ridge, in the middle of which a large furrow or opening muſt be made ſufficient to receive five cart-loads (forty buſhels each) of good ſpit-dung; then the earth and lime muſt be thrown over the dung ſo as to cover the whole. In this manner it muſt lie ſome months, or till the dung is in a ſtate of diſſolution. When arrived at this ſtate, it muſt be turned over again, well mixed, and formed into a heap or clamp to be kept for uſe. Earth, lime, and dung, thus managed, conſtitute an unctuous maſs of great fertility.

In Eſſex they are particularly induſtrious in this practice; where, as the ſkirts of incloſures ſeldom produce any corn on account of the ſhade and dripping of the hedges, and what it does produce is of little value, becauſe the birds prey upon it, they generally ſink theſe borders at leaſt a foot deep, and mix them into compoſt, for the benefit of the reſt of the land, which is more expoſed to the ſun, and leſs liable to be preyed upon by birds.

Next to theſe borders of incloſures or banks of roads, the ſcouring of old ditches, the mud of ponds, and ſediments of ſtagnant waters, are valuable, eſpecially on graſs-land; and a ſmall mixture of lime is well beſtowed upon it. Any maiden-earth, with one ſeventh part of lime, and another ſeventh of rotten dung, is good manure for moſt kinds of paſture.

It has been noticed before that true marl conſiſts of calcareous earth, clay, and ſand, in different proportions in the ſeveral varieties. The calcareous earth is involved as it were in coatings of the clay. This ſuggeſted to Dr. Hunter an idea that, where natural marl could not be obtained, an artificial compoſt might be made, that ſhould anſwer nearly the ſame purpoſes in agriculture. Many countries which contain no marl have plenty of clay, where lime or chalk may be procured at an eaſy expence; and ſand, which is of leſs importance, and not always found in marls, is to be met with in moſt diſtricts. Clay, by the addition of water, becomes ſoft and ductile; in this ſtate it may eaſily be mixed with any portion of chalk or ſlaked lime, and a due quantity of ſand. The proportions may be different, according to the nature of the land to which the marl is to be applied. For light lands a greater quantity of clay will be proper; for ſtiff ſtrong land more calcareous earth and ſand; and for very ſtrong clay it may be ſufficient to apply a mixture of calcareous earth and ſand, with little or no clay. The lime ſhould not only be ſlaked, but expoſed to the air, and often turned, for ſeveral months. The quantity of clay and ſand together in good marls is not great; in ſome one-third, in ſome one-fifth, in others not above one-ſixth, or one-ſeventh, of the whole maſs. This artificial marl may be made, either by incorporating the chalk or lime with the moiſtened clay by treading or beating; or elſe by throwing layers of lime or chalk and clay alternately, and then expoſing the heap during the winter to the weather, by which means it will moulder down, and become a ſufficiently uniform maſs. When we conſider the ſolvent power of quicklime, this mode of producing an union between the calcareous and argillaceous earths will appear very feaſible.

There are many circumſtances, ſuch as the nature and ſtate or condition of the land, the goodneſs of the manures, the diſtance they are to be carried, and the expence of procuring them, which render a difference in the quantity of ſuch compound manures neceſſary, and which can only be properly judged of by the perſons who have the application of them. On the heavier kinds of land, ſuch as thoſe of a clayey or deep loamy nature, ſuch compoſts as are conſtituted of the lighter ſorts of earthy materials, ſhould always be employed; while, on the thinner and more light ſorts of ſoil, thoſe which are formed of clayey, loamy, or the more tenacious earthy matters, will be found the moſt ſuitable. And, from the whole of what has been advanced, it will appear, that, by proper attention to the mixing together of ſuch ſubſtances as are adapted to act upon each other, and ſuited to the ſtate of the ſoil, manures may be increaſed and rendered much more ſerviceable in promoting the growth of crops, and augmenting the fertility of land, than they have hitherto generally been.

### *Of the Application of Manures, with Hints for improving and increaſing them.*

Manure is uſually applied in three different ways. The firſt and moſt common is that of ploughing it in, and thus mixing it with the whole ſoil. This is the beſt ſyſtem where it is neceſſary to enrich a field for a ſucceſſion of exhauſting crops; and alſo in ſtrong heavy lands, which require to have their parts ſeparated as much as poſſible; which effect is produced by nothing better than by ploughing in long dung or green crops. It may perhaps be queſtioned whether this be the beſt means to make the moſt of the manure, as ſome valuable parts of it may be ploughed in too deep, and even entirely loſt. The ſecond is, ſpreading or ſcattering the manure upon young crops, which is called top-dreſſing or hand-dreſſing. This mode is confined to particular ſubſtances, as ſoot, rape-cake, pigeons'-dung, aſhes, &c. and has been found to anſwer, eſpecially with crops which tiller, as wheat and barley. Even dung, well-rotted and made into a compoſt with earth, lime, or other active ſubſtances, may be thus employed, and being applied on the ſurface, and at a ſeaſon when the crop ſtands moſt in need of it, a much leſs quantity of manure will be ſufficient, but then it will be of little or no uſe to ſucceeding crops, and the expence of preparing it will be greater. When crops are ſickly or backward in the ſpring, top-dreſſings are certainly of great uſe, except the ſeaſon ſhould prove uncommonly dry. The third way of applying the manure, is laying it into drills, and ſowing the crop upon it. This is uſed only for particular crops, as potatoes, turnips, &c. which thus receive the whole benefit of the manure, in all ſtages of their growth.

But, in the application of manure to land, ſeveral circumſtances are neceſſary to be conſidered, ſuch as the ſtate or condition of the ſubſtances which are to be made uſe of, the nature of the ſoils on which they are to be laid, the kind of crop that is to be promoted by them, and the ſeaſon in which they are put into or upon the ground.

For *clayey ſoils*, the beſt manure is marl, and that which is moſt calcareous is beſt. Theſe ſoils are defective both in conſtitution and texture; they want the calcareous ingredient and coarſe ſand. Calcareous marl ſupplies the firſt chiefly; limeſtone-gravel will ſupply both. A mixture of marl and dung is ſtill more advantageous, becauſe the dung ſupplies the carbonaceous ingredient. But the ſame quantity of marl muſt be uſed as if no dung had been applied; or elſe the operation muſt be more frequently repeated. If marl cannot be had, a mixture of coarſe ſand

and lime perfectly effete or extinguiſhed, or chalk, will anſwer the ſame purpoſe, as it will ſupply the defective ingredient, and open the texture of the clay; ſo alſo ſand alone, or chalk, or powdered limeſtone, may anſwer, though leſs advantageouſly. Lime alone ſeems leſs proper, as it is apt to cake, and does not ſufficiently open the ſoil. Where theſe manures cannot be had, coal-aſhes, chips of wood, burned clay, brickduſt, gravel, or even pebbles, are uſeful; for all theſe improve the texture, and the former ſupply alſo the carbonaceous ingredient. Nothing perhaps is equal to good ſtable and foldyard-dung for ſtrong tillage-land; becauſe it opens this heavy ſoil at the ſame time that it ſupplies the richeſt nutriment. But dung is a proper ingredient in the appropriated manures of all ſorts of ſoils, as it ſupplies the carbonaceous principle.

*Clayey-loam* is defective either in the calcareous ingredient, or in the ſandy, or in both. If in the firſt, the proper manure is chalk; if in the ſecond, ſand; if in both, ſiliceous marl, or limeſtone, gravel, or effete lime, and ſand.

*Chalky-ſoil* wants both the clayey, and the ſtony, ſandy, or gravelly, ingredients. The beſt manure for it therefore is clayey-loam or ſandy-loam; but, when the chalk is ſo hard as to keep of itſelf the ſoil ſufficiently open, then clay is the beſt manure; for in ſuch caſes, the coarſe ſand or gravelly ingredients of loams are no uſe. Some indeed think, that pebbles in a field ſerve to preſerve or communicate heat; this uſe however is not ſufficiently aſcertained. They detain moiſture; and thus, on chalk-lands, a complete covering of great black flints inſures a tolerable crop in a dry ſeaſon.

*Chalky-loam.* The beſt manure for this ſoil is clay or clay-marl; becauſe it is defective principally in the clayey ingredient. Light limeſtone-ſoils, not differing eſſentially from theſe, require the ſame manure.

*Sands.* The beſt manure for theſe is calcareous marl, for they want both clay and calx, and this marl ſupplies both; the next beſt is clay-marl, and next to theſe clay mixed with lime, or calcareous, or clayey, loams. Lime or chalk are leſs proper, becauſe they do not give ſufficient coherence to the ſoil; however, when mixed with earth or dung, theſe anſwer well, becauſe they form a ſort of marl or compound comprehending the defective ingredients.

*Sandy-loams* are defective chiefly in the calcareous ingredient, and in ſome degree alſo in the argillaceous; their texture alſo is imperfect, as they abound both in fine and coarſe ſand; chalk or lime would ſupply the firſt defect, but leave the texture unamended. Calcareous or argillaceous marls are moſt proper. Clay, after land has been chalked, anſwers well, becauſe it remedies the texture.

*Gravelly-loams* are benefited by the application of marl, whether argillaceous or calcareous. If the gravel be calcareous, clay may be employed. A mixture of effete lime and clay ſhould anſwer in all caſes.

*Ferruginous-loam*, or *till*, and *vitriolic ſoils*, neceſſarily require the calcareous ingredient to neutralize their peccant acid; hence chalk, limeſtone, gravel, and calcareous marl, are moſt advantageouſly applied to them.

*Bogs*, or boggy ſoils, muſt be firſt drained, and then, the nature of the ſoil being explored, an appropriate manure muſt be applied. In general they ſhould be burned, and then covered with limeſtone, gravel, or lime mixed with coarſe ſand or gravel, becauſe they are uſually of a clayey nature; if they are more ſandy, lime may anſwer well, or calcareous marl. If their upper parts contain a ſufficiency of the carbonaceous principle, as often happens, they need not be burned. For all mooriſh and cold ſoils, gravel, road-dirt, ſmall ſtones, coal-aſhes, ſoaper's aſhes, hog-dung, &c. are good. But in cold wet lands, no manure can be effectual without draining.

*Heathy-ſoils* ſhould firſt be burned to deſtroy the heath, and increaſe the carbonaceous principle. Lime alſo will deſtroy heath. Limeſtone-gravel is the fitteſt manure when the ſoil is clayey; lime when it is gravelly. Gypſum alſo anſwers remarkably well when the ſoil is dry.

As to the ſeaſon in which manures may be put into the ſoil, or ſpread out upon its ſurface, with the greateſt benefit and advantage, though in practice it muſt, in ſome meaſure, depend on the ſtate of the land and the convenience of the farmer, it ſhould, in caſes where they are buried in the ground, be as nearly as poſſible to the periods in which the ſeeds or the roots, which they are deſigned to ſupport, are ſown or placed in the earth; and in the latter caſe, or where they are to be laid upon the ſurface of the land, it ought probably to be juſt before the crops of graſs, or other vegetables, begin naturally to ſpring or ſhoot forth.

By the practice of depoſiting and blending the manure with the ſoil nearly at the time the crops are put in, there is ſcarcely any waſte of the fertilizing properties of ſuch ſubſtances, which, as they gradually proceed in their decompoſition and decay under the ground, muſt otherwiſe be the caſe, the roots of the plants not being in the moſt proper ſtates for taking them up and converting them to their ſupport. Beſides, in the ſtiff, loamy, or clayey, ſoils, they have a tendency, as has been remarked above, to produce a degree of lightneſs and friability that is ſuited to the early proceſs of vegetation. And it is obſerved by an able writer, that "the atmoſpheric air, which is buried along with the manure in the interſtices of the earth, and which for many weeks, or even months, renders the ſoil looſe and eaſily impreſſed by the foot on walking on it, gradually evolves, by its union with carbon, a genial heat, very friendly to vegetation in this climate, as well as the immediate production of much fluid carbonic acid, and probably of a fluid mixture of nitrogen with hydrogen, which are believed to ſupply much nutriment to plants." *Darwin's Phytologia*, p. 251.

And, by the application of ſuch manures as are employed in the way of top-dreſſings in the beginning of the ſpring, they are laid on in the moſt favourable period for affording their nutritious principles, and for their being drunk up by the roots of plants, conſequently become uſeful at the time they are moſt wanted for the promotion of the crops; and the great waſte which muſt otherwiſe be cauſed, either by the exceſſive falls of rains and floods in the winter ſeaſon, waſhing down much of the valuable properties into the adjoining rivers and ditches, or the evaporation of their more volatile or elaſtic matters by means of the ſummer heats, is moſt effectually guarded againſt and prevented.

The practice common in ſome places of applying manure to graſs-lands in the latter end of ſummer or beginning of autumn, after the firſt crop of hay has been taken from the ground and the after-graſs has begun to make ſhoots, is not by any means ſo favourable as that of early ſpring, as in the latter caſe the generation of thoſe materials that contribute to the ſupport of vegetation is greatly promoted by the conſtantly-increaſing heat of the vernal and ſummer months; while in the former it is conſtantly checked and retarded by the increaſing coldneſs of the autumn and winter ſeaſons. Beſides, the manure, by being ſpread out upon the ſurface of the land under ſuch circumſtances, muſt be the cauſe of great loſs, by contaminating the after-graſs, and rendering it incapable of being eaten off by cattle or other kinds of live-ſtock. Where, however, a ſecond crop of hay is to be taken, it may ſometimes be put on at ſuch times with advantage to ſuch crop, eſpecially if the weather be not too hot, and the manure in a perfectly fine and reduced ſtate.

Dr. Fenwick, in his very ingenious Reflections on Manures, has very well obſerved, that it is ſcarcely poſſible to ſuggeſt a worſe mode of uſing manures on graſs-lands, than that which is almoſt univerſally practiſed in the neighbourhood in which he reſides; and it is the ſame in many other parts of the country, as is evident from the

Reports that have been lately publiſhed under the authority of the Board of Agriculture: “When a ſevere froſt has bound up the land in a ſtate of impenetrable coheſion, the farmers,” ſays he, “wheel on their dung, perhaps even when ſnow has covered it. While the froſt laſts the land can derive no advantage from the manure, and when a thaw ſupervenes it is evident that the waſh from the melting ſnow, or from the rains which generally fall in ſuch weather, muſt deprive the maſs of every part that is ſoluble. The ground, in the mean time, retains the froſt for many days, and is therefore incapable of abſorbing the wet which falls upon its ſurface; and, even when the influence of the milder air has reached it, it can imbibe but little, being in general previouſly filled with water, and the quantity which flows over it being too great for ſoil under any circumſtances to drink up.”

In favour of this deſtructive and waſteful practice, however much it may have been defended on the ground of the farmer's leiſure or convenience, and the little injury done to the turf or ſward of the land, the ſame writer thinks there can be only one reaſon alleged, which is, that manure, when ſpread early in the winter, may protect the roots of graſſes from the ſeverity of froſts. This too is probably a miſtaken notion, as it is known to every one, that the common graſſes are ſeldom injured by the ſevereſt froſts; and other kinds of graſſes may probably not ſuffer leſs injury from the application of manure at ſuch a ſeaſon, than from the ſeverity of froſts. On all theſe accounts, therefore, farmers ſhould contrive as much as poſſible to apply the manures, intended as top-dreſſings to graſs-lands, as early in the ſpring as it can be conveniently done, which may be eaſily managed on thoſe that are dry, and on ſuch as are inclined to be wet and poachy it may probably be greatly facilitated by having ſmall light carts conſtructed for the purpoſe, and placed on broad cylinders as wheels.

In the application of manures to lands under tillage, as well as thoſe in the ſtate of graſs, there are a few other circumſtances that require the attention of cultivators; ſuch as the depth they may be depoſited in the ſoil, the modes of putting them upon the ground, and the moſt economical methods of employing them.

As we have already ſeen that the putrefaction and decay of animal and vegetable matters, whether above or beneath the ground, is greatly promoted by the free admiſſion of air, and a ſuitable degree of moiſture, to them, it is evident that they ſhould not be buried ſo deep in the earth, as that they may be prevented from readily receiving the aid of ſuch cauſes in forwarding their decompoſition; nor, as the proceſs is known to be much retarded by the ſubſtances being rendered too dry, ſhould they be placed ſo near the ſurface, or be ſo thinly covered, as to permit the action of the ſun and winds, before the crops have riſen to ſuch heights as to prevent it, from diſſipating and carrying away their nutritious properties. The introduction of the manure to a middling depth, as three or four inches, would, therefore, on theſe accounts, as well as from its contributing more expeditiouſly and more fully to the vegetation of the crops that may be put in with it, ſeem, in general, to be the moſt advantageous practice; but, on the lighter and more friable ſoils, it may be adviſable to plough it in to a greater depth than on ſuch as are heavy and tenacious. In every caſe, however, whether the manure made uſe of be in a long or a more reduced ſtate, it ſhould be perfectly covered or ploughed into the earth. The practice of burying manures deep in the ſoil, has been defended by ſome on the ground of its being the nature of elaſtic matters to riſe or force themſelves towards the ſurface; but when they are placed to a conſiderable depth in the earth, as the proceſs of decompoſition is thereby ſtopped, or ſuffered to proceed in but a very ſlow and feeble manner, little or nothing eſcapes for the ſupport of vegetation, or it is furniſhed in ſo very ſlow and ſparing a way, as to be of ſcarcely any ſervice to the immediate crops. Thus in the cultivation of ſuch crops as are placed in rows or drills, where the manure is put in to a great depth, and covered pretty thickly with earth, on digging them up at the end of many months it may frequently be obſerved nearly in the ſame ſtate it was when firſt put into the ground. And the ſame thing is often noticed by gardeners, where imperfectly-reduced or long dung is placed in deep trenches and covered to a conſiderable thickneſs with mould.

In order that manures may produce their effects in the moſt perfect manner, they ſhould be ſpread over the ſurfaces of the grounds as evenly as poſſible, whether they be intended to be turned into the ſoil or left upon its ſurface as top-dreſſings. This may be greatly facilitated by placing the manures out at firſt in very ſmall heaps, as by ſuch a practice it may be ſpread over the ground with much greater eaſe and exactneſs; and on graſs-lands much leſs injury will be done by the bottoms of the heaps.

On tillage-lands, manures ſhould always be turned in, or otherwiſe covered, as ſoon as poſſible after they are ſpread out; for, if this be neglected, much loſs may be ſuſtained, eſpecially in hot ſeaſons, by the quick evaporation that takes place in ſuch caſes. The beſt practice is therefore not to carry more out from the dunghill at a time than can be conveniently ſpread upon and ploughed into the earth in a ſhort time afterwards. In ſpreading manures employed as top-dreſſings on graſs-lands, much advantage will be gained by breaking and reducing the clods or lumps into as fine a ſtate as poſſible, as by ſuch means they are not only applied more perfectly, but waſhed by the rains much more readily to the roots of the graſſes. The ſpringing of the young graſſes is alſo leſs retarded where the manures are rendered fine and powdery, than where they are left in a cloddy ſtate.

Another economical mode of employing manure is, by placing it in the drills or hollows formed for the reception of different crops which are cultivated in rows, as peaſe, beans, cabbages, potatoes, &c. By this method, that part of the ground which is intended to bear the crop is only manured, the intervals or ſpaces between the rows not receiving any, from which, where the buſineſs of putting the manure into the drills is properly performed, a great ſaving muſt of courſe be made. According to the concluſions of a late writer, the ſaving of manure in this way is ſo great as to conſtitute one of the chief advantages of the drill-ſyſtem of cultivation. His calculation is, that, by “drills being made two feet aſunder, and each drill ſix inches wide at the bottom, there will be juſt one-fourth part of the ground covered with manure; for as ſix inches, multiplied by four, gives two feet, which will be the diſtance from drill to drill, and as four multiplied by four makes ſixteen, it follows, that if the whole of the land had been covered with manure, ſixteen loads would have been required for what is as fully and beneficially performed by four, that is by one quarter of the quantity uſed by the old method of dreſſing, ſuppoſing it of the ſame thickneſs and quality. Beſides, from the manure being in this method kept cloſely together, and the ſeeds or plants placed immediately upon it, they muſt, he ſuſpects, receive the advantage of the dreſſing in a more full and complete manner. *Experienced Farmer*, vol. ii.

As it appears probable that in the decay of different materials in the ſoil, all the nutritious matters as they are formed immediately become uſeful for the purpoſe of vegetation, without any waſte being ſuſtained, as muſt always be more or leſs the caſe where they are depoſited together in heaps, it may be an economical practice, as has been already obſerved, in caſes where the crops to be benefited by them require a regular and laſting but not large ſupply of nouriſhment, or where the ground is required to be kept in an open and rather light ſtate, for a conſiderable length of time, to employ ſuch manures in their leſs decompoſed ſtates, as by the ploughing down of green ſucculent vegetable-crops, and the turning in of long ſtrawy ſubſtances.

By adopting ſuch means, the more perfectly-formed manures of the farm may be reſerved for ſuch crops of luxuriant vegetables as demand more ſpeedy and abundant ſupplies of nutrient matters.

In reſpect to the advantage of uſing one ſort of manure in preference to another, it may be obſerved, that as animal matters are found in general to undergo more ſpeedily the proceſs of putrefaction or decompoſition, than thoſe of the vegetable kind, and as in moſt inſtances they afford thoſe mucilaginous and elaſtic principles that contribute ſo largely to the ſupport of vegetable life in greater proportions; ſuch manures as are either wholly or in a great meaſure compoſed of them muſt be the moſt beneficially employed where quick and abundant ſupplies of nouriſhment are required, as in the growth of all the more groſs and luxuriant crops, whether of grain, plants, or graſſes; and that, as thoſe vegetable ſubſtances which contain ſaccharine, farinaceous, oily, ſaline, or mucilaginous, principles in the largeſt quantities, are aſcertained from experience to proceed the moſt readily into the ſtate of diſſolution or decay, and conſequently to afford more fully and more expeditiouſly the nutrient food of new plants, where manures are principally formed from them, they ſhould be preferred to ſuch as have been made from the harder and more ligneous vegetable ſubſtances, that contain ſuch properties in ſcarcely any, or much ſmaller degrees, for all the purpoſes of agriculture.

And laſtly, ſuch ſubſtances as are found to contain thoſe elementary materials, of which vegetables are principally conſtituted in their more ſoluble or looſely combined ſtates, as carbonaceous matter in the black earths or moulds, and oxygen, azot, and hydrogen, in burnt clay, raddle, mangancſe, and calamy, ſubſtances which have hitherto been little employed, as well as in water and air, ſhould be made uſe of in preference to thoſe which poſſeſs them in ſlight proportions or ſcarcely at all.

Thus much on the *application* of manures: we ſhall now conclude with a few hints on the modes of preſerving, increaſing, and improving, them; for, upon this in a great meaſure depends the general fertility of farms, and the luxuriance or goodneſs of the crops that are grown upon them. It is therefore a matter of great intereſt and importance for the farmer to ſee that nothing is waſted or thrown away that can poſſibly be converted to ſuch a purpoſe. That there are many ſubſtances that may be rendered uſeful in this way, which have hitherto been little regarded by the cultivators of land, there can be little doubt, when the daily waſte of animal, vegetable, and other, matters, that takes place in every country, from their being carried away by rivers, or conſumed by fires, is fully conſidered.

Another great cauſe of loſs in the production of manures is from the want of adopting or putting in practice ſuch modes of management, in reſpect to different ſubſtances, as are capable of rendering them fit for the purpoſe of application, in the moſt quick and expeditious manner; for it is obvious, that if by properly attending to ſuch means the ſame quantity of manure can be prepared in a ſhort ſpace of time, which under other circumſtances muſt have required a long one, much increaſe of manure may be effected, and conſequently great advantages be gained by the cultivators of the ground. What is neceſſary to be done in order to facilitate and haſten the decompoſition and reduction of different materials into the proper ſtates for being applied to the ſoil, we have already ſeen to be, in ſome meaſure, the free admiſſion of atmoſpheric air, a quantity of moiſture ſuited to the condition of the matters made uſe of, and a due degree of heat. And alſo by the proper blending of animal with vegetable ſubſtances, in the incipient ſtages, and the addition of lime, according to circumſtances, and in proportions ſuited to the ſtate and nature of the ingredients.

As the principal recourſe on moſt farms for the production of manure is the farm-yard, it ſhould be conſtructed in ſuch a manner as that every thing may with eaſe and facility be converted to the purpoſe. In general one dungſtead may be ſufficient; but, where the ſize of the farm is large, two or more may be neceſſary, as the putrefaction of ſuch heaps proceeds with greater regularity and expedition, from the acceſs of air and moiſture being more free, when they are not made too large; and beſides, they can be more conveniently turned over or removed. The parts of the yard on which they are ſituated ſhould, while they are convenient for depoſiting the dung, and other matters from the ſheds and other offices, be neither too much elevated, ſo as to cauſe the dung to become dry, nor ſo greatly depreſſed as to favour the ſtagnation of water upon it, and thereby deprive it of the properties moſt eſſential to the promotion of vegetation. Before each of the dungſteads a reſervoir or baſin ought to be made, into which not only the drainings from all the different ſheds and places where animals are fed or kept may empty themſelves, but likewiſe the urine from the neceſſaries, the ſuds from the waſhhouſes, and the waſhings of the various utenſils employed in the family. Without theſe advantages in the conſtruction of farm-yards, much loſs of manure muſt daily occur from the liquid matters of ſuch places continually running away, and being otherways waſted, as well as from their not being made uſe of to forward the converſion of other ſubſtances into the condition of manures.

Where theſe and ſuch other ſuitable accommodations as have been already deſcribed are provided, the farmer will have little more to do than to be careful in ſaving or providing ſuch matters as are ſuitable for the purpoſe, and cauſe them to be properly placed and removed, in order to have them ſpeedily reduced into the ſtate of manure, and the quantity of his dung-heaps thereby greatly increaſed.

In this view various vegetable matters, ſuch as hay, ſtraw, fern, leaves, ruſhes, coarſe graſſes, flags, and many other aquatic plants, ſhould be preſerved and collected in as large quantities as poſſible; by allowing nothing of the kind to be ſold or carried from farms, except in ſome particular inſtances, as where they are ſituated near large cities or towns, where ſuch articles can be advantageouſly diſpoſed of for the purpoſe of feeding and littering horſes or other animals, and at the ſame time an equivalent in good manure be brought back to the farm; by mowing and raking together the wheat or other ſtubbles, the fern from the commons, and leaves where they can be obtained, as in the vicinity of parks and other woodlands, and by cutting the coarſe graſſes and aquatic vegetables at ſuch periods as they are in the moſt juicy and ſucculent ſtates. The whole, after being ſufficiently dried, ſhould be carried to the farm-yards, and ſtacked-up in convenient ſituations, either in or near them, for the purpoſe of being made uſe of as litter.

Beſides theſe means, there are others that equally demand attention: every leiſure opportunity ſhould be taken, before the commencement of the foddering ſeaſon, to bring into the farm-yards ſuch quantities of peat or boggy earth, rich ſurface-mould, marl, dry mud from ponds or ditches, ſcrapings of roads, loam, and other ſubſtances of the ſame kind, as can be conveniently obtained.

Such materials as are neceſſary being by theſe methods procured, the beſt mode of proceeding ſeems to be that of covering the whole of the yards, where the cattle ſtand and tread, and even the pigſties in ſome caſes, with layers of theſe earthy matters, eight, ten, or more, inches thick, according to the number of cattle, and other circumſtances; and alſo to depoſit in the reſervoirs before the dungſteads, proper quantities of the ſame ſubſtances, for the liquid matters which come into them to act upon. Upon theſe earthy bottoms, at the time the cattle are confined, pretty thick litterings of one or more of the materials that have been collected and ſtacked-up may be placed, and the ſtables, cow and ox-ſtalls, pigſties, &c.

cleaned out upon them. Where it is the practice to tie-up and confine the cattle in the night-time, the ſtraw, or other ſubſtances, after having been broken down and reduced by littering them, may be uſed for covering the bottoms of the yards, by which means their decay may probably be rendered more quick and convenient. It appears alſo probable, that where ſtubble, fern, ruſhes, leaves, or other vegetable matters, the textures of which are hard and ligneous, are employed, their decay, or reduction into the ſtate of manure, may be greatly expedited by means of a ſlight portion of lime, in its active ſtate, being ſpread over the earthy bottoms before they are applied, as has been found to be the caſe with tanners' bark.

Where the matters made uſe of in the way of manures are liable to be rendered too dry by the weather, their putrefaction and decay may be much promoted, as we have already ſeen, by having them ſprinkled over occaſionally with water, which may be conveniently and readily performed by having a pump, with troughs, fixed properly for the purpoſe; or, where theſe are wanting, from a pond in the yard.

To render the plan the moſt effectual it is capable of, the whole of the cattle ſhould be ſtrictly confined to the fold or foddering-yards during the winter, and not turned out as is frequently the caſe into paſtures, by which the making of much manure is prevented, great injury in many ſituations done to the graſs-lands, and the ſtock, from being much expoſed to cold and other cauſes, benefited in a far leſs degree than is commonly imagined. By purſuing this method, from the great conſumption of ſtraw and the coarſer ſorts of food by the young lean cattle, and of hay and luxuriant vegetable roots or plants by the others, ſuch quantities of animalized matters are voided, as by mixing with the bottoms of the yards haſtens their putrefaction, and affords not only an immenſe increaſe of manure, but of ſuch as is of a very valuable kind. If there be not a ſufficient proportion of animal dung and urine incorporated with the other matters, which can ſeldom be the caſe where the cattle are not regularly confined to the fold-yards, the manure, though it may be nearly as large in quantity, is found by experience to be very inferior in its effects when applied to land.

Where the number of cattle confined in the fold-yards is great, it may be neceſſary occaſionally to remove the bottoms and the matters littered upon them, to the dung-ſteads, after they have become in ſome degree manures, by being well ſaturated and blended with the urine and other animalized matters. Theſe muſt be immediately replaced by others in the way we have juſt noticed.

The earthy ſubſtances from the reſervoirs muſt alſo be occaſionally emptied out upon the dung-heaps, and replaced by quantities of freſh materials of the ſame kinds, and the ſtems of different groſs vegetable products from gardens or other places when it can be done.

At the cloſe of the ſeaſon, when the cattle are turned out of the yards, the heaps of manure which have been thus collected and thrown together, are to be turned-over, in order that the animalized matters may thereby not only be ſtill more intimately incorporated with the earthy ſubſtances; but likewiſe, that more of the pure air of the atmoſphere may be retained among the clods, from their being rendered much ſmaller by ſuch means, and the putrefactive proceſs be thereby more perfectly produced. After this buſineſs has been well performed, as little delay as poſſible ſhould be ſuffered to take place before the manure is applied to the ſoil; as from the combination of oxygen or pure air with the carbonaceous material of the dung, and of azot with hydrogen, under theſe circumſtances, ſuch fluid matters are formed as conſtitute its moſt beneficial properties, but which are afterwards continually waſting ſo long as it remains unapplied to the ground.

On theſe accounts, as well as thoſe which have been already mentioned, manure-heaps ſhould not be made too large, but of ſuch ſizes only as that they can be expeditiouſly turned over, and put upon the land. And another advantage which attends the having different heaps and their not being large, is, that one can be prepared and carted away at a time, without the other's being in the leaſt injured by any delay that may happen from unforeſeen cauſes.

By the mixing of lime with manures compoſed of earth and dung in the more advanced ſtages of their preparation, ſome increaſe of quantity may likewiſe be produced; and at the ſame time, as we have already ſeen, by its uniting with the nitrous acid during its formation, may prevent its being thrown off into the atmoſphere in a gaſeous form, or readily waſhed down from the compoſts by rains; and thereby preſerve a ſubſtance that has long been found uſeful in promoting vegetation.

As a great waſte of manure is continually taking place from the evaporation of the more liquid parts of ſuch heaps, where they are much expoſed to the action of the ſun or winds, and the waſhings of the rains, it would no doubt tend greatly to the ſaving of ſuch matters, and at the ſame time conſiderably promote their complete putrefaction and decay, to have them placed in ſituations that are much ſhaded by trees or other means. In the farm-yards, it is probable that moveable coverings of ſome light kind of material might be highly advantageous for the ſame purpoſes. By theſe means the manure-heaps, in ſuch places, may be effectually ſcreened from the action of the ſun in the ſummer, and prevented from being injured by the heavy rains or ſnows that fall in the winter. The manures which have been preſerved from the effects of the weather in this way, have alſo been found, by practical agricultors to be far more efficacious in promoting the growth of crops than under other circumſtances, conſequently capable of going much further.

Different modes have been purſued in different places, in order to procure manure from the articles of food and other matters produced on the farm. By ſome it has been ſtrenuouſly contended, that the moſt advantageous plan is to have the whole of the hay and ſtraw conſumed by the different animals, without employing any of them in the way of litter, floors or ſtandings for them being conſtructed in ſuch a manner, as that they can be tied-up and kept clean and dry merely by ſweeping, without being littered with ſtraw or other ſimilar materials; while others aſſure us, on the ground of actual experience, that the method of eating the hay by the ſtock, and employing the whole of the ſtraw, as well as other matters, in the way of litter, as we have ſeen above, is by much the moſt effectual in promoting the increaſe of manure. But, though each of theſe methods may be practiſed with more or leſs advantage, according to the nature of the farms; as, where there is much graſs and little tillage-land, the former may be preferable; but where the quantity of graſs is ſmall, and that of arable ground large, the latter; it is probable, that a judicious combination of both may be the moſt beneficial, eſpecially where, in addition to the common articles, coarſe vegetable and rich earthy matters are provided and made uſe of in the way which has been mentioned, as by ſuch a combination the full effect can only be produced. In the former method, the loſs by means of digeſtion and animalization is probably much greater than has been generally ſuppoſed by thoſe who have maintained the ſuperior utility of the practice.

The ſoiling of horſes and different kinds of cattle with rich green food, as clover, ſummer-tares, and other artificial graſſes, cut freſh every day during the ſummer-ſeaſon, and placed in cribs, in the ſheds or foddering-yards, the bottoms or floorings of which have been prepared and ſtrewed with earthy materials and litter, in the manner we have already ſeen, is a practice by which great additions may be made to dunghills, as the evacuations of cattle fed in this way are very conſiderable. It is remarked by the earl of Dundonald, that experience only can teach or warrant the belief of how few acres of ground, under the culture of artificial graſſes, when cut green, and daily given to working-horſes, and other cattle, will ſuffice for their maintenance. The artificial graſſes or plants beſt adapted to this purpoſe, are, he ſays, red-clover, tares, and ſaintfoin. None of thoſe ſucculent plants with large ſtems and leaves anſwer, he obſerves, ſo well to be depaſtured as to be mown; not only on account of the injury they receive in being bruiſed by the treading of cattle; but, by being conſtantly cropped and kept ſhort, they are deprived of the nouriſhment which they principally receive by their ſtems and leaves. Saintfoin is, he thinks, beſt ſuited to chalky or dry ſoils, and to the ſouthern parts of Britain. It has often been tried without ſucceſs in the northern parts of England, and in Scotland. Winter-tares have alſo been ſown, but have not been found to anſwer any valuable purpoſe. Clover and ſummer-tares, therefore ſhould, he thinks, be the only plants of which the cultivation on a large ſcale ſhould in theſe parts be attempted; and every prudent farmer will take care to have a full ſupply of them, as in the event of a ſuperabundant quantity for green food, theſe crops are equally proper for hay. Tares ſhould always, he ſays, accompany the culture of clover, to ſupply the deficiency of herbage between the firſt and ſecond cuttings of the clover.

The quantity of manure that may be formed in this way, is probably, much greater than can be ſuppoſed by thoſe who have not actually made a trial of the method; by ſome French writers it is ſtated, that from three or four hundred ſheep, kept in this mode, manure ſufficient for nearly an acre of land may be daily procured; and the manures thus obtained, are likewiſe aſſerted to be preferable to dung procured in the common method. Beſides, the great waſte that unavoidably muſt take place in feeding off ſuch crops is prevented, and the whole of them immediately brought into uſe; and the manure thus produced becomes of a ſuperior quality, from the vaſt quantities of worms and other inſects that are generated during the hot ſummer-months.

By means of covered ſheep-folds, a great increaſe might alſo be made annually to the ſtock of manure. If this neglected, but highly-beneficial, practice, were regularly employed here, as in many other countries, by having proper ſheds and incloſures for the purpoſe conſtructed, of any ſlight materials, near to the fold-yards, or other more convenient places of the farm, ſo that the ſheep might have freſh air and ſufficient liberty to run about, and at the ſame time have the means of being ſheltered from rain, ſnow, and the coldneſs of the winter-ſeaſon, the advantages to the flock would likewiſe be conſiderable, beſides the great ſupply of manure that muſt be provided. In order to promote the latter advantage, the bottoms or floorings of ſuch ſheds and incloſures ſhould be covered with ſuch earthy materials as have been recommended for the cattle-yards, and alſo littered upon in the ſame manner; all of which ought to be removed and cleared away to a heap, or the common dungſteads of the farm-yards, as often as they become perfectly ſaturated and blended with the dung and urine of the ſheep, and freſh materials of the ſame kinds ſupplied. In bad weather it will be advantageous to keep them conſtantly in theſe covered folds, and feed them with hay in ſtanding racks: but when it is fine they may be ſuffered to go into the paſtures in the day-time, and only be put into the folds during the night. The practice of keeping ſheep in covered folds is made uſe of in Flanders for the purpoſe of raiſing manures with great ſucceſs; and very dry ſand is ſometimes employed for the bottoms of the folds inſtead of litter.

Where the houſe-lamb ſyſtem is carried on to an extent, the preparing and littering of the ſheds and yards, into which the ewes are put and the lambs kept and ſuckled, might be practiſed with great advantage in reſpect to the production of manure, as animals under ſuch kinds of management are conſtantly found to void urine and dung in much larger quantities than in the ordinary courſes of feeding

By feeding off different green-crops on the land by ſheep, bullocks, or other animals, much fertility may occaſionally likewiſe be given to the ſoil, at a cheap rate, as the expence of carriage is prevented, and a conſiderable ſaving of manure thereby effected. Mr. Middleton ſeems of opinion, that by this mode of management the great loſs of urine and dung that unavoidably occurs in the other methods may be the moſt effectually prevented; for, ſays he, "in the ſtables, cow-houſes, ſheds, fold-yards, and dunghills, even under the beſt management, there is a great waſte, perhaps of half, including dung and urine; under ordinary management three parts of this manure is loſt; but in the ſoiling of tares, turnips, cole, clover, &c. in the fields, there is no loſs; the whole is immediately applied, without the coſt of carriage, to the enriching of the ſoil." It is evident, however, that in this way there muſt be much more waſte than is here ſuppoſed; by evaporation from the action of the ſun and wind over ſo extenſive a ſurface, much of the valuable matters of manure, in ſuch ſituations, muſt be daily carried away; and the more fibrous or ligneous parts of the materials, which are rejected as food by the cattle, from their being thinly ſcattered over a large ſpace, becoming dry and hard, muſt be longer before they decay, or are rendered fit for the purpoſes of manure, than where they are collected together in larger quantities and in more confined ſituations.

Another means of increaſing manures to a very great extent, is by adopting ſuch methods as may effectually prevent the ſoil and urine of privies, and the various animal and vegetable materials that are continually thrown into them, in cities and large towns, from being uſeleſsly retained in deep pits, or places conſtructed for the purpoſe, or inconſiderately waſhed away and waſted, by being conveyed into rivers or ponds by ſewers and drains. It is ſtated, that, from want of ſuitable modes of preſerving ſuch ſubſtances, the annual loſs, in this country, is probably not leſs than five millions of cart-loads, which, if turned to the uſes of agriculture, would be worth to the cultivators of the ſoil two millions and a half, and to the community five millions, of pounds ſterling! *Tranſ. of the Soc. of Arts*, vol. xvii.

The moſt eaſy and covenient methods of preſerving ſubſtances of this kind in the country would be, probably, by having pits formed for the reception of them, as near as poſſible to the dungſteads in farm-yards or other places, and prepared with floors of clay, or ſome other material through which the liquid matters could not readily paſs; theſe might be connected with the privies by proper drains, and have covers fitted to them, in order that a quantity of mould, peat-earth, ſaw-duſt, lime, ſtems of coarſe garden-plants, or other ſubſtances of the ſame ſort, might be occaſionally placed in them, and removed, to be blended with the common dung-heaps, as often as they became fully reduced by putrefaction, and well ſaturated and impregnated. But in large towns or cities, where ſuch manures are produced in great quantities, reſervoirs or baſins of large ſizes ſhould be conſtructed, with floors of the above kind, and be connected with the privies of different parts, by means of ſewers or drains. Such reſervoirs ought to be ſo ſituated as to be capable of being emptied with eaſe and facility, as often as neceſſary, by perſons appointed for the purpoſe, and their contents carried away in the night-time. Where there is the convenience of rivers, however, as in London, and many other populous cities and towns, a large proportion of ſuch manures might, in moſt caſes, be readily emptied from baſins of this ſort, formed on their banks for the purpoſe, or perhaps from the extremities of the common ſewers themſelves, by means of proper ſluices, into covered boats or barges, and thus cheaply carried to a diſtance, for the advantage of agriculture; a method, in ſome reſpects, practiſed with ſucceſs in Sweden. But, as this kind of manure is extremely liable, from the agitation of the carriage in which it is moved, to become ſo liquid as to be conveyed with great difficulty, it is probable, that by having ſuch earthy or other ſubſtances as have been mentioned above, or as could be conveniently procured in ſuch large cities or towns, ſuch as the long littery dung from livery-ſtables, lime-rubbiſh from the pulling down of old houſes, and the freſh earth dug up in preparing the foundations for new ones, mixed and blended with it in the pits or reſervoirs, for ſome time before they are cleaned out; the difficulties attending the carriage of it might not only, in a great meaſure, be obviated, but the diſagreeable ſmell iſſuing from it be much corrected, and the quantity of manure greatly augmented. By ſome method of this nature, under the management and direction of proper perſons, vaſt ſtores of fertility might be provided in ſuch places for the neighbouring diſtricts, which inattention or popular prejudice at preſent withhold from the uſes of agriculture.

In the vicinity of the ſea, where ſhell and other ſmall fiſhes can frequently be procured in large quantities, by having them well mixed and incorporated with good ſurface-mould, peat-earth, or other ſimilar matters, a vaſt increaſe of good manure may alſo be produced. In ſuch ſituations too, the weeds cut from the ſides of the rocks, or which are thrown up by the tides, when collected into heaps, and mixed with ſmall proportions of lime and ſuitable quantities of mould or earth, may contribute greatly to the increaſe of the compoſt-heaps on the farms.

It is obſerved by Mr. Anderſon, in ſpeaking of calcareous ſubſtances, that the recent ſhells obtained from fiſhing-towns operate much more powerfully as an animal manure than as a calcareous matter, when firſt applied; and that it is not impoſſible but that man may, in time, fall upon ſome contrivance for obtaining this animal calcareous manure in much greater abundance and perfection than it has hitherto been obtained. "There is," ſays he, "a ſmall ſpecies of freſh-water wilk, which increaſes ſo faſt, as in a ſurpriſingly ſhort time to fill a conſiderable ſpace with ſolid wilks, if a few of them have been placed in a proper receptacle for that purpoſe, and water duly adminiſtered to them. If then ponds were prepared for this purpoſe, and properly ſtocked with this animal, and if they were allowed to increaſe till a bed of them of conſiderable thickneſs was accumulated, might they not then," ſays he, "be taken out in abundance to be employed as a manure? Theſe, if bruiſed under a ſtone like a tanner's-wheel, to reduce the ſhell to ſmall fragments, would certainly," he ſays, "form as rich and efficacious a manure as could poſſibly be deviſed; nor could there be any difficulty in diſpoſing the ponds in ſuch a manner as to afford a conſtant annual ſupply." *Eſſays*, vol. i. p. 569.

The vegetable mould or other materials contained in the bottoms of ditches, and in boggy hollow places, where water frequently ſtagnates, and large crops of aquatic or other plants alternately vegetate and decay, may likewiſe be dug up and applied with benefit to ſoils for which they are proper, either in the ſtate in which they are found, or after they have been formed into compoſts with dung, lime, or ſome other ſubſtance of a ſimilar kind.

Clay may alſo be employed with great advantage on ſandy ſoils, and ſave other more valuable manures; it ſeems, however, to be the moſt ſerviceable for this purpoſe after it has been imperfectly burnt in clamps or kilns, probably from the proportion of oxygen or pure air that is thus combined with it, or with the metallic matters which it contains.

In ſhort, it is neceſſary, in order to increaſe the ſtock of manures on farms to the greateſt poſſible extent, to be careful that none of ſuch animal or vegetable ſubſtances as are capable of being converted into manure be thrown away or conſumed by fire, but that they be all conveyed to the dungſteads in the farm-yards or other places, or laid in heaps of themſelves, and ſuffered to paſs into fermentation, by which they may be ſpeedily reduced to manure. Where the matter thus made uſe of chiefly conſiſts of weeds and the ſtems or roots of coarſe plants, ſuch as peaſe, beans, cabbages, docks, nettles, &c. their decay may be greatly promoted by a little quicklime being blended with them. Such heaps ſhould alſo be covered over pretty well with ſome of thoſe earthy matters that have been ſo frequently mentioned.

As we have ſeen that the different materials which are made uſe of for the purpoſe of manure paſs through different ſtages of decompoſition and decay, in each of which ſuch matters of the ſolid or fluid kinds are formed as are capable of contributing to the nutrition and ſupport of vegetable crops, but which are liable to be diſſipated or carried away by the agency of various cauſes, it may be neceſſary to guard againſt ſuch waſte by keeping the dung-heaps covered, in every ſituation, as much as poſſible, with earth or ſoil, both in the early periods in which heat is evolved, and at the later ones, when ammonia or volatile alkali is formed; as by ſuch management the proceſſes of decompoſition, when too rapid, may be reſtrained, and the elaſtic matters that are gradually ſet at liberty be abſorbed by theſe coverings, while the more fluid ones are detained by the earthy bottoms on which they had been placed, and thus the whole of the valuable properties of the manure be preſerved.

*Water* may fairly be conſidered as a manure, if we attend to the effects of ſtagnant and putrid water, and the watering of meadow-lands. Water, if allowed to remain ſtagnant is diſpoſed to putrefy, from the animal or vegetable matters contained in it; and, when it has undergone a putrefaction, it depoſits a mucilaginous ſubſtance. Water therefore may be rendered an excellent manure, by making a pond or reſervoir near a houſe and farm-yard the common receptacle of the drains from the kitchen, ſcullery, and waſh-houſe, or of the yard, ſtables, &c. or elſe by throwing into it weeds, and all offal of the garden. By either of theſe means there may always be a large ſupply of putrid water, with which, particularly in dry ſeaſons, meadow and paſture land may be watered with great effect, by means of water-carts, ſuch as are uſed on the roads near London.

The water in which flax or hemp is ſteeped might be uſed advantageouſly in the ſame manner; and in general, where there are any pits or pools, the water might ſoon be rendered putrid and fit for manuring paſture or even arable lands, by throwing into them a large quantity of green vegetable ſubſtances. In Devonſhire it is a practice to enrich ponds by the drain of an adjoining yard, with the addition of a bag of lime at different times.

*Watering of meadows* is a moſt important improvement, where it can be accompliſhed, and is well underſtood. A well-watered meadow is in ſpring a hot-bed for graſs. The practice of this valuable improvement may be learnt from Mr. Davis's Agricultural Survey of Wiltſhire.

The preceding ſection on Manures is compiled from the General Report from the Board of Agriculture on the ſubject of Manures; together with Dr. Dickſon's Practical Huſbandry; Dr. Hunter's Georgical Eſſays; Arthur Young's Annals of Agriculture; Marſhall's Rural Economy of Norfolk, the Midland Counties, &c. the Papers of the Bath Agricultural Society; the Surveys of Counties, printed by direction of the Board of Agriculture; the Tranſactions of the Society of Arts; Darwin's Phytologia; Earl of Dundonald on the Connection of Agriculture with Chemiſtry; Anderſon's Eſſays; many papers in the Philoſophical Tranſactions, &c. &c.

### *Of the IMPROVED UTENSILS in HUSBANDRY.*

The avidity with which agricultural experiments have of late been purſued, and the alacrity with which country gentlemen have entered upon farming ſpeculations, have given riſe to a great number of new utenſils, as well as to conſiderable improvements of the old. But the young farmer is not to imagine that many of theſe are calculated for his purpoſe, being in general adapted to particular ſoils, or to ſome peculiar or favourite object of the projector. In all theſe caſes ſuch implements can only be partially uſeful, and therefore the ſagacious agriculturiſt will be eſpecially careful, among ſo many highly-praiſed inventions, how he lays out his money for utenſils that might be of no uſe to him when he has them. We ſhall therefore avoid recounting thoſe of the nature we have been mentioning, and deſcribe and figure ſuch only as appear to be projected on the moſt rational principles, calculated to work upon the generality of ſoils, and thence become of more extenſive utility.

### Of PLOUGHS.

Sussex improved Plough.—This is a two-wheeled plough, calculated to work with a pair of horſes only, and no driver. The ploughman takes the horſes in reins, and drives himſelf; in which manner he will plough up an acre a day, in a deep and workman-like manner. This of courſe muſt be on ſandy or light loamy ſoils; but with an additional horſe and a driver, the plough will act with great facility in the deepeſt ſoils, producing more work in a given time than the farmer can in general get performed. See a correct delineation of this plough in the Huſbandry Plate IV. fig. 1.

Rotherham Plough.—This is recommended for the facility of its work, and ſimple conſtruction. It is delineated in the Engraving at fig. 2. A B is the beam, C D the ſheath, E B D the main handle, F R the ſmaller handle, G H the coulter, K I the ſock or ſhare, N P the bridle, S the fly-band, and M L a piece of wood in place of a head. The principal difference between this and the common plough conſiſts in the bridle at the end of the the beam, by which the ploughman can give the plough more or leſs land by notches at N, or make it cut deeper or ſhallower by the holes at P; in the coulter or ſhare, which is ſo made and ſet as to cut off the new furrow without tearing; and in the mould-board, which is ſo ſhaped as firſt to raiſe a little, and then gradually turn over the new-cut furrow with very little reſiſtance. This plough has lately been improved by Mr. Cook.

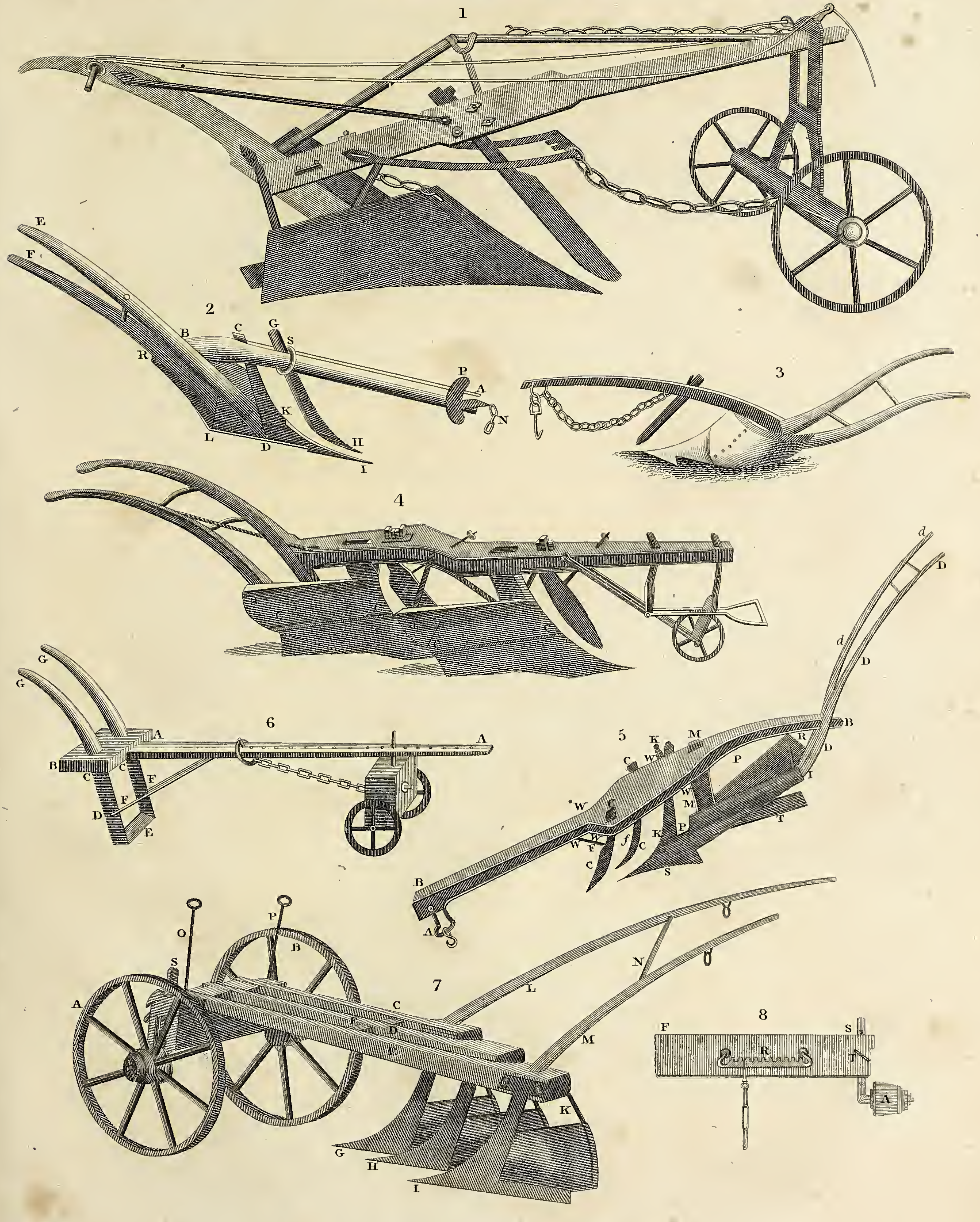
Chain-Plough.—This is principally uſed in the northern parts of the kingdom. From the ſhortneſs of its head and mould-board, friction is conſiderably leſſened, being only thirty inches from the point of the ſock to the hind part of the head, and about eight feet from the point of the beam to the end of the handles. The ſock and mould-board form a gently curving line, which prevents the gathering of earth. It is calculated ſo as to make a wide furrow without leaving any part unſtirred. It is termed the chain-plough, from its being drawn by an iron chain fixed to the back part of the beam juſt before the coulter. This produces two advantages; which are, that by means of a muzzle it makes the plough go deeper or ſhallower, and cauſes leſs ſtreſs on the beam than if it were fixed at the end. This plough is proper for loams, coarſe clays, and thoſe ſoils which are free from ſtones. It may alſo be employed for breaking-up paſture-grounds, which have formerly been well cultivated. Shown in the Engraving at fig. 3.

Double, or two-furrow Wheel-Plough, delineated in the Engraving at fig. 4. It was originally invented by Mr. Duckett; but has been brought to its preſent improved ſtate by lord Somerville. The chief and moſt important improvement relates to the mould-board, ſome parts of which were formerly cut off, and the deficiency ſupplied by driving in wedges, to the conſequent injury of the mould-plate. As this expedient, however, was attended with much trouble, it was generally omitted; and, conſequently, the land imperfectly ploughed. With a view to remedy this inconvenience, lord Somerville propoſed, inſtead of wedges, after the parts were cut off, to connect them again with the fixed part of the board by means of flat hinges, or of thin flexible plates of hard-hammered iron; ſo that thoſe parts may be eaſily ſet to have different inclinations with ſuch fixed part, by the aid of two ſcrews that paſs from the inſide through the lower parts of the handle of the plough, oppoſite to the backs of the moveable pieces, A A. The ſcrews, he obſerves, may be ſo regulated as to keep ſuch pieces at any degree of inclination that may be required, according to the nature of the land intended to be broken-up. The plough is beſt adapted to light and level ſoils, particularly for ſtirring lay-grounds; and, as theſe cannot be laid too flat, or ſeed-earths be turned too much on an edge, the plough may be adapted to either purpoſe with the utmoſt facility, by this improvement of the mould-board. When the moveable parts, above alluded to, are ſcrewed outwards, a proportionate convexity or elevation will be left at the baſe of the furrow; and thus more earth will be expoſed for covering the ſeed. As the part of the mould-plate, marked with the dotted lines C C, is moſt liable to wear off by repeated friction, lord Somerville directs it to be made twice as thick as the other parts of the plate; viz. double the thickneſs of a new crown-piece, or about one-fourth of an inch; in which caſe it will remain unimpaired nearly as long as the whole of the machinery.

Lord Somerville obſerves, that the principle of this moveable plate may not at firſt catch the attention of every obſerver; but it deſerves to be generally adopted, and has indeed met with ſtrong advocates in ploughmen; for it not only relieves their right arm of conſiderable labour, that muſt otherwiſe be performed in wedging and hammering mould-plates; but much exertion is alſo ſaved to the right leg, in attempting to tread thoſe furrows flat, which had been left on an edge by the plough. Theſe plates alſo qualify the plough for all broad work, and particularly breaking-up lays, which it performs with extraordinary facility. A trial was made at Kew, on his majeſty's farm, in conſequence of a challenge given to lord Somerville. The quantity of land, till then in a ſtate of nature, amounted to 17½ ſtatute-acres, and was worked by this implement, four Devonſhire oxen (ſix years old), and a man, with a boy as driver, in ſix days and four hours. The cattle were in good condition when they commenced the taſk; after the accompliſhment of which, they appeared in better order than before. They were allowed no corn; conſumed every day, upon an average, about 40lbs. of hay, during their continuance at Kew; and worked eight hours each day including half an hour for bait. The land thus ploughed was viewed by many gentlemen and able agriculturiſts, who highly approved of it. Since which this plough has been introduced into moſt of the midland counties, where it is employed with five horſes and one man, in tolerably level ſoil, which it divides as effectually as two ſingle ploughs. It is alſo uſed, together with the ſingle wheel plough, in Staffordſhire, as it requires only a lad to drive the horſes, and to turn the plough at the end of the furrow. For breaking up the turf, an iron ſtay is ſcrewed to the coulter; by which the ſward is cut off, and turned into the furrow, ſo as to be covered with earth. Thus, by the aid of an additional horſe, the ſoil will reſemble a fallow, and may be harrowed with equal facility.

Turner's Water-furrow Plough.—This is correctly repreſented at fig. 5. A is the iron at the end of the beam, to which the horſes are hooked; B B the beam; W W a ſtrong piece of wood, denominated by the inventor a wing, that projects in the middle; and in which one of the coulters C, is fixed. This piece of timber is faſtened by means of long ſcrews paſſing through to the oppoſite ſide, where they connect another wing, containing a ſecond coulter likewiſe marked with the letter C. Theſe two coulters are placed in a parallel direction, and are both ſtrengthened with a piece of iron, called the *ſtay*; one end of which is fixed about two inches beneath the wing, and the other is inſerted in the wing itſelf. F repreſents the whole ſtay of the coulter C; and *f* delineates part of the other coulter C. T denotes part of the drock, a piece of wood that forms the lower extremity of the plough; and which is about ſix inches in width, three in depth, and rather more than two feet in length.

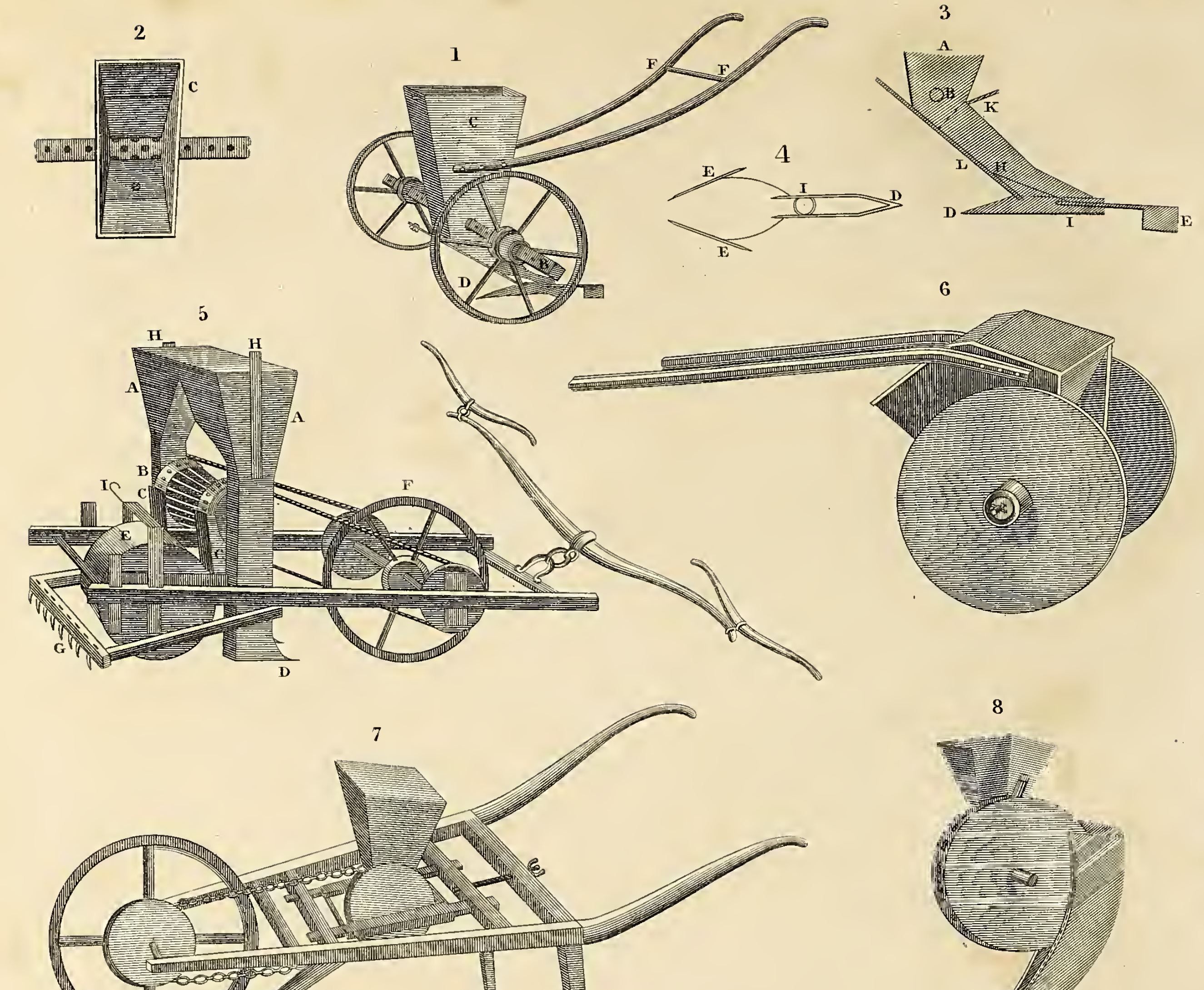
To



*Improved Ploughs.*

J.Paſs sc

London; Pub.d as the Act directs, April 24 1810, by J. Wilkes.



*Drilling Machines.*

J. Paſs, sc.

London Publ.d as the Act directs, May, 9,1810, by J. Wilkes.

To the top of the drock is faſtened an erect piece of timber, known by the name of *ſpindle*, MM; behind which are two tails, D *d*. To the upper end of the ſpindle M, is fixed the beam B, the end of which is faſtened between the tails by means of an iron pin; PI and PR, are two ſhelve-boards, combined with the drock and ſpindle; and which meet at the angular point P. The ends of both theſe boards are ſtrengthened by means of a ſhort wooden ſtay that is fixed in them, as well as in the tails. K is a coulter faſtened to the plough-ſhare S, and which is bent at the end, in order that it may be more eaſily admitted through a hole in the beam, behind the two coulters CC, when the ſhare is put on the end of the drock.

The object of this invention is the formation of ſmall gutters in meadow, paſture, or arable land, with a view to carry off water. The moſt effectual method of working it is, in the opinion of its inventor, to faſten a chain round the axle-tree of a pair of cart-wheels (the body of which has been taken off); to hook ſuch chain to the ear A, at the end of the beam; and, by lengthening or ſhortening the chain, this plough may be ſo regulated as to penetrate the ſoil to a greater or leſs depth, according to the nature of the ground. When the plough is at work, the fore-coulters CC, cut the outſide of the gutter. K, the coulter, divides the ground exactly in the middle; the further ſhelve-board throws out half the ſoil on one ſide, while the near ſhelve-board removes the other half to the oppoſite ſide; and thus a complete gutter is left, which extends from eight to ten inches in width, and is from ſix to eight inches deep. One of the moſt important advantages reſulting from this invention, is the ſaving in manual labour, which is computed at three-fourths; as four hundred perches of land may thus be ſurface-drained in one day, by a team of five horſes, two drivers, and a holder; the expence of which, the inventor calculates at 16s. whereas, if the ſame quantity of land were to be dug by hand, the coſt will amount to 3l. 6s. 8d.

This plough may alſo be applied to another valuable branch of agriculture; namely, the *planting of potatoes*. The method is as follows: Firſt, trenches are made with the plough at the diſtance of about two feet from each other, in which the potatoes are ſet. Some manure is next ſpread on them in the trenches, and they are covered by drawing the plough through the intermediate ſpaces; ſo that each trench is filled by a ridge of ſoil. When the growing potatoes require an additional covering of mould, the weeds are previouſly cut, either by a hoe or weeding-hook; and, the two fore-coulters being taken off the plough, the implement is drawn between the ridges; it throws up an additional portion of ſoil upon them; and thus expeditiouſly effects the operation of earthing-up.

Paring Plough, is an inſtrument uſed for paring off the ſurface of the ground, in order to its being burned, &c. From A to A, fig. 6, is the plough-beam, ſeven feet long, mortiſed and pinioned into the block B. CC are the ſheaths or ſtandards, made flat on the inſide, to cloſe equally with the paring-plate, and faſtened to it with a bolt and key on each ſide, as at D. E is the paring-plate of iron laid with ſteel, about four inches wide, and from twelve to eighteen inches long. FF, two iron braces to keep the ſtandards from giving way. GG, the plough handles, which muſt be fixed ſlope-ways between the beam and the ſtandards. The uſe of the pin-holes in the beam, is to make this plough cut more or leſs deep, as occaſion may require, by fixing the wheels nearer to, or farther from, the paring-plate.

Cartwright's three-furrow Plough.—This is calculated to do the work of three ploughs, in light ſandy lands, with only two horſes and one man, ariſing from its ſuperiority of conſtruction, and great lightneſs in hand. This the Rev. Mr. Cartwright accounts for in the following manner: "It is a fact well known, that in the action of a common plough, a very material part of the labour in ploughing, ariſes from the friction of *the land-ſide* and *the ſole*; of the one againſt the ſide of the furrow, of the other againſt the bottom. In a ſingle plough a certain length and width are required in thoſe parts of it, to make it go ſteady; and even then the effect would be imperfectly obtained, did not the ploughman aſſiſt by the leverage of the handles of the plough. Hence it is clear, that the leſs diſpoſition any plough has to follow the draught in a ſtraight line, the greater is the labour of working it, becauſe the ploughman in that caſe is to exert a greater power of leverage to keep it ſteady. On the contrary, when two, three, or more ploughs, are combined, they ſerve to ſteady each other, and require comparatively very little power of the lever to keep them in a ſtraight line. Under theſe circumſtances, neither the firſt nor ſecond plough has any ſole or land-ſide whatever; and even the third does not require ſo much of either as a ſingle plough. I calculate the ſaving of power from this conſideration alone, as equal at leaſt to one plough. What farther power is ſaved, I attribute to the lightneſs and compactneſs of the inſtrument. The plough will be found particularly valuable at ſeed-times, and in the turnip-ſeaſon; becauſe at thoſe times it too frequently happens that we loſe the moſt favourable opportunities, for want of ſtrength to prepare the land with ſufficient diſpatch." The Society of Arts, &c. preſented Mr. Cartwright with their ſilver medal for this uſeful invention; which is correctly delineated in the Engraving at fig. 7. AB, the two wheels of the plough, the wheel B being full one-ſeventh in diameter larger than the wheel A. CDE, the three beams of the plough, of which C is the ſhorteſt, and E the longeſt: theſe beams are fixed in the ſtrong croſs-piece F, at equal diſtances from each other, and braced by another croſs-piece from C to E. GHI, the three cutters which anſwer the purpoſe of both coulter and mould-board, each being formed together, or made of one piece of beaten iron. Each cutter is ſcrewed to its beam by the flanging-iron K. LM, the two handles of the plough, the lower extremities of which are fixed in the two outer beams CE, and connected by a croſs-piece N, to make them firmer. The handle L is longer than the handle M, in the ſame proportion as the beam C is ſhorter than the beam E. OP, two upright pieces of iron fixed in the croſs-piece F, having two holes at their ſummits for the reins to paſs through which guide the horſes. S, an iron bar which ſlides up and down near one end of the croſs-piece F, to raiſe or lower the wheel A.

Fig. 8, ſhows a detached portion of the ſtrong croſs-piece F, of Mr. Cartwright's plough, to explain the manner in which the whipple-tree ſhifts, R, are fixed in front of that croſs-piece, ſo as to regulate or equalize the power of the horſes. S, a bar of iron, the lower part of which forms the axis of the wheel A; the upper part ſlides in a groove in the croſs-piece F, and has holes at different diſtances. It may be retained at any height by an iron pin T, which paſſes through the croſs-piece, and one of the holes of the iron bar. The plough in its dimenſions is nine feet long to the extremity of the handles, and each cutter turns a nine-inch furrow; from centre to centre of the beams being nine inches.

For the moſt approved conſtruction of the Draining Plough, with the accompanying apparatus, for draining wet, rotten, and boggy, ground, ſee the article Draining, vol. vi. p. 62.

## OF DRILLING AND SOWING MACHINES.

We have already, under the article Sowing, p. 547 of this volume, deſcribed the mechaniſm of the drilling machine, and its general properties and utility; we ſhall therefore in this place deſcribe and figure ſuch of the machines as are found moſt generally uſeful to the practical farmer, in ſoils where they are capable of being applied.

Hand Drill for Pease.—This uſeful machine is the invention of Mr. Robert Green, of Weſtwratting, in

Cambridgeſhire. It poſſeſſes the faculty of drawing the drill, ſowing the peaſe, and covering them at the ſame time, with the utmoſt regularity, as the drill is never in danger of being choaked. It is worked by hand, and will perform more than a man and horſe in a day with the common drill. For this invention the Society of Arts, &c. preſented Mr. Green with their ſilver medal and ten guineas, as an acknowledgment of its general utility. This drill is correctly delineated in the Huſbandry Plate V. at fig. 1.

The wheels are placed upon a wooden axis B, which is ſquare at each end, but round in the centre. The ſquare ends of the axle have holes throughout them, at different diſtances, in order to depoſit the feed at nearer or more diſtant intervals, as may be wanted. C is the box, in which the ſeed is placed: the axis B is cylindrical, and has holes made therein proper to receive the ſeeds, which by the revolution of the axis are carried forwards, and fall through an iron tube into the interſtice in the ground opened for them by the ſhare D. When depoſited in the ground, they are covered, or the earth drawn over them, by two iron pins or ſcrapers E, fixed on each ſide of the tube, and extending ſome inches behind it. F F, the handles of the drill-machine, by which it is puſhed forwards.

Fig. 2, ſhows an enlarged view of the interior of the ſeed-box C, above-mentioned, and holes for the ſeeds, placed in a ſpiral line, in order to drop the ſeeds more regularly. There is a ſmall bruſh within the box, which rubs againſt the cylinder, to keep the holes clear to receive the ſeeds.

Fig. 3, a ſection of the machine, where A is part of the ſeed-box. B, the round part of the axle, which delivers the ſeed. D, the ſhare which opens the earth. E, the ſcraper, as before. H, the tube through which the ſeed falls. I, the mouth of the tube, and one of the fins which draws together the ſoil, and covers the ſeed. K, a ſmall door, to be opened occaſionally if the roller or tube are out of order. L, a ſtrong flat board, to which the iron-work is ſcrewed.

Fig. 4, ſhows an enlarged plan of the iron-work when the machine is reverſed. D, the ſhare. I, the hole from which the ſeed is dropped. E E, the two fins, or ſcrapers, which collect the earth and cover the ſeed.

Improved Drill-Plough—Conſtructed in ſuch a manner as to ſow at once two rows of beans, peaſe, or wheat. This machine is wrought by two horſes. A, fig. 5, is the hopper for containing the ſeed; B, circular boxes for receiving the ſeed from the hopper; C C, two ſquare boxes which receive the ſeed from ſmall holes in the circular boxes as they turn round; and laſt of all, the ſeed is dropped into the drills through holes in the ſquare boxes behind the coulters D. The cylinder E follows, which, together with the wheel F, regulates the depth of the coulters, and covers the ſeed; the harrow G comes behind all, and covers the ſeed more completely. H H, two ſliders, which, when drawn out, prevent the ſeed from falling into the boxes; and I, is a ketch which holds the rungs, and prevents the boxes from turning, and loſing ſeed at the ends of the ridges.

Drill for Turnips.—This drill, ſhown at fig. 6, is conſtructed with ſolid wheels, and uſed for drilling turnip-ſeed, clover, rape, &c. It is extremely light, and will paſs over a great deal of ground in a day.

Improved Drill for Turnips.—This machine, correctly delineated at fig. 7, is conſtructed in the ſhape and form of a wheelbarrow, and employed with conſiderable advantage in the drill-huſbandry of his grace the duke of Bedford. It ſows turnip-ſeed, rape, lucerne, and any of the graſs-ſeeds, with great truth and facility. At fig. 8 is a ſection of the ſeed-box on a larger ſcale, ſhowing the manner in which it is pierced for the ſeeds to eſcape when ſowing.

Cook's common Drill-Machine.—This machine is in general uſe in the drill-huſbandry; and is correctly delineated at fig. 9. A, the upper part of the ſeed-box. B, the lower part of the ſame box. C, a moveable partition, with a lever, by which the grain or ſeed is let fall at pleaſure from the upper to the lower part of the ſeed-box, from whence it is taken up by cups or ladles applied to the cylinder D, and dropped into the funnel E, and conveyed thereby into the furrow or drill made in the land by the coulter F, and covered by the rake or harrow G. H, a lever, by which the wheel I is lifted out of generation with the wheel K, to prevent the grain or ſeed being ſcattered upon the ground, while the machine is turning round at the end of the land, by which the harrow G is alſo lifted from the ground at the ſame time, and by the ſame motion, by means of the crank, and the horizontal lever *hh*. L, a ſliding lever, with a weight upon it, by means of which, the depth of the furrows or drills, and conſequently the depth that the grain or ſeed will be depoſited in the land, may be readily aſcertained. M, a ſcrew in the coulter-beam, by turning of which, the ſeed-box B, is elevated or depreſſed, in order to prevent the grain or ſeed being cruſhed or bruiſed by the revolution of the cups or ladles. R, a rake with iron teeth, to be applied to the under ſide of the rails of the machine, with ſtaples and ſcrew-nuts at *nn*, by which many uſeful purpoſes are anſwered, viz. in accumulating couch-graſs into rows, and as a ſcarificator for young crops of wheat in the ſpring, or to be uſed upon a fallow; in which caſe, the ſeed-box, the ladle-cylinder, the coulters, the funnels, and harrows, are all removed. In this ſide-view the machine is delineated, for the ſake of perſpicuity, only with one ſeed-box, one coulter, one funnel, one harrow, &c. but the complete machine is furniſhed with five coulters, five harrows, ſeven funnels, a ſeed-box in eight partitions, &c. with ladles of different ſizes, for different ſorts of grain, ſeeds, &c.

Theſe machines equally excel in ſetting or planting all ſorts of grain and ſeeds, even carrot-ſeed, to exactneſs, after the rate of from eight to ten chain acres per day, with one man, a boy, and two horſes. They depoſit the grain or ſeed without grinding or buiſing it in any quantity, from one peck to three buſhels per acre, regularly and uniformly, and at any given depth, from half an inch to half a dozen inches, in rows at the diſtance of twelve, ſixteen, and twenty-four inches, or any other at pleaſure. They are equally uſeful on all lands, durable and eaſy to manage. The ladle-cylinder D, is furniſhed with cups or ladles of four different ſizes for different ſorts of grain or ſeeds, which may be diſtinguiſhed by the numbers 1, 2, 3, 4. N° 1. (the ſmalleſt ſize) is calculated for turnip-ſeed, clover-ſeed, cole-ſeed, rape, &c. and will ſow ſomething more than one pound per ſtatute-acre. N° 2. for wheat, rye, hemp, flax, &c. and will ſow ſomething more than one buſhel per acre. N° 3. for barley, and will ſow one buſhel and a half per acre. N° 4. for beans, oats, peaſe, vetches, &c. and will ſow two buſhels per acre. But, notwithſtanding the above ſpecified quantities of grain or ſeeds, a greater or leſs quantity of each may be ſown at pleaſure, by ſtopping up with a little clay, or by adding a few ladles to each reſpective box. The grain or ſeeds intended to be ſown, muſt be put in thoſe boxes to which the cups or ladles as above deſcribed reſpectively belong, an equal quantity into each box, and all the other boxes empty. The ladle-cylinder may be reverſed, or turned end for end at pleaſure, for different ſorts of grain, as occaſion may require. And for ſowing beans, oats, peaſe, &c. with a five-coulter machine, four large ladles muſt occaſionally be applied at equal diſtances round thoſe parts of the cylinder which ſubtend the two end boxes. For ſowing barley, eight large ones muſt be applied as above; or four ladles, N° 2. to each of the wheat boxes. Theſe additional ladles are fixed on the cylinder with nails, or taken off in a few minutes; but for ſowing with a four-coulter machine, theſe alterations are unneceſſary. The funnels are applied to their reſpective places by correſponding numbers. Care ſhould be taken that the points

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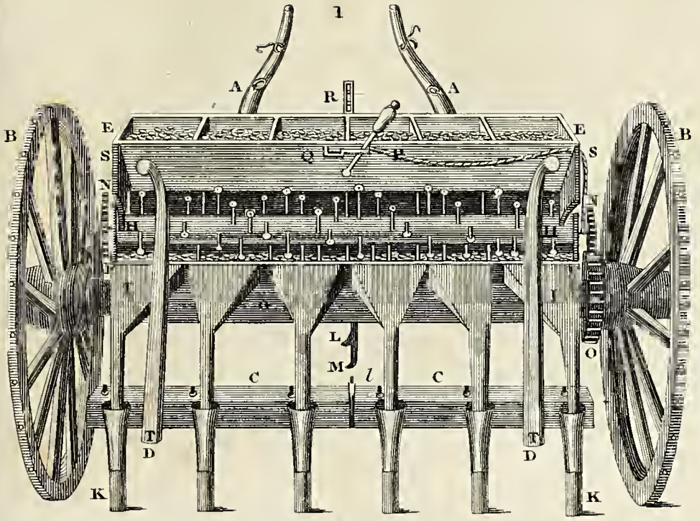

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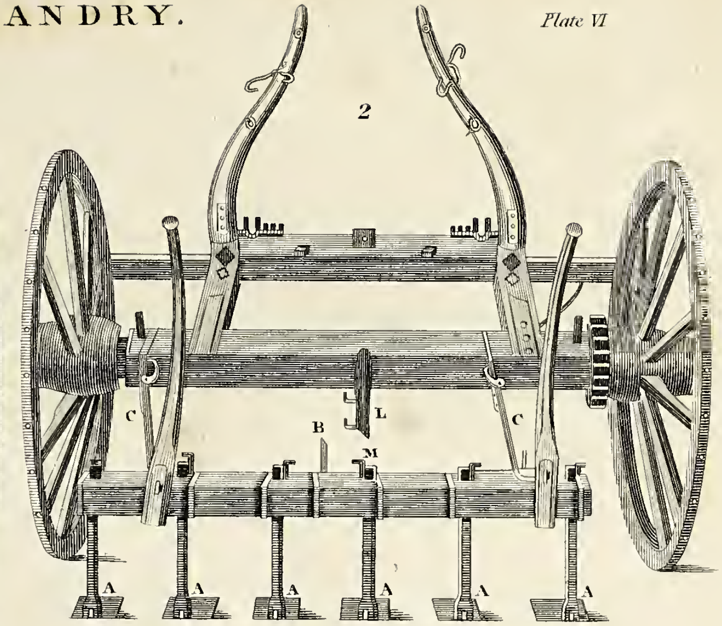

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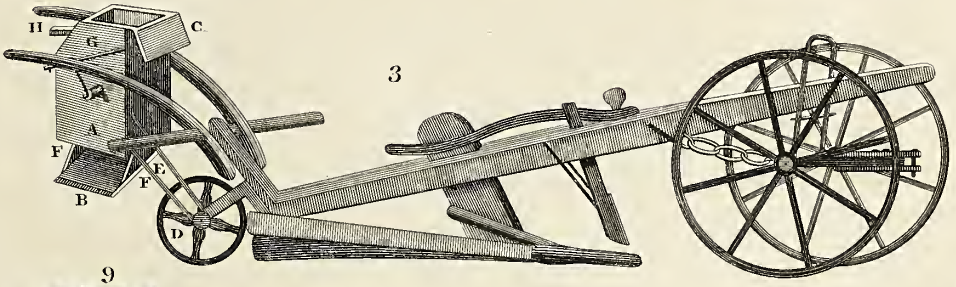

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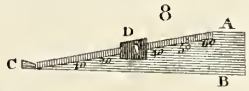

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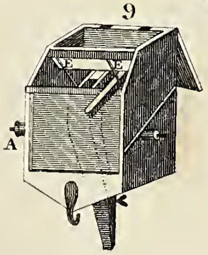

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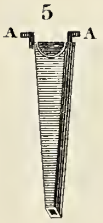

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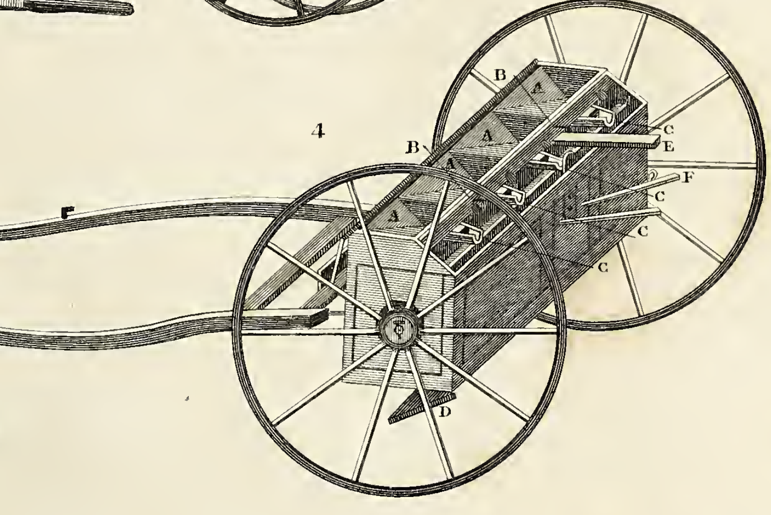

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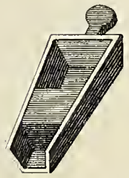

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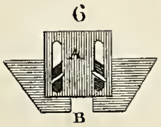

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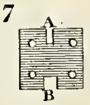

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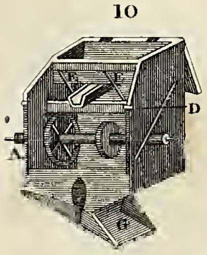

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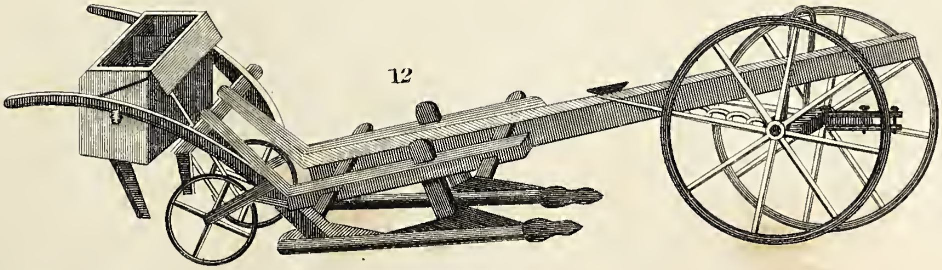

Paſs sc.

Improved Drill, and Sowing Machine for Broadcast.

London Pub.d as the Act directs, May 20, 1810, by J. Wilkes.

of the funnel ſtand directly behind the backs of the coulters, which is done by wedges being applied to one ſide or other of the coulters, at the time they are fixed in their reſpective poſitions.

The machine being properly prepared, the ſeed put in, and the land reduced to a proper ſtate by ploughing, harrowing, and rolling, the driver ſhould walk down the furrow or edge of the land, and, having hold of the laſt horſe's head with his hand, keep him in ſuch a direction as will bring the outſide coulter of the machine within three or four inches of the edges of the land or ridge, at which uniform extent his arm muſt be kept till he comes to the end of the land; where having turned round, he muſt come to the other ſide of his horſes, and walk upon the laſt outſide drill, having hold of the horſe's head with his hand as before, keep the machine in ſuch a direction as will ſtrike the ſucceeding drill at ſuch a diſtance from the laſt outſide one, or that he walks upon, as the coulters are diſtant from each other. The perſon attending the machine ſhould put down the lever H, ſoon enough at the end of the land, that the cups or ladles may have time to fill before he begins to ſow; and at the end of the land, he muſt apply his right hand to the middle of the rail between the handles, by which he will keep the coulters in the ground, while he is lifting up the lever H with his left hand, to prevent the grain being ſcattered on the headland while the machine is turning round; this he will do with great eaſe, by continuing his right hand upon the rail between the handles, and applying his left arm under the left handle, in order to lift the coulters out of the ground while the machine is turning round.

The chief difficulty in uſing this machine conſiſts in driving it ſtraight. When ſeed is wanting in the lower boxes B, they muſt be ſupplied from the upper boxes A, by applying the hand as the machine goes along to the lever C. The lower boxes B ſhould not be ſuffered to become empty before they are ſupplied with ſeed, but ſhould be kept nearly full, or within an inch or ſo of the edge of the box. If chalk-lines are made acroſs the backs of the coulters, at ſuch a diſtance from the ends as the ſeed ſhould be depoſited in the ground, (viz. about two inches for wheat, and from two to three for ſpring-corn,) the perſon that attends the machine will be better able to aſcertain the depth the ſeed ſhould be depoſited in the drills, by obſerving, as the machine goes along, whether the chalk-lines are above or below the ſurface of the land; if above, a proper weight muſt be applied to the lever L, which will force the coulters into the ground; if below, the lever L, and weight, muſt be reverſed, which will prevent their ſinking too much.

As the lands or ridges are of different ſizes in different diſtricts, where the machine is too wide for the land, one or more funnels may occaſionally be ſtopped, and the ſeed received into ſuch funnel returned at the end of the land, or ſooner if required, into the upper ſeed-box. But for regularity and expedition, lands conſiſting of ſo many feet wide from outſide to outſide, as the machine contains coulters, when fixed at twelve inches diſtance, or twice or three times the number, &c. are beſt calculated for the machine. In wet ſoils or ſtrong clays, lands or ridges of the width of the machine, and in dry ſoils of twice the width, are recommended. For ſowing of narrow high-ridged lands, the outſide coulters ſhould be let down, and the middle ones raiſed, ſo that the points of the coulters may form the ſame curve that the land or ridge forms. And the looſe ſoil harrowed down into the furrows ſhould be returned to the edges of the lands or ridges from whence it came, by a double mould-board or other plough, whether the land be in a wet or in a dry ſtate. Clover and other lays, intended to be ſown by the machine, ſhould be ploughed a deep ſtrong furrow and well harrowed, in order to level the ſurface, and to get as much looſe ſoil as poſſible for the coulters to work in; and when ſown, if any of the ſeed appears in the drills uncovered by reaſon of the ſtiff texture of the ſoil, or toughneſs of the roots, a light harrow may be taken over the land, once in a place, which will effectually cover the ſeed, without diſplacing it at all in the drills. For ſowing lays, a conſiderable weight muſt be applied to the lever L, to force the coulters into the ground; and a ſet of wrought-iron coulters, well-ſteeled, and made ſharp at the front edge and bottom, are recommended; they will pervade the ſoil more readily, conſequently require leſs draught, and expedite the buſineſs.

When carrots are to be ſown, one buſhel of ſaw-duſt is to be added to each pound of carrot-ſeed, which is ſufficient for half an acre. The ſaw-duſt ſhould be made dry, and ſifted to take out all the lumps and chips, and divided into eight equal parts or heaps; the carrot-ſeed ſhould likewiſe be dried, and well rubbed between the hands, to take off the beards, ſo that it will ſeparate readily; and, being divided into eight equal parts or heaps, one part of the carrot-ſeed muſt be well mixed with one part of the ſaw-duſt, and ſo on, till all the parts of carrot-ſeed and ſaw-duſt are mixed and incorporated together; in which ſtate it may be ſown very regularly in drills at twelve inches diſtance, by the cups or ladles N° 2. A ladleful of the duſt will, upon an average, contain three or four carrot-ſeeds, by which means the carrot-ſeed cannot be otherwiſe than regular in the drills. In attempting to depoſit ſmall ſeeds near the ſurface, it may ſometimes happen that ſome of the ſeeds will not be covered with ſoil; in this caſe, a light roller may be drawn over the land after the ſeed is ſown, which, beſides covering the ſeeds, will level the ſurface, and prepare the land for an earlier hoeing. With this machine the lighteſt kinds of grain or ſeed may be ſown, even in the higheſt winds, by only uſing the precaution of placing a ſcreen of any kind of cloth, or a ſack, ſupported by two uprights nailed to their ſides, behind the funnels, which will prevent the grain or ſeed being blown out of its direction in falling from the ladles into the funnels. The ſame may be accompliſhed by ſmall pipes of tin fitted on to the ends of the funnels, to convey the grain or ſeed near the ſurface of the land.

Cooke's improved Drill-Machine and Horse-Hoe.—Theſe much approved utenſils are correctly delineated in the Huſbandry Plate VI. The advantages of this improved drill, ſhown at fig. 1, over the former, conſiſt chiefly, 1ſt, In the wheels, B B, being ſo large, that the machine can travel on any road without trouble or danger of breaking; alſo from the farm to the field, &c. without taking to pieces; requiring only half the draught which the former machine requires. 2d, In the coulter-beam C C, with all the coulters, moving with great eaſe, on the principle of the pentagraph, to the right or left, ſo as to counteract the irregularity of the horſe's draught, by which means the drill may be made ſtraight: and, where lands or ridges are made four and a half or nine and a half feet wide, the horſe may always go in the furrow, without ſetting a foot on the lands, either in drilling or horſe-hoeing. 3d, In the ſeed ſupplying itſelf regularly, without any attention, from the upper to the lower boxes, as it is diſtributed. 4th, In lifting the pin M, on the coulter-beam to a hook L, on the axis of the wheels; by which means the coulters are kept out of the ground at the end of the land, without the leaſt labour or fatigue to the perſon who attends the machine. 5th, In going up or down ſteep hills, the ſeed-box is elevated or depreſſed accordingly, ſo as to render the diſtribution of the ſeed regular; and the ſeed, being covered by a lid, is ſcreened from wind or rain. Theſe are the principal advantages appertaining to this machine, which, though conſiderable in the proceſs of drilling, are as nothing compared with thoſe which ariſe from the uſe of the horſe-hoe, by which from eight to ten acres of land can be hoed in one day, in a ſtyle far ſuperior to, and more effectual than, any hand-hoeing whatever, and alſo at ſeaſons when it is impoſſible for the hand-hoe to be uſed at all.

The parts of this improved drill are as follows: A A, the ſhafts of the machine, applied to the axis of the wheels, ſo that the horſe may go on the land, or in the furrow, without ſetting a foot upon the lands. B B, the wheels. C C, coulter-beam, with holes or mortiſes for the coulters at different diſtances. D D, handles of the machine, applied to the coulter-beam, alſo to the axis of the wheels, by hooks and eyes, or ſtaples. E E, upper feed-box, in partitions, covered by a lid, to protect the grain or ſeed from wind or rain. F F, lower ſeed-box in partitions. G G, ſlides between the upper and lower ſeed-boxes, for regulating the quantity of ſeed ſown. H H, cylinder with cups or ladles of different ſizes, for different ſorts of grain or ſeeds; by which the grain or ſeeds are taken up, and dropped into the funnels I I, and conducted thereby into inciſions or drills made in the land by the coulters K K. L, a hook applied to the axis of the wheels; and *l*, a chain applied to the coulter-beam, the laſt link of which being put upon the loweſt hook, will prevent the tubes of the funnels from being diſplaced, when the machine is croſſing deep furrows or gutters. M, a pin of iron projecting from the coulter-beam, which being lifted on the hook L, at the end of the land, will bear the coulters out of the ground, while the machine is turning round, or on any other occaſion, without any labour to the perſon who attends the machine, in ſupporting them. N, a cog-wheel. O, a cog-wheel turned by the wheel N. P, a lever and ſtring, paſſing over a pulley to the axis of the cylinder H; by moving the lever P to the notch in the ſtaple Q, the wheel O will be lifted out of generation with the wheel N, by which means the diſtribution of grain or ſeed may be ſtopped at pleaſure, in an inſtant, at the end of the land, or on any other occaſion. R, an iron bar with holes in it, by means of which, and a pin going through the holes, the ſeed-box may be elevated or depreſſed, ſo as to keep the lid of the box horizontally level, whether going up or down ſteep hills, or on level ground. S S, two ſtaples in the ends of the ſeed-box, for the reception of two ſlips of wood, with canvas to prevent the wind from interrupting the grain or ſeed; alſo to prevent dirt or ſoil falling from the wheels into the funnels.

The Horse-Hoe adapted to this machine, is delineated at fig. 2. The ſhafts, the axis, and wheels, the coulter-beam, with the handles, &c. are exactly as in fig. 1, being part of the ſame machine, and is convertible into a horſe-hoe with ſix ſhares, by taking away the ſeed-box E E, the cylinder H H, the funnels I I, and the coulters K K, and introducing the hoes A A A A A A, in the places of the coulters. B, a guide projecting from the hoe-beam, which is uſeful in influencing the direction of the hoes, ſo as to avoid cutting-up or injuring the rows of corn. Hence the value of this horſe-hoe.

The method of uſing this improved drilling-machine, is in many reſpects the ſame as that which has been mentioned above. When the horſe is put in the ſhafts, care ſhould be taken that the chains or tugs by which he draws are of equal lengths; otherwiſe the machine will have a conſtant tendency to deviate from the horſe's line of traction. But when the horſe goes in the furrow, the near ſide may be ſomewhat ſhorter; and a chain may be extended from the end of the croſs-bar to a part of the ſhaft near the horſe's ſhoulder. In going from the farm to the field, or returning from the field to the farm, the pin or guide M muſt be lifted on to the hook L, which will bear the coulters off the ground. And when going on rough roads, if the coulter-beam C C and the axis of the wheels are laſhed together by a rope or chain, it will prevent the coulters receiving any injury by coming ſuddenly to the ground.

The grain or ſeed muſt be put in the upper boxes E E, an equal quantity in each box. By raiſing or lowering the ſlides G G, a greater or leſs quantity of grain or ſeed may be ſown at pleaſure. When the ſlides G G are as low as they can be, the wheat-cups will ſow ſomething more than three pecks of wheat per acre; and more in proportion the higher they are raiſed, not exceeding one buſhel and a half, when raiſed as high as they can be, in rows at nine inches apart. The cups for barley, when the ſlides are as low as they can be, will ſow one buſhel per acre; and more in proportion as the ſlides are raiſed, not exceeding two buſhels, in rows at nine inches apart. The cups, when the ſlides are as low as they can be, will ſow two buſhels of beans, oats, peaſe, &c. per acre; and more in proportion as they are raiſed. The funnels, I I, &c. are all ſet for drilling at nine inches, ſix coulters being fixed in the coulter-beam, at the diſtance of nine inches from each other. For drilling at twelve inches apart, five coulters muſt be fixed in the beam, at eleven inches and a quarter from each other. For drilling at eighteen inches apart, three coulters muſt be fixed in the left end of the beam at eighteen inches from each other. For drilling at twenty-two inches, three coulters muſt be fixed in the beam, one at each end, and one in the middle. In level lands, without ridge and furrow, if the attendant on the machine cannot find a ſtraight ſide to begin at, he ſhould mark out with ſticks or buſhes a ſtraight line, along one ſide of the field, for his direction; and when drilling at nine inches, in order to make the ſpace between the two adjoining rills, as he returns, equal to the reſt, the wheel of the machine muſt be brought very near the laſt impreſſion of the coulter, and three inches more diſtant from the laſt impreſſion of the coulter when drilling at twelve inches. And of other diſtances accordingly.

When the machine approaches the land intended to be drilled, the lever P ſhould be lifted from the notch in the ſtaple Q, when the coulters are two feet on this ſide the exact place where ſeed ſhould be depoſited; and the pin M removed from the hook L, by lifting up the handles D D. When the machine arrives at the end of the land, the lever P muſt be moved to the notch Q, which will ſtop in an inſtant the diſtribution of the ſeed, and the pin M lifted on the hook L, which will ſupport the coulters out of the ground while the machine is turning round.

If the coulter ſhould not make the inciſions or drills ſomething more than two inches deep in light ſands or loams, and one and a half in ſtrong clays or wet ſoils, they may be forced into the ground by the hand; or by weights, or a beam of wood four feet long and three or four inches thick, being ſuſpended by chains or cords at the hooks T T in the handles of the machine for that purpoſe. In drilling narrow high-ridged lands, the outſide coulters may be lowered, and the middle ones raiſed, ſo that the points of the coulters may form the ſame curve which the ridge forms. The top of the ſeed-box when ſhut, ſhould be kept horizontally level, whether going up or down ſteep hills or on level ground. This will make the diſtribution of the ſeed uniformly the ſame. The higher the front edge of the box is raiſed upon the bar R, the ſeed will deſcend more copiouſly into the lower boxes, conſequently a greater quantity will be diſtributed. The lower funnels placed behind the coulters ſhould be laſhed faſt to the coulters with leathern thongs, or cords; and if in lifting up the coulter-beam at the ends of lands, the upper funnels ſhould, by chance, be diſplaced, a ſmall nail may be driven into the edge of the ſeed-box, cloſe above the edge of each funnel, which will prevent the funnels being diſplaced.

When the Horse-Hoe is to be uſed for a crop of any kind of corn, drilled at nine inches apart, the horſe muſt be conducted along the third row or drill, beginning to number the rows from the left-hand ſide of the ſix rows drilled at one operation of the machine. And the perſon who attends the hoes, muſt keep the pin B, fig. 2, directly over the third row of corn; and ſo long as he does this, it will be impoſſible for him to injure it in the leaſt. But for horſe-hoeing corn at twelve inches apart, the horſe muſt be conducted along the ſecond ſpace, between the

the rows or drills, beginning to number the ſpaces from the left-hand ſide of the five rows drilled at one operation of the machine. And the perſon who attends the hoes muſt keep the pin B directly over the middle of the ſecond ſpace, deſcribed as above: the ſame rule will hold good for hoeing at all the different diſtances. Where the ſpace between the two adjoining outſide drills ſhall happen to be too narrow at ſome places for the hoe to paſs, it may be adviſable to take out the ſhare, which would otherwiſe hoe that ſpace, and leave it to be hoed by hand.

Soils of different textures will require to be hoed with ſhares of different ſizes; nothing but experience can point out the ſize which is beſt adapted to any particular ſoil. In all light ſandy ſoils or loams, or any other ſoils ſufficiently pulverized, ſhares from five to ſix inches broad for nine-inch drills, and eight inches broad for twelve-inch drills, will work ſafely and effectually. In ſtrong clays intermixed with pebbles, the hoe-ſhares muſt not be ſo broad; and it may not be impoſſible to find ſome ſuch ſoils as will bid defiance to all flat hoeing whatever. If, nevertheleſs, the texture of the ſoil in the ſpaces of the rows of corn is torn to pieces by long narrow plates of iron, reſembling points or chiſſels, being introduced in the hoe-ſhare ſhanks, AAAAAA, inſtead of the hoe-plates, the advantages reſulting from ſuch a proceſs will be very conſiderable. The hoe-plates or ſhares may be ſet to enter the ſoil deeper or ſhallower, by lowering or raiſing the ſhanks in the reſpective mortiſes in the beam, or by lowering or raiſing the hooks applied to the ſhank CC, on the axis of the wheels, by which the hoes are drawn.

This horſe-hoe may be applied to many uſeful purpoſes, beſides hoeing crops of drilled corn, particularly for cutting up the rows of ſtubble as ſoon as the crop is carried, with ſuch weeds as might eſcape the hoe; and for ſtirring of fallows, &c. after the rate of ten acres a-day, with one man, a boy, and two horſes, particularly in the buſy time of harveſt, when it would be impoſſible to ſpare ſo many hands as would be required to ſtir the land with common ploughs, ſo as to anſwer the intended purpoſe. And by means of the ſame expeditious method of cutting up ſtubbles, immediately after the crop is carried, or rather before it is carried, as ſoon as it is cut and ſet up, in order to gain time for the ſowing of graſs-ſeeds a ſecond time, where they may have miſſed, or cole, or rape, or turnip, for food of ſheep or cattle, in winter or ſpring, extraordinary advantages may be derived.

Universal Sowing Machine.—This ingenious machine, contrived to ſow broadcaſt, whether worked by hand, drawn by a horſe, or fixed to a plough, and uſed with it, is extremely ſimple in the conſtruction. It will ſow wheat, barley, oats, rye, clover, cole-ſeed, hemp, flax, canary, rape, turnip, beſides a great variety of other kinds of grain and ſeeds, broadcaſt, with great accuracy. It is equally uſeful in the drill-huſbandry, particularly when fixed to a plough; it will then drill a more extenſive variety of grain, pulſe, and ſeed, through every gradation with regard to quantity, and deliver each kind with greater regularity, than any drill-plough whatever. It will alſo not only ſow broadcaſt with the moſt ſingular exactneſs, but ſave the expence of a ſeedſman; the ſeed being ſown either over or under furrow at pleaſure, and the land ploughed by the ſame operation. Perhaps a fair and deciſive experiment for aſcertaining the comparative merits of broadcaſting or drilling any particular crop, was never before rendered ſo practicable as by this machine; ſince the ſeed may now be put in with the utmoſt degree of regularity, in both methods of culture, by the ſame movement; and without this it is perhaps impoſſible to make a juſt deciſion. It is correctly delineated in the Engraving at fig. 3, where A repreſents the machine. B the apron upon which the ſeed falls and rebounds upon the land, in broadcaſting. C, lid to cover the hopper. D, wheel at the heel of the plough. E, ſtrap. FF, hooks upon which the apron turns by a pivot on each ſide. G, ſtay to keep the machine ſteady. H, a lever to prevent it from ſowing.

The advantages of this machine conſiſt in its ſpreading any given quantity of ſeed over any given number of acres with a mathematical exactneſs, which cannot be done by hand; and by which great ſaving may be made in ſeeding the ground, as well as benefiting the expected crop. It will likewiſe broadcaſt beans, peaſe, and tares, or drill them with the greateſt exactneſs, particularly when conſtructed to be uſed with a plough. And theſe advantages are accompanied with another, viz. that the wind can have no effect on the falling of the ſeed.

When the machine is to be uſed without a plough, and drawn by a horſe, it may be made of any given length, at the deſire of the purchaſer, as ſhown at fig. 4, wherein the upper part AAAA, contains the hoppers from which the grain or ſeed deſcends into the ſpouts. The ſeveral ſpouts all reſt upon a bar, which hangs and plays freely by two diagonal ſupporters BB; a trigger fixed to this bar bears a catch-wheel; this being fixed on the axle, occaſions a regular and continual motion, or jogging of the ſpouts, quicker or ſlower in proportion to the pace the perſon ſowing with it drives; and of courſe, if he quickens his pace, the bar will receive a greater number of ſtrokes from the catch-wheel, and the grain or ſeed will feed the faſter. At the bottom of the machine is placed an apron or ſhelf D, in a ſloping poſition, and the ſeed, by falling thereon from the ſpouts above, is ſcattered about in every direction under the machine, and covers the ground in a moſt regular and uniform manner. To ſow the corn or ſeed in drills, there are moveable ſpouts, as ſhown at fig. 5, which are fixed on or taken off at pleaſure, to direct the ſeed from the upper ſpout to the bottom of the furrow. The conſtruction of the machine at fig. 4, will be better underſtood by the following deſcription: A, the hoppers. BB, the diagonal ſupporters. CCCC, the upper ſpouts. D, the apron or ſhelf upon which the ſeed falls from the upper ſpouts. E, the lever, which carries back the bar, and prevents the machine from ſowing. FF, ſtaples upon the handles, through which the reins paſs, for the man who conducts the machine to direct the horſe by.

The machine is regulated for ſowing any particular quantity of ſeed on an acre by a braſs ſlider, marked A, fig. 6, fixed by ſcrews againſt a braſs bridge on each of the ſpouts. The machine is prevented from feeding while turning at the ends, by only removing the lever E, fig. 4, out of its channel, which carries back the bar from the catch-wheel, and occaſions the motion of the ſpouts to ceaſe, and at the ſame time brings them upon a level by the action of the diagonal ſupporters; ſo that no corn or ſeed can fall from them. The machine in this form is particularly uſeful for broadcaſting clover upon barley or wheat; or for ſowing any other kind of ſeed, where it is neceſſary that the land ſhould firſt be harrowed exceedingly fine and even.

This machine, when uſed, muſt be placed about two feet from the ends of the furrows where you intend it ſhall begin to ſow. Fill the hoppers with ſeed, and drive it forward with the outſide wheel in the firſt furrow. When you are at the end of the length, at the oppoſite ſide of the field, lift the lever E, fig. 4, a little to the right, and the machine will inſtantly ſtop ſowing. Drive it on about two feet, and then turn. Fill the hoppers again if neceſſary; then remove the lever back again, and in returning, let the outſide wheel of the machine go one furrow within the track which was made by it, in paſſing from the oppoſite end.

There is fixed in each ſpout of this machine a bridge, ſhown at fig. 6, with an aperture B, for the grain or ſeed to paſs through. This aperture is enlarged or contracted by a ſlider A, which paſſes over it; and, when properly fixed for the quantity of ſeed deſigned to be ſown on an acre, is faſtened by means of two ſtrong ſcrews firmly againſt the bridge. This is made uſe of in ſowing all kinds of ſeed, where it is required to ſow from one buſhel upwards on an acre. To ſow one, two, three gallons, or any of the intermediate quantities, as of clover, cole-ſeed, &c. the braſs plate, fig. 7, is placed between the bridge and the ſlider, with the largeſt aperture, B, downwards, which aperture is enlarged or contracted by the ſlider as before. To ſow turnips, the ſame plate is placed between the bridge and the ſlider, with its ſmalleſt aperture, A, downwards, and the hollow part about the ſame aperture inwards.

A view of the regulator is given at fig. 8, by which the apertures in the ſeveral ſpouts are all ſet exactly alike, with the utmoſt eaſe, to make them feed equally. The extreme height of the largeſt aperture is equal to the breadth AB, and the breadth at C is equal to the height of the ſmalleſt aperture uſed, viz. that for turnips. The ſide AC is divided into ſixty equal parts, and on it moves the ſlider or horſe D; which being placed at any particular degree, according to the quantity of ſeed required to be ſown on an acre, is fixed upon it, by a ſcrew on the ſide of the ſlider or horſe. When this is done, the end of the regulator is put through the aperture in the bridge or plate (whichever is intended to be uſed), and the ſlider againſt the bridge in the ſpout raiſed by it, till it ſtops againſt the horſe on the regulator; then the ſlider is faſtened againſt the bridge firmly by the two ſcrews, care being taken at the ſame time that it ſtands nearly ſquare. Thus the ſpouts, being all fixed in the ſame manner, will feed equally. It is eaſy to conceive that the ſize of the apertures, and conſequently the quantity of ſeed to be ſown on an acre, may be regulated with a far greater accuracy than is required in common practice. The ſpouts may be regulated with the utmoſt nicety in five minutes, to ſow each particular ſeed for the whole ſeaſon. But a little practice will enable any perſon, who poſſeſſes but a very moderate capacity, to make the ſpouts feed equally, even without uſing the regulator.

When the machine is to be uſed by hand, it is made lighter, with but three ſpouts, without ſhafts, and is driven forward by the handles. It has alſo a bolt in front, which, being puſhed in by the thumb, releaſes the machine; ſo that it can then eaſily be placed in a perpendicular poſition. This alteration is neceſſary to keep the handles of a convenient height, in ſowing up and down a hill, where the ſlope is conſiderable; and is done while the machine is turning at the end of the length. The method of regulating and uſing it is preciſely the ſame as when made to be drawn by a horſe.

When the machine is to be uſed with a plough, as ſhown at fig. 3, it is, without doubt, the moſt uſeful application of it. It can be fixed without difficulty to any kind of plough, in the ſame manner as here repreſented. The advantages ariſing from its uſe are conſiderable; for, beſides the increaſe in the crop, which will be inſured by the ſeeds being broadcaſt with a mathematical nicety, a large proportion of ſeed (the value of which alone, in a few months, will amount to more than the price of the machine), and the ſeedſman's labour, will be ſaved. The ſeed may likewiſe be ſown either under or over furrow; or one caſt each way, as is practiſed by ſome farmers. The ſeed alſo, being caſt by the machine upon the freſh-ploughed land, may be immediately harrowed in, before the mould has loſt any part of its moiſture; which in a dry ſeaſon will greatly promote the crop. In drilling any kind of grain, pulſe, or ſeed, it poſſeſſes every property that can be wiſhed for in the beſt drill-plough, nor will it (as moſt of them do) bruiſe the ſeed, or feed irregularly.

To prepare it for drilling, inſtead of the apron, place the long ſpout, fig. 5, upon the brackets, on the front of the machine, by the ears A A, to receive the ſeed from the upper ſpout, and faſten the lower end of it, by a ſmall cord, to that hook upon which the apron is hung for broadcaſting, which is next the plough, as ſeen at fig. 9; the ſeed will then be directed by the long ſpout to the centre of the furrow, near the heel of the plough. The ſpring for correcting the ſtrength of the ſtroke, is neceſſary only when they are required to go along the ſide of a conſiderable declivity. The machine, when fixed to a plough, does not require the ſmalleſt degree of ſkill in uſing, as nothing is neceſſary but to keep the hopper filled, which will contain a ſufficient quantity of ſeed to go upwards of 140 rods before it will want re-filling, when three buſhels and a half are ſown on an acre. The accuracy with which it will broadcaſt, may in ſome meaſure be conceived, by conſidering that the ſeed regularly deſcends upon the apron or ſhelf, and is from thence ſcattered upon the ground, in quantity exactly proportioned to the ſpeed of the plough; alſo that each caſt ſpreads to the third furrow; and by this means ſhuts upon the laſt. In this manner it is continually filling up till the whole field is completely covered; ſo that it is impoſſible to leave the ſmalleſt ſpace without its proper quantity of ſeed. When the plough is wanted for any other purpoſe, the machine, with the wheel at the heel of the plough for giving it motion, can be removed or replaced at any time in a few minutes.

Fig. 10 exhibits the machine with the front laid open to ſhow the inſide. A, the catch-wheel fixed upon the axle. B B, the axle upon which the machine hangs between the handles of the plough. C, the pulley, by which the ſtrap from the wheel at the heel of the plough turns the catch-wheel. D, the bar upon which the upper ſpout reſts, ſuſpended by the diagonal ſupporters E E, bearing againſt the catch-wheel by the trigger F, and thereby kept in motion while the plough is going. G, the apron in a ſloping poſition, upon which the corn or ſeed falls from the upper ſpout, and is ſcattered by rebounding upon the land. It turns upon pivots, and by this means throws the ſeed either towards the right hand or left at pleaſure. Fig. 11, ſhows the upper ſpout.

At fig. 12, the machine is repreſented fixed to a double-furrow creaſing-plough, as prepared for drilling. When thus connected, it is made with two upper and two long ſpouts for drilling, two aprons for broadcaſting, and with a double hopper; but in other reſpects the ſame as when intended for a ſingle-furrow plough; it is uſed in all caſes with the greateſt eaſe imaginable. The interval between the points of the two ſhares of a creaſing-plough is uſually ten inches; the beam about nine feet long; and the whole made of a light conſtruction.

### OF THE DRAG AND HARROW.

The drag may be called a large harrow, and the harrow a ſmall drag. Their deſtination, however, is in ſome reſpects different. The drag, being weighty and ſtrong, and the tines large, is employed to go firſt over the fallow or rugged land, to tear the large and heavy clods in pieces, and looſen the mould which adheres to them. After the field or ground has lain for ſome time in this ſtate, and the ſun and air have ſomewhat pulverized the ſoil, and withered the graſs and weeds, then a pair of harrows are to follow, ſtill further to fine down the mould, and bring up all rubbiſh to the ſurface, where it lies either to wither and be burnt to aſhes as manure to the grounds, or be carried off to form ſome mix of compoſt or manure, as may be moſt convenient to the farmer. Another deſtination of the harrow, but rarely of the drag, is to cover or head the corn after ſowing, and to ſtir or looſen young wheat and other crops in the ſpring of the year, when the roots appear to be baked up by a hard cruſt on the ſurface of the ſoil, and vegetation thereby weakened or impeded.

DRAG WITHOUT A JOINT.—This implement, correctly delineated in the Huſbandry Plate VII. fig. 1, is the invention of Mr. H. Wynne, calculated for ſtrength and expedition in its work; and will cover a piece of ground ſix feet three inches broad, leaving intervals of only five inches between the tracks. Theſe, however, may be varied at pleaſure, ſtill preſerving their ſtrict regularity.

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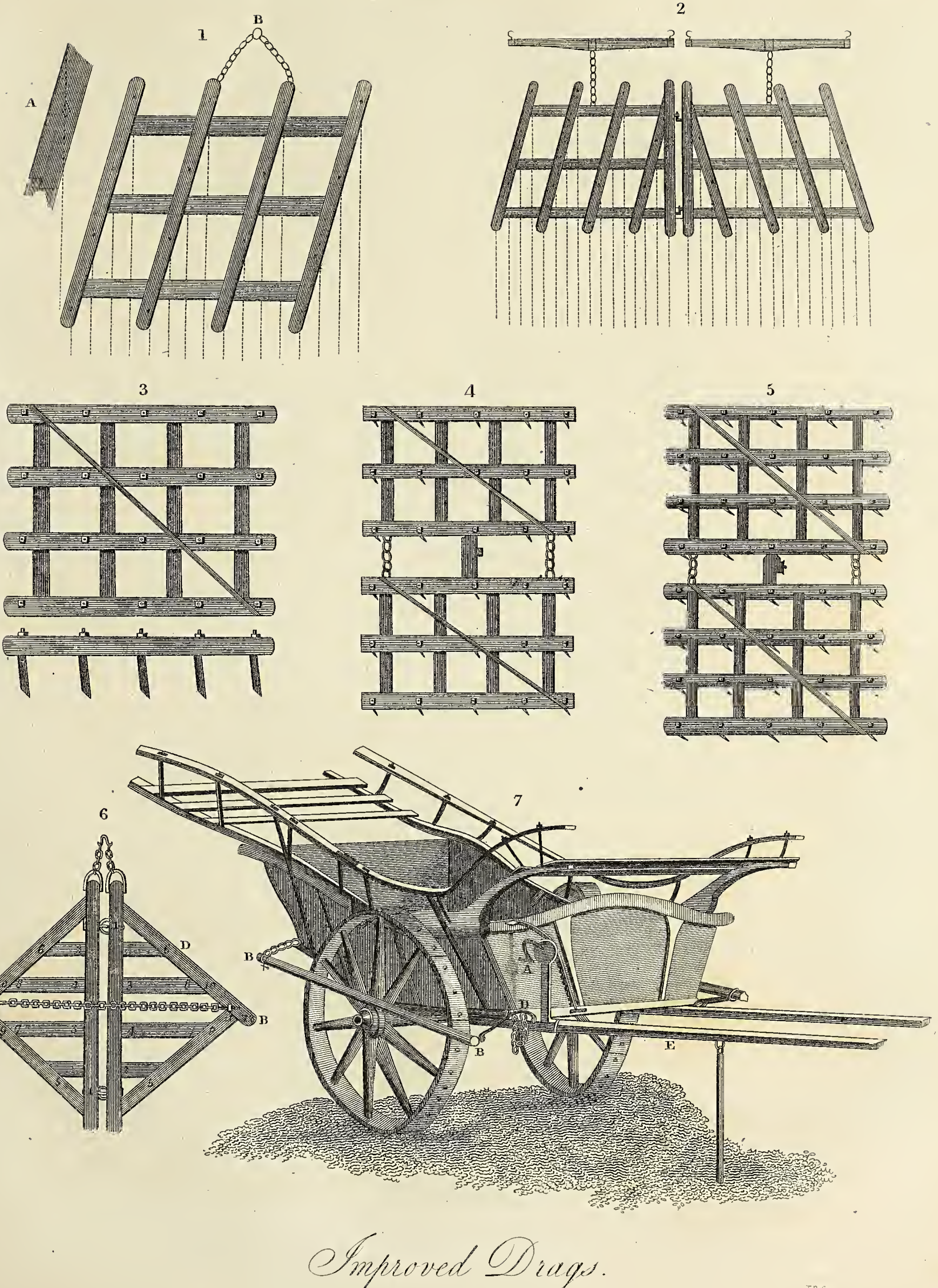

Improved Drags.

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London Pubd as the Act directs May 1. 1810 by J. Wilkes.

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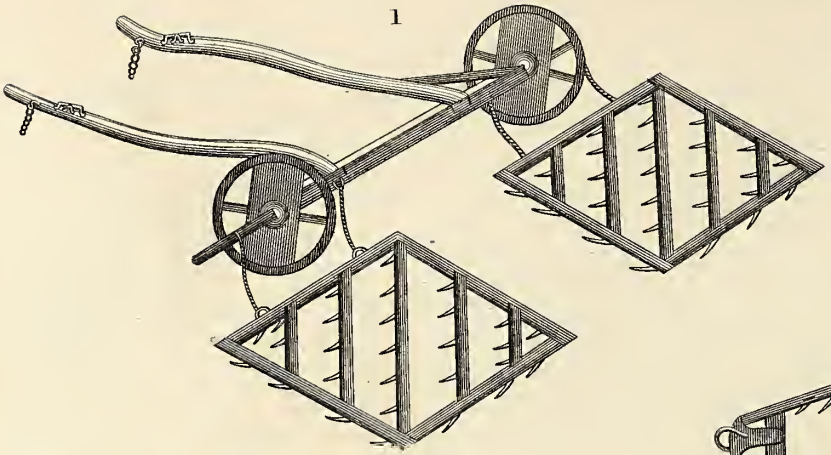

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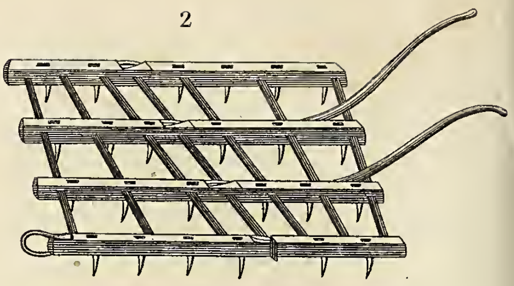

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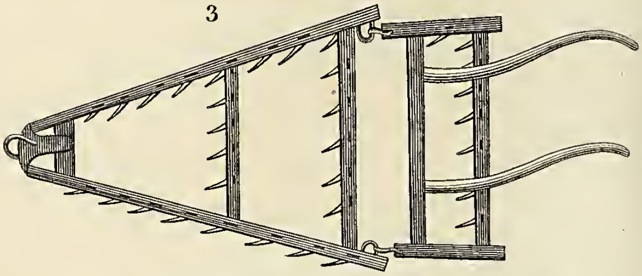

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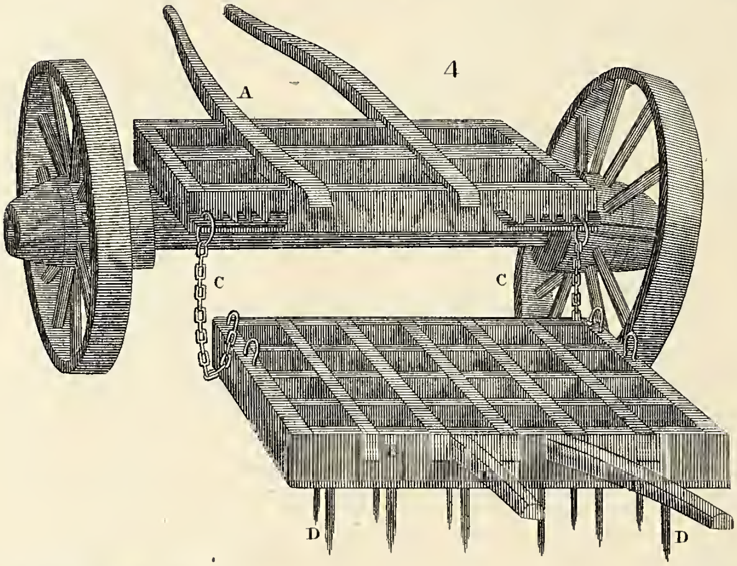

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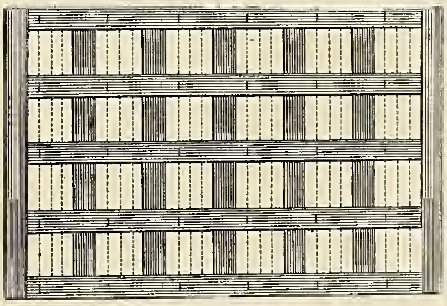

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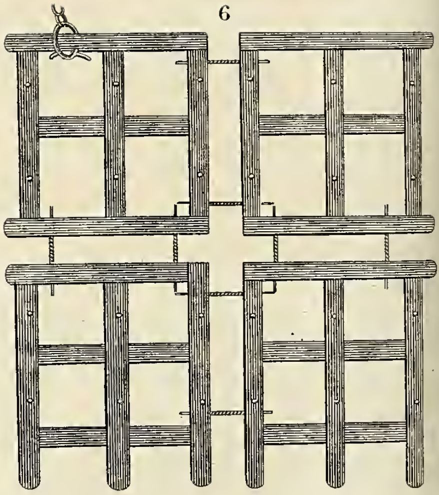

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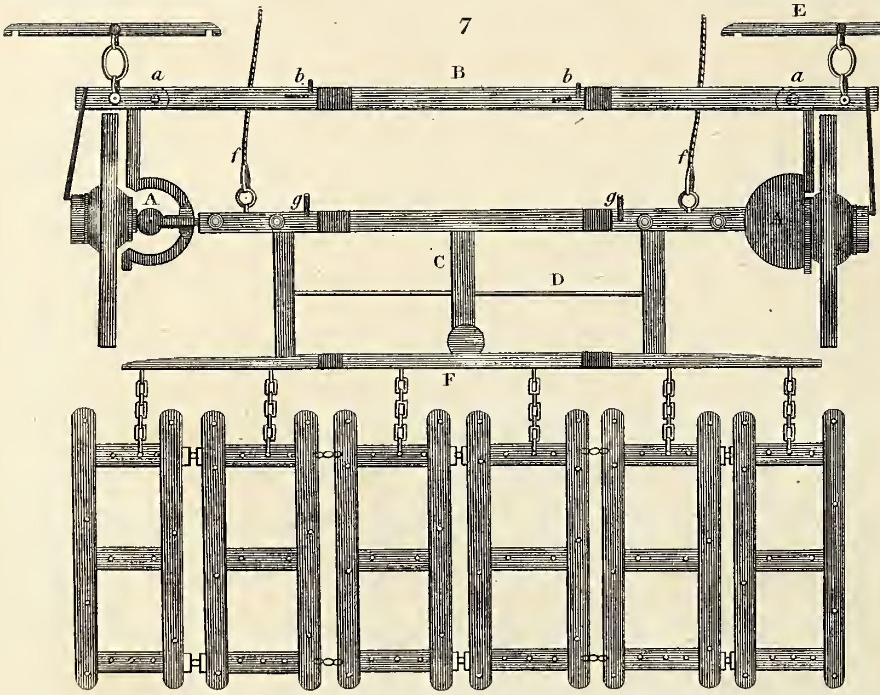
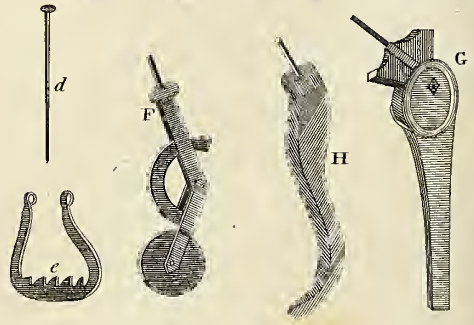




Improved Harrows

London; Pub.d as the Act directs, June 1.1810, by J.Wilkes.

The ſpikes muſt be made of very ſtrong iron, pointed with ſteel for ſuperior durability, and bent forward diagonally; and care muſt be taken to fix them in the poſts in ſuch a manner as that the line of the track may paſs through the angles of the ſpike, as ſhown at A in the engraving. The three centre links of the chain at B, ſhould be made round, in order that the draft-chain may be fixed to whichever of them may, on trial, be found to anſwer beſt.

Mr. Wynne has alſo conſtructed a pair of harrows, on a principle beſt calculated to follow up and complete the work of his drag. They are formed ſo as to adhere very cloſely to the ſoil on which they are employed, and to heal and cover new-ſown corn with great exactneſs and preciſion: delineated in the Engraving at fig. 2.

**Brake Drag.**—This is a large and weighty drag, calculated to work upon links nearly incloſed and broken up. It conſiſts of four ſquare bulls, each ſide five inches, and ſix feet and a half in length. The teeth are ſeventeen inches long, bending forward like a coulter. Four of them are inſerted into each bull, fixed above with a ſcrew-nut, having twelve inches free below, with a heel cloſe to the under part of the bull, to prevent them from being puſhed back by ſtones. When ground is broken up from the ſtate of nature, and after a competent time is croſs-ploughed, this drag is applied with great ſucceſs, immediately after the croſs-ploughing, to reduce the whole to a proper ſtate for harrowing.—See this implement correctly delineated at fig. 3, in the Engraving.

To follow this drag, a harrow is contrived conſiſting of two parts, connected together by a crank or hinge in the middle, and two chains of equal length, one at each end, which keep the two parts always parallel, and at the ſame diſtance from each other. The crank is ſo contrived, as to allow the two parts to ply to the ground like two unconnected harrows; but neither of them to riſe above the other, more than if they were a ſingle harrow without a joint. In a word, they may form an angle downward, but not upward. Thus they have the effect of two harrows in curved ground, and of one weighty harrow in a plain. The object of this harrow is to break more effectually the tough clods which always cover the ſurface of newly-broken up ground, even after the drag has performed its utmoſt, and to ſhake out the mould, and prepare it for finiſhing by ſtill further work. See this implement correctly repreſented at fig. 4.

To accompliſh the object of the farmer in reducing the ground to a finer tilth, a ſecond harrow is conſtructed, repreſented at fig. 5. This conſiſts alſo of two parts, connected together like that laſt-mentioned. It has eight bulls, each four feet long, two and a half inches broad, and three deep. The interval between the bulls is eight inches; and the breadth of the whole harrow, including the length of the crank, is ſix feet four inches. In each bull are inſerted five teeth, ſeven inches free under the wood, and ten and a half inches aſunder, each tooth weighing one pound. The work of this harrow reduces, the ſoil to powder, brings all the rubbiſh to the top, where it is left to wither and burn at the farmer's diſcretion.

Theſe harrows are a conſiderable improvement in huſbandry. They ply to curved ground like two unconnected harrows; and, when drawn in one plane, they are in effect one harrow of double weight, which makes the teeth pierce deep into the ground. The imperfection of common harrows, known to almoſt every farmer, will ſuggeſt the ſuperior advantages of theſe.

**Chain and Screw Drag.**—This is a valuable implement on many occaſions, delineated at fig. 6, in the Engraving. Its properties are, that if your ridges be high, and you wiſh to drag them from one end to the other; by lengthening the chain, which the ſcrew commands, the drag, when drawn along, forms an angle downwards, and miſſes none of the curve of the ridge, ſo far as it extends, which may be nine feet, the diſtance from A to B. The extent, in the contrary direction, is five feet ſix inches. When the crowns of the ridges have got what is thought ſufficient dragging lengthwiſe, you ſhorten the chain by the ſcrew, which forms an angle upwards; the drag is then drawn by the horſes, one on each ſide of the furrow; which completely finiſhes the ſides of the ridge, even if eighteen feet broad. When you want to drag even ground or high ridges acroſs with the ſcrew, you can bring the drag to be horizontal, ſo as to work as if conſtructed without a joint.

The teeth are formed and fixed in the common manner, ſquare, not in the faſhion of coulters; and are nine or ten inches below the wood, and of ſuch ſtrength as may be required. The figures 1, 2, &c. point out where the twelve teeth on each ſide of the drag are placed. Where a ſtrong brake-drag is not neceſſary, by making the teeth ſhorter and lighter, you may have forty-eight teeth, which will tear the ground at every two inches, and make a fine mould.

**Lord Somerville's Cart Drag.**—This is a new invention of his lordſhip's, which promiſes to be of conſiderable utility in huſbandry. At fig. 7, in the Engraving, a perſpective view of this machine is given. It requires to be worked only by a ſingle horſe, and is calculated to carry 35 cwt. In the front is repreſented the method of adjuſting the poſition of the centre of gravity of the load, to prevent its preſſing too much on the horſe in going down the hill, the front of the cart being elevated by means of a toothed rack ſcrewed to the front of the cart, and worked by a pinion, and the handle A, immediately connected with the ſhaft E. By means of this pinion and racks, the front of the carriage is elevated more or leſs, in proportion to the declivity of the hill, by which means the weight of the load is made to bear more on the axis, and leſs on the horſe.

On the ſide-view of the cart is repreſented the manner of applying a FRICTION DRAG, which is made to preſs, more or leſs, on the ſide of the wheel, according to the ſteepneſs of the deſcent: B B ſhow the friction-bar, or drag; one end of which is connected with the tail of the cart by a ſmall chain, and the other end to the front, by means of a toothed rack, B D, which catches on a ſtaple in the front of the cart, by which the friction-bar may be made to preſs on the ſide of the wheel, more or leſs, at the diſcretion of the driver; the notches of teeth in this rack ſhould be as cloſe to each other as circumſtances will permit. The friction-bar is here applied lower upon the wheel than was at firſt propoſed, in order to divide the preſſure and friction more equally on the oppoſite ſide of the wheel, ſo that the preſſure on each is diminiſhed; the riſk of over-heating and deſtroying the friction bars is alſo rendered leſs than if the whole preſſure were applied in one point at the top of the wheel.

In the Huſbandry Plate VIII. we have given a ſeries of new-invented harrows, which are in conſiderable eſtimation among agriculturiſts.

**Harrow with Shafts.**—This implement is uſed only in the drill-huſbandry, being calculated for covering the ſeed depoſited in the drills, the horſe going in the furrow. This is delineated in the Engraving at fig. 1.

**Jointed Brake-Harrow.**—This harrow has twenty-four teeth, ſhaped like coulters and ſtanding at about an angle of eighty degrees; repreſented at fig. 2. By this inſtrument the land is finely pulveriſed, and prepared for receiving the ſeed from the drill. It requires four horſes in ſtiff, and two in open, land. This implement is likewiſe uſed for levelling the ridges; which is done by preſſing it down by the handles where the ridge is high, and raiſing it up when low.

**Angular Weeding Harrow.**—This is calculated to follow the brake when neceſſary. The ſeven hindmoſt teeth ſhould ſtand at a more acute angle than the reſt, in order to collect the weeds, which the holder can drop at pleaſure, by raiſing the hinder part, which is fixed to the body of the harrow by two joints, as ſhown in the Engraving at fig. 3.

**Curwen's Weed-Harrow.**—This is the invention of John Chriſtian Curwen, eſq. M. P. of Workington Hall in the county of Cumberland. It is calculated for clearing weeds from all crops in the drill-huſbandry, which it does with ſingular facility. The ſimplicity and eaſe with which it is worked, is a great recommendation; a man and boy, with one horſe, being able to clean above ſeven acres of corn per day. The direction of the harrow, to prevent its injuring the grain, is effected by an alteration of the chain by which it is attached to the wheels. The diſtance of the teeth from the centre tooth muſt be regulated by the width of the drills. In caſe they exceed a foot, the harrow ſhould be broader, to admit of another row of teeth. To clean at nine inches, two inches and a half is allowed on each ſide of the centre tooth, by which means every part of the ſoil is cut between the rows of grain. The ſize and ſtrength of the teeth muſt be regulated by the nature of the ground. A correct delineation of this harrow is given in the Engraving at fig. 4. A ſhows the carriage with the ſhafts; the carriage wheels are intended to be half the width of the butts or ſtitches, ſo that once going up, and once returning, will be ſufficient to clear each butt from weeds. B, the harrow, which is attached to the carriage by the chains C C. The harrow may be raiſed higher or ſunk lower, or placed more on one ſide or another, as occaſion may require, by altering the poſition of the chain. From D to D, ſix double rows of teeth or knives, which are ſo placed in the frame that each double row may paſs up the interval betwixt the rows of corn, and cut or pull up the weeds that grow in ſuch intervals without injuring the corn. E E, the two handles by which the perſon who holds them may direct the knives or teeth of the harrow to paſs in ſtraight lines up the intervals.

Fig. 5, ſhows the under ſide of the weed-harrow, that the poſitions of the double rows of the knives, and of the ſpace left to prevent the corn being injured, may be more clearly ſeen.—The Society of Arts and Manufactures, in 1806, preſented Mr. Curwen with their gold medal for this invention, and his improved method of cultivating carrots for cattle.

**Quadruple Harrow.**—This is quite a new invention, conſiſting of four diſtinct harrows, linked together by chains. The purpoſe of it is for breaking the ſurface of newly-incloſed grounds, where much work and labour are required. See a repreſentation of it in the Engraving at fig. 6.

**Knight's Harrow.**—This harrow is conſtructed with two joints, A A, in the axle-tree, as ſhown at fig. 7, one of which is covered, as when the harrows are at work, the other uncovered, to ſhow the conſtruction of the joint; and two joints, *a a*, in the front of the bar; by means of which the pliability of the tree, and that of the bar, humours the wheels, and keeps them in their proper directions in the furrow; and, requiring very little ſcope of ground, the turnings are rendered very convenient and eaſy. If, in the courſe of working the land, a farmer varies in the breadth of his furrows, it is contrived, in order to make the harrow narrower, that part of the bar B, which is faſtened by two pins *b b*, may be taken off when requiſite; part of the axle-tree, and part of the hind bar C, both which are faſtened by the iron bolt D, are alſo to be removed; and the remaining outward parts to be joined and faſtened by one of the two pins in the bar, and by a ſhorter bolt *d*, ſhown ſeparate in the Engraving, and intended for the axle-tree and hind bar.

If the farmer ſhould work two horſes which are unequal in height, the horizontal direction, or evenneſs of the joints, may be deſtroyed in ſome degree; to remedy and ſupply this deficiency in the horſes, the whipple-tree E, is made to be heightened or lowered by means of notches *e*, alſo ſhown ſeparate, to which it is connected by a ring. In light barley-lands, when you accommodate your harrow for one horſe, there are two ſtrings conveyed by two rings from the axle-tree, through two loops *f*, under the front bar. The wheel F, under the hind bar, which is ſhown enlarged and ſeparate in the plate, will ſupport the bar; and, by this aſſiſtance, the harrow is conveyed to the field on the axle-tree bar, as a ſubſtitute for a ſledge; there are alſo two wooden pegs *g g*, by which the harrows, when turned upon the carriage, are ſecured.

Should it be objected, that the harrow will prove expenſive on account of the iron, an axle-tree and joints may be readily conſtructed in wood, upon the ſame principles, as ſhown in the plate ſeparate at G; though preference ſhould be given to iron. If the wheel under the hind-bars ſhould not be adopted, there is a ſlider H, ſhown ſeparate, which works with a pin, and, when not wanted, is turned and faſtened under the axle-tree.

As it is found by experience to be very uſeful to heighten or lower the harrows occaſionally, particularly on broad lands riſing in the middle; where of courſe the middle harrow takes moſt hold, and generally requires the leaſt; this may be eaſily effected, by fixing irons, with notches, like thoſe on the fore bar, by which the whipple-trees are ſupported, on the hind bar, inſtead of the hooks, and putting the hooks on thoſe irons.

In the Huſbandry Plate IX. we have given a ſeries of ſundry new implements, which we ſhall proceed to deſcribe, as follows:

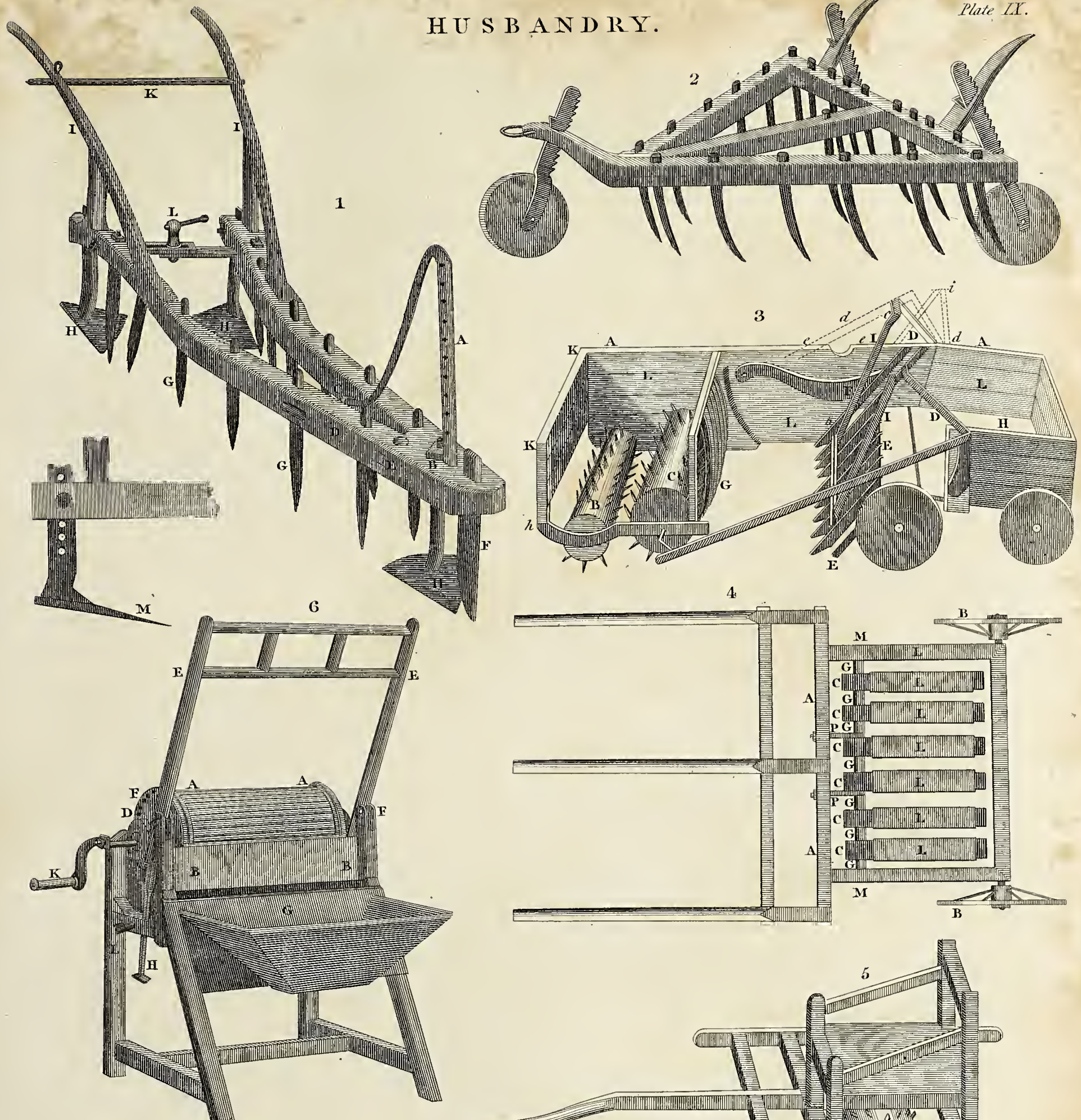
**Waistell's New Horse-Hoe.**—This implement conſiſts of a hoe and a harrow combined. For deſtroying the weeds, and pulveriſing the ſoil in the intervals of drilled turnips, and of other crops drilled ſufficiently wide to be horſe-hoed, there appears to be no other implement of equal efficacy. It enables the farmer to cultivate thoſe intervals as completely as a well-wrought fallow, ſo long as the horſe can travel therein without injury to the growing crop. They are highly approved of by farmers in the neighbourhood of Barnard Caſtle, where the turnip-crops are now generally raiſed in drills about twenty-ſeven inches apart. This uſeful implement is correctly repreſented in the Engraving at fig. 1, to which the horſe is to be attached by the upright iron A, in which are a number of holes to admit the drag-chain to be put higher or lower as may be found neceſſary. This iron is at one end fixed firm in the fore-part of the machine at B, and at the other end to the further ſide or wing C. D is the nearer ſide or wing of the machine, and moveable by a joint at E. This wing may by this mean be expanded or contracted, as the interval between the rows to be cleared of weeds may require. F, a ſtrong wedge-like tooth in the fore-part of the machine to tear up the weeds, which are deep in the ground. G G, other teeth more ſlender, fixed in the two wings or ſides of the machine, and which are alſo intended to tear up weeds, and looſen the earth. H H H, three triangular hoes. That which is in front has a ſtrong iron fixed in its centre; the two others at the hinder part of the machine have the irons fixed at the further corner of each. The intent of the centre hoe is to cut off the weeds on each ſide next the crop, and to lay all the weeds in a ridge-like form in the middle of the path, to dry and rot. I I, the handles by which the machine is managed. K, a ſlender iron bar, with a peg and holes to direct the diſtance of the expanſion or contraction of the machine. L, a ſtrong iron vice, which works in a grooved iron, fixed to the inner ſide of the wing D, and which, when ſcrewed down, holds the machine firm at the diſtance of expanſion wanted for uſe. M, in a ſeparate piece in the plate, ſhows on a larger ſcale one of the hinder hoes ſeparate from the machine, and the manner by which it may occaſionally be raiſed or lowered in the machine by a pin and holes.

**The Cultivator.**—This uſeful implement is delineated at fig. 2, and is the invention of Mr. Cook, to whoſe ingenuity agriculturiſts are ſo much indebted. It conſiſts of a diagonal beam, in which are fixed a number of

narrow

# HUSBANDRY.

Plate IX.



*Sundry New-invented Implements.*

J. Pass sc.

London Pub.d as the Act directs June 25, 1810, by J. Wilkes.

narrow ſhares; and when employed in this way is termed a SCARIFIER. When uſed with broad triangular ſhares, it is called a SCUFFLER; and when complete, with all theſe parts appended, it has the name of CULTIVATOR. The principal object of this implement is to ſave the labour of the plough.

THE FALLOW-CLEANSING MACHINE.—This implement, calculated for cleanſing fallows from weeds, is delineated at fig. 3. A A is the frame; B the firſt, C the ſecond, roller; in which laſt are two cranks to move the arms D D, which work the rake up the directors fixed on the plank E. The under ſide of the lower ends or ſhares of theſe directors are ſharp, to cut the clods, and let them come on the upper ſide. Each alternate heel of the ſhare is longer than the intermediate one, that they may not have more than one-half to cut at once. At the back of the plank E are two ſcrews to let it looſe, that the directors may be ſet higher or lower. The ſhares are to penetrate the ground two or three inches, to raiſe the quicks till the rake fetches them into the cart H, where a man muſt be ready with a prong to clear them backward when gathered. In the rake I are two teeth for every ſpace of the directors, that ſtones, &c. may be gathered without damage. At K K are two ſtaples, by which the machine is drawn; under them at *b* are two hooks, placed low to raiſe the machine in turning, by the help of the traces; and the axle-tree of the cart ſhould be fixed upon a pin, that it may turn like a waggon. F F are the triggers to throw the rake behind the roots. The long teeth at G G are to cleanſe the roller C. I I is the rake which gathers up the weeds into the cart H, and is drawn above the trigger F, by the working of the arms D, expreſſed by the dotted lines at *d d*, *l l*. The triggers F, of which there is one on each ſide, move on the pivots *a*; ſo that when the points *b* of the rake I have been drawn up by the directors E to the part marked *c*, the trigger, giving way, permits the rake to paſs; but immediately falling, the rake returns along the upper ſurface of the trigger marked *ee*, and of courſe falls on the weeds when it comes to the end, a little beyond the pivot *a*. The reader will notice, that the boarding is taken away on one ſide in the plate, in order to give a more perfect view of the inner parts of the machine.

THE PATENT SWARD-CUTTER.—This is a moſt uſeful implement, delineated in the Engraving at fig. 4. A A, &c. a ſquare frame three feet four inches from the fore to the hind part, by four feet three inches, the breadth of the machine within ſide; the timber four inches ſquare, placed on two wheels B B, three feet diameter. C C, &c. are ſix ſtrong pieces of wood called *bulls*, three feet long, five inches and a half broad, the thickneſs ſix inches tapering to three inches. Into theſe are fixed the cutting-wheels, which are iron, thirteen inches diameter, three-fourths of an inch thick at the centre, about an inch diameter for piercing holes to fix the iron axles in; from that they are to be of ſuch thickneſs as will allow the edges to be well ſteeled. The wheels are fixed by two bolts going through the bulls. G G, &c. are hollow pieces of wood, called *thorles*, each three inches and a half long, which incloſe the bolt M M, and keep the bulls C C, &c. at their proper diſtances; but may be made longer or ſhorter at pleaſure, according as the ſward requires to be cut in larger or ſmaller pieces. The iron bolt M M goes through two pieces of wood or iron, P P, ſeven inches long, clear of the wood, ſupported by iron ſtays fixed to the frame, and through all the bulls. L L L, &c. are weights of free-ſtone, twenty-ſix inches long and ſix inches broad; the under one four inches thick, the upper one three inches thick; weighing about 64lb. the under, and forty-eight the upper; each of them having two holes, through which iron ſpikes, firmly fixed in the bulls, paſs, in order to keep them ſteady. When the ground is eaſily cut, the under ſtone may anſwer; when more difficult, the other ſtone may be added; ſo that every wheel may have ſeven ſtone weight upon it, which has been found ſufficient ſo the ſtiffeſt land and tougheſt ſward the machine has ever been tried upon. Weights will anſwer better, but are more expenſive. P, a ſmall bolt of iron, with a hook on one end of it, to ſtrengthen the bolt M M, to be hooked on the centre of it, and joined to the frame by a nut and ſcrew. For a ſingle-horſe ſward-cutter (which has only four cutting wheels), a pair of ſhafts are uſed, and may make the two ſides of the frame without any joinings. The width of the frame, in proportion to the double-horſe ſward-cutter, is as four to ſix.

The original intention of this machine was to prepare old graſs-ground for the plough, by cutting it acroſs the ridges, in the beginning of or during winter, when the ground is ſoft, in order to anſwer all the purpoſes deſigned by the four coultered-plough, ſo ſtrongly recommended for bringing into tilth graſs-ground that has been long reſted. This the ſward-cutter has been found to do much more effectually and expeditiouſly; for the machine juſt mentioned cuts the ſward in the ſame direction with the plough; and is liable, from every obſtruction the coulters meet with, to be broken or thrown out of its work altogether; to which the ſward-cutter conſiſting of four, ſix, or more, cutting-wheels, is never liable, from theſe being entirely independent of one another, cutting the ground acroſs the ridges before ploughing, and rendering that operation eaſier to two horſes than it would otherwiſe be to three. The furrow, being cut acroſs, falls finely from the plough in ſquares of any ſize, not under ſix inches, in place of long ſlips of tough ſward ſeldom and imperfectly broken by the four-coultered plough.

This implement is alſo well adapted for preparing ground for burn-baking, as it will ſave much hand-labour. It may alſo be uſed in croſs-cutting clover of one or two years ſtanding, to prepare the ground for wheat, if the land is ſtiff and moiſt enough. It may be applied to cutting and croſs-cutting paſture-ground, intended to have manure of any kind put upon it to meliorate the graſs; and in this it will far exceed the ſcarificator. In preparing for barley, it excels a roller of any kind in reducing the large hard clods, in clay land, occaſioned by a ſudden drought after its being ploughed too wet; and it is likewiſe very proper for reducing ſuch clay-land when under a ſummer-fallow. In this operation, the ſward-cutter is greatly preferable to the cutting-roller; for, the wheels of the latter being all dependent one on another, when one is thrown out by a ſtone, three or four muſt ſhare the ſame fate. Beſides, the cutting-roller has but ſeven wheels in ſix feet; whereas the ſward-cutter has ſix in four feet three inches, at nine inches diſtance; and, if neceſſary, may have them ſo near as ſix inches.

Two horſes are ſufficient for the draught of a double-horſe ſward-cutter, and one horſe for a ſingle-horſe one. One man manages the machine, and drives the horſes. He begins his operation by firſt meaſuring off twenty or thirty paces from the machine, and there fixing a pole. He then cuts the field acroſs, as near at right angles with the ridges as he can. One ſward-cutter will cut as much in one day as ſix ploughs can plough. The land may lie ſeveral months in winter after being ſward-cut, when there is no vegetation to make the cuts grow together again before it is ploughed; but the ſooner it is ploughed after cutting the better, that it may have the benefit of all the winter's froſt, which makes it harrow better at ſeed-time.

THE SPIKE ROLLER.—This uſeful implement, delineated at fig. 5, is of conſiderable advantage in huſbandry. It is conſtructed nearly in the manner of the common roller, except its having the addition of a great number of ſpikes. Rolling wheat in the month of April is very important in a looſe ſoil; as the winter rains leave many roots expoſed to the air. Barley ought to be rolled immediately, eſpecially where graſs-ſeeds are ſown with it. In a gravelly ſoil, the mould ſhould be ſo dry as to bear the roller without clinging to it. A clay-ſoil ought neither to be tilled, harrowed, nor rolled, till the field be perfectly dry. There is the greater reaſon for this precaution,

tion, becauſe much rain immediately after rolling is apt to cake the ſurface when drought follows. Oats in a light ſoil may be rolled immediately after the ſeed is ſown, unleſs the ground be too wet. In a clay-ſoil, delay rolling till the grain be above ground. The proper time for ſowing graſs-ſeeds in an oat-field, is when the grain is three inches high; and rolling ſhould immediately ſucceed, whatever the ſoil be. Flax ought invariably to be rolled immediately after ſowing. The firſt year's crop of ſown graſſes ought to be rolled as early the next ſpring as the ground will bear the horſes. It fixes all the roots preciſely as in the caſe of wheat. Rolling the ſecond and third crops in a looſe ſoil is uſeful; though not ſo eſſential as rolling the firſt crop. Rolling encourages the growth of plants, by bringing the earth cloſe to their roots. It alſo keeps in the moiſture, which is ſometimes of great moment. And laſtly, beſides the foregoing advantages, it facilitates the mowing for hay; and it is to be hoped, the advantage of this practice will induce farmers to mow their corn alſo, which will increaſe the quantity of ſtraw both for food and for the dung-mix.

LESTER'S POTATOE-WASHER.—This ſimple, but uſeful implement, repreſented at fig. 6, is calculated for waſhing potatoes, turnips, carrots, and other eſculent roots, for the purpoſe of feeding cattle. The ſtaved cylinder revolving in a trough of water, ſo ſlow as not to excite the centrifugal force, is not new; but, to obviate its defects, levers and wheels are added, by which means a boy can do the work of two men. The partial motion given to the potatoes by ſtirring them about in a tub, cannot ſeparate the ſoil ſo effectually from them as when the water is more violently agitated by their falling over each other in a revolving cylinder, neither will they be ſo much bruiſed as by the ends of the levers. If the ſoil ſhould be particularly adheſive, the heads of a couple of old hearth or birch brooms put into the cylinder will effectually diſengage it from the eyes of the potatoes; and, as the dirt ſeparates, it falls to the bottom of the water in the veſſel under the cylinder.

The operation of the machine is as follows: the potatoes are put into the cylinder or lantern A A, formed of two circular boards, and a number of ſtaves connecting them. Six of theſe ſtaves are connected at the ends of two pieces of wood, ſo that they can be opened as a door, to put in or take out the potatoes. The cylinder turns round in a trough B B, filled with water and ſupported on four legs. On the end of the axis of the cylinder, two pulleys, as ſhown at D, are looſely fitted: theſe are intended for the cylinder to move upon, when full of potatoes; they run upon a ſwinging frame E E, which reſts on centres at F F; when the long ends of the frame are pulled down, the other end is raiſed up, lifting the cylinder out of the trough B B; when the long end of the frame becomes the loweſt, the cylinder rolls down on its wheels D, till it is over the hopper, or wooden funnel G, under which a wheelbarrow or baſket to receive the clean potatoes is placed; the door of the cylinder is now opened, and the contents turned out through the hopper into the veſſel beneath it. When the frame is in this ſituation, the iron rods H, which are jointed to the ſhort ends of the levers, form ſtops to the farther deſcent of the frame.

When freſh quantities of potatoes are to be waſhed, they are thrown in at the door of the cylinder, which is then ſhut up, and held ſhut by two ſmall bolts. The end of the frame E is then raiſed up, ſo as to make the ſhort end the loweſt, and the cylinder runs down on its two wheels D, over the trough B, till it is ſtopped by two iron prongs fixed on the end of the frame E; the cylinder is then ſuffered to fall down into the trough, and the potatoes, &c. are waſhed by turning it round by its handle K. L is a plug to let out the foul water.

MIDDLETON'S HAY-COLLECTING MACHINE.—This machine, delineated at fig. 7, is calculated for the purpoſe of ſaving the labour of dragging hay together by hand. It is drawn by horſes, with a boy to manage and drive them. But it will firſt be neceſſary that the hay ſhould be raked into rows, as is univerſally done before the loading of carts, waggons, or ſledges; then, in order to ſweep the hay together with greater facility, a man with a fork muſt go and turn the end of a row up, two or three yards, ſo as to form a ſort of heap, and then walk on ten, twenty, or forty, paces, and break the row, by turning the hay forward into another ſimilar heap; and let him go on and repeat this operation to the end of the row; then the boy who has the management of that pair of horſes to which the machine is attached, muſt draw it acroſs the end of the row; and, proceeding regularly forward, he will collect every blade of graſs clean from the ground, ſo that no raking after is required.

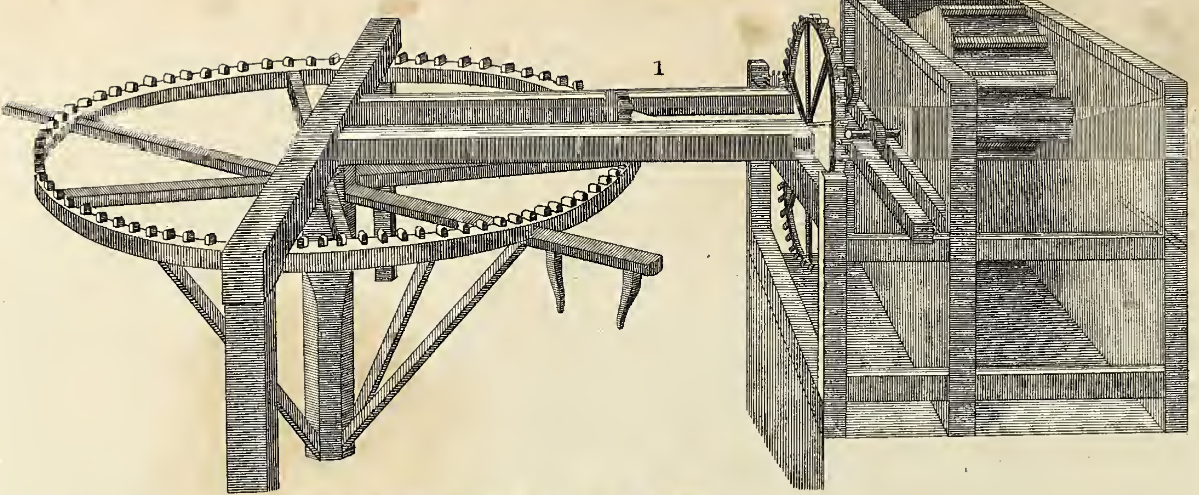
## OF THE THRASHING-MACHINES.

The invention of thraſhing-machines has proved of very conſiderable advantage to farmers who do a great ſtroke of buſineſs, and grow large crops of corn; becauſe, by the facility and expedition with which the operation is performed, they can always take advantage of a riſe in the markets, which cannot be the caſe where corn is thraſhed by hand. They are moſtly conſtructed on the principles of the flax-mill, and are moved either by water or horſes; the firſt is by far the beſt method. Since the firſt introduction of theſe machines, many improvements have been made upon them; a ſcreen has been added for the grain to paſs through into a winnowing-machine, and a circular rake to remove the ſtraw from it; as before this addition the ſtraw was forced out from the beater upon the upper barn-floor, and required much time and labour in ſhaking and putting into order, which by this contrivance is ſaved.

In ſome large mills of this kind the rollers take in about three hundred inches of grain in a minute. The medium length of the ſtraw being eſtimated at about thirty inches, and ſuppoſing half a ſheaf to be introduced into the machine at a time, the whole ſheaf will be equal to ſixty inches, and the machine when ſupplied with a middling quantity of water will thraſh five ſheaves in a minute. But, in reſpect to the performance of theſe mills, much muſt depend on the attention with which they are fed, as a ſmall neglect in this point will make a very conſiderable difference in the quantity of work done.

The whole expence of conſtructing a water thraſhing-mill, including the building of the ſhed for covering the great wheel, does not, in almoſt any caſe, exceed 100l. The ordinary annual repairs may, one year with another, amount to 5l. which added to the intereſt of the prime coſt, makes the yearly expence 10l. a ſum for which any quantity of grain, however great, that may be ſuppoſed to grow on one farm, can be thraſhed, and that too in a manner much ſuperior to what can be done by manual labour. The expence either of erecting theſe machines, or of keeping them afterwards in repair, muſt be conſidered by every intelligent occupier of a large corn-farm as a ſecondary object, when compared with the advantages that are derived from them; ſuch as the performing of the operation at leſs than half the ordinary price, and affording the farmer the means of ſecuring his grain from being embezzled; beſides, the ſaving in regard to ſuperior clean thraſhing, as has been now well aſcertained, is not only more than the annual expence of repairs, but ſo great as, on a farm of conſiderable extent, to reimburſe the farmer for the whole of his expenditure in the courſe of a few years. Therefore, conſidering the increaſing ſcarcity of labourers, and the recent great advance in the rate of labour in all the cultivated parts of the kingdom, the introduction of thraſhing-mills into common uſe cannot but be highly beneficial. But though, when the ſize of the machine is conſiderable, the expence of erecting it may be from eighty to one hundred pounds, according to ſituation and materials, ſmaller ones may be erected at much leſs, as from thirty to fifty pounds. Some of theſe kind of mills have rollers or ſmall mill-ſtones added to them, for the purpoſe of cruſhing and grinding grain for

1



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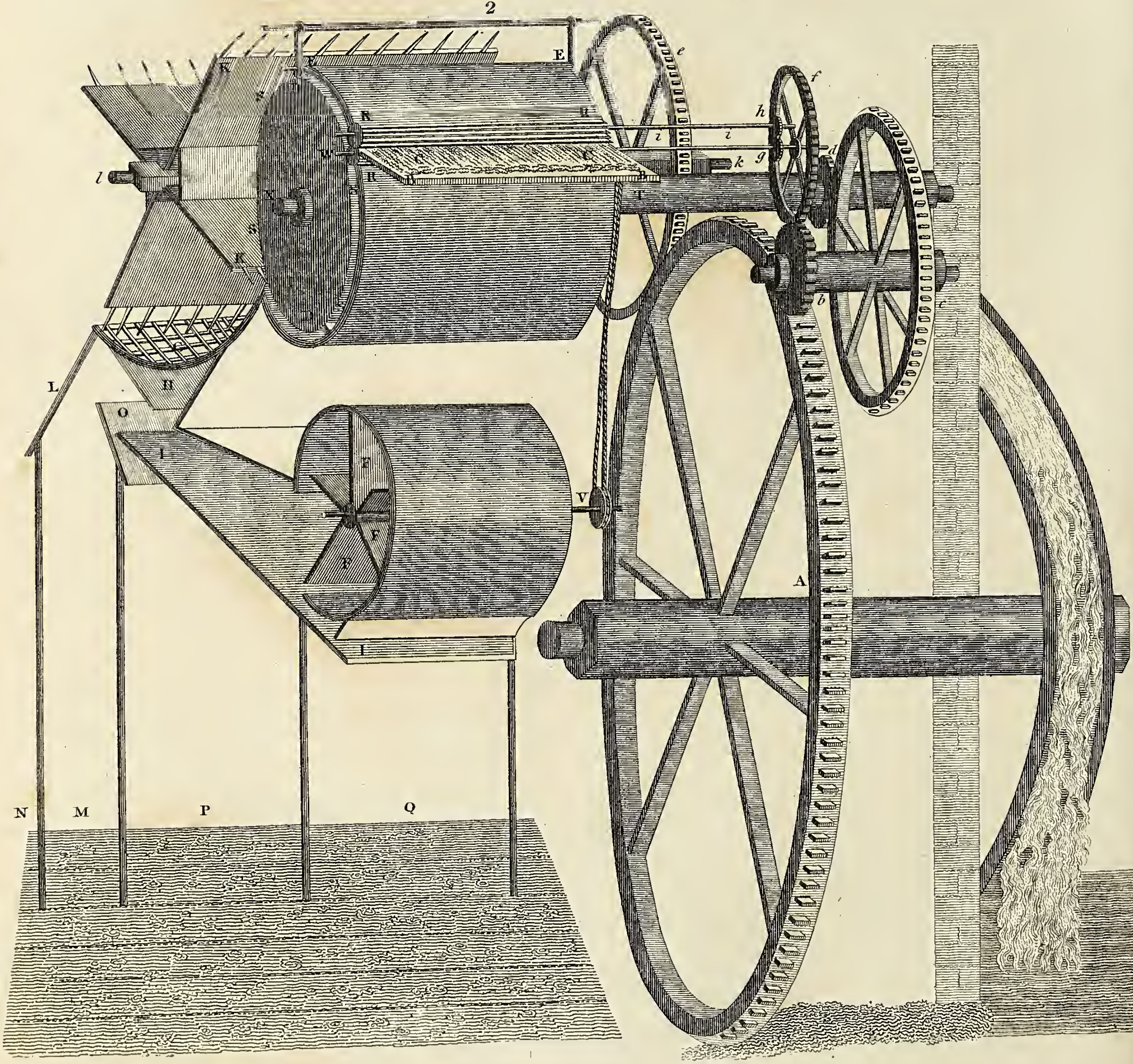

Threshing Machines.

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J. Pass. sc.

horſes, ſwine, and other animals; and alſo inſtruments for cutting ſtraw into chaff.

On the neceſſity of employing machines of this kind, it is remarked by an able writer, that it is the only method left for having the corn cleanly and properly thraſhed. They are ſo quick in the work, that the whole may be done under the eye of the maſter, and the corn ſecured in the granary without the leaſt pilfering. The ſaving by this means of thraſhing, in the extra quantity of corn procured, and the ſecurity againſt having the corn ſtolen in the chaff, it is aſſerted, amounts to an advantage in favour of the mills of about ten per cent. on the corn-crops; in ſome caſes, to one ſhilling a buſhel on wheat, and very generally to twenty ſhillings an acre on the wheat-crops. This machine has undoubtedly many advantages over the flail, as well as thoſe of ſaving time and hands; as in thraſhing damp corn, not capable of being fully accompliſhed in any other way, eſpecially in wet ſeaſons; and with ſmutty wheat, which is thraſhed by it without any miſchief being done to the ſound grain, the ſmut not being cruſhed comes out whole, and is blown away with the chaff.

The principal objections that have been made to theſe machines, are the great expence of erecting and uſing them, their tendency to diminiſh the labour of the poor, and their affording too great a ſupply of ſtraw at a time. Theſe objections are however of little conſequence, when the general utility and advantages of ſuch machines are conſidered; beſides, the latter are either ſuch as have nothing to be apprehended from them, or as may be readily obviated. The difficulty in regard to the ſtraw may be eaſily removed, by having it properly ſtacked-up or cut into chaff.

In the Huſbandry Plate X. are given correct views of theſe machines. Fig. 1 repreſents a thraſhing-machine on a moderate ſcale, worked by a ſingle horſe: it may be erected at the expence of about from thirty to forty pounds, and will prove of conſiderable utility and profit to the middling farmer.

Fig. 2 repreſents a thraſhing-mill, on a larger conſtruction, which is worked by water. BB is a horizontal board or table, five feet long by three feet four inches broad, on which the corn CC is evenly ſpread, and preſented to the caſt-metal fluted rollers RR, which take it regularly in, and by their weight and ſharp edges hold faſt the ſtraw while it is ſtruck or thraſhed out by the pieces of wood SSSS, fixed in the cylinder DD, and projecting three inches from its ſurface. This cylinder is made with ſtrong arms, on which are fixed the pieces of wood, and caſed round with narrow inch-deals; the whole ſecured from flying off by ſtrong iron hoops ſurrounding them at each end; the former are covered with plate-iron, to prevent their wearing. Theſe, when they ſtrike the corn, move in an upward direction, RE, with great velocity, and throw the corn as it is thraſhed, and the ſtraw as it leaves the fluted rollers, againſt the circular rake KK, and upon the wire-ſkreen G, from whence the ſtraw is taken by the rake, and delivered upon the ſloping board L, down which it ſlides to the floor N, while the corn paſſes through the ſkreen G into the hopper H, and from thence to the inclined board I; but in falling from H to I a ſtrong current of air, raiſed by the fanners FFF, blows the chaff over the ſloping board O, and the light corn againſt it, which falls into the ſpace P, and the chaff into M, while the good grain ſlides down the inclined board II, to the floor at Q, from whence it is taken and put into a ſecond winnowing-machine, in which are placed proper riddles to ſuit different kinds of grain. This ſecond machine is moved by a rope going over a pulley, fixed in the axle T, and is ſet a-going or ſtopped at pleaſure, by a ſtretching-pulley, as occaſion may require.

But, where the ſituation will admit of the board II being placed about four feet from the floor, the ſecond winnowing-machine may be placed directly under it, and ſave the trouble of lifting the corn. The whole is put in motion by an overſhot water-wheel fourteen feet diameter, which makes from five to ſix revolutions per minute, according to the ſupply of water; on the axle of this water-wheel is fixed a large ſpur-wheel A, of 160 cogs, (152¾ inches diameter,) which drives a caſt-metal pinion *b*, of 16 cogs, (15·28 inches diameter,) on the axis of which is placed another ſpur-wheel *c*, of 63 cogs, (60·1 inches diameter,) that drives the caſt-metal pinion *d*, of 16 leaves, (15·28 inches diameter,) on the axis of which is fixed the cylinder DD, (four feet diameter, and five feet long,) with the four projecting pieces of wood, SSSS, that thraſh the corn as deſcribed above. The large ſpur-wheel *a* alſo drives the light cog-wheel *e*, of 63 cogs, (60·1 inches diameter,) fixed at the axis *kl* of the rake for taking away the ſtraw.

The rollers are moved by the pinion *b*, of 16 leaves, working into the ſlight caſt-metal wheel *f*, fixed on the iron axis *ii* of the lower roller, on which axis is alſo fixed a ſmall pinion *g*, of 8 leaves, working into another, *h*, of equal number, fixed on the axis of the upper roller, which gives the two rollers an equable motion for taking in the corn. This axis is fixed into the upper roller, by an univerſal joint, or with a ſquare tapering end, to allow the upper roller to riſe and fall, according as the corn is fed-in thicker or thinner; and the concave board RE is hung on a bolt, to allow it to riſe and fall with the roller.

When the rollers are required to move ſwifter or ſlower, they may be driven very conveniently from the end of the axle of the rake, by fixing a caſt-metal faced wheel on it, with three rows of cogs, (8, 10, and 13,) working into a ſhifting pinion of 8 leaves, fixed on an iron axle; at the other end of which is put a ſmall bevel-wheel of twelve teeth, working into another of eight teeth on the end of the axle of the lower roller. The fanners are moved by a croſſed rope, paſſing over a pulley T, 10 inches diameter, fixed on the axis of the cylinder, and another, V, of 8 inches diameter, on the axis of the fanners. The rollers take in nearly 300 inches of corn per minute with a medium quantity of water.

The publications on Huſbandry have of late been ſo extremely voluminous, that it is impoſſible for men of buſineſs to ſpare time to read a twentieth part of them.—Thoſe in moſt repute are, the Agricultural Works of Mr. Secretary Young; Middleton's View of the Agriculture of Middleſex; Marſhall's Rural Economy; Donaldſon's Modern Agriculture; Dr. Anderſon's Eſſays, and Recreations, in Agriculture; Banniſter's Synopſis of Huſbandry; Dr. Darwin's Phytologia, Tull's Syſtem of Drill and Horſe-hoeing Huſbandry; Manning on the Culture of Turnips; Amos on Drill-Huſbandry; Gentleman Farmer, &c. &c. But the beſt modern work in this department of ſcience, and wherein the obſervations and experiments of moſt other authors are judiciouſly conſidered and appreciated, is Dr. Dickſon's Practical Huſbandry, lately publiſhed in 2 vols. 4to. which highly merits the attentive peruſal of every country gentleman and farmer, whether partially or extenſively engaged in agricultural purſuits.

The Board of Agriculture was eſtabliſhed in 1793; and to that inſtitution we are indebted for moſt of the above valuable works, beſides the various "Agricultural Reports" of counties which are in regular courſe of publication under the direction of the Board. We ſhall therefore conclude this article with the ſubſtance of a Lecture read before the Board by their ſecretary, Mr. Arthur Young, in the preſent year 1810, on the advantages already derived from an inſtitution which we hope will long continue to flouriſh.

After obſerving, in the introductory part of his lecture, that the theory of this eſtabliſhment was, that of concentrating in a focus the knowledge, talents, and abilities, which were ſcattered, in men of a certain rank through the kingdom, Mr. Young proceeds to detail its more immediate practical purpoſes, and its actual benefits.

As a board of reference, to receive requiſitions for information

formation from the miniſter, or either houſe of parliament, the board has acted on various occaſions in perfect conformity with the theory of its inſtitution; and I need not obſerve how extremely neceſſary it is to be prepared, with this view, by having ſuch well-arranged collections of facts, as may at once be applicable to the inquiries which may probably come from higher aſſemblies to this board. Another branch of our quieſcent duties, and perhaps not the leaſt important, is that of conſidering the inſtitution as an office of intelligence, for the uſe of individuals who deſire information on any ſubject of rural economy. It is certainly the duty of the ſecretary to give at all times, and to all perſons, every ſpecies of information in his power; to make whatever inquiries may be neceſſary, with that view; and to introduce ſuch perſons to each other, as can beſt ſupply their mutual wants; and it is no exaggeration to aſſert, that this has been done to the amount of ſome thouſands of caſes.

The inſtitution was hardly eſtabliſhed, before a ſevere ſcarcity afflicted the kingdom; and the board, with the utmoſt aſſiduity, gave an immediate attention to a ſubject which naturally drew upon it every eye. To anſwer the immediate preſſure, many experiments were ordered and executed on the manufacturing of bread from every ſpecies of grain which could, by various mixtures, be made to enter into its compoſition. Fourſcore ſorts of bread were at once exhibited to the eyes of the public; and thoſe who recollect the examination, muſt remember the pleaſure very generally expreſſed at the ſight of a reſource which till then had been quite unknown. Theſe experiments were regiſtered and printed, and remain for future uſe.

But an object of much greater importance alſo occupied the attention of the board; this was the cultivation of the immenſe waſtes of the kingdom, by a general encloſure act. In order to aſcertain the amount of theſe deſerts, ſo diſgraceful to the richeſt country in the world, inquiries were ſet on foot in every diſtrict, and the reſult produced the enormous amount of more than twenty-two millions of acres! The energy and vigour with which the preſident executed the wiſhes of the board, in making theſe inquiries, and in framing a bill that ſhould remedy ſo great an evil, merited the higheſt commendation, and deſerves the gratitude of every ſucceeding age; though the effort unfortunately was unſucceſsful; and it is lamentable to reflect, that the obſtacles which aroſe to the meaſure were aggravated in no ſlight degree by efforts of private intereſt.

The next effort to which I beg leave to call your attention, was a ſucceſsful attempt to bring all the weights and meaſures of the kingdom under the ſummary juriſdiction of the magiſtrate. The board received ample information that the poor were defrauded in a multitude of caſes, more eſpecially in villages, by defective weights and meaſures, without there exiſting ſufficient powers for the ſpeedy application of a remedy; it requeſted one of its members to bring a bill into parliament to remedy the evil; this was done, and it paſſed into a law which has ever ſince been a bleſſing to thouſands.

An act of parliament which had its origin in the board, was that which took off a prepoſterous duty on the import of oil-cakes from America; and another legiſlative meaſure adopted on the recommendation of the board was, the exemption from exciſe granted to draining-tiles; an object of no ſlight importance, as, without this attention, the tax would have operated as a prohibition in this branch of the firſt of all improvements.

An object which at a very early period attracted the attention of the board, was the inquiry into the propriety of annexing land to cottages. Some perſons entertaining doubts as to the general application of this ſyſtem, the board adopted a meaſure that was founded in prudence, in order to aſcertain how far this ſyſtem extended, and what were its effects in ſituations removed from the immediate ſuperintendence of a few humane landlords. The board, under the auſpices of a noble lord, himſelf the beneficent patroniſer of the ſyſtem on his own extenſive eſtates, diſpatched a perſon, (Mr. Gourlay) every way qualified for the employment, to aſcertain all the circumſtances on the ſpot; he was directed to proceed to Burleigh, and to follow the ſyſtem wherever he found it. This he did through an extent of between ſeventy and eighty miles; he ſaw it under almoſt every variation of circumſtance, with no other exception than that of ſoils too barren to ſupport a cow. The report he made was equally curious and important; the poor people univerſally paid a fair rent for their land, ſupported themſelves through the two ſcarcities without the ſmalleſt aſſiſtance from the pariſhes, and were commended by their employers as the moſt induſtrious and moral of the labouring claſs. The poor-rates in the diſtricts which this ſyſtem pervaded, were from three-pence to one ſhilling and ſixpence in the pound; whereas in diſtricts adjoining, but not under this management, they were ſix, ſeven, and ten, times as much. I will venture to aſſert, that, had the board never performed any other ſervice to the public than this ſingle exertion, it would well have merited every ſhilling that was ever voted to it.

Their next exertion was on the ſubject of draining. The uncommon ſucceſs which attended Mr. Elkington's practice in many conſiderable drainages, executed on principles unknown, or but obſcurely hinted at by others, and practiſed by none but himſelf, very juſtly attracted the attention of the board. They proceeded in this buſineſs as they had done in every other; they began by procuring all the information that was to be had; and, being well ſatisfied of the importance of the diſcovery, they recommend him to the beneficence of parliament, who voted to him one thouſand pounds. But this was not all: that man, ſo ingenious on the ſpots demanding his ſkill, was aſtoniſhingly confuſed and obſcure in explaining his ideas; to ſuch a degree, indeed, that there was no ſlight danger of his art dying with him. To prevent this, the board employed a perſon of ſkill and ingenuity (Mr. Johnſton) to take a conſiderable journey with Mr. Elkington, for the purpoſe of examining on the ſpot the chief drainages which had been effected, and of having the principles duly explained. The undertaking was very ſucceſsful. Mr. Johnſton made himſelf maſter of the art, and reported it to the board in a treatiſe, which has been publiſhed for perpetuating a diſcovery that would have been loſt but for this well-imagined precaution of the board.

The deficiency of the crops in 1799 furniſhed the board with another opportunity of manifeſting their vigilance for the public good. On my arrival in town, the beginning of November in that year, I found the preſident (lord Somerville) not returned to England from Portugal, whither he had gone for the recovery of his health; and, a ſufficient number of members not attending to form a board before the adjournment, I thought it my duty to write a letter to Mr. Pitt, to that purport in which I conceived the board would have addreſſed him had it aſſembled. I ſtated, from ample information, the deficiency of the late crop, which I conceived was much greater than was ſuppoſed at that time, and earneſtly recommended to him to take immediate meaſures for the introduction of rice from India. In March 1800, lord Carrington was elected to the preſidency, and his lordſhip urged to the miniſter the ſame meaſure. After much conſideration on the ſubject, no remedy occurred ſo certain, ſafe, and economical, for ſupplying the expected deficiency, as the importation of a ſufficient quantity of rice from India; from ſome cauſe or other, however, the critical period for effectual encouragement was ſuffered to paſs by, and, though a bounty on the importation was ſubſequently offered, the rice did not arrive till after the abundant harveſt of 1801. Yet, whether the board was attended to or diſregarded, its merit with the public remained the ſame. Two millions and a half might have been ſaved, had the ſuggeſtion of the board been adopted in time.

On occaſion of the firſt ſcarcity, the board had ample reaſon to be convinced of the great importance of potatoes, as a remedy for that deficiency under which the nation laboured. It was propoſed, at one of their meetings, to offer a premium of one thouſand pounds to the perſon who ſhould make the greateſt exertions in that branch of cultivation; but, the ſum being found too great for the finances of the board, the ſcheme dropped, not however without ſome effect; for a newſpaper erroneouſly reporting that the board had actually made the offer, occaſioned exertions in various parts of the kingdom, as we afterwards found, by applications from individuals for information relative to the mode of reporting the experiments; and the meetings at that time were convinced, that, had ſuch a premium been offered, the effect of it would have been very conſiderable.

Another effort tending to the ſame end, was that of offering premiums, in the year 1805, for encouraging the culture of ſpring-wheat; theſe were widely claimed, and, having been followed by many others ſince, have proved that the article is well eſtabliſhed in many diſtricts.

I come now to bring to your recollection, the method and ſucceſs with which this inſtitution obeyed a requiſition from the houſe of lords, to inquire into, and report, the means of breaking up certain portions of graſs-land, as a remedy for ſcarcity, and laying them down again without injury to the proprietors. The board deliberated with great attention upon this important object, and determined, by offering conſiderable premiums, to call to its aſſiſtance the information of practical men in every part of the kingdom. The plan was attended with all the ſucceſs that could be deſired; three hundred and fifty memoirs were ſent in claim of the premiums; the beſt of them were printed at full length, and extracts from many others, forming, on the whole, a maſs of full and complete information, derived from the practice and experience of men known to have been highly ſucceſsful in their agricultural exertions. No ſubject in the whole range of agriculture was ever ſo fully elucidated. Theſe memoirs further contain much other incidental matter of conſiderable importance; and they have, in various parts of the kingdom, been ſucceſsfully acted upon.

I come now to the more active exertions of the board; in which the principal feature that demands your attention, is the immenſe undertaking of ſurveying fourſcore provinces; that is to ſay, an empire in which no diſtrict was to be omitted from the Land's End to the Orkneys. The Reports which have been already printed, from among thoſe written ones which this meaſure produced, detail many particulars relating to the extent, ſoil, and climate, of each county; the rivers, navigations, roads, and whatever contributes to internal communication; the tenures by which landed property is poſſeſſed and occupied, including the effect of long and ſhort leaſes; they deſcribe thoſe circumſtances which demand attention in the buildings neceſſary to the occupation of land; they note the payments to which it is ſubjected in rent, tithe, and parochial taxes; they give the ſize of farms, and the conſequences of both large and ſmall occupations; they preſent a detail of encloſures, whether by private exertion or by public authority, and the conſequences which have flowed from them; they deſcribe the implements of huſbandry, and mark ſuch as merit removal from a confined diſtrict to a more general application; they enter into all the minutiæ of the cultivation of arable land, and are equally attentive to the paſturage and meadows of the kingdom; they give the particulars of woods and plantations; they enter largely into the detail of waſte-lands of the kingdom, their ſoil, climate, and value, the improvements which have been made upon them, and others of which they are ſuſceptible; they report upon the means uſed for the improvement of all the various ſoils, whether by draining, irrigation, paring and burning, manuring, or embanking; they deſcribe the live-ſtock of the kingdom, and the great improvements which have been made in that important department; they note the price, and various other circumſtances, reſpecting rural labour, the ſtate of the poor, and the various efforts which have been made for ameliorating their condition; and they give ſuch particulars relating to manufactures and commerce, as connect them with rural economy. From this detail, which does not however include the whole of the inquiries directed by the board, it muſt be ſufficiently obvious, that theſe works muſt neceſſarily lay ſuch a foundation for a ſcientific knowledge in every branch of agriculture, as cannot fail of diffuſing a ſpirit of improvement through every part of the realm; this is their direct tendency; and, if they ſhould fail of effecting that object, it is not ſo much the fault of the works themſelves, as of the neglect of thoſe who do not ſufficiently examine them. It may be aſſerted with equal ſafety, that no inquirer into the facts on which the ſcience of political economy ought to be founded, can neglect conſulting theſe works without manifeſting an ignorance proportioned to ſuch neglect; in fact, they may be as uſeful to a member of the legiſlature as they ought to be to a practical farmer; and I do not found this aſſertion on a reference to a few of the beſt of theſe productions, but am juſtified in the opinion by a peruſal of the worſt. It muſt be in the recollection of many members of the houſe of commons, that Mr. Pitt founded many of his calculations, that were brought forward in a budget, on the information derived from one of theſe reports.

That I do not eſtimate this undertaking of ſurveying the whole kingdom too highly, will appear from the eagerneſs with which it was imitated in other countries. In France it was begun by the Directory, and finiſhed under the immediate orders of Bonaparte; in Ruſſia a beginning has been made, by a report for the province of Moſcow, executed by one of the reporters originally employed by this board, and in the carrying on of which no expence has been ſpared. General Waſhington, in a letter to the preſident, thus ſtates his opinion of the county reports: "I have read with pleaſure and approbation the work you patroniſe, ſo much to your own honour, and the utility of the public. Such a general view of the agriculture in the ſeveral counties of Great Britain, is extremely intereſting, and cannot fail of being very beneficial to the agricultural concerns of your country, and to thoſe of every other wherein they are read, and muſt entitle you to their warmeſt thanks for having ſet ſuch a plan on foot, and for proſecuting it with the zeal and intelligence you do. I am ſo much pleaſed with the plan and execution myſelf, as to pray you to have the goodneſs to direct your bookſeller to continue to forward them to me. When the whole are received, I will promote, as far as in me lies, the reprinting of them here. The accounts given to the Britiſh board of agriculture, appear in general to be drawn up in a maſterly manner, ſo as fully to anſwer the expectations formed in the excellent plan which produced them; affording at the ſame time a fund of information, uſeful in political economy, and ſerviceable in all countries."

Mr. Young then ſpecifies ſome of the beneficial practices in huſbandry, which, from being confined to particular diſtricts, or even to the operations of individuals, have been brought into general knowledge and adoption, by means of the printed agricultural reports. As inſtances of theſe he mentions warping; fogging certain deſcriptions of graſs-lands; ſowing winter-tares on bad graſs-lands, as a ſure means of improving them; putting in all ſorts of ſpring-corn, without any ſpring-ploughing, upon ſtrong or wet ſoils; and the uſe of long freſh dung, in preference to that which is rotten. He adds alſo the clear illuſtration which they have given to the advantages of drill-huſbandry; and points out inſtances in which even the agriculture of both the Eaſt and the Weſt Indies has received vaſt benefits from the exertions of the board at home. He refutes ſome ridiculous prejudices conceived againſt the board on the ſubjects of tithes, and of its ſurveys being ſuppoſed to be intended for furniſhing new ſources of taxation; and in the following paragraph, notices particularly one, which might perhaps have been thought to reſt on a better foundation.

Another ſource of obloquy, which has preſſed heavier perhaps then all the reſt, and eſpecially in the minds of the inhabitants of this city, was the notion, that the board was the origin of all the endeavours to bring cattle to market in an uncommon degree of fatneſs. "I know nothing you have done, but to bring meat to market ſo fat that nobody can eat it," was an obſervation of a member of the houſe of commons. Many pamphlets, and at leaſt forty newſpapers, have ſhown the ſame lamentable ignorance. You, gentlemen, well know, that, from the firſt inſtitution to the preſent moment, the board has never offered a ſingle premium for, nor given its ſanction to, any one meaſure that had the moſt diſtant tendency to ſuch an effect. *This purſuit flowed into other channels, abſolutely unconnected with the board*; *and there you left it, in my humble opinion, with great prudence.* In the premiums you have offered, in the practices you have ſanctioned, (they have extended no further than the two objects of ſoiling cattle and working oxen,) you had no other view than that of increaſing the live-ſtock of the kingdom, and conſequently the quantity of meat in the market, without the ſmalleſt attention to the degree of its fatneſs. There is not a ſingle meaſure that was ever adopted by this board, from the original eſtabliſhment to the preſent moment, that had not a direct tendency to increaſe the common and wholeſome food of the lower claſſes of the people, and to ameliorate their condition by every means that human foreſight could deviſe.

Mr. Young concludes with obſerving, "Upon the whole, there is no perſon who will give a ſerious conſideration to the conduct of the board, but muſt be diſpoſed to admit, that it is an inſtitution which has deſerved well of the public. To the farmers of the kingdom, you have made no other return for their unfounded ſuſpicions than that which flows in a conſtant ſtream of benefits. You have made known, for the intereſt of all, the advantageous practices of a few; you have ſought with unvarying anxiety the means of their inſtruction; and thouſands are enjoying at this moment the profit derived from practices, the origin of which is to them unknown. The landlords of the kingdom muſt be under equal obligations to an inſtitution, whoſe uniform efforts tend to eſtabliſh the ſpirit of improvement in every diſtrict of the empire. The lovers of ſcience will rejoice to ſee, that the exertions of the board directly tend to give the ſame foundation to agricultural knowledge, which ſo many other efforts of the human mind have long reſted upon. That you well know how to draw wiſe concluſions from the premiſes you have created, you have given repeated and convincing proofs; no advice offered by you has been acted upon without decided ſucceſs; none has been rejected without the miſchief coming in full relief to the eye of the politician. You would have remedied one former ſcarcity, and you would have abſolutely prevented another; ſhould a third afflict the kingdom, and inſufficient remedies be applied, not a ſhadow of blame can reſt on this inſtitution, which has pointed out thoſe lines of conduct which experience has proved to be effective."

HUSBANDRY is repreſented in painting and ſculpture, as claſſically delineated in the Frontiſpiece to this volume.

HU'SEDONCK, a town of Flanders: five miles ſouth-eaſt of Ghent.

HU'SENETZ, a town of Bohemia, in Prachatitz: four miles north-weſt of Prachatitz.

HU'SET, a town of Hungary: twenty-four miles eaſt of Munkaiz.

HUS'BEY-FIOL', a town of Sweden, in the province of Eaſt Gothland: fourteen miles north-weſt of Linkoping.

HUSH, *interj.* [Without etymology.] Silence! be ſtill! no noiſe!

There's ſomething elſe to do; *huſh* and be mute,
Or elſe our ſpell is marr'd. *Shakeſpeare.*

HUSH, *adj.* Still; ſilent; quiet:

As we often ſee, againſt ſome ſtorm,
A ſilence in the heav'ns, the rack ſtand ſtill,
The bold winds ſpeechleſs, and the orb below
As *huſh* as death. *Shakeſpeare.*

*To* HUSH, *v. n.* To be ſtill; to be ſilent:

This frown'd, that fawn'd, the third for ſhame did bluſh;
Another ſeemed envious or coy;
Another in her teeth did gnaw a ruſh;
But at theſe ſtrangers' preſence every one did *huſh*. *Spenſer.*

*To* HUSH, *v. a.* To ſtill; to ſilence; to quiet; to appeaſe:

When in a bed of ſtraw we ſhrink together,
And the bleak winds ſhall whiſtle round our heads,
Wilt thou then talk thus to me? Wilt thou then
*Huſh* my cares thus, and ſhelter me with love? *Otway.*

*To* HUSH UP, *v. a.* To ſuppreſs in ſilence; to forbid to be mentioned.—This matter is *huſhed up*, and the ſervants are forbid to talk of it. *Pope.*

HUSH'-MONEY, *ſ.* A bribe to hinder information; pay to ſecure ſilence:

A dext'rous ſteward, when his tricks are found,
*Huſh-money* ſends to all the neighbours round;
His maſter, unſuſpicious of his pranks,
Pays all the coſt, and gives the villain thanks. *Swift.*

HUSK, *ſ.* [*huldſch*, Dut. or *huyſcken*, from *huys*.] The outmoſt integument of fruits.—Do not content yourſelves with mere words, leſt you feed upon *huſks* inſtead of kernels. *Watts.*

Some ſteep their ſeeds, and ſome in cauldrons boil
O'er gentle fires; th' exuberant juice to drain,
And ſwell the flatt'ring *huſks* with fruitful grain. *Dryden.*

*To* HUSK, *v. a.* To ſtrip off the outward integument.

HUS'KED, *adj.* Bearing a huſk; covered with a huſk.

HUS'KY, *adj.* Abounding in huſks; conſiſting of huſks:

Shave the goat's ſhaggy beard, leſt thou too late
In vain ſhould'ſt ſeek a ſtrainer, to diſpart
The *huſky* terrene dregs from purer muſt. *Phillips.*

HUSS (John), an eminent Bohemian divine and martyr, born at Huſſenitz in 1373. He received his education at the univerſity of Prague, where he was admitted to the degree of B.A. in 1393, and to that of M.A. in 1395. In the year 1400 we find him paſtor of the church called Bethlehem, in that city; and ſome time afterwards he was appointed profeſſor of divinity in the univerſity. He lived at Prague in the higheſt reputation, both on account of the ſanctity of his manners and the purity of his doctrine. He was alſo diſtinguiſhed for his uncommon erudition and eloquence. At this time the writings of Wickliff had been introduced into Bohemia, and much read at Prague, where Huſs adopted ſeveral of his opinions, and in particular thoſe relating to the papal hierarchy, the deſpotiſm of the court of Rome, and the corruption of the clergy. The archbiſhop of Prague, and the clergy in general, who were warmly attached to the intereſts of pope Gregory, were greatly exaſperated at theſe proceedings; and Huſs was declared by the church of Rome no better than a heretic. In the year 1414, when the council of Conſtance had aſſembled, it was agreed between the pope and the emperor that Huſs ſhould appear before it, and give an account of his conduct and doctrine. He was accordingly ſummoned to appear before the council; and, that he might not be deterred from obeying the citation by any apprehenſions reſpecting his perſonal ſecurity, the emperor granted him a formal ſafe-conduct, both for his journey to Conſtance, his reſidence in that place, and his return to his own country. Theſe ſolemn pledges determined him to obey the ſummons; and after fixing placards upon the gates of the churches in Prague, in which he declared that he was going to the council, to anſwer to any accuſations that might be brought againſt him, and invited all who had any thing to except againſt his life and converſation to be there preſent, he proceeded towards Conſtance. He made the ſame declarations in all the towns through which he paſſed, and arrived at the place of his deſtination in November 1414. Here his accuſers drew up a formal memorial of his pretended errors, which was preſented to the pope and council; and on the twenty-ſixth day after his arrival he was ſummoned to appear, when he declared himſelf ready to be examined, and to ſubmit to their correction, if he ſhould be convinced that he had taught erroneous doctrine. The cardinals ſoon afterwards withdrew, to deliberate on the moſt proper mode of proceeding againſt him; and the reſult of their deliberations was, that he ſhould be committed to priſon. This was accordingly done, in ſcandalous violation of the public faith, and of every obligation dear to men of honour; and for ſix months he was haraſſed from priſon to priſon, in which he was cruelly and inhumanly treated; and he was condemned as guilty of hereſy by the council, in his abſence and without a hearing, for maintaining that the euchariſt ought to be adminiſtered to the people in both kinds. On this occaſion the emperor affected to be diſſatisfied with the proceedings againſt Huſs, and inſiſted that his honour would not permit that he ſhould be condemned unheard. It was therefore decreed that Huſs ſhould be permitted to enter into a defence of himſelf before the council. During the two days in which Huſs appeared before the council, what he had to offer in his defence was inceſſantly interrupted by noiſe and tumult, and he was at length given to underſtand, that they were not diſpoſed to liſten to any thing which he might deliver, unleſs it were a recantation of his errors. This Huſs manfully refuſed, as he could not make a ſacrifice to them of his conſcience; and he was ordered back to priſon. About a month afterwards he was again brought before the council, where he was condemned as a heretic, and adjudged to be burnt. On the ſame day he was firſt ſtripped of his ſacerdotal garments by biſhops who were appointed for that purpoſe, who afterwards degraded him, and having placed upon his head a paper crown, on which were the words, "A ring-leader of hereſy," delivered him to the ſecular power. Immediately he was hurried to the ſtake, and, after his books had been burnt at the door of the church, he was himſelf burnt alive; which dreadful puniſhment he endured with unparalleled magnanimity and reſignation, expreſſing in his laſt moments the nobleſt feelings of love to God, and the moſt triumphant hope of the accompliſhment of thoſe tranſporting promiſes with which the Goſpel arms the true Chriſtian at the approach of eternity! The works of Huſs were numerous and learned. They were collected together, and printed, with ſome hiſtorical documents, letters, pontificial bulls, &c. at Nuremberg, 1558, in 2 vols. folio.

HUSSA'R, *ſ.* A ſoldier of the Hungarian cavalry, troops of which have been lately formed in England, exactly from the Hungarian uniform.—You cry it down as baſe money, and tell them you will pay for the future with French guards and dragoons, and *huſſars. Burke.*—See the article Hungary, p. 465 of this volume.

HUSSA'R, *ſ.* A kind of coat or cloke, ſuch as is worn by the irregular horſe of the Hungarian army.

HUS'SEN, or Huyssen, a town of Germany, in Weſtphalia, and biſhopric of Liege: four miles ſouth of Stockem.

HUSSINGABAD', a town of Hindooſtan, in the Candeiſh country, on the ſouth ſide of the Nurbuddah: 120 miles north-eaſt Burhanpour, and 120 eaſt-ſouth-eaſt of Ougein. Lat. 22.42. N. lon. 77. 54. E. Greenwich.

HUS'SITES, in eccleſiaſtical hiſtory, a party of reformers, the followers of John Huſs, mentioned above.

HUS'SY, *ſ.* [corrupted from *houſewife*: taken in an ill ſenſe.] A ſorry or bad woman; a worthleſs wench. It is often uſed ludicrouſly in ſlight diſapprobation.—Get you in, *huſſy*, go: now will I perſonate this hopeful young jade. *Southern.*

HUS'TINGS, [from huꞅꞇinᵹe, Sax. i. e. a council, or court.] A court held before the lord mayor and aldermen of London, being the principal and ſupreme court of the city: and of the great antiquity of this court, we find honourable mention made in the laws of king Edward the Confeſſor. Other cities and towns have alſo had a court of the ſame name; as Wincheſter, York, Lincoln, &c. *Fleta lib.* ii. *c.* 55. 10 *Edw.* II. *c.* 1. See Court of Hustings, vol. v. p. 301.

*To* HUS'TLE, *v. a.* [perhaps corrupted from *hurtle.*] To ſhake together in confuſion.

HUST'LING, *ſ.* The act of ſhaking together.

HUS'WIFE, *ſ.* [corrupted from *houſewife.*] A bad manager; a ſorry woman. It is common to uſe *houſewife* in a good, and *huſwife* or *huſſy* in a bad, ſenſe:

Bianca,
A *huſwife*, that, by ſelling her deſires
Buys herſelf bread and cloth. *Shakeſpeare.*

An œconomiſt; a thrifty woman:

Why ſhould you want?
The bounteous *huſwife*, Nature, on each buſh
Lays her fulneſs before you. *Shakeſpeare.*

*To* HUS'WIFE, *v. a.* To manage with œconomy and frugality:

But, *huſwifing* the little Heav'n had lent,
She duly paid a groat for quarter's rent;
And pinch'd her belly, with her daughters two,
To bring the year about with much ado. *Dryden.*

HUS'WIFERY, *ſ.* [from *huſwife.*] Management good or bad:

Good *huſwifery* trieth
To riſe with the cock;
Ill *huſwifery* lyeth
Till nine of the clock. *Tuſſer.*

Management of rural buſineſs committed to women:

If cheeſes in darie have Argus his eyes,
Tell Ciſley the fault in her *huſwifery* lies. *Tuſſer.*

HU'SUM, a ſeaport town of Denmark, on the weſt coaſt of the duchy of Sleſwick, conſtituted a city in the year 1608; formerly famous for exporting great quantities of malt. At one time above forty large veſſels belonged to this port, and the oyſter-trade was almoſt entirely in the hands of the inhabitants, but it is now greatly declined. The principal trade at preſent conſiſts in beer, cattle, and horſes: eighteen miles weſt of Sleſwick. Lat. 54. 32. N. lon. 9. 8. E. Greenwich.

HUT, *ſ.* [huꞇꞇe, Sax. *hutte*, Fr.] A poor cottage:

Sore pierc'd by wintry wind,
How many ſhrink into the ſordid *hut*
Of cheerleſs poverty! *Thomſon.*

HU'TA, a town of Lithuania, in the palatinate of Novogrodeck: forty miles eaſt-north-eaſt of Novogrodeck.

HUTCH, *ſ.* [hƿæcca, Sax. *huche*, Fr.] A corn-cheſt.—The beſt way to keep them, after they are threſhed, is to dry them well, and keep them in *hutches*, or cloſe caſks. *Mortimer.*

*To* HUTCH, *v. a.* To lay up in ſtore:

In her own loins,
She *hutch't* th' all-worſhipt ore. *Milton.*

HUTCH'ESON (Francis), an Iriſh Proteſtant diſſenting miniſter, born in 1694. In the year 1710, he entered a ſtudent at the univerſity of Glaſgow, where he made ſuch a proficiency in literature, as might be expected from uncommon talents. When he had completed his philoſophical courſe, he for ſome years devoted himſelf to the ſtudy of divinity, which he choſe for his particular profeſſion. After ſpending ſix years in the univerſity of Glaſgow, lord Moleſworth took great pleaſure in his converſation, and aſſiſted him with his criticiſms and obſervations upon his Enquiry into the Ideas of Beauty and Virtue, before it was ſent to the preſs; as did likewiſe Dr. Synge, biſhop of Elphin. The firſt edition of this work was publiſhed without his name, in 1725, 8vo; but the great merit of it would not ſuffer the author to remain long concealed. In the year 1728, he publiſhed A Treatiſe of the Paſſions, &c. 8vo. which, as well as his former work, has been often reprinted, and always admired for the ſentiments and language, even by thoſe who have not entirely aſſented to the author's philoſophy. In 1729, he was elected to fill the chair of profeſſor of philoſophy in the univerſity of Glaſgow. At this time he was admitted to the degree of doctor of laws.

After his ſettlement at Glaſgow, the province aſſigned to Dr. Hutcheſon was the profeſſion of moral philoſophy, which called his chief attention to his favourite ſtudy, that of human nature; and his abilities, diſpoſition, and ſtores of knowledge, accompanied with a happy talent of ſpeaking with eaſe, rendered him a moſt maſterly and engaging teacher. Regarding the culture of the heart as a principal end of all moral inſtruction, he kept this conſtantly in view; and his uncommon vivacity of thought, and ſenſibility of temper, rendering him quickly ſuſceptible of the warmeſt emotions upon the great ſubjects of morality and religion, the ſtrain of his diſcourſes commanded the attention of the ſtudents, and at the ſame time left ſtrong impreſſions on their minds. A naturally good conſtitution, and an uniform mode of living, ſeemed to promiſe a long enjoyment of his life; but he did not ſurvive the fifty-third year of his age, as he died in 1747. His Syſtem of Moral Philoſophy, was publiſhed from his manuſcripts, by his ſon Dr. Francis Hutcheſon, a phyſician, 1775, in 2 vols. 4to.

HUTCH'INS (John), born in 1698, at Bradford-Peverell, in Dorſetſhire. He was educated at Baliol college, Oxford, and, taking orders, was preſented to the rectory of the church of the Holy Trinity at Wareham, where he died in 1773. He began early to collect materials for a hiſtory of his native county, and ſpent many years in the diligent collection of the uſual materials of ſuch a work, drawn from records public and private, inquiſitions, charters, &c. He lived to ſee his taſk completed and put to the preſs; but it did not appear till the year after his death, when it was publiſhed for the benefit of the author's widow and children. It is entitled, The Hiſtory and Antiquities of the County of Dorſet, 2 vols. folio, adorned with many plates contributed by the patrons of the work, and enriched with articles of natural hiſtory, communicated by Dr. Pulteney and others.

HUTCH'INSON (John), founder of the Hutchinſonian philoſophy, born at Spennythorn, in Yorkſhire, in 1674. His father, intending him for the profeſſion of a ſurveyor, or ſteward to ſome gentleman or nobleman, gave him ſuch ſchool-learning as theſe avocations required. At the age of nineteen, he became ſteward to Mr Bathurſt, of Skutterſkelf in Yorkſhire; and afterwards he filled the ſame poſt under the earl of Scarborough, who was deſirous of retaining him in his ſervice. Mr. Hutchinſon's ambition, however, was to ſerve the duke of Somerſet; and, having ſoon afterwards received an appointment from his grace, he entered on his new ſituation, in which he diſtinguiſhed himſelf in ſuch a manner as to obtain the principal ſtewardſhip, and the particular favour, of that nobleman. About the year 1700, Mr. Hutchinſon's office called him to London, to conduct a law-ſuit of great importance between the duke and lord Wharton; and during this attendance in town he appears to have contracted an acquaintance with Dr. Woodward, who was the duke's phyſician. From this time, his buſineſs carrying him into ſeveral parts of England and Wales, he began to make obſervations during his journeys, ſome of which he publiſhed in a ſmall tract, entitled, Obſervations made by J. H. moſtly in the year 1706.

In the courſe of his travels alſo, Mr. Hutchinſon employed himſelf in collecting foſſils, which he put into the hands of Dr. Woodward, who encouraged him in this purſuit, and kept up a correſpondence with him for ſome years. It ſeems that the doctor had promiſed to arrange theſe foſſils in a ſyſtematic order, and to digeſt into a regular method the author's ſcattered obſervations. They were deſigned as materials for a work to prove the truth of the Moſaic account of the firſt formation of the earth at the Creation, and the re-formation of it after the Deluge, to ocular demonſtration; which work Dr. Woodward had engaged to draw up, and publiſh with ſome additional obſervations of his own. But, the doctor delaying to perform this promiſe, Mr. Hutchinſon reſolved to wait no longer, but to truſt to his own pen for the completion of his intended work. Having taken this reſolution, in 1724, he preſented to the world the firſt fruits of his ſtudies, in a work entitled, Moſes's Principia, Part I. 8vo. in which he threw out ſome hints concerning what had paſſed between Dr. Woodward and himſelf, inſinuating, that the doctor intended to deprive him of his collection of foſſils in a diſhonourable manner, and to keep them in his own poſſeſſion. Dr. Woodward's death, however, in 1728, put an end to the controverſy.

In 1727, Mr. Hutchinſon publiſhed the ſecond part of Moſes's Principia; which contains the ſum and ſubſtance, or the principles, of the ſcripture philoſophy. As ſir Iſaac Newton made a vacuum and air the principles of his philoſophy, our author on the contrary aſſerts, that a plenum and the air are the principles of the ſcripture philoſophy. The air he ſuppoſes to exiſt in three conditions; fire, light, and ſpirit. The light and ſpirit are the finer and groſſer parts of the air in motion: from the earth to the ſun, the air is finer and finer, till it becomes pure light near the confines of the ſun, and fire in the orb of the ſun, or ſolar focus. From the earth towards the circumference of this ſyſtem, in which he includes the fixed ſtars, the air becomes groſſer and groſſer, until it becomes torpid and ſtagnate, in which condition it is at the utmoſt verge of this ſyſtem; from whence the idea or expreſſion of outer darkneſs and blackneſs of darkneſs, uſed in the New Teſtament, ſeems to be taken. The ſun, which he places in the centre, is the active vivifying agent, which by melting the ſpirit or groſſer part of the air into atoms, or finer parts, or æther, and iſſuing them out in light, ſets the machine forward, and keeps it going; for the light is preſſed out by the influx of the ſpirit, and the ſpirit is preſſed in by the efflux of light; and ſo the whole matter of the heavens or air is perpetually changing conditions, and circulating. In the introduction to this ſecond part, Mr. Hutchinſon hinted, that the idea of the Trinity was to be taken from the three grand agents above-mentioned, fire, light, and ſpirit; theſe three conditions of one and the ſame ſubſtance anſwering wonderfully in a typical or ſymbolical manner, to the three perſons of one and the ſame eſſence. It is ſaid, that, when the celebrated Dr. Samuel Clarke read this performance, he ſent to the author, and deſired a conference with him on that propoſition in particular; which, however, Mr. Hutchinſon, after repeated ſolicitations, thought fit to refuſe. From this time the author continued publiſhing a volume almoſt every year, till his death. In 1737, he was attacked by a bilious fever, to which he fell a ſacrifice in the ſixty-third year of his age.

Mr. Hutchinſon was a perſon of a very ſingular caſt of mind, as his writings ſufficiently ſhow. His leading notion was, that all knowledge, natural as well as theological, is contained in the Hebrew Scriptures. In order to ſupport this, he has had recourſe to the moſt fanciful etymologies, contrary to the genius and uſage of the Hebrew tongue, as well as to the moſt extravagant and whimſical propoſitions. He taught, that every Hebrew root has ſome important meaning, or repreſents ſome obvious idea of action or condition, raiſed by the ſenſible object which it expreſſes, and further deſigned to ſignify ſpiritual and mental things. He maintained, that the covenant of grace is clearly typified by the cherubim in the prophet Ezekiel's viſion, under the whole covenant of works. One of his firſt proſelytes was Mr. Catcut, a clergyman at Briſtol, who, in a ſermon of the Elohim, explains that viſion in words which compriſe ſome of Mr. Hutchinſon's leading propoſitions. "This then, ſays he, was the appearance; the head of a bull, a man and lion together, and of an eagle; ſo they had three heads and four viſages; the bodies were all joined in one, by this ſignifying the unity of the eſſence, and the diſtinction of the perſons, and man taken into the eſſence by his perſonal union with the ſecond perſon, whoſe conſtant emblem was the lion, expreſſed by cherubim, a word compounded of *che*, *quaſi*, a word of likeneſs, and *rubim*, the great ones, great in every reſpect, and in the higheſt degree; the animals ſeen in this appearance, were Rubims, great ones among the creatures, the chief of the tame, the wild, and the winged kinds; ſo it was named, *the ſimilitude of the great ones.*" This explanation of the ſcholar was approved and defended by the maſter, who ſays, it is certain that the hieroglyphical emblems were never pretended to be explained before, and it is certain they are explained now. We are further told, that, beſides the certainty of this expoſition, the admiſſion of it is a capital article of religion; that this of the cherubim exhibits the maker and performer of the covenant and oath, and that all religion was performed before theſe emblematical faces. For the better conception of the form of the cherubim, Mr. Hutchinſon cauſed a print of it to be engraved, repreſenting the two cherubims on the cover of the ark in the Holy of Holies, and above them the Shekinah, or Divine Glory, and below them the high prieſt ſprinkling blood toward the ark. This he inſerted in his Glory and Gravity; and ſays, that both the Old and New Teſtament were written to explain, and are but references to, what was exhibited in the figure, and that all the heathen books do but aim at deſcribing the ſhadows of what was exhibited in it. Extravagant, however, as theſe notions were, he has had followers even among the learned. The name of biſhop Horne, and ſome others, were for a ſhort time diſgraced by being called proſelytes to the Hutchinſonian philoſophy. His works were publiſhed in 1748, in 12 vols. 8vo. by the Rev. Julius Bate, a ſtrenuous advocate for his doctrines; on whom he beſtowed the living of Sutton, in Suſſex; the right of preſentation to which had been given to Mr. Hutchinſon by the duke of Somerſet.

HUTE'SIUM, *ſ.* in old records, a hue and cry, eſpecially in Scotland, where, when a robbery had been committed, they blew a horn, and made an outcry; after which, if the thief ran away and did not ſurrender himſelf, he might be lawfully killed, or hanged upon the next gallows.

HUTH'ERSFIELD. See Huddersfield.

HUT'KA, a town of Hungary: twelve miles ſouth-ſouth-eaſt of Caſchau.

HUTOW', a town of Lithuania, in the palatinate of Brzeſc: twenty-eight miles weſt-ſouth-weſt of Pinſk.

HUTSCH'NIZ, a town of Bohemia, in Leitmeritz: three miles eaſt of Leitmeritz.

HUT'TANY, a town of Hindooſtan, in the country of Viſiapour: thirty miles ſouth-ſouth-weſt of Viſiapour. Lat. 17. 5. N. lon. 75. 6. E. Greenwich.

HUT'TEN (Ulric de), one of the early reformers, born at the caſtle of Staeckelberg in 1488. He ſtudied firſt at the monaſtery of Fulda, then at Cologne, and finally at the univerſity of Frankfort on the Oder, where he took the degree M. A. at the age of eighteen. Having imbibed the opinions of Luther, he publiſhed the bull of pope Leo X. againſt that reformer, with interlineary and marginal remarks, in which he treated the pontiff with ſo little reſpect, that orders were tranſmitted from Rome to the elector of Mentz to ſend Hutten thither in fetters. He had already manifeſted his hoſtility againſt the papal court by publications expoſing its continual attacks upon the emperors, and impoſitions upon the German nation, which obliged him to retire from Mentz. He afterwards wandered from place to place, and was at Baſil in 1523, where the ſenate made him a conſiderable preſent. He finally took refuge in the Iſle of Uffnau, in the Lake of Zurich, where he died in 1523, in his thirty-ſixth year. He was conſidered as a man of learning; and publiſhed various Latin works in proſe and verſe, which diſplayed more animation than correctneſs. He alſo edited two new books of Livy, and diſcovered new manuſcripts of Pliny, Quintilian, and Marcellinus.

HUT'TENHEIM, a town of Germany, in Franconia, and lordſhip of Seinſheim: one mile north-eaſt of Markt-Seinſheim.

HUT'TER (Elias), a German proteſtant divine, born at Ulm about the year 1554, and died at Nuremberg in 1603. He publiſhed an edition of the Hebrew Bible, entitled, *Via Sancta, ſive Biblia ſacra Hebræa Veteris Teſtamenti*, &c. in folio, with the following peculiarities: the radical letters are all printed in black, the ſervile in hollow types, and the quieſcent in ſmaller characters above the line. At the end, the hundred and ſeventeenth Pſalm is given in thirty different languages. He alſo publiſhed two polyglots of the Bible: one at Hamburg, in 1596, in Hebrew, Greek, Latin, and German, in 3 vols. folio; and the other at Nuremberg, in 1599, with the addition of the Italian, French, Sclavonic, and Saxon, verſions, alſo in folio. In 1600 he publiſhed a polyglot of the New Teſtament, in twelve languages, viz. the Syriac, Hebrew, Greek, Latin, German, Bohemian, Italian, Spaniſh, French, Engliſh, Daniſh, and Poliſh; which, in an edition printed in 1603, were reduced to the Hebrew, Greek, Latin, and German.

HUT'TER (Leonard), a learned German Lutheran divine and profeſſor, born in 1563 at Ulm, where his father was miniſter. His earlier education he received in his native city, and when of a proper age was ſent to the univerſity of Straſburg. Here he purſued his ſtudies with commendable diligence and credit to his proficiency, and in the year 1583 was admitted to the degree of M. A. From this time he devoted himſelf entirely to the ſtudy of theology, which he purſued at Straſburg till the year 1591, when he removed to the univerſity of Leipſic. After remaining two years in this ſeminary, he went to Jena, where, in 1594, he received the degree of doctor of divinity. In 1596 he had acquired ſo high a reputation for extenſive theological knowledge, that he was appointed to a profeſſorſhip of divinity in the univerſity of Wittemberg. The duties of this poſt he diſcharged with unwearied induſtry, and the character of a very able tutor. He died in 1616, when he was rector of the uniſity for the fourth time. He was the author of, 1. *Compendium Theologiæ, cum Notis D. Gotofredi Cundiſii.* 2. *Loci Communes Theologici*, folio. 3. *Lectiones Evangeliorum & Epiſtolarum aniverſarias, Ebraicè, Græcè, Latinè, Germanicè, harmonicè, & ſymmetricè*, 4to. 4. *Explicationem Epiſtolæ D. Pauli ad Galatas*, 12mo. 5. *Formulas Concionandi*, 8vo. 6. *Explicatio Libri Concordiæ Chriſtianæ*, 8vo. 7. *Meditationem Crucis Chriſti, ſive Homilias in Hiſtoriam Paſſ. & Mort. Chriſti*, 8vo. 8. *Epitomen Biblicam*, 8vo. and a multitude of Diſputations, Orations, and controverſial treatiſes, in the Latin and German languages.

HUT'TON, a town of Scotland, in the county of Berwick: five miles weſt of Berwick.

HUTT'WIEL, a town of Swiſſerland, in the canton of Berne, on the frontier of Lucerne. It was taken in the year 1340, and burned, by the troops of Berne: twenty-two miles north-weſt of Lucerne, and ſixteen north-eaſt of Berne.

*To* HUX, *v. a.* with anglers, to catch a pike by means of a line faſtened to a bladder.

HUX'ING, *ſ.* The diverting method of catching pike by a line faſtened to a bladder.

HU'Y, a town of Germany, in Weſtphalia, and biſhopric of Liege, ſituated on the Meuſe, which divides it into two parts, the one belonging to the county of Haſbaie, the other to Condroz, of which laſt Huy is the capital. Charles de Heraugicres, governor of Breda, ſeized the city and caſtle by ſurpriſe, in the month of February, 1595. The ſtates being deaf to all remonſtrances, the biſhop of Liege applied to the Spaniards for aſſiſtance, who compelled the governor to reſtore it. Louis XIV. king of France, inveſted it the firſt of March, 1675, and compelled it to ſurrender after a ſhort ſiege of ſix days; but it was given back to the biſhop by the treaty of Nimmegen, in 1678. It ſuffered more in 1673, when the French took and burned the whole town, becauſe the citizens had taken up arms to aſſiſt the garriſon, which was very weak; they alſo broke down a bridge of freeſtone, which had been built over the Meuſe in the year 1294. The Spaniards retook it in the year 1694, and reſtored it to the biſhop at the peace of Ryſwick. In 1701, Huy was ſeized by the French: the allies, under the command of baron de Troignée, beſieged it on the 15th of Auguſt, 1703, and on the 25th it ſurrendered, with all its forts, and the garriſon became priſoners of war. The 28th of May, 1705, the comte de Gaſſé, with a detachment of the French army, attacked it, and on the 10th of June the garriſon ſurrendered priſoners of war. Again, at a little time after that, the allies, being reinforced by the army of the duke of Marlborough, from the Moſelle, became maſters of it, the garriſon in like manner being made priſoners of war. The Dutch kept poſſeſſion of it till the year 1718, when they deſtroyed the fortifications, and ſurrendered it to the biſhop. In 1714, a new bridge was built in a ſuperior manner. It is twelve miles ſouth-ſouth-weſt of Liege. Lat. 50. 32. N. lon. 22. 47. E. Ferro.

HUYG'ENS (Chriſtian), a diſtinguiſhed Dutch mathematician and aſtronomer, born at the Hague in the year 1629. The early part of his education was undertaken by his father, Conſtantine Huygens, lord of Zulichem, who had ſerved three ſucceſſive princes of the houſe of Orange in the capacity of ſecretary. Under his inſtructions young Chriſtian made a rapid progreſs, not only in claſſical learning, geography, and muſic, but alſo in the mathematics, towards which he ſoon diſcovered a predominant bias. In 1645 he was ſent to the univerſity of Leyden, to ſtudy law; but this purſuit did not ſo entirely occupy his attention as to prevent him from continuing his mathematical ſtudies alſo, under profeſſor Schooten. At the end of one year he removed from Leyden to Breda, where an univerſity had recently been founded, and placed under the direction of his father. In this ſeminary he continued between two and three years; and, after his return to the Hague in 1649, he went in the ſuite of Henry, count of Naſſau, to Holſtein and Denmark. In 1651 he gave to the world the firſt ſpecimen of his genius for mathematics, in a treatiſe, entitled, *Theoremata de Quadratura Hyperboles, Ellipſis, & Circuli, ex dato Portionum Gravitatis Centro,* &c. 4to. which led the public to entertain high expectations from his future labours. In 1654 he publiſhed, *De Circuli Magnitudine inventa: accedunt Problematum quorundam illuſtrium Conſtructiones,* 4to. During the following year he travelled into France, and was admitted to the degree of doctor of laws at Angers.

In 1657 appeared a ſhort piece, *De Ratiociniis in Ludo Alæ,* annexed to profeſſor Schooten's book, entitled, *Exercitationum Mathematicarum Libri quinque,* 4to. This was written by Huygens in Low Dutch, and was tranſlated into Latin by Schooten, in order to ſhow the uſefulneſs of algebra. Huygens is the firſt who treated of this ſubject, which has ſince been handled by M M. Sauveur, Bernouilli, and Montmort, in a more exact manner. In 1657, he printed, in Low Dutch, what is given in his *Opera Varia,* in Latin, under the title of *Brevis Inſtitutio de Uſu Horologiorum ad inveniendas Longitudines.* In this work he exhibited a model of a new-invented pendulum; but as ſome perſons, envious of his reputation, were deſirous to deprive him of the honour of the invention, he publiſhed, in the following year, a treatiſe, entitled, *Horologium,* 4to. with the deſign of explaining the conſtruction of it, and of ſhowing that it was very different from the pendulum of aſtronomers, invented by Galileo. The celebrated philoſopher laſt-mentioned, in the courſe of his obſervations on the planet Saturn, had diſcovered what he imagined to be two ſatellites, almoſt in contact with his body, which ſome time afterwards he found had diſappeared. Huygens, being very deſirous of accounting for theſe appearances and changes, applied himſelf to the improvement of the teleſcope; and ſucceeded in conſtructing an inſtrument, with glaſſes of his own forming, poſſeſſing a higher power than any which had been before invented. With this teleſcope he carefully obſerved all the phaſes and appearances of Saturn, and drew up a journal of the different aſpects of that planet. After a long courſe of obſervations he was enabled to aſcertain, that Saturn is ſurrounded with a ſolid and permanent ring, which never changes its ſituation, and, without touching the body of the planet, accompanies it in its revolution about the ſun; and that what Galileo had imagined to be two ſatellites, were only the *anſæ,* or extreme parts, of that ring. He alſo diſcovered one of the ſatellites belonging to that planet, which had hitherto eſcaped the obſervations of aſtronomers. Theſe diſcoveries, which gained him a high rank among the aſtronomers of his time, he communicated to the world in his *Syſtema Saturninum, ſive de Cauſis mirandorum Saturni Phænomenon, & Comite ejus Planetâ novo,* 1659, 4to.

In the year 1660, Huygens took a ſecond journey into France; and in the following year he paſſed over into England, where he communicated his art of poliſhing glaſſes for teleſcopes, and was admitted a member of the Royal Society. While in England, he made conſiderable improvements in the air-pump, then recently invented; and he alſo diſcovered the laws of the colliſion of elaſtic bodies. About the ſame time our celebrated countrymen Wallis and Wren made the ſame diſcovery, with whom he had a diſpute reſpecting the claim to priority of invention. In 1663, he viſited France for the third time; where his merit became ſo conſpicuous, that ſome time afterwards the miniſter Colbert was determined on attempting to fix him at Paris, by the offer of a conſiderable penſion. Of this offer, made in the king's name, Huygens accepted; and reſided at Paris from 1666 to 1681, where he was admitted a member of the Academy of Sciences. Theſe fifteen years he devoted wholly to mathematical purſuits; writing a variety of treatiſes, which were either ſeparately publiſhed, or inſerted from time to time in the *Journal des Savans.* In 1673 he publiſhed, *Horologium Oſcillatorium; ſive de Motu Pendularum ad Horologia aptato, Demonſtrationes Geometricæ,* folio; diſcovering a method of rendering clocks exact by applying the pendulum, and of rendering all its vibrations equal by the cycloid. This work led to a diſpute, in which ſeveral learned mathematicians intereſted themſelves, and which terminated in our author's favour. He alſo invented, and in the *Journal des Savans* for January 29, 1680, publiſhed an account of, his Level with teleſcopic Sights. By his continual application, however, he gradually impaired his health, for the recovery of which he was obliged to viſit his native country in 1670 and 1675; and in 1681 found himſelf under the neceſſity of returning to it altogether. Accordingly, he quitted Paris, and returned to his native country, where he ſpent the remainder of his life in ſcientific purſuits and employments. The laſt work which Huygens committed to the preſs was his Κοσμοθεωρος; *ſive de Terris Cæleſtibus, eorumque Ornatu, Conjecturæ*, 4to. concerning a plurality of worlds, and the probability that the planets are inhabited; but he died, while it was printing, in 1695, when in the ſixty-ſeventh year of his age, ſo that this work did not make its appearance till the year 1698.

By his will he left his mathematical writings to the univerſity of Leyden; and requeſted M M. de Volder and Fullenius, the former of whom was profeſſor of philoſophy and mathematics at Leyden, and the other at Franeker, to examine them, and publiſh ſuch as they ſhould think proper. Accordingly, in 1703, they publiſhed, *Opuſcula Poſthuma; quæ continent Dioptricam; Commentarios de Vitris figurandis; Diſſertationem de Coronâ, & Parheliis; Tractatum de Motu & de Vi Centrifuga; Deſcriptionem Automati Planetarii*, 4to. The ſecond piece in this collection, relating to the art of forming and poliſhing glaſſes for teleſcopes, to which the author had greatly applied himſelf, was written by him in Low Dutch, and tranſlated into Latin by the celebrated Boerhaave. In the year 1704 were publiſhed, in 4to. the author's *Opera Varia*, conſiſting of the greater part of the pieces which he had publiſhed ſeparately. They are divided into four parts; the firſt of which contains the pieces relating to mechanics; the ſecond, thoſe relating to geometry; the third, thoſe relating to aſtronomy; and the fourth, thoſe which could not be claſſed under either of thoſe titles. This impreſſion was edited by s'Graveſande, who inſerted ſeveral additions to the pieces contained in it, extracted from Huygens's manuſcripts. In 1728 the ſame editor publiſhed a new collection of Huygens's pieces, entitled, *Opera Reliqua*, in 2 vols. 4to. The firſt volume contains the author's treatiſes on light and gravity, tranſlated into Latin; and the ſecond his *Opera Poſthuma*, originally publiſhed in 1703, but with ſome corrections and additions.

HUYG'ENS (Gomarus), a celebrated profeſſor of the univerſity of Louvain, born at Liere in 1631. When he was fifteen years of age, he was ſent to the univerſity of Louvain, where he entered on his courſe of philoſophy in the college du Faucon. The duties of this profeſſorſhip he diſcharged for ſixteen years with the higheſt reputation; and with ſo much diſintereſtedneſs, that he contented himſelf with the ſimpleſt neceſſaries, and devoted the profits of his place, which were conſiderable, to benevolent and charitable uſes. In 1668, he began to confine his ſtudies ſolely to divinity, to which he had never been inattentive ſince the time when he finiſhed his academical courſes. During the ſame year he was admitted to the degree of doctor of divinity, and deputed to proceed to Rome, to defend the privileges of the univerſity of Louvain before pope Clement X. Having ſucceeded in the object of his miſſion, he returned to Louvain, where he was inceſſantly occupied in theological ſtudies till the year 1677, when he was appointed preſident of the college of pope Adrian VI. in that univerſity. In this ſtation he conducted himſelf in the moſt commendable manner towards the members of his inſtitution; and was conſulted much in caſes of conſcience, and reſorted to as confeſſor, by vaſt numbers of perſons, not only in Louvain, but throughout the whole dioceſe of Mechlin. Theſe occupations did not prevent him from publiſhing a variety of works, which are held in high eſteem by the catholics inclinable to the principles of Janſenius. In 1682, his catholic majeſty, informed of his great merit, beſtowed on him a canonry of the church of St. Peter at Louvain, where he died in 1702, aged ſeventy-one. The principal of his productions were, 1. *Methodus remittendi Peccata*, 1674, 12mo. 2. *Inſtructio Theologica D. G. H. valde utilis ac ſalutaris Paſtoribus ac Confeſſariis, ſecundum Doctrinam S S. Auguſtini, Thomæ*, &c. 1687. 3. *Conferentiæ Theologicæ*, 3 vols. 12mo. 4. Theſes on Grace, 4to. 5. A courſe of theology, under the title of *Breves Obſervationes*, which is nevertheleſs extended to 15 vols. 12mo. publiſhed at different periods from the year 1695.

HUYN'GEN, or HUY'NEN, a town of Germany, in the Lower Rhine, and archbiſhopric of Cologne: ten miles ſouth-eaſt of Munſter Eyffel, and twenty-five ſouth of Cologne.

HUY'SUM (John van), a celebrated painter, born at Amſterdam in 1682. He was educated under his father, Juſtus van Huyſum the elder, an artiſt of conſiderable talents, who practiſed various branches of the art, but was chiefly eminent as a flower-painter. John bent the whole force of his genius to this department, in which he attained an excellence that leaves him without a rival. Beginning with the laudable reſolution of making fame his object rather than money, he grudged no time or pains in rendering his works as perfect as the art would admit; and indeed, higher perfection in imitating the beauties of nature is hardly conceivable. The merit of his works was ſo conſpicuous, that they ſoon obtained high prices from the connoiſſeurs; and at length none but perſons of the greateſt opulence could become poſſeſſors of his pieces. He alſo painted landſcapes in a ſuperior ſtyle, carrying his imitation of nature ſo far as to diſtinguiſh the different ſpecies of trees by their leafing. He never took a diſciple except one lady named Haverman, of whoſe proficiency he at length grew jealous. He died in 1749.

HUZ, [Hebrew.] A man's name.

HUZAN'KA, a town of Lithuania, in the palatinate of Novogrodeck: thirty-ſix miles ſouth-eaſt of Novogrodeck.

*To* HUZZ, *v. n.* [from the ſound.] To buzz; to murmur.

HUZZA', *interj.* A ſhout; a cry of acclamation.—The *huzzas* of the rabble are the ſame to a bear as they are to a prince. *L'Eſtrange.*

All fame is foreign, but of true deſert;
Plays round the head, but comes not to the heart:
One ſelf-approving hour whole years outweighs
Of ſtupid ſtarers and of loud *huzzas*. *Pope.*

*To* HUZZA', *v. n.* To utter acclamation.

*To* HUZZA', *v. a.* To receive with acclamation.—He was *huzzaed* into the court by ſeveral thouſands of weavers and clothiers. *Addiſon.*

HUZ'ZAB, [Heb. molten.] The name of a place; the name of a people; the name of a man. *Nahum* ii. 7.

HUZZA'ING, *ſ.* The act of uttering exclamations of joy; an exclamation expreſſive of approbation.

HUZZ'ING, *ſ.* The act of buzzing; a humming noiſe.

HWARF, a town of Sweden, in the province of Weſt Gothland: ſixty-three miles eaſt of Uddevalla.

HWE, a river of Denmark, in the duchy of Sleſwick, which runs into the North Sea twelve miles north-weſt of Sleſwick.

HWEN, or WEEN, a fertile iſland of Sweden, to which country it was granted by the treaty of Roſchild, in the year 1658, ſituated in the Sound. It is about 8160 paces in circumference, and at a diſtance has the appearance of a high mountain. This iſland was granted by Frederic II. king of Denmark, to Tycho Brahe, the celebrated aſtronomer, with a caſtle, called *Uranienburg*, erected for the purpoſe of making obſervations, in which he reſided upwards of twenty years. The whole iſland contains but one pariſh, or village, containing about fifty houſes: five leagues north of Copenhagen. Lat. 55. 54. N. lon. 12. 38. E. Greenwich.

HY'ACINTH, *ſ.* [υακινθος, Gr. *hyacinthe*, Fr. *hyacinthus*, Lat.] A flower. See HYACINTHUS.

HY'ACINTH, *ſ.* A pellucid gem, whoſe colour is red with an admixture of yellow. See the article MINERALOGY.

HYACIN'THIA, an annual ſolemnity at Amyclæ, in Laconia, in honour of Hyacinthus and Apollo. It continued for three days, during which time the grief of the people was ſo great for the death of Hyacinthus, that they did not adorn their hair with garlands during their feſtivals, nor eat bread, but fed only upon ſweetmeats. They did not even ſing pæans in honour of Apollo, or obſerve any of the ſolemnities which were uſual at other ſacrifices. On the ſecond day of the feſtival there were a number of different exhibitions. Youths, with their garments girt about them, entertained the ſpectators, by playing ſometimes upon the flute, or upon the harp, and by ſinging anapeſtic ſongs, in loud echoing voices, in honour of Apollo. Others paſſed acroſs the theatre mounted upon horſes richly adorned; and, at the ſame time, choirs of young men came upon the ſtage, ſinging their uncouth ruſtic ſongs, and accompanied by perſons who danced the ſound of vocal and inſtrumental muſic, according to the ancient cuſtom. Some virgins were alſo introduced in chariots of wood, covered at the top, and magnificently adorned. Others appeared in race-chariots. The city began then to be filled with joy, and immenſe numbers of victims were offered on the altars of Apollo, and the votaries liberally entertained their friends and ſlaves. During this latter part of the feſtivity, all were eager to be preſent at the games, and the city was almoſt deſolate, and without inhabitants. *Athen.*

HYACIN'THINE, *adj.* [*υακινθινος.*] Made of hyacinths; reſembling hyacinths.

HYACIN'THO AFFI'NIS, *ſ.* in botany. See AGAPANTHUS and HÆMANTHUS.

HYACIN'THUS, a ſon of Amyclas and Diomede, greatly beloved by Apollo and Zephyrus. He returned the former's love, and Zephyrus, incenſed at his coldneſs and indifference, reſolved to puniſh his rival. As Apollo, who was entruſted with the education of Hyacinthus, once played at quoit with his pupil, Zephyrus blew the quoit, as ſoon as it was thrown by Apollo, upon the head of Hyacinthus, and he was killed with the blow. Apollo was ſo diſconſolate at the death of Hyacinthus, that he changed his blood into a flower, which bore his name, and placed his body among the conſtellations. The Spartans alſo eſtabliſhed yearly feſtivals to his memory, called *Hyacinthia*, as noticed above.

HYACIN'THUS, *ſ.* [fabled to have ſprung from the blood of *Hyacinthus*, when he was accidentally ſlain by Apollo with a quoit. Derived by ſome from *ια*, violet, and *Cynthius*, one of the names of Apollo: if ſo, it ſhould be written *Hiacinthus*.] In botany, the HYACINTH; a genus of the claſs hexandria, order monogynia, natural order of lilia, or liliaceæ, (coronariæ, *Linn.* aſphodeli, *Juſſ.*) The generic characters are—Calyx: none. Corolla: monopetalous, campanulate; border ſix-cleft, reflex. Nectary, three honeyed pores at the tip of the germ. Stamina: filaments ſix, awl-ſhaped, ſhorter; antheræ converging. Piſtillum: germ ſuperior, round, three-cornered, three-furrowed; ſtyle ſimple, ſhorter than the corolla; ſtigma obtuſe. Pericarpium: capſule roundiſh, three-ſided, three-celled, three-valved. Seeds: in pairs (generally) roundiſh.—*Eſſential Character.* Corolla bell-ſhaped, with three honeyed pores by the germ.

*Species.* 1. Hyacinthus non ſcriptus, common hyacinth, or harebells: corollas tubular, bell-ſhaped; ſix-parted, ſegments rolled back, bractes in pairs. Root a roundiſh bulb, the ſize of a nutmeg. Scape from ſix inches to a foot in height, upright, round, ſmooth, and ſolid, bowed down when it begins to flower. Leaves four, ſix, or ſometimes more, only half the length of the ſcape, and about half an inch broad, keeled, hollow, ſmooth, ſhining, graſs-green, flaccid, bending downwards, ending in an acute point. Flowers in a long raceme or ſpike, from eight to twelve, often more, all pointing one way, pedicelled, pendulous, ſweet-ſmelling, of a blue or violet colour, varying to white and fleſh-coloured, ſix-parted to the very baſe. Bractes two to each flower, lanceolate or awl-ſhaped, and nearly upright. This part was little obſerved before the time of Linnæus; Ray, however, remarks it here, and calls it *ligula*: he ſays there are two to each flower, of a violet colour, longer than the pedicel, one larger than the other. Filaments adhering to the ſegments of the corolla, every other of them almoſt to the anthers; the three longeſt are equal to the tube of the corolla. Antheræ upright, incumbent, ſomewhat arrow-ſhaped. Germ conical, whitiſh. Style at top of a bluiſh colour. Stigma villoſe, moiſtened with a drop of liquor, according to Linnæus; and having club-ſhaped glands, according to De Necker. The honeyed pores, which Linnæus gives as the eſſential character of the genus, are not diſcoverable in this ſpecies. The valves of the capſule are ovate, and terminate in a ſhort point. Seeds numerous, of a fine blue colour, with a poliſhed ſurface. Native of France, Flanders, Swiſſerland, Italy, Spain, Perſia. It adorns our woods, coppices, and hedge-rows, with its flowers in the ſpring-months. Mr. Curtis remarks that the ſeeds are not ripened till the end of the year; and that, on being ſown, they did not vegetate till the ſecond year. The fanciful term of *non ſcriptus* was applied to this plant by Dodonæus, becauſe it has not the Aι Aι on the petals, and therefore, is not the *hyacinthus poeticus*. Our old botaniſts name it *Anglicus* and *Engliſh hyacinth* from its extreme commonneſs in many parts of our iſland. Gerarde calls it *blew harebells*, or *Engliſh jacint*; and it is the *azur'd harebell* of Shakeſpeare, in his Cymbeline. In French it is *jacinte des bois*; and in German, *Niederlandiſche* or *Englſche hyacinthe*. Dr. Withering ſays that the freſh roots are poiſonous. According to Gerarde, they are "full of a ſlimy glewiſh juice, which will ſerve to ſet feathers upon arrowes inſteed of glew, or to paſte bookes with; whereof is made the beſt ſtarche, next unto that of wake-robin rootes."

2. Hyacinthus cernuus, or bending hyacinth: corollas bell-ſhaped, (ſwelling at the baſe,) ſix-parted; raceme drooping. This agrees with the firſt ſort in habit and appearance, but it is ſmaller, and differs in having the leaves more linear or leſs lanceolate, and more erect; the receme is more nodding; the corollas fleſh-coloured, not blue, rounder, with the ſides of the petals leſs ſpreading, flat at the baſe, not marked with a raiſed line on the back, and leſs rolled back (though ſtill reflex) than in that. The piſtil is ſhorter than the ſtamens; and the two bractes are of a deeper carnation. The corolla ſwells out at the baſe in this, which it does not by any means in the preceding. Native of Spain. Cultivated in 1759, by Mr. Miller; who looks upon it as a variety of the firſt, differing principally in having the flowers of a bluſh peach colour. Ray alſo obſerves that it is not very unlike the preceding; and that Caſpar Bauhin did not ſeparate them. Parkinſon makes them one, under the title of Engliſh harebels, or Spaniſh iacinth.

Mr. Miller's third ſort, which he abſurdly calls *H. utrinque floribus*, ſeems to be a variety of this. He ſays it has blue flowers diſpoſed on every ſide the ſtalk, which riſes about nine inches high, that the thyrſe of flowers is large when the roots are ſtrong, that it is a native of Spain and Italy, and that it was formerly preſerved in gardens, but, having been neglected for the fine varieties of the eaſtern hyacinths, it is now ſeldom ſeen but in old gardens. This is the caſe with many of our old favourites, which are caſt out daily to make room for new comers, inſomuch that many of the plants which were moſt known in the time of Caſpar Bauhin are now ſtrangers to us.

3. Hyacinthus ſerotinus, or late-flowering hyacinth: outer petals almoſt diſtinct; inner coadunate. Bulb ovate-conical, ſolid, covered with brown ſkins. Scape ſingle, a foot high, ſmooth. Leaves channelled, ſheathing the ſcape at the baſe, ſhorter than the ſcape, ſharp at the end. Flowers in a raceme, all pointing the ſame way, drooping a little; each on a ſhort peduncle, with an awl-ſhaped bracte at the baſe. Corolla of a dull greeniſh red colour. When the flowers firſt appear, of a light blue, but fading to a worn-out purple colour, according to Miller. In Gerarde they are deſcribed as of a very duſky colour, as it were mixt with purple, yellow, and green, and as having

no ſmell; in Parkinſon, who calls it *Spaniſh dunne-coloured jacinth*, as of a purpliſh-yellow colour, with ſome white and green as it were mixed among it. Ray obſerves, that plants which he raiſed from ſeed of the ſame root, varied in the colour of their flowers, ſome being duſky, and others almoſt green. Native of Spain near Aranjuez, and of Barbary about Fez and Morocco. Parkinſon ſays the African plant is in all reſpects greater than the Spaniſh. With us it flowers in June; and, from its flowering later than the other hyacinths, had the name of *ſerotinus* given it by Cluſius. Mr. Miller ſays it flowers early in the ſpring, which muſt be a miſtake with reſpect to England; though, in Spain, Cavanilles affirms that he has found it in flower on the 20th of April.

4. Hyacinthus viridis, or green hyacinth: the outermoſt ſegments of the corollas awl-ſhaped and very long. This is of the ſame ſtature with the next ſpecies, but the corolla is green, with the three outer ſegments, which are placed alternately with the three inner, double their length, and ending in a very narrow point. Native of the Cape.

5. Hyacinthus amethyſtinus, or amethyſt-coloured hyacinth: corollas bell-ſhaped, half-ſix-cleft, cylindrical at the baſe. This has a ſmaller flower; the petals are cut half their length, and are reflex at the brim; the lower part is cylindrical, a little ſwelling at the baſe, and of a deeper blue. The root, according to Cluſius, is the ſize of a ſmall olive, covered with a brown ſkin. Scape ſlender, a long ſpan in height, round, ſmooth, glaucous, having ſix or ſeven flowers at top, (Ray ſays, ſometimes twelve or more,) nodding on pedicels half an inch in length; they are bright blue, ſmaller than thoſe of the firſt ſort, and without any ſcent. Mr. Miller ſays, it was formerly called *Coventry-blue hyacinth* by the gardeners. Native of Spain, Italy, and Ruſſia. Flowering in April and May.

6. Hyacinthus revolutus, or wave-leaved hyacinth: corollas bell-ſhaped, ſix-parted, revolute, leaves oblong, waved. This is one of the ſpecies found at the Cape of Good Hope by Thunberg, with ſeveral others, of which we have no deſcriptions.

7. Hyacinthus orientalis, or garden-hyacinth: corollas funnel-form, half-ſix-cleft, ſwelling at the baſe, with two ſmall bractes under each pedicel. The garden or oriental hyacinth has a large coated bulb, viſcid, and of a ſweetiſh taſte, from the bottom of which ſpring the roots, which are long round fibres, of a middling thickneſs; from the middle of it a ſingle naked ſtem or ſcape; and from the top ſix, ſeven, or more, leaves. The leaves are broadiſh, keeled, pale green at bottom, but of a darker green towards the end. The ſcape is a long ſpan in height, ſmooth, roundiſh, pale green below, but tinged with brown towards the top; from the middle of this to the top come out the flowers one above another, not pointing the ſame way, as in the harebell, but ſtanding on different ſides of the ſtalk; three, four, or five, to twelve or more, in number, each nodding on pedicels half an inch in length, uſually of a very dark green colour, and having a pair of ſmall bractes at the baſe; the corolla is near an inch in length, almoſt cylindrical except at the baſe, where it ſwells or bellies out, and at the top the ſegments are turned back a little. Theſe flowers have a very ſweet ſmell, and are much valued for the variety of their colours, as pure white, white tinged with blue, all ſhades of blue from theſe to the dark violet, and all ſhades of red purple from the faint bluſh to the deep red; they are alſo ſometimes yellow. Culture and great attention have alſo brought the plants to be very ſtrong, and the flowers to be very large and double. The garden-hyacinth is a native of the Levant. It is very abundant about Aleppo and Bagdat, where it flowers in February. Lepechin found it not only with purple, but with yellow, flowers in Ruſſia. With us it flowers in March and April; and was cultivated by Gerarde in 1596; probably earlier, ſince neither he nor Parkinſon ſpeak of the hyacinth as a flower then new in cultivation.

Gerarde figures only two varieties, the blue ſingle, and what he calls the double, but which is only many-flowered, and alſo blue or ſky-coloured; but he mentions alſo the purple and the white. Parkinſon, in 1629, has eight varieties. Mr. Miller ſays that we formerly had no other varieties in the Engliſh gardens but the ſingle and double white and blue flowering; that from the ſeeds of theſe there were a few others raiſed in England, and alſo by the Flemiſh gardeners, who came over annually with their flower-roots to vend in England; but that the gardeners in Holland have within the laſt fifty years raiſed ſo many fine varieties, as to render the former of little or no value. Double flowers ſeem not to have been in much eſteem long after the hyacinth had attracted the notice of the floriſts. For though Swertius, in his Florilegium, printed in 1620, has figured about forty varieties of this flower, yet he has not one that is double. And Peter, the grandfather of the preſent George Voorhelm, of Haarlem, cultivated the hyacinth a conſiderable time before he attached himſelf to double flowers. The beauty of this celebrated flower was then ſuppoſed to conſiſt in the regularity and equality of the petals, and the uniformity of the colours. The double hyacinth was in no more eſteem then than the double tulip is now; and Peter Voorhelm was accuſtomed to throw them out of his collection, till having been ill, and not able to viſit his flowers till they were going off, there remained by accident a bulb with double flowers, which fixed his attention, not for any ſuperior excellence it poſſeſſed, for it was ſmall, and of no remarkable beauty, but probably becauſe it was alone. He cultivated it however, and increaſed it by offſets. Floriſts appeared who were fond of it, and gave him a good price for it. This muſt have been probably towards the end of the 17th century. He then ſet himſelf to cultivate hyacinths with double flowers with as much zeal as he had ſhown before in caſting them out. The firſt double flower he raiſed was named *Mary*; this variety is loſt, as well as the two next that were produced. The *king of Great Britain*, which is now looked upon as the oldeſt double hyacinth, appeared about the beginning of the laſt century; it was greatly preferred to all the flowers then known, and the price of it was conſiderably more than one thouſand florins. From this time the greateſt attention has been paid at Haarlem to the raiſing and culture of this beautiful flower; and ſuch has been the rage for it, that from one to two thouſand Dutch florins have been given for a ſingle root; that is, from near one to two hundred pounds ſterling. The Haarlem gardeners diſtinguiſh near two thouſand hyacinths by name, and generally publiſh catalogues of them from year to year. New varieties are annually produced, and whole acres together are covered with this flower in the circuit of that town alone. They are diſtributed into claſſes from their colours; the principal of which are blue, red, purple, and white, with ſome yellow. They are ſubdivided from the ſhades of each colour; as, of the blues, deep blue, violet blue, blue purple, porcelain blue, agate blue, ſky blue, French grey, &c. of the reds, deep or full red, roſe-coloured, carnation, &c. alſo from the mixtures of different colours or ſhades, as light blue with a deep blue or purple eye; light red with a deep red eye; white, with a roſe-coloured, blue, purple, or yellow, eye, white and red of different ſhades, and blue, violet, or purple, of different ſhades, mixed; yellow with a purple eye, &c. Some alſo have their petals ſtriped with a paler or deeper colour; and all theſe varieties are found both in ſingle and double flowers; but the latter only are now much regarded among floriſts, unleſs it be for producing ſeeds, by which alone they can procure new varieties.

The principal properties of a fine double hyacinth are the following: 1. The ſtalk ſhould be tall, ſtrong, and upright,

upright. The flowers, or bells as the floriſts call them, ſhould be ſufficiently numerous, each ſuſpended by a ſhort ſtrong peduncle in a horizontal poſition; the whole having a compact pyramidal form, with the crown or uppermoſt flower perfectly erect. 2. The flowers ſhould be large, and well filled with broad bold petals, appearing to the eye rather convex than flat or hollow; they ſhould extend to about the middle of the ſcape or ſtalk. 3 The plain colours ſhould be clear and bright, and ſtrong are in general preferred to pale colours; ſuch as are mixed ſhould blend with elegance.

8. Hyacinthus corymboſus, or corymbed hyacinth: corollas funnel-form; raceme erect; ſcape ſhorter than the leaves.

9. Hyacinthus Romanus, or Roman grape-hyacinth: corollas bell-ſhaped, half-ſix-cleft, in racemes; ſtamens membranaceous.

10. Hyacinthus muſcari, or muſk-hyacinth: corollas ovate, all unequal, with one bracte under the pedicel, and another above it. The tenth ſort has pretty large oval bulbous roots, from which ariſe ſeveral leaves, which are about eight or nine inches long, and half an inch broad; they are incurved a little on their ſides, and end in obtuſe points; theſe embrace each other at their baſe; out of the middle of theſe the ſtalk which ſuſtains the flowers ariſes; it is naked below, but the upper parts are garniſhed with ſmall flowers growing in a ſpike; theſe have ovate pitcher-ſhaped petals, which are reflexed at their brim, and are of an aſh-coloured purple, or obſolete colour, ſeeming as if faded, but have an agreeable muſky ſcent; theſe ſtalks do not riſe more than ſix inches high, ſo the flowers make no great appearance; but, where they are in ſome quantity, they will perfume the air to a conſiderable diſtance. This ſort flowers in April, and the ſeeds ripen in July.

Of this there are two varieties; one of which has the ſame-coloured flowers with this here enumerated on the lower part of the ſpike, but they are larger, and have more of the purple caſt; but the flowers on the upper part of the ſpike are yellow, and have a very grateful odour: the Dutch gardeners title it *Tibcadi muſcari*. As this is ſuppoſed to be only a ſeminal variety of the third, it is not enumerated as diſtinct. There is another variety of this, with very large yellow flowers, that has been raiſed from ſeeds in Holland, which the floriſts there ſell for a guinea a-root. It is a native of the Levant; Linnæus ſays beyond the Boſphorus, whence it was brought into Europe before 1554. It was cultivated here in 1597, according to Gerarde.

11. Hyacinthus convallarioides, or lily-hyacinth: corollas bell-ſhaped, ovate, pendulous; ſcape filiform. Flowers without leaves, yellow. Found at the Cape of Good Hope by Thunberg.

12. Hyacinthus monſtroſus, or feathered hyacinth: corollas ſubovate. The twelfth ſort has a large bulbous root, from which come out ſeveral plain leaves a foot long, and about half an inch broad at their baſe; they are ſmooth, and end in obtuſe points. The flower-ſtalks riſe near a foot and a half high; they are naked at the bottom for about ſeven or eight inches, above which the panicles of flowers begin, and terminate the ſtalks. The flowers ſtand upon peduncles which are more than an inch long, each ſuſtaining three, four, or five, flowers, whoſe petals are cut into ſlender filaments like hairs; they are of a purpliſh blue colour, and, having neither ſtamina nor germ, never produce ſeeds. It flowers in May; and, after the flowers are paſt, the ſtalks and leaves decay to the root, and new ones ariſe the following ſpring. Native of the South of Europe. Linnæus ſuſpects it to be a variety of the next ſpecies. It was cultivated here in 1629, according to Parkinſon.

13. Hyacinthus comoſus, or purple grape-hyacinth: corollas angular-cylindrical, the upper ones barren on longer pedicels; bractes ſmall, acuminate. Bulb as large as a middling onion, ovate, ſolid and white, covered with a purpliſh ſkin. Leaves five or ſix, a foot or eighteen inches long, and three quarters of an inch broad at the baſe, diminiſhing gradually to a blunt point; linear, channelled, bright green. The flower-ſtalk riſes a foot or eighteen inches in height, round, upright, ſmooth, glaucous green. The lower half is naked, but the upper part has a looſe raceme of flowers, frequently for a foot in length. The lower flowers are farther aſunder; before they flower they are upright, but whilſt they flower, and afterwards, they ſtand out horizontally, on pedicels half an inch in length; their colour is a yellowiſh green, with blue or purple at the end; theſe are fertile. The upper ones are ſmaller, barren, ſtand upright, form a corymb, and are blue or violet, as are alſo their long pedicels. Parkinſon ſays, "the whole ſtalke, with the flowers upon it, doth ſomewhat reſemble a long purſe taſſel, and thereupon divers gentlewomen have ſo named it." Native of the ſouth of Europe, in corn-fields. Mr. Miller ſays he had both roots and ſeeds from Spain and Portugal. John Bauhin and Ray both obſerved it near Geneva; and profeſſor Martyn at Chatelaine near that city in flower on the 21ſt of April, 1779. It flowers with us the end of April and beginning of May. It varies with white and with blue flowers, but the purple is moſt common. Gerarde, who cultivated it in 1596, calls it *faire-haired iacint*; Parkinſon, *great purple faire-haired iacinth*; and Mr. Curtis, *two-coloured* or *taſſel hyacinth*. It is diſtinguiſhed more by its ſingularity than its beauty, and by the difference between the lower and the upper barren flowers.

14. Hyacinthus botryoides, or blue grape-hyacinth: corollas globular, uniform; leaves channelled-cylindrical, ſtrict. This ſort grows naturally in the vineyards and arable fields in France, Italy, and Germany; and, where it is once planted in a garden, it is not eaſily rooted out, for the roots multiply greatly, and, if they are permitted to ſcatter their ſeeds, the ground will be filled with the roots. There are three varieties of this, one with blue, another with white, and a third with aſh-coloured, flowers; the firſt has a ſmall, round, bulbous root, from which come out many leaves about ſix inches long, which are narrow, and their edges are incurved, ſo as to be ſhaped like a gutter; between theſe ariſes the flower-ſtalk, which has a cloſe ſpike of blue ſeſſile flowers at the top; they ſmell like new ſtarch, or the ſtones of plums when freſh. Mr. Miller probably intends by this the next ſpecies, with which it is frequently confounded. The leaves are three lines wide, ſtraight, on account of their ſhort petioles. The ſpike has from twenty to thirty flowers. The teeth of the corolla are white, and the uppermoſt are ſmall. It differs from the next ſpecies, in having the leaves upright, the bunch of flowers ſmaller, the flowers themſelves larger, rounder, of a paler and brighter blue. Parkinſon enumerates three varieties, the white, the bluſh-coloured, and the branched; the firſt is frequently imported with other bulbs from Holland; the laſt ſeems to be a curious variety, and was obtained, according to Cluſius, from the white. The grape-hyacinth was cultivated by Gerarde in 1596. He calls it *great grape-flower*; Parkinſon, *ſkie-coloured grape-flower*. It is now ſeldom met with but in long-eſtabliſhed gardens.

15. Hyacinthus racemoſus, or cluſtered grape-hyacinth: corollas ovate, the upper ones ſeſſile, bractes ſolitary, very ſhort; leaves looſe. Scape a ſpan high, blue under the flowers, compreſſed at top, terminated by a cloſe globular ſpike or raceme of from forty to fifty flowers, of a very dark blue, with a three-cornered white mouth; they ſometimes vary to white, according to Haller. Native of the ſouth of Europe, in corn-fields, gathered in flower near Geneva, April 8th, 1779. It was cultivated by Gerarde in 1596: he calls it *blew grape-flower*; and Parkinſon, *darke blew grape-flower*. Mr. Curtis names it *ſtarch-hyacinth*. This is much more common in our gardens than the botryoides, and flowers in April and May.

16. Hyacinthus brevifolius, or ſhort-leaved hyacinth: corollas ſix-parted, raceme drooping; leaves ſhorter than the ſcape.

17. Hyacinthus flexuoſus, or bending hyacinth: corollas bell-ſhaped, raceme upright, leaves linear, longer than the ſcape. Found at the Cape of Good Hope by Thunberg.

*Propagation and Culture.* The firſt ſort, being common in many parts of England, is ſeldom admitted into gardens. The ſecond alſo is in very few gardens. The caſe is the ſame with the third and fifth ſorts. Since ſo many fine flowers have been raiſed from the ſeeds of the eaſtern hyacinth, theſe have been almoſt totally neglected; but ſuch as are deſirous to preſerve them need not be at much trouble about it, for their roots propagate in great plenty in any ſoil or ſituation, and require no other care but to take up their roots every ſecond or third year, ſoon after their leaves decay, and to plant them again in autumn; if they are permitted to remain longer in the ground, their roots will multiply to ſuch a degree, as to render their flowers very ſmall and weak. They may all be increaſed either by ſeeds, or offſets from the old bulbs; the latter method is only practiſed with the above ſorts.

The eaſtern or garden hyacinth, is propagated by ſeeds or offſets from the old bulbs. The former method has been but little practiſed in England till lately; but in Holland and Flanders it has been followed for many years, whereby they have obtained a very great variety of the moſt beautiful flowers of this ſort; and it is owing to the induſtry of the floriſts in thoſe countries, that the lovers of gardening are ſo agreeably entertained, not only with the curious variety of this, but of moſt other bulbous-rooted flowers. The method of raiſing theſe flowers from ſeed is as follows: Having provided yourſelf with ſome good ſeed, which ſhould be ſaved from either ſemi-double, or ſuch ſingle flowers as are large, and have good properties, you muſt have a parcel of ſquare ſhallow boxes or pots, with holes in their bottoms to let off moiſture, which muſt be filled with freſh light ſandy ſoil, laying the ſurface very level; then ſow your ſeeds thereon as equally as poſſible, covering them about half an inch thick with the ſame light earth; the time for this work is about the middle or latter end of Auguſt. Theſe boxes, or pots, ſhould be placed where they may enjoy the morning ſun only until the latter end of September, at which time they ſhould be removed into a warmer ſituation, and towards the end of October they ſhould be placed under a common hot-bed frame, where they may remain during the winter and ſpring-months, that they may be protected from hard froſts; though they ſhould be expoſed to the open air when the weather is mild, by taking off the glaſſes. In the latter end of February or the beginning of March, the young plants will begin to appear above ground, at which time they muſt be carefully ſcreened from froſt, otherwiſe they will be ſoon deſtroyed when they are ſo young; but you muſt never cover them at that ſeaſon but in the night, or in very bad weather; for, when the plants are come up, if they are cloſe covered, they will draw up very tall and ſlender, and thereby prevent the growth of their roots. About the middle of April, if the weather proves good, you may remove the boxes out of the frame, placing them in a warm ſituation, obſerving, if the ſeaſon be dry, to refreſh them now and then gently with a little water, as alſo to keep them very clear from weeds, which would ſoon overſpread the tender plants, and deſtroy them, if permitted to remain. Towards the beginning of May, theſe boxes ſhould be removed into a cooler ſituation; for the heat of the ſun at that ſeaſon would be too great for theſe tender plants, cauſing their blades to decay much ſooner than they would naturally do, if they were ſcreened from its violence. In this ſhady ſituation they ſhould remain during the heat of ſummer, obſerving to keep them conſtantly clear from weeds; but you muſt not place them under the dripping of trees, &c. nor ſhould you give them any water after their blades are decayed, for that would infallibly rot the roots. About the latter end of Auguſt you ſhould ſift a little light rich earth over the ſurface of the boxes, and then remove them again into a warmer ſituation, and treat them, during the winter, ſpring, and ſummer, months, as was before directed: and about the middle of Auguſt following you ſhould prepare a bed of light rich ſandy ſoil, in proportion to the quantity of your ſeedling plants; and, having levelled the ſurface very even, you ſhould take the earth from the boxes in which your plants were raiſed, into a ſieve, in order to get out all the roots, which by this time (if they have grown well) will be about the thickneſs of a ſmall quill; theſe roots ſhould be placed upon the bed at about two or three inches aſunder, obſerving to ſet the bottom part of their roots downwards; then cover them over two inches thick with the ſame light earth; but, as it will be impoſſible to get all the ſmall roots out of the earth in the boxes, you ſhould ſpread the earth upon another bed equally, and cover it over with light earth; by which method you will not loſe any of the roots, be they ever ſo ſmall. Theſe beds muſt be arched over with hoops, and in very hard froſty weather they muſt be covered with mats, &c. to protect them from froſt; and in the ſpring, when the green leaves are above ground, if the weather ſhould be very dry, you muſt refreſh them with water; but do this ſparingly, for nothing is more injurious to theſe bulbs than too great quantities of moiſture. During the ſummer ſeaſon you muſt conſtantly keep the beds clear from weeds; but, after the blades are decayed, you muſt never give them any water, and in autumn you ſhould ſtir the ſurface of the bed with a very ſhort hand-fork, being exceeding careful not to thruſt it ſo deep as to touch the roots, which, if hurt, are very ſubject to periſh ſoon after. Then ſift a little freſh, light, rich, earth over the bed about an inch thick, or ſomewhat more, and in winter cover them again, as was before directed.

In this bed the roots may continue two years, obſerving to treat them, both in ſummer and winter, as before; then the third year the roots ſhould be carefully taken up a little before their leaves decay, laying the roots horizontally in the ground to ripen for three weeks, after which they may be kept out of the ground till the end of Auguſt, when they ſhould be planted into new beds prepared as before, placing them at the diſtance of ſix inches aſunder; in theſe beds the roots may remain till they flower, during which time they ſhould be treated as before, with this difference only, that, inſtead of covering them with mats in the winter, the ſurface of the ground ſhould be covered with tanners' bark. When their flowers begin to ſhow themſelves, you ſhould mark all ſuch as appear to have good properties, by thruſting a ſmall ſtick down by each root; which roots, at the time for taking them up, ſhould be ſelected from the reſt, and planted by themſelves. When the green leaves of theſe plants begin to decay, their roots muſt be taken up, and a bed of light earth, in a ſhady ſituation, ſhould be raiſed into a ridge; the better to ſhoot off the moiſture, the roots ſhould be laid into the earth again in an horizontal poſition, leaving the green leaves hanging out of the ground from the roots, whereby the great moiſture contained in their very ſucculent leaves and flower-ſtalks may be exhaled, and prevented from returning to the roots, which, when ſuffered ſo to do, is very often the cauſe of their rotting after they are out of the ground. In this ridge the roots ſhould remain until the leaves are quite dried off, when they muſt be taken up, and after being cleared of all manner of filth, which would be hurtful to them, they muſt be laid up in boxes, where they may be preſerved dry until September, which is the proper ſeaſon for planting them again.

We now proceed to the culture of ſuch hyacinths as have either been obtained from Holland, or are of our own product from the ſeeds of ſuch flowers as were very beautiful, and worthy to be preſerved in collections of good flowers; and it has been the want of ſkill in the management of theſe noble flowers, which has occaſioned the ill ſucceſs moſt people have had with them in England, whereby they have been neglected, ſuppoſing their roots to degenerate after they have flowered in England, which is a great miſtake; for, were the roots managed with the ſame art as has been practiſed in Holland, they would thrive nearly as well in England as there or elſewhere. The ſoil in which theſe flowers ſucceed beſt, is a light, ſandy, freſh, rich, earth, which may be compoſed after the following manner: Take half freſh earth from a common, or paſture land, which is chiefly of a ſandy loam; this ſhould be taken off the ſurface, or not above eight or nine inches deep at moſt; and, if you take the turf or green-ſward with it, it will ſtill be better, provided you have time to let it rot before it is uſed; to this you ſhould add a fourth part of ſea-ſand, and the other fourth part of rotten cow-dung; mix theſe well together, and caſt it into a heap, where it may remain until you uſe it, obſerving to turn it over once in three weeks or a month, that it may be well mixed. If this compoſt is made two years before it is uſed, it will be much the better; but, if you are obliged to uſe it ſooner, then it ſhould be oftener turned, that the parts may the better unite. This ſoil ſhould be laid two feet deep on the beds which are deſigned for hyacinths; and, if you lay a little rotten cow-dung or tanners' bark at the bottom, which may be within reach of the fibres, but ſhould by no means touch the bulb, it will be better. If the ſoil is very wet where theſe beds are made, you ſhould raiſe them ten or twelve inches above the ſurface of the ground; but, if it be dry, they need not be raiſed above three or four inches.

The manner of preparing the beds is as follows: Firſt, take all the former old earth out of the bed to the depth you intend, which ſhould be near three feet; then ſpread ſome rotten neats-dung or tan in the bottom, about ſix inches thick, laying it very level; upon this you ſhould lay the above-mentioned earth two feet thick, levelling it very even; then ſcore out the diſtances for the roots, which ſhould be eight inches ſquare, in ſtraight rows each way; after which, place your roots exactly in the ſquares, obſerving to ſet the bottom part downward; then cover the roots ſix inches deep with the ſame prepared earth, being very careful in doing this not to diſplace any of the roots; and, if the tops of theſe beds are made a little rounding, to ſhoot off the wet, it will be of ſervice in moiſt ground, provided the middle of the beds be not made too high, which is a fault the other way.

The beſt ſeaſon for planting theſe roots is the middle or latter end of September, according to the earlineſs or lateneſs of the ſeaſon, or the weather when it happens; but never plant them when the ground is extremely dry, unleſs there be a proſpect of ſome rain ſoon after; for, if the weather ſhould continue dry for a conſiderable time after, the roots will receive a mouldineſs which will certainly deſtroy them. The beds will require no farther care until the froſt comes on very ſevere, at which time they ſhould have rotten tan ſpread over them about four inches thick; and, if the alleys on each ſide of the bed are filled up, either with rotten tan, dung, or ſand, it will prevent the froſt from penetrating the ground on each ſide to the roots, and ſecure them from being deſtroyed; but, when the winters prove very ſevere, it will alſo be proper to have ſome peaſe-haulm, ſtraw, or ſuch-like covering, laid over them, which will keep out the froſt better than mats; and, lying hollow, will admit the air to the ſurface of the ground, and alſo permit the exhalations to paſs off, whereby the earth will remain dry, and prevent the roots from rotting, which has often happened when the beds have been too cloſely covered. But you muſt obſerve to take off this light covering whenever the weather is mild, and only let it continue on in very hard froſts; for, where the beds are covered with tan or ſea-coal aſhes, no common froſt can penetrate through, ſo the coverings are uſeleſs, except in very ſevere froſt; for a ſmall froſt cannot injure the roots before the green leaves appear above ground, which is ſeldom before the beginning of February, at which time the beds muſt be arched over with hoops, that they may be covered either with mats, canvas, or ſome other light covering, to prevent the froſt from injuring the buds as they ariſe above ground; but theſe coverings muſt be conſtantly taken off every day when the weather is mild, otherwiſe the flower-ſtems will be drawn up to a great height, and become very weak, and the foot-ſtalks of the flowers will be long and ſlender, and ſo rendered incapable of ſupporting the bells; which is a great diſadvantage to the flowers, for one of their greateſt beauties conſiſts in the regular diſpoſition of their bells. When theſe hoops are fixed over the beds, the rotten tan ſhould be moſt of it taken off them; in doing of which, great care ſhould be taken not to bruiſe or injure the leaves of the hyacinths, which by that time will be breaking out of the ground with the flower-ſtem: therefore the tan ſhould be removed by the hands; or, if any inſtrument is made uſe of in the doing of it, there muſt be great caution how it is performed.

When the ſtems of the flowers are advanced to their height, before the flowers are expanded, you ſhould place a ſhort ſtick down by each root, to which, with a wire formed into a hoop, the ſtem of the flowers ſhould be faſtened, to ſupport them from falling; otherwiſe, when the bells are fully expanded, their weight will incline them to the ground, eſpecially if they are not ſcreened from the wind and rain. During their ſeaſon of flowering they ſhould be covered in the heat of the day from the ſun, as alſo from all heavy rains; but they ſhould be permitted to receive all gentle ſhowers, as alſo the morning and evening ſun; but, if the nights are froſty, they muſt be conſtantly defended therefrom. With this management you may continue your hyacinths in beauty at leaſt one whole month, and ſometimes more, according to their ſtrength, or the favourableneſs of the ſeaſon. When their flowers are quite decayed, and the tops of their leaves begin to change their colour, you muſt carefully raiſe the roots out of the ground with a narrow ſpade, or ſome other handy inſtrument; this is what the Dutch gardeners term *lifting* of them; in doing this, the inſtrument muſt be carefully thruſt down by the ſide of the root, being cautious not to bruiſe or injure it, as alſo to put it below the bottom of the root; then, by forcing the inſtrument on one ſide, the fibres of the root are raiſed and ſeparated from the ground. The deſign of this is to prevent their receiving any more nouriſhment from the ground; for, by imbibing too much moiſture at this ſeaſon, the roots frequently rot after they are taken up. About a fortnight after this operation, the roots ſhould be entirely taken out of the ground, and then carried to beds ſituated where the morning ſun only ſhines upon them; the earth of the beds ſhould be looſe and raiſed into a ſharp ridge, laying the roots into it in a horizontal poſition, with their leaves hanging out, by which means a great part of the moiſture contained in their thick ſucculent ſtalks and leaves will evaporate; which, if it were permitted to return back to the roots, would cauſe them to rot and decay after they are taken up, which has been the general defect of moſt of the hyacinths in England. In this poſition the roots ſhould remain until the green leaves are entirely decayed, which perhaps may be in three weeks time. This is what the Dutch gardeners term the ripening of their roots, becauſe by this method the roots become firm, and the outer cover is ſmooth, and of a bright purple colour; whereas thoſe roots which are permitted to remain undiſturbed, till the leaves and ſtalks are quite decayed, will be large, ſpongy, and their outer coats will be of a pale colour; for the ſtems of many of theſe flowers are very large, and contain a great quantity of moiſture, which, if ſuffered to return into the roots, will infallibly cauſe many of them to periſh. After they are ſo ripened, you muſt take them out of the ground, and wipe them clean with a ſoft woollen cloth, taking off all the decayed parts of the leaves and fibres, putting them into open boxes where they may lie ſingly, and be expoſed to the air; but they muſt be preſerved carefully from moiſture; nor ſhould they be ſuffered to remain where the ſun may ſhine upon them; in this manner they may be preſerved out of the ground until September, which is the ſeaſon for planting them again, at which time you muſt ſeparate all the ſtrong-flowering roots, planting them in beds by themſelves, that they may make an equal appearance in their flowers; but the offsets and ſmaller roots ſhould be planted in another ſeparate bed for one year, in which time they will acquire ſtrength, and by the year ſucceeding will be as ſtrong as the older roots.

The ſingle and ſemi-double flowers ſhould be planted alſo in a bed by themſelves, where they ſhould be carefully ſheltered (as was directed before) from the froſt, until the flowers are blown; at which time their covering ſhould be entirely removed, and they ſuffered to receive the open air, but the flower-ſtalks ſhould be ſupported with ſticks; which, though the weather may ſoon deface the beauty of the flowers, yet is abſolutely neceſſary to promote their ſeeding; and, when the ſeeds are quite ripe, you muſt cut off the veſſels and preſerve them, with the ſeeds therein, until the ſeaſon for ſowing it. But you muſt obſerve, that, after theſe flowers have produced ſeeds, they ſeldom flower ſo well again, at leaſt not in two years after; ſo that the beſt method to obtain good ſeeds is, to plant new roots every year for that purpoſe. Although theſe roots are, by moſt perſons, taken up every year, yet, if the beds are well prepared for them, they may remain two years in the ground unremoved, and the roots will increaſe more the ſecond year than the firſt, though the flowers are more liable to degenerate; therefore, thoſe who cultivate theſe for ſale, take up their roots annually when they are large and ſaleable; but the offſets and ſmall roots they uſually leave two years in the ground. There are ſome perſons who let their hyacinth-roots remain three or four years unremoved, by which they have a much greater increaſe of roots than when they are annually taken up; but the roots by this great increaſe are frequently degenerated, ſo as to produce ſingle flowers.

The beds ſhould be in a dry airy part of the garden, with a ſouthern expoſure ſheltered from the north and eaſt, ſix feet diſtant, at leaſt from the fence, and made ſloping a little towards the ſun. Floriſts differ as to the proportion of the materials of the compoſt in which the bulbs are to be planted. Some, inſtead of half freſh earth, recommend only one-third, with the ſame quantity of rough ſea or river ſand, and the remaining third part to be one-fourth old rotten cow-dung, and the reſt the earth of decayed leaves. Some put in tanners' bark, rotten wood, or old ſaw-duſt. Others reprobate tan, as retaining an aſtringency which is pernicious to delicate bulbous flowers.

In uſing freſh earth from a paſture, it is neceſſary to guard againſt the wire-worm, by minutely inſpecting the heap as it is turned over, and picking out this deſtructive creature, which is of a yellow colour, and about an inch in length. Perſons who are nice about their flowers, erect a covering or awning over them during the time of flowering, to keep off the rain without excluding the light, and to ſhelter them from cold winds, which are frequently very injurious at the early ſeaſon when theſe delicate flowers are in bloom. This awning ſhould be of coarſe linen on a frame of wood, made to roll up eaſily, that in mild cloudy weather the flowers may have the full benefit of the ſun and air; and it ſhould not continue on more than a fortnight or three weeks, for it weakens the bulbs. Hyacinths never require any water; moderate rains are ſufficient for them after planting, and till they bloom; and, when they are paſt their bloom, heavy rains ſhould be kept from the bulbs by hoops covered with mats. Such bulbs as are four or five years old flower ſtrongeſt in England; and after this gradually decline: but in Holland the ſame bulb will produce bloom twelve or thirteen years together, nor is it ever known to die merely from age. The hyacinth ſucceeds beſt in ſituations near the ſea. In more inland parts the floriſt muſt introduce freſh bulbs annually to ſupply his deficiencies; and keep a reſerve in narrow deep pots to fill up the vacancies in his beds. Single hyacinths may be planted a week or two ſooner than the double ones, and thus will bloom two or three weeks earlier than the latter. Upon theſe you muſt depend for ſeed, for the double ones rarely produce any. Save your ſeeds from thoſe plants which have ſtrong ſtraight ſtems, and a regular well-formed pyramid of flowers, which are ſemi-double; and do not gather it till it is perfectly black, when the pericarp will appear yellow on the outſide, and begin to open. Then cut off the ſtem, and place it in a dry, airy, cool, place, till the time of ſowing; which is either the end of October or the beginning of March. Mr. Miller recommends Auguſt. By the ſixth year after ſowing, all the bulbs that ſurvive will have produced their bloom; and, if one in five hundred ſhould deſerve to be recorded in the annals of the floriſt, the cultivator may eſteem himſelf fortunate. See a variety of this garden-hyacinth in the Botany Plate IX. fig. 9, vol. iii. p. 253. It is the double-flowered variegated carnation-hyacinth.

The grape-hyacinths or muſcari, are hardy, will thrive in the open air, and require no other culture but to take up the roots every ſecond or third year, to ſeparate the bulbs; for ſome of them multiply faſt; and, when the bunches of bulbs become large, they do not flower ſo ſtrong. They ſhould be taken up ſoon after their ſtalks and leaves decay, and ſpread on a mat in a dry ſhady room for a fortnight to dry, after which they may be kept in boxes till Michaelmas, when they may be planted in the borders of the flower-garden, and treated in the ſame way as the common hyacinths. They are all eaſily increaſed by offsets, which moſt of them ſend out in plenty; ſo that there is no occaſion to ſow the ſeeds, unleſs it be to gain new varieties. The *botryoides* and *racemoſus*, which are very much alike, being troubleſome from their great increaſe, and the former not flowering readily in an open border, it is a good method to plant the bulbs in moderately-ſized pots, filled with light earth, and to plunge them in the borders to flower; in the autumn they ſhould be taken out, and the offsets thrown away. The latter is much the moſt common in our gardens, and is frequently miſtaken for the botryoides. See Agapanthus, Aletris, Antholiza, Polianthes, Scilla, and Lanaria.

HY'ADES, five daughters of Atlas, king of Mauritania, who were ſo diſconſolate at the death of their brother Hyas, who had been killed by a wild boar, that they pined away and died. They became ſtars after death, and were placed near Taurus, one of the twelve ſigns of the Zodiac. They received the name of Hyades from their brother Hyas. Their names are Phaola, Ambroſia, Eudora, Coronis, and Polyxo. To theſe ſome have added Thione and Prodice; and they maintained, that they were daughters of Hyas and Æthra, one of the Oceanides. Euripides calls them daughters of Erechtheus. The ancients ſuppoſed that the riſing and ſetting of the Hyades was always attended with much rain. *Euripides.*

HY'ADES, in aſtronomy, ſeven ſtars in the bull's head, famous among the poets for bringing rain; whence their name, from the Greek υειν, "to rain," as fabled above. The principal of them is in the left eye, by the Arabs called *aldebaran.*

HYÆ'NA, *ſ.* in zoology. See the article Canis, vol. iii. p. 723.

HY'ALA, in ancient geography, a city at the mouth of the Indus, where the government was the ſame as at Sparta.

HY'ALINE, *adj.* [υαλινος, Gr.] Glaſſy; cryſtalline; made of glaſs; reſembling glaſs:

From heaven-gate not far, founded in view
On the clear *hyaline*, the glaſſy ſea. *Milton.*

HY'ALINGE, a town of Sweden, in the province of Blekingen: twenty miles ſouth-ſouth-eaſt of Konſback.

HYAM'POLIS, a city of Phocis, on the Cephiſus. *Herodotus.*

HYAN'THES, the ancient name of the inhabitants of Bœotia, from king Hyas. Cadmus is ſometimes called *Hyanthius*, becauſe he was king of Bœotia.

HY'AS, a man's name; the ſon of Atlas. See HYADES.

HYBAN'THUS, *ſ.* in botany. See VIOLA.

HYBERNAC'ULUM, *ſ.* in botany, the hybernacle. It is a compendium of the whole herb, before it grows up, in which the embryo of the future plant is incloſed by a ſcaly covering, and ſecured from external injuries during the winter. It is either a bulb, formed from the remains of paſt leaves; or a bud, from the rudiments of future leaves.

HYBERNA'GIUM, *ſ.* The ſeaſon for ſowing winter-corn, between Michaelmas and Chriſtmas; as tremagium is the ſeaſon for ſowing the ſummer-corn in the ſpring of the year. Theſe words were taken ſometimes for the different ſeaſons; other times for the different lands, on which the ſeveral kinds of grain were ſowed; and ſometimes for the different corn; as hybernagium was applied to wheat and rye, which we ſtill call winter-corn; and tremagium to barley, oats, &c. which we term ſpring or ſummer-corn.

HYBER'NAL, *adj.* [from *hybernus*, Lat. winter.] Belonging to winter. *Scott.*

HYBERNA'TION, *ſ.* [from *hybernare*, Lat.] Period of winter.—As ſhould be very agreeable to the nature and conſtitution of the ſeveral plants, that were to paſs their *hybernation* in the green-houſe. *Evelyn.*—The periodical ſleep or torpor of animals. M. Fabricius ingeniouſly ſuppoſes that the torpor of certain animals in cold weather is not natural, nor coeval with the ſpecies. The ſpecies ſubjected to it, according to him, are natives of countries warmer than thoſe in which they undergo this change; but, from their multiplication beyond their means of ſubſiſtence, they were obliged to emigrate. The unuſual cold of the new climate, (provided they moved from the equator,) and the failure of food in winter, brought on the ſtate of torpor. The author obſerves, in ſupport of his hypotheſis, that theſe animals, carried back to a warm climate, and ſupplied with food in plenty, never hybernate; in like manner, if fed by the hand of man, they loſe this habit. He is alſo of opinion, as Mr. Hunter alſo once conjectured, that all animals, man not excepted, are capable of this ſtate: he quotes the inſtance of ſheep in Iceland, which paſs the winter covered with ſnow, where they probably take no food, and where indeed they could only find a little dried heath; he adds the fact of the Swiſs, who have been found motionleſs under ſnow, and who, though they had remained long in this ſtate without food, recovered perfectly; and he is of opinion, that ſwallows do not quit the country in which they live during ſummer. At all events, the ſmall number of theſe birds hitherto diſcovered in a ſtate of hybernation adds much probability to his opinion, ſince the ſwallow ſeems capable of paſſing the winter-months with us without torpor, according to circumſtances. The author believes that extreme warmth has nearly the ſame effect on animals which cold produces. In exceſſively hot ſeaſons, almoſt the ſame torpor, he obſerves, prevails throughout nature, and many animals hide themſelves in dark and cool receſſes, or emigrate. Our knowledge with reſpect to the cauſe of hybernation is extremely limited, eſpecially that of aquatic plants, which, in order to avoid the rigour of winter, retire to the bottom of the water at the ſetting-in of this ſeaſon, and emerge on the approach of the firſt fine weather in ſpring. "Change of temperature alone ſeems to me (ſays M. Fabricius) inſufficent to account for this phænomenon; for it ſometimes happens that plants emerge when the temperature is lower than at the time of their ſinking." The phænomenon doubtleſs depends on the accumulation of excitability, if we may uſe this phraſe, during the ſtate of quieſcence of the vegetables: the ſame thing happens to animals.

HY'BLA, or MEGARA, in ancient geography, a mountain in Sicily, ſo named from the Megareans, who led thither a colony; called alſo *Hybla Parva*, and *Galeotis*. In Strabo's time Megara was extinct; but the name *Hybla* remained on account of its excellent honey named from it. It was ſituated on the eaſt coaſt of Sicily, between Syracuſe and the Leontines. The *Hyblæi colles*, or ſmall eminences at the ſprings of the Alabus near this place, were famous for their variety of flowers; the honey gathered from which was by the ancients reckoned the beſt in the world, excepting that of Hymettus in Attica. By the moderns it was called *Mel-Paſſi*, for the ſame reaſon, namely, on account of its excellent honey and extraordinary fertility, till it was overwhelmed by the lava of Ætna; and, having then become totally barren, its name was changed to *Mal Paſſi*. In a ſecond eruption, by a ſhower of aſhes from the mountain, it ſoon re-aſſumed its ancient beauty and fertility, and for many years was called *Bel Paſſi*: and laſt of all, in 1669, it was again laid under an ocean of fire, and reduced to the moſt wretched ſterility; ſince which time it is again known by the appellation of *Mal Paſſi*. However, the lava in its courſe over this beautiful country has left ſeveral little iſlands or hillocks, ſufficient to ſhow what it formerly was. Theſe make a ſingular appearance in all the bloom of the moſt luxuriant vegetation, ſurrounded and rendered almoſt inacceſſible by large fields of black and rugged lava.

HYBLÆ'AN, *adj.* [from *Hybla.*] Belonging to Hybla, produced on mount Hybla.

HYBO'MA, *ſ.* [Greek.] A curvature of the back-bone.

HYBRIA'NES, in ancient geography, a people near Thrace.

HY'BRID, *adj.* Begotten between animals of a different ſpecies, produced from plants of different kinds.

HYB'RIDA, *ſ.* [from υϐρις, Gr.] An animal whoſe ſire is of one kind and dam of another.

HYB'RIDOUS, *adj.* [υϐρις, Gr. *hybrida*, Lat.] Begotten between animals of different ſpecies.—Why ſuch different ſpecies ſhould not only mingle together, but alſo generate an animal, and yet that that *hybridous* production ſhould not again generate, is to me a myſtery. *Ray.*

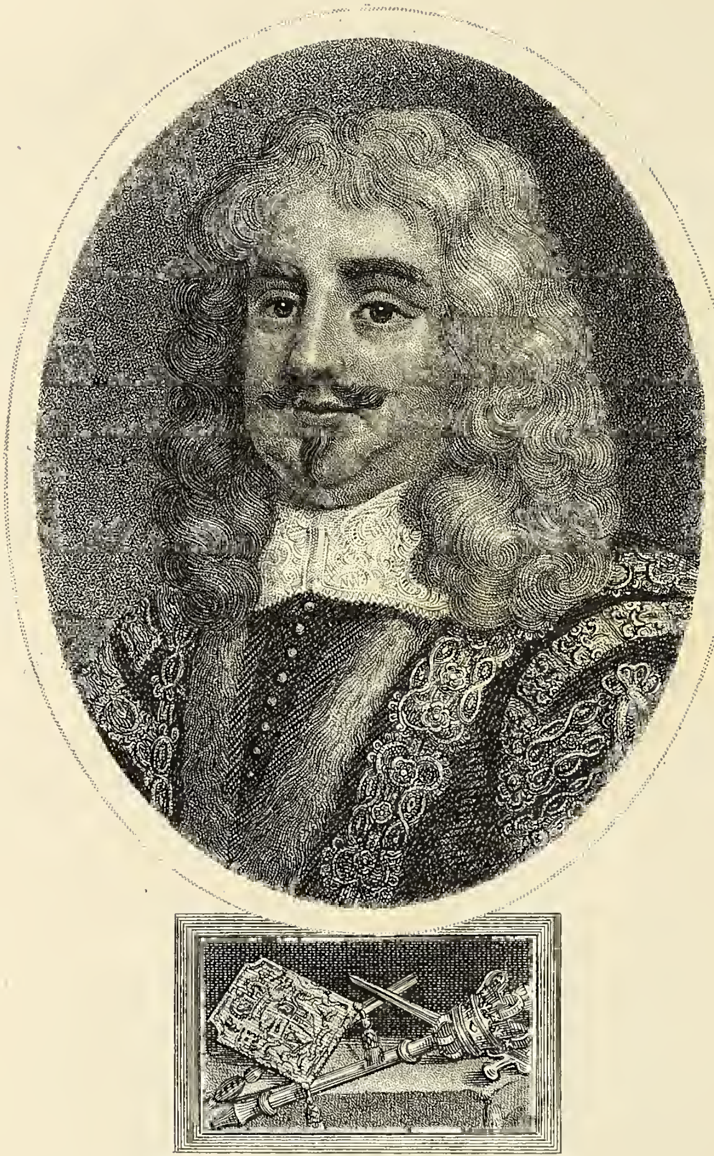
HY'BRIS, *ſ.* in Grecian antiquity, the ſilver ſtool on which the plaintiff ſtood in the court of the areopagus.

HYBRIS'TICA, *ſ.* [of υϐρις, Gr. injury.] A ſolemn feaſt held among the Greeks, with ſacrifices and other ceremonies; at which the men attended in the apparel of women, and the women in that of men, to do honour to Venus in quality either of a god or a goddeſs, or both. Or, according to the account given by others, it was a feaſt celebrated at Argos, wherein the women, being dreſſed like men, inſulted their huſbands, and treated them with all marks of ſuperiority, in memory of the Argian dames having anciently defended their country with ſingular courage againſt Cleomenes and Demaratus. Plutarch ſpeaks of this feaſt in his treatiſe of the great actions of women.

HYC'CARON, a town of Sicily, the native place of Lais.

HY'CO-O'TEE, or HYCOO, a ſmall river of the American States, which empties into the Dan about four miles above the mouth of Staunton river.

HY'DA, a town of Lydia, under mount Tmolus, which ſome ſuppoſe to be the ſame as Sardes.



J. Chapman, Sc.

HYDE, EARL of CLARENDON.

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**HY'DAGE**, *ſ.* A tax upon lands according to thoſe portions of them which were called *hydes*.—Of the ſame nature with ſcutages upon knights' fees were the aſſeſſments of *hydage* upon all other lands. *Blackſtone.*

**HYDA'RA**, a town of Armenia. *Strabo.*

**HYDAS'PES**, in ancient geography, a river of Aſia, flowing by Suſa. Another in India, now *Chelum*, the boundaries of Alexander's conqueſts in the eaſt. The Hydaſpes, the modern Behut, or Chelum; the Aceſines or Jenaub, or Cheenaub; and the Hydraotes, or modern Rauvee; all theſe, after a long courſe, unite in one channel, which retains the name of Cheenaub, and, after the junction, paſſes through the country of the Oxydracæ, beneath the north ſide of Moultan, and at the diſtance of about twenty miles from that city falls into the Indus, about two hundred miles below Attock, in magnitude equal to the Indus itſelf. One of the epithets the poets beſtow on the Hydaſpes is *Aurifer*, poſſibly as being peculiarly rich in gold. On the banks of the Hydaſpes was fought the deciſive battle between Alexander and the Indian monarch Porus, both equal in valour; but the former, by his great ſuperiority in the art of war, obtained a complete victory with a handful of men. Porus employed not fewer than two hundred elephants, which, terrific as they might have been to the Macedonian horſes, were, with their garriſoned towers, totally deſtroyed by the victorious army. See the article GREECE, vol. viii. p. 946.

**HYDAT'IDES**, *ſ.* in helminthology, a diviſion of inteſtinal worms belonging to the genus tænia; for particulars and figures of which ſee the article HELMINTHOLOGY, vol. ix. p. 346, and correſpondent Engraving.

**HYDATOSCO'PIA**, *ſ.* called alſo *hydromancy*, a kind of divination or method of foretelling future events by water.

**HYDE** (Edward), earl of Clarendon, and lord high-chancellor of England, a moſt eminent ſtateſman and hiſtorian, the ſon of Henry Hyde, a private gentleman reſiding at Dinton in Wiltſhire, where he was born in February 1608. He received his early education in his father's houſe, under the tuition of the vicar of the pariſh; and at the age of thirteen was ſent to Oxford, where he remained a year a ſtudent in Magdalen-hall. In the following year he was choſen to fill the next vacancy of a demy's place in Magdalen-college; but no vacancy occurring, and his father now reſolving to bring him up to the law, he was entered of the Middle Temple. He was only in his ſeventeenth year when he removed to London, under the protection of his uncle Nicholas Hyde, afterwards chief juſtice of the King's-bench. He was ſtill a ſtudent when his uncle died; this diſappointment, however, did not prevent him from purſuing his intentions. He was happy in being early introduced to a very reſpectable ſet of acquaintance, among whom he reckoned ſeveral of the moſt eminent perſons in the kingdom for learning and talents; as lord Falkland, Seldon, Kenelm Digby, Carew, Waller, May, Sheldon, Morlay, Hales of Eton, Chillingworth, &c. and of whom he has given very characteriſtic and entertaining ſketches in his memoirs. To their converſation he has aſcribed the beſt part of his acquiſitions; and he has ſtrongly expreſſed his ſenſe of the benefit of ſuch ſociety, by ſaying that "he never was ſo proud, or thought himſelf ſo good a man, as when he was the worſt man in the company." He has likewiſe paid a very affectionate tribute to the memory of his father, a man of great virtue and worth.

A cauſe in which he was engaged on the part of the London merchants, introduced him to the notice of archbiſhop Laud, then a commiſſioner of the treaſury, who treated him with much regard, and favoured his profeſſional advancement. The eaſineſs of his fortune, and his other connections, alſo contributed to bring him forward, ſo that his employment as a barriſter became conſiderable. He did not, however, ſo far immerſe himſelf in legal purſuits, as to neglect polite literature; and in his manner of living, and the company he kept, he rather affected the polite ſcholar than the lawyer. Such was his reputation, that in the parliament called by Charles I. in 1640, on occaſion of the Scotch rebellion, he was choſen burgeſs for both Wotton-Baſſet and Shafteſbury, for the former of which places he made his election. Public grievances being the topic immediately entered upon by the houſe, Hyde brought forward a complaint of the illegal practices and oppreſſions of the earl marſhal's court, but the ſpeedy diſſolution of the parliament prevented any proceedings upon it at that time. He was, however, choſen to the new parliament of the ſame year, for the borough of Saltaſh; and renewed with ſo much effect his attack upon the marſhal's court, that he procured its ſuppreſſion.

He now laid aſide his gown, and entirely gave himſelf up to public buſineſs; and, being conſidered as enliſted in no party, was frequently appointed chairman of committees in matters of the greateſt importance. He aſſiſted in drawing up the charges againſt the judges for their deciſion in the caſe of ſhip-money; but, though in this caſe he took part with thoſe who oppoſed the court, yet he ſhowed in other inſtances ſo much attachment to regal government, and to the eſtabliſhed church, that he was regarded with diſlike and ſuſpicion by the heads of that party. On the other hand, he was repreſented in ſo favourable a light to the king, that his majeſty deſired a private conference with him, in which he expreſſed his acknowledgments for what he had done in his ſervice, and eſpecially for his affection to the church. From this time he may be conſidered as one of the royal party; and to judge of his actions and writings it will be proper to give his own ſtatement of his public principles.

He had, he ſays, "a very particular paſſion and devotion for the perſon of the king; and a moſt zealous eſteem and reverence for the conſtitution of government, which he believed to be ſo equally poiſed, that, if the leaſt branch of the prerogative was torn off, the ſubject ſuffered by it; and he was as much troubled when the crown exceeded its juſt limits." With reſpect to religion, "he believed the church of England to be the beſt framed for the encouragement of learning and piety, and the preſervation of peace, of any church in the world; and thought that the taking away any of its revenue, and applying it to ſecular uſes, was robbery and notorious ſacrilege; alſo, that the removal of the biſhops from the houſe of peers was a violation of juſtice:" hence he oppoſed from conſcience "all mutations in the church."

When the commons' remonſtrance on the ſtate of the nation came out, Hyde, as he ſays, "only to give vent to his own indignation, and without the leaſt purpoſe of communicating it," drew up a reply to it, which, however, he ſhowed to lord Digby. After ſome ſolicitation, he ſuffered it to appear as "The King's Anſwer with the Advice of his Council." He was ſoon after offered the place of ſolicitor-general, which he declined; but he agreed to be one of a private conſultation on the king's affairs and their management in parliament, with lord Falkland, and ſir John Colepepper. In this office he ſtood apart from the others, by oppoſing the king's aſſent to the bill for depriving the biſhops of their ſeat in the houſe of lords; which, however, his majeſty was prevailed on to give. In April 1642, Hyde was ſent for by the king to York; and, repairing thither, he aſſiſted in drawing up many papers in the royal cauſe, and in private conſultations.

After the commencement of the civil war, when the king held his court at Oxford, Hyde was nominated to the chancellorſhip of the exchequer, ſworn of the privy-council, and knighted. He remained with his majeſty till March 1644; when he accompanied prince Charles into the Weſt, and afterwards attended him to the iſland of Jerſey. After the prince's departure thence, ſir Edward remained there two years longer, purſuing his ſtudies in great tranquillity, and attending to the compoſition of a hiſtory of the tranſactions in which he had borne a part. He alſo drew up and publiſhed an anſwer to the parliament's declaration of February 1647, againſt ſending any more addreſſes to the king. In 1648 he was ordered to attend the prince at Paris; but, as he had in the mean time proceeded to Holland, ſir Edward embarked for Dunkirk. He found the prince at the Hague, where news arrived of the king's death. A reſolution being then taken in the young king's council of ſending an embaſſy to Spain, Hyde, with lord Cottington, were nominated the ambaſſadors, and arrived at Madrid towards the end of 1649. When their attendance in that capital was no longer uſeful, Hyde returned to Paris, where he found great differences prevailing between the queen-mother and the duke of York. The king's court at the Hague was not in a better ſtate of union; and he found ſo little good to be done by a perſonal attendance, that he obtained leave to retire to Antwerp, where his wife and children were, with whom he lived in a ſtudious and domeſtic retreat, ſuited to his reduced circumſtances. The aſſignment of a houſe rent-free at Breda, by the princeſs of Orange, induced him to remove to that city. That princeſs alſo manifeſted her kindneſs to his family by propoſing to take his daughter for one of her maids of honour; to which, by his own account, he was very difficultly brought to conſent, and not till he looked upon the matter "as having ſome marks of divine providence in it." Juſt before the king's reſtoration in 1657, he was appointed to the poſt of lord high-chancellor of England.

At the reſtoration, the chancellor might be conſidered as the king's firſt and moſt confidential miniſter; and it is agreed that he diſplayed great wiſdom and integrity in ſettling the many difficult affairs, public and private, which this event brought for deciſion. He is particularly praiſed for rejecting the propoſal of raiſing a great ſtanding revenue, which would have made the king independent of future parliaments; and for the earneſtneſs with which he proceeded to diſband the army. He alſo moderated the forward zeal of the royaliſts, and checked their appetite for revenge. His honours naturally roſe with his power: in 1660 he was created a peer, and elected chancellor of the univerſity of Oxford; and in 1661 he was advanced to the titles of viſcount Cornbury and earl of Clarendon. He alſo received various grants from the crown, which rendered his eſtate adequate to his dignity. Many diſquiets, however, accompanied his elevation; and it was eaſily ſeen that the envy againſt a new man, together with the unyielding ſtrictneſs of his morals and principles, would raiſe a ſtorm of enmity againſt him in a court ſo licentious, and compoſed of ſuch diſcordant ingredients.

A ſhort time after the king's return, a circumſtance of great delicacy occurred, which was likely to have a powerful influence upon his future fortune. His daughter, in her ſituation with the princeſs of Orange, had attracted the notice of the duke of York; who, failing of ſucceſs in an attempt to obtain her favours upon eaſy terms, had entered into a private contract of marriage with her. She returned to her father's houſe in a ſtate of pregnancy; and having, with a proper ſpirit, inſiſted upon an avowal of her marriage from the duke, who had meanly wiſhed to keep it ſecret, it became neceſſary to inform the king of the affair. The chancellor was at the ſame time made acquainted with it, and his behaviour on the occaſion does not redound to his honour. By his own account, his paſſion made him forget all decency and humanity. He ſaid before the council, "that he had much rather his daughter ſhould be the duke's whore than his wife," and adviſed "that the king ſhould immediately cauſe the woman to be ſent to the Tower, and to be caſt into a dungeon under ſo ſtrict a guard, that no perſon ſhould be admitted to come to her; and that an act of parliament ſhould be immediately paſſed for the cutting off her head." No wonder that ſuch extravagant brutality ſhould, with many, have paſſed for *acting* a part, and that he ſhould be ſuſpected of having been privy to the whole affair. It is moſt probable, however, that he had no previous knowledge of it; and that, as he ſays, "he looked upon himſelf as a ruined perſon," and expected "the king's indignation to fall upon him as the contriver of that indignity to the crown." It may be added, that his high notions of royalty were likely enough to make him regard with real horror the alliance of one of ſo inferior a rank with the preſumptive heir to the crown. The king behaved with great juſtice and propriety in the buſineſs; and though the duke baſely denied his marriage, and even encouraged ſcandalous reports againſt his wife, and the queen-mother expreſſed the utmoſt rage at the connection, ſhe was at length acknowledged as ducheſs of York, and eventually gave two queens to England.

If this alliance ſtrengthened the chancellor's intereſt with the crown, it expoſed him to additional envy and ill-will from the courtiers; and, notwithſtanding the general integrity and ability of his public conduct, ſeveral things occurred to make him unpopular with the nation, and at length odious to the king. His oppoſition to a bill for liberty of conſcience, and his aſſiſtance to the hierarchy in their perſecuting ſchemes, brought upon him the enmity of all the ſectaries, and the diſpleaſure of the king, who wiſhed to obtain ſome indulgences for the papiſts. The bad ſucceſs of the Dutch war, though he had oppoſed it, was made a charge againſt him; and he unwiſely aggravated the public diſcontents by building a magnificent houſe during the moſt calamitous periods. The ſtatelineſs of carriage which he aſſumed was prejudicial to him; and, ſtill more, the true dignity with which he refuſed all communication with the royal miſtreſſes. Nor could the freedom with which he admoniſhed the king of his miſconduct fail to injure him, with a maſter who was radically corrupt in his own principles, and had little eſteem for virtue in others. Notwithſtanding all his faithful ſervices to the crown, he was therefore, without reluctance, given up as a ſacrifice to the national odium; and, in Auguſt 1667, he was required to reſign the great ſeal, and removed from all offices of public truſt. This was followed by an attack upon him in the houſe of commons by Mr. Seymour, which produced an impeachment of high-treaſon, conſiſting of ſeventeen articles, carried to the bar of the houſe of lords. That houſe refuſed to commit him upon the charge; and, during the debates upon this head, he received the king's commands to withdraw from the kingdom. The apology which he ſent to the houſe of lords upon his departure was voted a libel, and burnt by the common hangman; and a bill of baniſhment was paſſed againſt him as a fugitive from juſtice. He landed at Calais, and was proceeding to Rouen, when he was met by an order from the court of France inſtantly to quit its territories. A fit of ſickneſs rendered this impoſſible, and he finally obtained permiſſion to reſide in that country. Being on his way from Rouen to Avignon, at the town of Evreux, he was very near loſing his life through the outrage of ſome Engliſh ſeamen, who broke into his lodgings, and gave him a wound in his head. They had been taught that it was the chancellor who had defrauded them of their pay, and they partook of the hatred againſt him on other accounts. He was with difficulty reſcued out of their hands; but the French court apologiſed to him for the accident, and puniſhed the perpetrators. He proceeded to Montpellier, where he was treated with much reſpect during a reſidence of four years, which he employed in a vindication of his conduct, and in other writings. He afterwards paſſed ſome time at Moulins, and finally removed to Rouen, where he died in December 1674. His body was brought to England, and interred in Weſtminſter abbey. He left ſeveral children, of whom his eldeſt ſon Henry ſucceeded him in his title.

Lord Clarendon, beſides various occaſional writings upon public topics, was the author of The Hiſtory of the Grand Rebellion, 3 vols. folio, 6 vols. 8vo. to which was added his Life, and a Continuation of his Hiſtory, 2 vols. 8

8vo. publiſhed in 1759 by the univerſity of Oxford. It is only as an hiſtorian that he is now known in a literary capacity, and his work on the civil war is regarded as a very valuable ſource of information on the events of that unhappy period. Hume ſays of it, that, "except Whitlocke's Memorials, it is the moſt candid account of thoſe times compoſed by any cotemporary author." Lord Clarendon writes like a man who has taken a decided part; and, in his moral eſtimate of perſons and things, aſſumes as principles the juſtice of the ſide to which he attached himſelf, and the criminality of the oppoſite. But, with this allowance, his repreſentations are uſually fair and moderate. His ſtyle is not without beauty, but the conſtruction of his ſentences is often ſomewhat perplexed. His peculiar excellence is in drawing characters, and few have ever exceeded him in the truth and animation of his portraits.

HYDE (Thomas), a learned Engliſh divine and Oriental ſcholar, born at Bridgenorth in Shropſhire, in 1636. When ſixteen years of age, he was entered of King's college, in the univerſity of Cambridge; where he became acquainted with Mr. Abraham Wheelock, who was equally celebrated for his ſkill as a linguiſt. By him he was ſent to London to the learned Mr. Brian Walter, afterwards biſhop of Cheſter, as a perſon very capable of aſſiſting him in preparing for publication the grand polyglot Bible, on which he was then engaged. And Mr. Hyde certainly proved of very important ſervice in that arduous undertaking: for he tranſcribed the Perſian Pentateuch out of the Hebrew characters, in which it was firſt printed at Conſtantinople, into the proper Perſian characters. This taſk the learned Uſher thought would have proved impracticable even to a native Perſian, becauſe one Hebrew character anſwered ſometimes to one Perſian letter, and ſometimes to another, which were difficult to be diſtinguiſhed. Of this Pentateuch Mr. Hyde alſo added a Latin tranſlation; and he further aſſiſted in correcting different parts of Walton's work, in the Arabic, Syriac, and Samaritan, languages; by which he merited the character that was given of him by the editor, that his ſkill in the oriental languages was ſuch as greatly ſurpaſſed his years. In 1658, Mr. Hyde went to Oxford, where he was admitted of Queen's college, and ſoon afterwards appointed Hebrew reader in that ſociety.

Not long after the reſtoration of Charles II. Mr. Hyde was made under-keeper of the Bodleian library, upon the ejection of the famous Henry Stubbe; which appointment furniſhed him with an opportunity of proſecuting his ſtudies with ſingular advantage. In this ſituation he conducted himſelf with ſuch propriety and diligence, that upon a vacancy taking place in the office of head-keeper, in 1665, he was elected to fill it, with the general approbation of the whole univerſity. Before this, however, he publiſhed, in the ſame year, *Verſio Latina e Lingua Perſica, & Commentarii in Obſervationes Ulugh Beigi, de Tabulis Longitudinis & Latitudinis Stellarum fixarum*, 4to. About this time, Mr. Hyde became acquainted with the celebrated Mr. Robert Boyle, to whom he was uſeful by communicating to him ſeveral remarkable paſſages relating to chemiſtry, phyſic, and natural hiſtory, in Oriental writers. In 1666, he was promoted to a prebend in the cathedral church of Saliſbury; and in the following year he publiſhed, *Quatuor Evangelia & Acta Apoſtolorum, Lingua Malaicâ, Characteribus Europæis*, 4to. printed at the expence of Mr. Boyle. In 1674, he publiſhed, *Catalogus impreſſorem Librorum Bibliothecæ Bodleianæ in Academia Oxon.* folio; and in 1678, he was made archdeacon of Glouceſter. In 1688, he publiſhed, *Epiſtola de Menſuris & Ponderibus Serum ſive Senenſium*, 8vo. printed at the end of Dr. Edward Bernard's treatiſe *De Menſuris & Ponderibus Antiquis, Libri tres*; and alſo, *Epiſtola N.F.D. de Mari Æneo Salomonis*, annexed to the ſame work. In 1691, he publiſhed, Specimen Libri *More Nevochim Maimonidis*; Arabicè and Latinè edendi, 4to. and upon the death of the learned Dr. Edward Pococke, in the ſame year, he was elected Arabic profeſſor. Before this election he had publiſhed, *Iggéreth Orchoth Olam*; id eſt, Itinera Mundi, ſic dicta, nempe Coſmographia, Autore Abrahamo Peritſol, Latina Verſione donavit & Notas paſſim adjecit Thomas Hyde S.T.D. &c. 4to. to ſupply in ſome meaſure the Arabic Geography of Abulfeda, which, at the requeſt of biſhop Fell, he had undertaken to publiſh with a Latin tranſlation; but, the death of his patron putting an end to that work, he ſent this minor performance abroad, dedicated to the earl of Nottingham, then principal ſecretary of ſtate, with the hope that it might excite a ſtronger curioſity in the learned reſpecting this branch of knowledge.

Notwithſtanding the loſs of his patron, Dr. Hyde ſtill proceeded in ſupplying new funds of information from Eaſtern literature. In 1693, he publiſhed, 8. *De Ludis Orientalibus Libri duo, ſcil. Mandragorias, ſeu Hiſtoria Schaliludii Latinè*, 8vo. 9. *Hiſtoria Schaliludii, ſeu trias Judæorum de Ludo Schacorum Heb. Lat.* 8vo. 3. *Hiſtoria Nordiludii, & reliquorum Ludorum Orientalium ubi Arabum, Perſarum, & Chineſium, Ludi varii*, 8vo. 10. *Tractatus Alberti Bobovii, Turcarum Imp. Mohammedis IVti. olim Interpretis primarii de Turcarum Liturgia, peregrinatione Meccana Circumciſione, Ægrotorum Viſitatione, &c. nonnullas Annotatiunculas prout Occaſio ſe obtulit, paſſim adjecit Thomas Hyde, S.T.D. &c.* 4to. This, though ſhort, is a very curious and uſeful treatiſe. Annexed to it, is a reproof to Angelus of St. Joſeph, alias father de la Broſſe, on account of his attack on the Perſian goſpels in the Engliſh polyglot, the principal deſign of which was to raiſe the credit of the Paris polyglot. Dr. Hyde's reproof producced an admirable effect, as not only maintaining the credit of the Engliſh work, but ſhowing alſo what lamentable critics the Carmelite monks were, notwithſtanding the high eſteem in which they ſtood in their own country for Oriental learning. In 1697, Dr. Hyde was appointed regius profeſſor of Hebrew, and canon of Chriſt-church. Three years after this he publiſhed another excellent work, The Religion of the ancient Perſians, entitled, *Hiſtoria Religionis Veterum Perſarum, eorumque Magorum. Ubi etiam nova Abrahami, & Mithræ, & Veſtæ, & Manethis Hiſtoria, &c. accedunt Icones, & Appendix variarum Diſſertationum*, 1700, 4to. The whole work is divided into thirty-five chapters; to which is ſubjoined a Latin tranſlation of a book uſed by the magi, entitled, Sadder, containing the laws and precepts of Zoroaſter, &c.

In 1701, Dr. Hyde reſigned the office of head-keeper of the Bodleian library, on account of his age and infirmities. He had occupied the poſt of interpreter and ſecretary in the Oriental languages, during the reigns of Charles II. James II. and William III. He died in 1702, at his apartments in Chriſt-church, in the ſixty-ſeventh year of his age.

HYDE, a maritime county of the American ſtates, in Newbern diſtrict, North Carolina; bounded eaſt by the ocean, weſt by Beaufort county, north by Tyrrel, and ſouth by Carteret. It contains 4120 inhabitants, of whom 1048 are ſlaves.

HY'DEGELD, *ſ.* A ranſom or fine in lieu of a whipping. *An old word.*

HY'DER-A'LI KHA'N, ſultan of the Myſore, and a very celebrated warrior. The time of his birth is not known. He died in the year 1782. He was a formidable enemy to the Engliſh in India, and his ſon Tippoo Saib inherited his dominions and his enmities. For his military exploits, ſee the articles ENGLAND, vol. vi. and HINDOOSTAN, in this volume. We ſhall here add a ſketch of his perſon and manners. Hyder-Ali was about five feet ſix inches high, very active, and capable of bearing fatigue as well on foot as on horſeback. His complexion was very brown, as is that of all Indians who expoſe themſelves to the air and the ſun. His features were coarſe, his noſe ſmall, his lower lip rather thick; and he wore very ſmall whiſkers, contrary to the cuſtom of the Orientals, eſpecially the Mahometans. His garments, like thoſe of all the natives of India, were of white muſlin, with a turban of the ſame. But, in the army he wore a military habit invented by himſelf for his generals: an uniform compoſed of a veſt of white ſatin, with gold flowers, faced with yellow, and attached by cords or ſtrings of the ſame colour: the drawers of the ſame materials; and the boots of yellow velvet. He wore a ſcarf of white ſilk about his waiſt; and, with the military habit, his turban was of a red or aurora colour. When on foot, he commonly uſed a gold-headed cane; and on horſeback he wore a ſabre, hanging by a belt of velvet embroidered with gold, and faſtened over his ſhoulder by a claſp of gold, which was enriched with precious ſtones. He never wore jewelry either on his turban or on his clothes; and never uſed either necklace, earpendants, or bracelets. His turban was long and flat at top. In this particular he followed the ancient mode; as well as in his ſlippers, which were very large, with a long point turned back, reſembling the roofs of buildings in ſome countries upon the Levant.

The countenance of Hyder, though not handſome, was open, and calculated to inſpire confidence. He never acquired the habit of diſguiſing his aſpect, which was either gay or overſpread with chagrin, according to the occaſions that preſented themſelves. He poſſeſſed a facility in converſing on any ſubject; and had none of that ſtatelineſs and taciturnity, which almoſt all the other princes of the Eaſt affect to preſerve. When he received a ſtranger, he appeared to ſpeak with gravity; but ſoon recovered his uſual eaſe, and converſed on general topics, repeating himſelf the news and common converſation of the day with the greateſt affability. It is aſſerted that this ſovereign could aſk queſtions, give anſwers, hear a letter read, and dictate an anſwer to another, behold a theatrical exhibition, and even ſeem to attend to the performance—at the ſame inſtant that he decided concerning things of the utmoſt importance.

Though Hyder-Ali roſe himſelf from the humble ſituation of a common ſeapoy in the army, to be one of the greateſt princes in India, yet there was no ſovereign more eaſy of acceſs to every one that had buſineſs with him, whether ſtrangers or ſubjects; and the former, whatever were their quality, were always ſure to be introduced into his preſence by demanding an audience of a ſouquedar, or macebearer, of which there was always a ſufficient number at the gate of the royal palace. When buſineſs or parties of pleaſure did not prevent Hyder-Ali from going to reſt at his uſual time, which was after midnight, he aroſe with the ſun, that is to ſay, about ſix o'clock. As ſoon as riſen, the majors of the army, who had been on duty the preceding day and night, and likewiſe thoſe who relieved them, made their reports, and received orders to be tranſmitted to the miniſters and generals, who themſelves had the privilege of entering his dreſſing-room, if they had any thing extraordinary or preſſing to communicate. The couriers that arrived during the night, or in the morning, alſo came and laid their diſpatches at his feet. Between eight and nine in the morning he quitted his apartment, and repaired to a ſaloon, where a number of ſecretaries waited for his appearance. Into their hands, according to their reſpective departments, he put the letters received; giving them at the ſame time inſtructions for the anſwers. His ſons, his relations, and thoſe lords who were honoured with his intimacy, entered; and, if it was nine o'clock, they took the uſual refreſhment. If he had leiſure, he appeared at a balcony, when his officers uſed to cry out, "Your elephants ſalute your majeſty:" and at the ſame time thoſe animals, ranged in a ſemicircle round the palace, made three genuflections. His tigers of chaſe likewiſe paid him a viſit. They were led by hand, and covered with a mantle of green and gold hanging to the ground, and a bonnet on their head, of cloth embroidered with gold, with which their eyes can be immediately covered, if they ſhould chance to prove miſchievous. Hyder himſelf would give each of them a ball of ſweetmeats, which they would take very adroitly with their paws, being exceedingly tame.

After the repaſt, which ended about half after ten, Hyder entered into the hall of audience; or the grand tent, if at the army. He was ſeated on a ſopha beneath a canopy, and very often in ſome balcony that fronts an open place or court of the palace; and ſome of his relations ſat on each ſide of him. All perſons who had permiſſion of acceſs, of which the number was very great, might come to this audience; and thoſe who had affairs to tranſact, might either requeſt admittance by means of the ſouquedars, or put their requeſt into the hands of thoſe officers, by whom it was carried to their chief, who was always preſent, and who placed it at the feet of the prince, where it was immediately read and anſwered. At this audience thirty or forty ſecretaries were ſeated along the wall to the left, who wrote continually. Couriers arrived almoſt every inſtant, and were conducted with great noiſe and buſtle to the feet of the prince, where they laid their diſpatches. A ſecretary kneeling took the packet; and, ſitting on his hams before the prince, opened it and read the letter. Hyder immediately dictated the particulars of the anſwer, and the letter was carried to the office of a miniſter. Contrary to the cuſtom of the princes of the eaſt, who affix their names by means of a ſeal, Hyder ſigned the diſpatches in order as they were completed, as well as a number of private orders. When this prince wrote any intereſting letter, or gave an order of importance, he affixed a particular or private ſeal, which he always wore on his finger; and in that caſe he himſelf carried the packet to one of his couriers, who conveyed it as far as the firſt ſtation. To the packet was joined a paper denoting the hour it was ſent off; and at every ſtation the time of its arrival was marked. Miniſters, generals, ambaſſadors, and other great men, rarely appeared at this audience, unleſs commanded, or unleſs urged by extraordinary affairs. It was peculiar to their dignity to ſee the prince only in the evening, when none but men of conſequence were admitted; and nothing elſe was thought of but to make their court to the ſovereign, or to ſhare his pleaſures. A great ambaſſador, or other perſon of conſequence, was announced in a loud voice by the chief of the uſhers in theſe terms: "Your majeſty, the lord of ——— ſalutes you." Miniſters, ſecretaries, ouaquils, or other men of buſineſs, were not announced, but went in and out without particular obſervation, except that they were careful to ſalute the prince. When a great man was announced, the prince returned the ſalute, and begged him to be ſeated: the friends and other great men, who ſurrounded the ſovereign, ſaluted him alſo; and, in proportion to the eſteem or favour he was in with the prince, they gave place, that he might approach him. A perſon of ordinary rank, who had requeſted an audience, made three reverences in entering, by moving his hand from his forehead almoſt to the ground; and afterwards placed himſelf on one ſide of the chief uſher, continuing ſilent, with his hands joined before him. The prince returned the ſalute by ſimply touching his turban with his hand, and affected to continue the diſcourſe with thoſe about him: after which he made a ſign for the perſon to advance, and demanded in an engaging and affectionate manner the ſubject of his viſit: and, upon the expoſition of the affair by the ſuppliant, he received a deciſive anſwer. If he were a ſtranger of a genteel rank or employment, as a trader or merchant of conſequence, he received orders to ſit; and his place was uſually on the right, fronting the ſecretaries. The prince would then aſk him ſome queſtions reſpecting his ſtate of life, his country, or his voyage, and appoint a time when he would ſee his merchandiſes. Betel was then preſented to the ſtranger, which was underſtood as equivalent to a permiſſion to retire; and this was done with the ſame ceremony as at the entrance. This audience continued till after three o'clock, which was the hour he returned to his apartment to ſleep, or make the *ſieſto*, as it is called in Italy and Spain. About half-paſt five, the prince returned into the hall of audience, or ſome other large apartment, where he placed himſelf in a balcony to ſee his troops exerciſe, and his cavalry defile before him. He was then, as in the morning, ſurrounded by ſome of his friends or relations; and the ſecretaries were buſied in reading letters, or writing.

The following mode of paſſing the evening at the court of Hyder is given by an eye-witneſs, who paſſed ſome weeks there a few years before Hyder's death. As it was written on the ſpot, we ſhall give it in his own words: “ About half after ſix, when the day cloſes in, a great number of manelſalgis, or bearers of flambeaux, appear in the court of the palace, and ſalute the prince as they paſs on the ſide of the apartment where he is. They illuminate all the apartments in a moment, eſpecially that in which the prince is, with tapers in chandeliers of exquiſite workmanſhip, ornamented with feſtoons of flowers of the utmoſt lightneſs and delicacy. Theſe chandeliers, on account of the wind, are covered with large ſhades of Engliſh glaſs. There are likewiſe, in ſome parts of the palace, large glaſs lanthorns, painted with flowers of all colours. The great men, miniſters, and ambaſſadors, viſit the prince only at night. They are uſually perfumed with the moſt coſtly perfumes. Beſides the men in power and employment, the apartments are filled with young nobility; and every body aſſumes the moſt polite and engaging manners. After having ſaluted the prince, the ſalute is paid to his ſons and relations, his miniſters, and others, in an eaſy, unaffected, manner. Among the young nobility, there are a certain number who have the title of arabſhequi; which anſwers nearly to that of chamberlain in Germany. There are ordinarily four in waiting each day: they are diſtinguiſhed by their ſabre, which they carry in their hand in the ſheath, uſing it nearly as a walking-ſtick. All the other company leave their arms in the hands of their pages and other attendants, who are very numerous, and fill the avenues of the palace. The pages alone are permitted to enter: they follow their maſter, bearing his train, into the apartments, till they quit their ſlippers at their ſtepping on the carpet; the pages then let fall the train, and put the ſlippers into a bag. Hyder, who ſets no great value on theſe ceremonies, permits the Europeans to come in with their ſhoes on, though his apartments are commonly covered with white muſlin, ſpread upon the moſt ſuperb Perſia carpets. He has ſuch a predilection for white, that he cauſes wainſcoting, that is painted, gilt, and varniſhed, to be covered with white muſlin; and even chairs and ſophas of embroidered velvet or gold ſtuff. There is, for the moſt part, a comedy every night, that commences about eight in the evening, and laſts till eleven: it is intermixed with dances and ſongs. During this comedy, the arabſhequi continue near the ſtrangers, and politely inform them of every thing they may deſire to know; as the ſubject of the comedy, the news of the day, &c. They are careful to aſk if he chooſes to drink or eat; in which caſe they cauſe ſherbet, warm milk, fruits, or confectionary, to be preſented to him; but they ſeldom eat. If the ſtranger chooſes to play cheſs, they play with him, or propoſe a party. Hyder, to whom the entertainments of the ſtage are very indifferent, diſcourſes with his miniſters or ambaſſadors, ſometimes paſſing into a cabinet to ſpeak with more ſecrecy: and continues, as in the morning, to diſpatch buſineſs, without ſeeming to be buſy. Almoſt always before the end of the performance, flowers are brought to him in a baſket of filigram, out of which he himſelf gives a few to the lords who are about him; and afterwards the baſket is carried into the apartments of the theatre, every one taking a ſmall flower from them, and returning a profound reverence to the prince. This takes place even to the loweſt ſecretary. When Hyder wiſhes to give a particular mark of his eſteem, he himſelf makes a collar of jaſmine-flowers, knotting them with ſilk as he converſes, which he himſelf adjuſts round the neck of the happy mortal to whom he gives this glorious mark of his eſteem and favour. He has ſeveral times conferred this honour on the chiefs of his Europeans, knowing well that the French, above all nations, eſteem themſelves well paid by this ſort of money. He, who has received this honour, is viſited the following day by the firſt people of the court to compliment him.

“ If a battle has been gained, or any other glorious event has happened in favour of the prince, the poet of the court arrives, announcing himſelf at his firſt entering the apartments, by the pompous and extravagant titles he beſtows on the prince: as “ Health to the greateſt king on earth, whoſe name alone cauſes his enemies to tremble,” &c. All the world, at the voice of the poet, becomes ſilent and attentive. The comedy or dance is interrupted; the poet enters, ſeats himſelf in the place immediately oppoſite the prince, and recites a poem, which every body affects to hear with the utmoſt attention, except the prince, who ſeems at that time to be more particularly buſied in converſing with his miniſters. The poet uſually, after ſpeaking of the prince, proceeds to his relations, and the generals or principal officers; not forgetting the miniſters and favourites.

“ We cannot ſpeak of their public entertainments, without mentioning the bayaderes, of whom the abbé Raynal has drawn ſo advantageous a portrait in his Hiſtoire Philoſophique. The court of Hyder is the moſt brilliant in India; and his company of performers is without contradiction the firſt, as well on account of its riches, as becauſe the bayaderes are the women to whom he gives the preference. Being ſovereign of part of Viſapour, he has every facility of procuring among this claſs of women thoſe who are moſt remarkable for their beauty and talents. The comedians of the court are all women. A directreſs, who is likewiſe manager, purchaſes young girls at the age of four or five years, who are choſen on account of their beauty. She cauſes them to be inoculated, and then provides them with maſters both for dancing and muſic. They are taught every accompliſhment that can inſpire the prince and his court with the love of pleaſure; and their ſucceſs is ſuch, that they delight and ſeduce the moſt inſenſible of men. They begin to appear in public at the age of about ten or eleven years. They have generally the moſt delicate features, large dark eyes, beautiful eyebrows, ſmall mouth, and the fineſt teeth; their cheeks are dimpled, and their black hair hangs in flowing treſſes to the ground; their complexion is a clear brown, not ſuch as that of the mulatto women, who are incapable of bluſhing; but like that of a country-girl in the flow of health, who has preſerved the roſes, after ſuffering the lilies to fade. Theſe are the *yellow women*, that the Orientals prefer to all others: they give themſelves that tinge by painting their cheeks of a jonquil colour, in the ſame manner as the French women uſe rouge. Their habit is always a fine gauze, very richly embroidered with gold; and they are covered with jewels: their head, their neck, their ears, their breaſts, their arms, fingers, legs, and toes, have their jewels; and even their noſe is ornamented with a ſmall diamond. The comedies are all pieces of intrigue. They perſonate either women who league together to deceive a jealous huſband, or young girls that conſpire to deceive their mother. It is impoſſible to play with more art, or with more natural eaſe. Their ſongs are gay and agreeable. The words that are ſung by a ſingle voice are almoſt always the complaint of a lover; thoſe which are ſung in chorus are much gayer; but they have no ſecond parts, and are always in uniſon. No bayadere of the prince's company is more than ſeventeen years old. At this age they are diſmiſſed, and either travel over the province, or attach themſelves to the pagods. Beſides the prince's company, there are ſeveral others in the town where the court is kept, and in the armies There are even ſome that are compoſed of men only; but the people of the court never have recourſe to any but the prince's company.

"At eleven o'clock, or about midnight, every one retires but thoſe that ſup with the nabob; who, except on grand feſtivals, are always his friends and relations. This mode of life purſued by Hyder, is, as may eaſily be imagined, interrupted in the army. It is likewiſe occaſionally interrupted by hunting-parties, by excurſions on foot or horſeback, or by his attending to aſſiſt at the exerciſes and evolutions made by conſiderable bodies of his troops. When he is obliged to remain a month in camp, or in any town, he uſually goes to the chace twice a-week. He hunts the ſtag, the roebuck, the antelope, and ſometimes the tiger. When notice arrives that this laſt animal has been obſerved to quit the foreſts, and appear in the plain, he mounts his horſe, followed by all his Abyſſinians, his ſpear-men on foot, and almoſt all the nobility armed with ſpears and bucklers. The traces of the beaſt being found, the hunters ſurround his hiding-place, and contract the circle by degrees. As ſoon as the creature, who is uſually hid in ſome rice-ground, perceives his enemies, he roars and looks every where to find a place of eſcape; and when he prepares to ſpring on ſome one to force a paſſage, he is attacked by Hyder himſelf, to whom the honour of giving the firſt ſtroke is yielded, and in which he ſeldom fails. Thus the pleaſures of the ſovereign are varied to infinity."

Towards the end of the year 1782, tidings of Hyder's demiſe reached Seringapatam. His ſon Tippoo Saib took undiſturbed poſſeſſion of all his father's territories, and the command of vaſt armies, at a time when many diſaffected individuals filled both the camp and the city. Tippoo was with his army, at a conſiderable diſtance from Hyder, when he died; but, when the information reached him, he haſted to his father's camp, and made ſuch diſpoſitions and arrangements as he judged prudent and neceſſary, without relaxing in any degree the vigour with which he carried on the war againſt the Engliſh. The cuſtomary mournings were obſerved at Seringapatam, but Hyder's remains were not brought to the capital till three months after his death, and interred in the part of the iſland which is called the Lollbaug garden. The uſual obſequies of eaſtern monarchs were profuſely beſtowed on this occaſion, which conſiſted chiefly in charities to the indigent, and magnificent erections to the deceaſed.

HYDERABAD', a province of Hindooſtan, now called *Golconda*. See GOLCONDA, vol. viii. p. 661.

HYDERABAD', a city of Hindooſtan, capital of the province to which it gives name, and now called *Golconda*, and at this time the capital of the Deccan, ſituated in a plain. It is very large, ſurrounded with walls, and defended with towers, and is ſuppoſed to contain upwards of 100,000 inhabitants: 690 miles ſouth of Delhi, and 270 north-north-weſt of Madras. Lat. 17. 17. N. lon. 78. 52. E. Greenwich.

HY'DESPARK, a townſhip of the American States, in Orleans county, Vermont, containing forty-three inhabitants. It is twenty-five miles ſouth of the Canada line, and twenty-ſix north by eaſt of Bennington.

HYDNO'RA, *ſ.* in botany. See APHYTEIA.

HYD'NUM, *ſ.* [*οιδνον*, *tuber*, in Theophraſtus, from *οιδεω*, *tumeo*.] In botany, a genus of the claſs cryptogamia, order fungi. The generic characters are—Fungus horizontal, echinated beneath with awl-ſhaped fibres. Theſe awl-ſhaped gills, which Linnæus compares to the prickles of a hedge-hog, are ſoft, ſolid, conical, or cylindrical, ſubſtances, emitting ſeeds from every part of their ſubſtance.

Linnæus (Syſt. Veget. ed. 14. 978.) has ſix ſpecies of this fungus, five with ſtems, and one ſtemleſs. Of theſe Hudſon has three, all having a ſtem. Dr. Withering has five with a ſtem, and ſix without. Swartz has added three from Jamaica; and Albertini has recently added two more very minute ſpecies. They chiefly grow on decayed wood. The moſt elegant ſpecies, Hydnum repandum, we have delineated in the annexed Engraving, fig. 1, where *a* exhibits a ſection of the pileus inverted, to ſhow the echinated gills, or ſeed-veſſels.

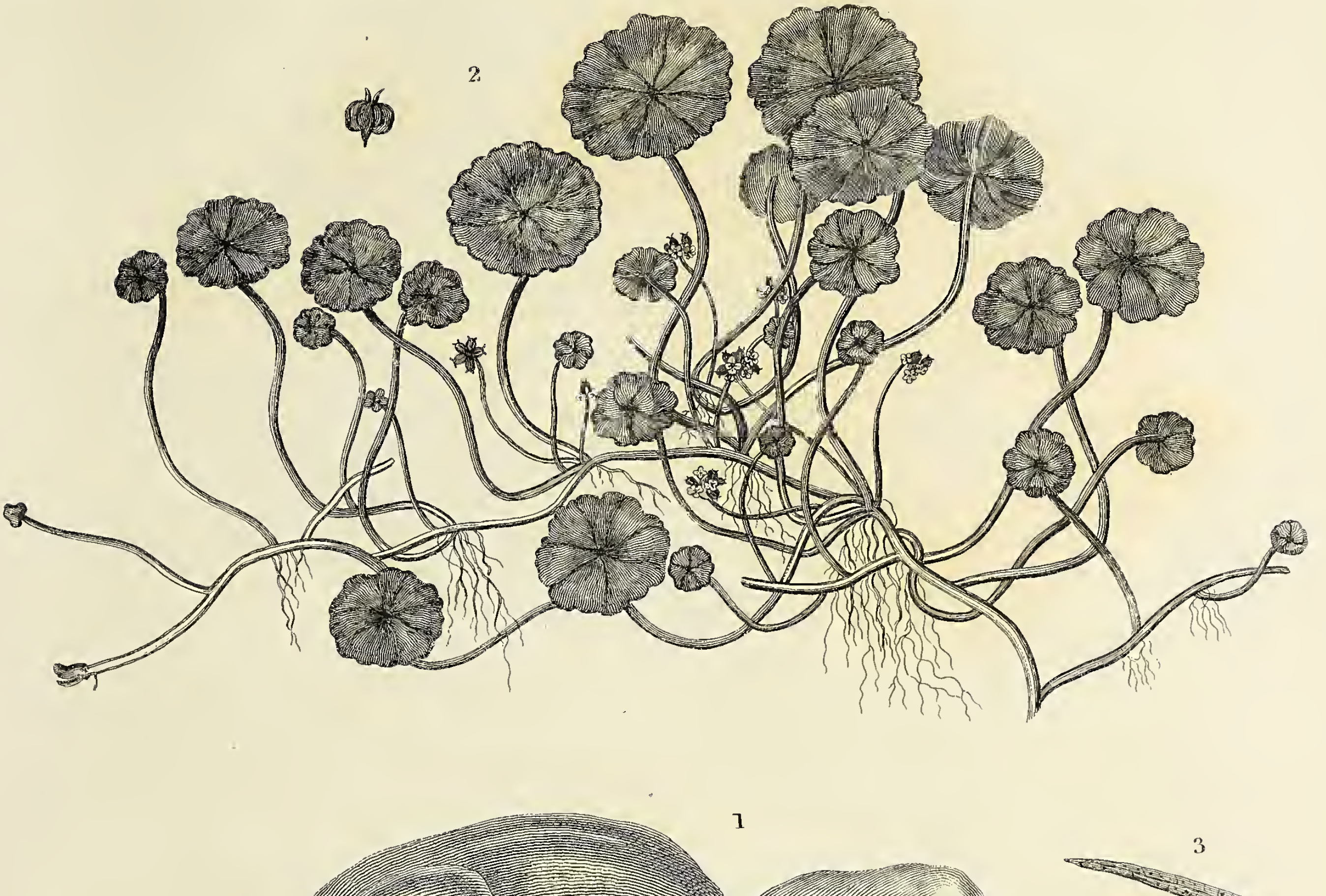
HY'DRA, a celebrated monſter in fabulous hiſtory, which infeſted the neighbourhood of the lake Lerna in Peloponneſus. It was the fruit of Echidna's union with Typhon. It had a hundred heads, according to Diodorus; fifty, according to Simonides; and nine, according to the more received opinion of Apollodorus, Hyginus, &c. As ſoon as one of theſe heads was cut off, two immediately grew up if the wound was not ſtopped by fire. It was one of the labours of Hercules to deſtroy this dreadful monſter; and this he eaſily effected with the aſſiſtance of Iolaus, who applied a burning iron to the wound as ſoon as one head was cut off. While Hercules was deſtroying the hydra, Juno, jealous of his glory, ſent a ſea-crab to bite his foot. This new enemy was ſoon diſpatched; and Juno, unable to ſucceed in her attempts to leſſen the fame of Hercules, placed the crab among the conſtellations, where it is now called Cancer. The conqueror dipped his arrows in the gall of the hydra, and, from that circumſtance, all the wounds which he gave proved incurable and mortal.

Dr. Mitchell, in a letter to Dr. Prieſtley, endeavours to account for this fable of the ancients in the following manner: In Peloponneſus, between Mycenæ and Argos, there was a fen or marſh of ſome extent, called Lerna. This muddy and ſtagnating pool was inhabited by hydra, a horrible and devouring monſter with ſeveral heads; ſome ſay ſeven, others nine, and others fifty. The malignity of her poiſon was ſuch that a wound from an arrow dipped into it was inſtantly mortal. She made dreadful havoc among the people of the ſurrounding country, and devoured a great number of their ſheep and other cattle. In obedience to the orders of the tyrant Euryſtheus, Hercules went to fight this deſtructive and formidable creature. On his approach, a crab came forth to the aſſiſtance of hydra; but Hercules cruſhed the crab, and afterwards ſlew hydra. Now, it appears to me, that this is an allegory expreſſive of the peſtilential vapours emitted by the bog of Lerna, and of the means found by experience uſeful to drain off its ſtagnant water, and to clear the adjoining and ſurrounding moraſſes.

The word hydra is derived from *υδωρ*, *water*. This fluid then, detained upon the marſh of Lerna, favoured occaſionally the production of unwholeſome exhalations. Such vapours, being at once inviſible and injurious, were aſcribed to ſome preternatural enemy or deſtructive monſter; and being diffuſed, or wafted around the country, and oftentimes cutting off both man and beaſt, were fancied to be the effect of the ſuppoſed monſter's poiſon. According to their extent and virulence, was ſhe reported to have fewer or more heads for preparing and inflicting this poiſon. The mere draining off the water, and leaving the mud and ſlime bare, was termed cutting off a head; and the increaſe of deleterious gaſes, in conſequence of expoſing ſuch a naked ſurface, was aptly expreſſed by the ſprouting forth of two in its place. By cauteriſing, or ſearing, was underſtood either the ſolar heat in drying the ground after the water was drained away, or the burning up of the trees, ſhrubs, and obſtacles to free ventilation, by ordinary combuſtion, or perhaps both. The crab, who was hydra's ally, perhaps does not refer to the ſun's place in the conſtellation Cancer, ſo much as to ſhow the frequent recurrence of the difficulties, and the ſuperior ſtrength and ſkill requiſite to overcome them. In the whole allegory "Hercules" may be underſtood to mean "inſuperable courage and induſtry." This interpretation is confirmed by another conſideration, that the ancients had not only their hydra, who lived in the water, but their cherſydra, who remained after the marſh or fen was dried up. Cherſydra, being derived from the two words, *χερσος*, *land not fit for the plough*; and *υδρα*, *the monſter of the fens*; will thus mean the venomous and ſickly condition of the neighbouring atmoſphere after the water was exhaled, and

the

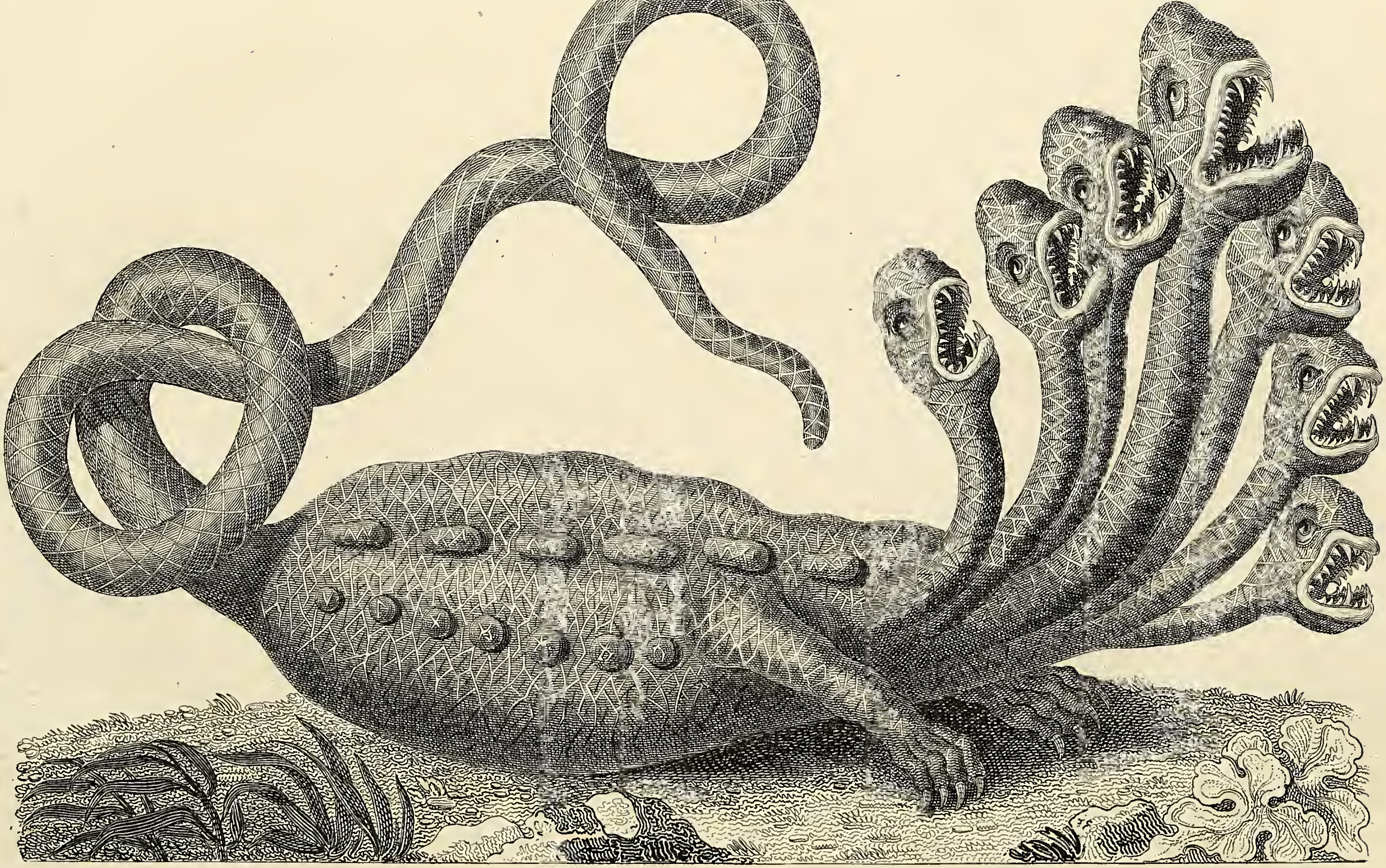
HYDNUM, HYDROCOTYLE, AND HYSTERIUM.



*1. Hydnum repandum; a. Section of the Pileus, to show the echinated Seed-vessels.*
*2. Hydrocotyle vulgaris, or Sheep's-bane. 3.4. Hysterium sphærioides.*

[illegible]

# HYDRA.



J. Chapman sc.

The Seven-headed Hydra.

London. Published as the Act directs. Decr. 27th 1806. by J. Wilkes.

the ground at the ſame time not rendered arable thereby, typified by a poiſonous ſerpent; and was thus expreſſive of the rage of peſtilential effluvia, which ſometimes, and under certain circumſtances, continue in a virulent ſtate in dry weather, near their dried ſources.

Hydra is ſeemingly mentioned by Virgil (Æn. vi. v. 576.) as a fictitious or poetical animal. Bochart, however, with his uſual erudition, appears deſirous to make the whole ſtory literally intelligible. (Hierozoici pars poſter. lib iii. cap. xiii.) But Lanciſi, with a more clear and diſcriminating mind, perceives that important phyſical truths are concealed under this two-fold allegory, and ſhows how they are to be unriddled. (De Nox. Palud. Effl. lib. ii. p. ii. cap. 3.) Many of the claſſical writers, and others, uſe the word "hydrus," as well as "hydra," and ſome of them apparently confound the two.

It may here be not incurious to ſtate the hiſtory of this fabulous monſter, as recorded in Seba's Theſaurus, from which celebrated work the following tranſlation is given. "The drawing of this creature, called the ſeven-headed hydra, was preſented to Seba by a foreign nobleman, who went to viſit his cabinet of curioſities in the year 1720. He affirmed that he had frequently ſeen the original at Hamburgh; that the drawing reſembled the living hydra; that it had ſeven erect heads, and the ſame number of wide gaping jaws, armed with long and ſhort hooked teeth. I confeſs, ſays Seba, that this account appeared to me paradoxical, and bordering more upon the marvellous than the truth. But in the following year, D. H. Eibſen, the miniſter of Dingen, in a part of the duchy of Bremen called Wurſten, came to ſee me for the ſake of inſpecting my muſeum, who likewiſe, relating to me a ſimilar account of this hydra, promiſed that he would ſend me a figure of it drawn from life, as it was then at Hamburgh; and as he was acquainted with Degern and Hambel, merchants at Hamburgh, who were the poſſeſſors of it, he ſhould have a moſt excellent opportunity of performing his promiſe. This ſingular animal was firſt in poſſeſſion of the famous count van Koningſmarck; upon his death it went by will to his relation the count van Leeuwenhaupt. I had heard that it was upon ſale; and upon enquiry, I was informed that ten thouſand florins was the price aſked for it, which vaſt ſum made me the more deſirous of having an exact repreſentation of it. D. Eibſen made good his word, by ſending me the much-wiſhed-for drawing, but, not being perfectly ſatisfied even with this, I wrote upon the ſubject to my friend John Frederic Natorp, at Hamburgh, a very great naturaliſt, who himſelf had ſeen the thing in queſtion, and aſſured me that it was the produce of nature, not of art; and he, at my requeſt, ſent me a coloured drawing of it, in its natural form, from which the annexed engraving was taken. The colour is duſkiſh-brown, as it were ſhaded with a cinereous grey. The back is warted; on each ſide are ſix horny oblong warts; under theſe on the ſides next the belly are ſeven other round horny knots, or knobs, extending from the feet to the tail. The whole body and ſeven heads are of a deepiſh brown; the ſkin is not covered with ſcales, but variegated like marble. The front of the necks are encircled, as it were, with tranſverſe belts. All the ſeven mouths are equally open, armed with teeth, like thoſe of the lion. The whole of the tail, which is very long, is encaſed with rhomboidal ſcales. Each foot is cleft into four parts, extending the toes, which are armed with long and ſharp claws.

"If upon this occaſion, (Seba adds,) I ſhould be deſirous of examining into what antiquity has furniſhed us with upon the ſubject of hydras and dragons, generally claſſed by it among the larger ſerpents, I fear I ſhonld tire the reader, becauſe it abounds in *fictions* of this kind. Conrad Geſner, in his Hiſt. An. lib. iv. p. 459, gives a plate of a hydra by him called *monſtrous*, or a ſeven-headed ſerpent; the heads like thoſe of lions, and as it were ornamented with crowns; two feet in the front of the body; the tail twiſted inwards: of which creature he relates, that in the year 1530 this moſt hideous ſeven-headed aquatic ſerpent was brought from Turkey to Venice; that it was there expoſed to public view, and afterwards ſent to the king of France, and valued at ſix thouſand ducats. A circumſtance which appeared incredible to naturaliſts. Aldrovandus likewiſe, in his book of ſerpents, has a plate of a ſeven-headed dragon. Athanaſius Kircher, lib. 8. de Animal. Subterran. p. 91, gives a repreſentation of a dragon of the ſame kind, but furniſhed with one head only, two horſe's ears, the mouth filled with teeth, the tongue ſhort, two wings like the fins of fiſh, two feet covered with ſcales, and having a tail like the lizard. This farrago of fiction induced profeſſor John James Scheuchzer to confeſs, in Jobi Phyſica Sacra, p. 259, that with all his endeavours and reſearches upon dracontology, he had hitherto found nothing at all ſatisfactory; and from thence he takes occaſion to obſerve, with how many and great falſities both the world and himſelf have ſuffered themſelves to be deceived.

HY'DRA, in aſtronomy, a ſouthern conſtellation, conſiſting of a number of ſtars, imagined to repreſent a water-ſerpent. The ſtars in the conſtellation Hydra, in Ptolomy's catalogue, are 27; in Tycho's, 19; in Hevelius's, 31; and in the Britannic catalogue, 60.

HY'DRA, *ſ.* [from its putting out ſo many heads.] The Polype; in helminthology, a genus of worms belonging to the order of zoophyta, the characters of which are: Animal fixing itſelf by the baſe, linear, gelatinous, naked, contractile, and furniſhed with ſetaceous tentacula or feelers, inhabiting freſh waters, and producing its deciduous offspring from the ſides.

The body conſiſts of a ſingle tube, furniſhed at one end with long arms; by theſe it ſeizes ſmall worms, and conveys them to its mouth. It has, according to our general notions, neither head, heart, ſtomach, nor inteſtines, of any kind; and is without the diſtinction of ſexes, yet extremely prolific. From the ſimplicity of its ſtructure thoſe of its œconomy and functions are probably derived. When they are cut or divided into a number of pieces, the ſeparated parts in a very little time become ſo many perfect and diſtinct animals; each piece having a power of producing a head, a tail, and the other organs neceſſary for its exiſtence. They are generally known by the name of *polype*; but, as this was thought by many to be improper, becauſe that, ſtrictly ſpeaking, they have no feet, Linnæus called the genus *hydra*, probably from their property of reproducing the parts which are cut off, a circumſtance that naturally brings to mind the fabulous ſtory of the Lernean hydra. Dr. Hill called them *biota*, on account of the ſtrong principle of life with which every part is endued.

Leeuwenhoeck, whoſe indefatigable induſtry in his reſearches after ſmall inſects permitted very few things to eſcape his notice, diſcovered theſe animals, and gave ſome account of them in the Philoſophical Tranſactions for the year 1703. There is alſo in the ſame volume a letter from an anonymous hand on this ſubject. We had, however, no regular account of them, their various habits, their different ſpecies, or of their wonderful properties, till the year 1740, when they firſt engaged the attention of M. Trembley, to whoſe aſſiduity and obſervations we are indebted for the diſplay of their nature and œconomy. Previous to the ſucceſsful experiments of this gentleman, Leibnitz and Boerhaave, as well as ſome of the ancient philoſophers, reflecting on the various gradations in the ſcale of animated nature, had endeavoured to prove that there might be degrees of life between the animal and the plant, and that animals might be found which would propagate by ſlips, like plants. Theſe conjectures were verified by Trembley, but not in conſequence of any pre-conceived ideas in favour of ſuch a ſuppoſition; on the contrary, it was only by repeated obſervations that he could deſtroy his own prejudices, and join theſe wonderful beings to the animal kingdom. Thus, we find M. Trembley writing in January 1741, to M. Bonnet, that he did not know whether he ſhould call the object which then engaged his attention a plant or an animal;

animal: "I have ſtudied it," ſays he, "ever ſince June laſt, and have found in it ſtriking characteriſtics of both plant and animal. It is a little aquatic being. At firſt ſight every one imagines it to be a plant; but, if it be a plant, it is ſenſitive and ambulant; if it be an animal, it may be propagated by ſlips or cuttings, like many plants." It was not till the month of March, in the ſame year, that he could ſatisfy himſelf as to their nature. When Reaumur ſaw, for the firſt time, two polypes formed from one that he had divided into two parts, he could hardly believe his eyes; and even after having repeated the operation an hundred times, and again examined it an hundred more, he ſays that the ſight was not become familiar to him. The firſt account the Royal Society received of the ſurpriſing properties of the hydra, was in a letter from M. Buffon, dated the 18th of July, 1741, to Martin Folkes, eſq. their preſident, acquainting them with the diſcovery of a ſmall inſect called a polypus, which is found ſticking about the common duckweed, and which, being cut in two, puts forth from the upper part a tail, and from the lower end a head, ſo as to become two animals inſtead of one. If it be cut into three parts, the middlemoſt puts out from one end a head, and from the other a tail, ſo as to become three diſtinct animals, all living like the firſt, and performing the various offices of their ſpecies; which obſervations are, adds Buffon, well averred. Mr. Folkes, in confirmation of the foregoing article, communicated to the Society a letter from the Hon. W. Bentinck, eſq. at the Hague, dated September, deſcribing the inſects diſcovered by Trembley, adding, that he himſelf had ſeen them. In November, a letter was read from Dr. Gronovius, of Leyden, giving an account of a water-inſect not yet known to, or deſcribed by, any author; after deſcribing it, he adds, "But, what is more ſurpriſing, if this animal is cut into five or ſix pieces, in a few hours there will be as many animals, exactly ſimilar to their parent." The accounts of this animal were ſo extraordinary, that they were not credited until profeſſors Albinus and Muſſchenbroeck were provided with ſome ſpecimens, and found all that had been related to be exactly true. In March 1742, Mr. Folkes gave an account of them to the Royal Society, from obſervations made on ſeveral polypes which had been ſent by M. Trembley from Holland to him. The inſects now began to be known, and were ſoon found in England, and the experiments that had been made on them abroad were publiſhed by Folkes, Mr. Adams, and Mr. Baker; conviction now became too ſtrong for argument, and metaphyſical objections gave way to facts.

There are few animals more difficult to deſcribe than the hydra, as it has ſcarcely any thing conſtant in its form, varying continually in its figure: they are often ſo beſet with young, as to appear ramoſe and divaricated, the young ones conſtituting as it were a part of the parent's body. Whoever has looked with care at the bottom of a wet ſhallow ditch, when the water is ſtagnant, and the ſun has been powerful, may remember to have ſeen many little tranſparent lumps, of a jelly-like appearance, about the ſize of a pea, and flatted on one ſide; the ſame appearances are alſo often to be ſeen on the under ſide of the leaves of thoſe weeds or plants that grow on the ſurface of the water; theſe are the hydræ gathered up into a quieſcent ſtate, and ſeemingly inanimate, becauſe either undiſturbed or not excited by the calls of appetite to action. They are generally fixed by one end to ſome ſolid ſubſtance, at the other end there is a large opening, round about which the arms are placed as ſo many rays round a centre, which centre is the mouth. They are ſlender and pellucid, formed of a tender kind of ſubſtance, in conſiſtence ſomething like the horns of a ſnail, and can contract the body into a very ſmall compaſs, or extend it to a conſiderable length. They can do the ſame with the arms; with theſe they ſeize minute worms and various kinds of aquatic inſects, bring them to the mouth, and ſwallow them. After the food is digeſted, and the nutritive parts which are employed in ſuſtaining its life are ſeparated from the reſt, they reject the remainder by the mouth.

The bulk of the hydræ decreaſes in proportion as they extend themſelves, and vice verſa. They may be made to contract themſelves, either by touching them, or agitating the water in which they are contained. They all contract themſelves ſo much when taken out of the water, as to appear only like a little lump of jelly. They can contract or extend their arms without extending or contracting the body, or the body without making any alteration in the arms; or they can contract or dilate only ſome of the arms, independent of the reſt; they can alſo bend their body and arms in all poſſible directions. They can alſo dilate the body at different places ſome, ſometimes at one part, and then again at another; ſometimes they are thick ſet with folds, which, if careleſsly viewed, might be taken for rings.

They deſcend at pleaſure to the bottom of the water, and aſcend again, either by the ſides, or upon ſome aquatic plants; they often hang from the ſurface of the water, reſting as it were upon the tail; at other times they are ſuſpended by one arm from it. They walk alſo with eaſe upon the ſurface of the water. If the extremity of the tail be examined with a magnifying glaſs, a ſmall part of it will be found to be dry, and above the ſurface of the water, and as it were in a little concave ſpace, of which the tail forms the bottom, ſo that it ſeems to be ſuſpended on the ſurface of the water on the ſame principle that a ſmall pin or needle is made to ſwim. Hence, when a polype means to paſs from the ſides of the glaſs to the ſurface of the water, it has only to put that part out of the water by which it means to be ſupported, and give it time to dry; and thus it always does upon theſe occaſions. They attach themſelves ſo firmly by the tail to aquatic plants, ſtones, &c. as not to be eaſily driven from the place where they have fixed themſelves; they often further ſtrengthen theſe attachments by means of one or two of their arms, which they throw out and fix to adjacent ſubſtances, as ſo many anchors.

The mouth of the polype, or hydra, is ſituated at the fore-part of the body, in the middle between the ſhooting forth of the arms. The mouth aſſumes different appearances, according to the different purpoſes of the inſect; ſometimes it is lengthened out, and forms a little conical nipple; ſometimes it appears truncated; at other times the interval between the arms appears cloſed, ſometimes hollow: if it be obſerved with a deep magnifier in either of the two laſt caſes, a ſmall aperture may be diſcovered. The mouth of the polype opens into the ſtomach, which is a kind of bag or gut that goes from head to tail; this may be perceived by the naked eye, when the animal is expoſed to a ſtrong light, or a candle placed on the oppoſite ſide to the eye; for the colour of the polype does not deſtroy the tranſparency thereof. The perforation, which is thus continued from one end to the other, is called the ſtomach, becauſe it contains and digeſts the aliments. The ſkin which incloſes the bag, and forms the ſtomach, is the ſkin of the polype itſelf; ſo that the animal may be ſaid to conſiſt of but one ſkin, diſpoſed in the form of a tube or gut open at both ends. On opening the polype, no veſſels are to be diſtinguiſhed; and, whatever be the nature of its organization, it muſt reſide in the ſkin. The ſkin muſt be ſo far organized, as to perform all the operations neceſſary for the nutrition and growth of the animal, without conſidering thoſe that are neceſſary for its various motions. Whatever are the means the author of Nature has employed for theſe purpoſes, we are ignorant of them. If the ſkin be examined by a microſcope, it appears like ſhagreen, or as if it were covered with little grains; theſe are more or leſs ſeparated from each other, according to the degree in which the body is extended or contracted. If the lips of a polype be cut tranſverſely, and placed ſo that the cut part of the ſkin may lie directly before the microſcope, the ſkin throughout its whole thickneſs will be found to conſiſt of an infinite number of theſe grains. To know whether the inſide of the ſtomach was formed of ſimilar grains, ſeveral of them have been laid open and examined by the microſcope; the interior ſurface was then found to conſiſt of an immenſe number of them, being as it were more ſhagreened than the exterior one, and leſs tranſparent. The grains are not ſtrongly united to each other, but may be ſeparated without much trouble. If a polype be carefully placed before the microſcope, without wounding it, you will ſeldom be diſappointed in ſeeing ſome of theſe grains detach themſeves from the ſuperficies thereof, and that even in the moſt healthy. But, if the grains ſeparate themſelves in large quantities, it is the ſymptom of a very dangerous diſorder; the ſurface of the polype thus attacked becomes more and more irregular, and is no longer well terminated and defined as before. The grains fall off on all ſides, the body and arms contract and dilate, it becomes of a white ſhining colour, loſes its form, and at length diſſolves into a heap of grains.

A very attentive and accurate examination ſhows that the ſkin is formed of a kind of glareous ſubſtance, a ſpecies of gum, which fills up the intervals between the grains, in which they are lodged, and by which they are attached, though weakly, together. It has been already obſerved, that it is to theſe grains that it owes it ſhagreen-like appearance; it is from them alſo that it derives its colour; for, when they are ſeparated from the polype, they are of the ſame colour with it, whereas the glareous matter is without any diſtinguiſhing colour. The conſtruction of the polype ſeems then to be confined to theſe glandular grains, to the viſcous matter, and the inviſible fibres which act upon the glareous ſubſtance.

All animals of this kind have a remarkable attachment to turn towards the light, and this might naturally induce the inquirer to look for their eyes; but how carefully ſoever this ſearch has been purſued, and however excellent the microſcope with which every part has been examined, yet no appearance of this organ has been found. Notwithſtanding this, they conſtantly turn themſelves toward the light; ſo that, if that part of the glaſs in which we place them be turned from it, they will be found the next day to have removed themſelves to the ſide that is next the light, and the dark ſide will be quite depopulated.

The polypes are in general very voracious; an hungry one extends its arms as a fiſherman his nets; it ſpreads them every way, ſo that they form a circle of conſiderable extent, every part of which is entirely within the reach of one of them. In this expanded poſture it lies in expectation of its food; whatever comes within the verge of this circle is ſeized by one or other of its arms; the arms are then contracted till the prey is brought to the mouth, when it is ſoon devoured. While the arms are contracting and exerting themſelves vigorouſly to counteract the efforts of the animal which it has ſeized to eſcape, they may be obſerved to ſwell like the muſcles of the human body when they are in a ſtate of exertion. But the polype does not always wait for its prey; it feels for it, and in a manner follows it. It may be aſked how can it perform this if deſtitute of viſion? or do the glandular grains anſwer the purpoſe of eyes? Who can anſwer the queſtion? what are our own eyes but glandular grains of a larger ſize? If this ſhould be the caſe, our hydra, like the libellulæ, and other inſects, would realize, nay, exceed, the fables of the ancients, being an Argus entirely compoſed of eyes. Be this as it may, they are certainly in poſſeſſion of ſome ſenſation by which they are informed of the approach of their prey, and which renders them attentive to all that may confirm or deſtroy this perception. When the arms of a polype are extended within a glaſs, put a centipe or any kind of worm into it, and with the point of a pin puſh it towards one of the arms; as ſoon as it touches this, it is ſeized; the worm or centipe endeavours by quick and ſtrong efforts to diſengage itſelf, often ſwimming and dragging the arm from one ſide of the glaſs to the other. This violent motion of the prey obliges the polype to contract ſtrongly the arm; in doing which, it often twiſts it in the form of a cork-ſcrew, by which means it ſhortens it more rapidly. The ſtruggles of the devoted animal ſoon bring it in contact with another arm; theſe contracting further, the little creature is preſently engaged with all the arms, and by degrees conveyed to the mouth, againſt which it is held and ſubdued. See theſe different operations exemplified in the Helminthology Plate V. fig. 12, vol. ix. When a polype has nothing to eat, its mouth is generally open, but ſo ſmall, that it can ſcarcely be perceived without the aſſiſtance of a magnifying-glaſs; but, as ſoon as the arms have conveyed the prey to the mouth, it opens itſelf wider, and this in proportion to the ſize of the animal that is to be devoured; the lips gradually dilate, and adjuſt themſelves accurately to the figure of the prey. The greateſt part of the animals on which the polype feeds, are, to its mouth, what an apple the ſize of our heads would be to the mouth of a man. The worms or other minute animals which are ſeized by the polype, are not always brought to the mouth in the ſame ſituation; if they be preſented to it by one of their extremities, it is not requiſite that the polype ſhould open its mouth conſiderably, and in effect it only opens it ſo wide, as preciſely to give entrance to the worm. If it be not too long for the ſtomach, it remains there extended; but if it be longer, the end which firſt enters is bent, ſo that, when the worm is entirely ſwallowed, it may be ſeen lying folded in the ſtomach. If the middle or any other part of the worm be preſented to the mouth of the polype, it ſeizes this part with the lips, extending them on both ſides, and applying them againſt the worm, ſo that the mouth aſſumes the form of a boat, pointed at each end. The polype gradually cloſes the two points of its boat-like lips, and by this motion and ſuction ſwallows the worm. The polypes kill worms ſo ſpeedily, that Fontana thinks they muſt contain the moſt active and powerful venom; for the lips of a polype ſcarcely touch the worm but it expires, ſo great is the energy of the poiſon it conveys into it, though no wound can be obſerved in the dead animal. As ſoon as the ſtomach is filled, its capacity is enlarged, the body is ſhortened, the arms are for the moſt part contracted, the polype hangs down without motion, and appears to be in a kind of ſtupor, and very different from its ſhape when extended; but in proportion as the food is digeſted, and it has voided the excrementitious parts, the body lengthens, and gradually recovers its uſual form. The tranſparency of the polype permits us to ſee diſtinctly the worm it has ſwallowed, which gradually loſes its form. It is at firſt macerated in the ſtomach of the polype; and, when the nutritious juices are ſeparated from it, the remainder is diſcharged by the mouth. It is with theſe, as with other voracious animals, as they devour a great quantity of food at once, ſo alſo they can faſt for a long time. The hiſtory of inſects furniſhes many examples of this kind.

One circumſtance is obſervable, which probably contributes much to the digeſtion of their food, namely, that the aliments are continually puſhed backward from one extremity of the ſtomach to the other; this motion may be eaſily obſerved with a microſcope, in a polype which is not too full, and in which the food has been already divided into fragments. For theſe obſervations, it is beſt to feed the polype with ſuch food as will give a lively-coloured juice; as for example, thoſe worms whoſe inteſtines are filled with red ſubſtances; for by theſe means we ſhall ſee that the nutritious juices are conveyed not only to the extremity of the body, but alſo into the arms; from whence it is probable that each of the arms forms alſo a kind of gut, which communicates with that of the body. Some bits of a ſmall black ſnail that is frequently to be found in our ditches, was given to a polype. The ſubſtance of this ſkin was ſoon reduced into a pulp, conſiſting of little black fragments; on examining the polype with the microſcope, theſe particles were perceived to be driven about the ſtomach, and to paſs from head to tail, and into their arms, even where theſe were as fine as a thread; they were afterwards forced into the ſtomach, and from thence to the tail, from whence they were again driven into the arms, and ſo on.

The polypes feed on the greater part of thoſe inſects that are to be found in freſh water. They may be nouriſhed with worms, the larva of gnats, &c. they will alſo eat larger animals if they are cut into ſmall pieces, as ſnails, large aquatic inſects, ſmall fiſh, butcher's meat, &c. Sometimes two polypes ſeize the ſame worm, and each begins to ſwallow its own end, continuing ſo to do till their mouths meet. In this poſition they remain for ſome time; at laſt the worm breaks, and each has its ſhare; ſometimes the combat does not end here, for, each continuing to diſpute the prize, one of the polypes opens its mouth advantageouſly, and ſwallows the other with its portion of the worm. This combat ends more fortunately for the devoured polype than might be at firſt expected, for the other often gets the prey out of its ſtomach, but lets the polype itſelf out again ſound and ſafe, after having impriſoned it above an hour. From hence we learn, that the ſtomach of the polype, which ſo ſoon diſſolves the animal ſubſtances which are conveyed into it, is not capable of digeſting that of another polype.

If one of theſe creatures be examined in ſummer, when they are moſt active, and more particularly prepared for propagation, it will be found to ſhoot forth from its ſide ſeveral little tubercles, or knobs, which grow larger and larger every day; after two or three days inſpection, what at firſt appeared but a ſmall excreſcence, takes the figure of a ſmall animal, entirely reſembling its parent. It does not incloſe a young polype, but is the real animal in miniature, united to the parent, as a ſucker to the tree. When a young polype firſt begins to ſhoot, the excreſcence terminates in a point, ſo that it is rather of a conical figure, and of a deeper colour than that of the body. This cone ſoon becomes truncated, and in a little time appears cylindrical. The arms then begin to ſhoot from the anterior end. The tail adheres to the body of the parent, but grows gradually ſmaller, till at laſt it only adheres by a point. It is then ready to be ſeparated; for this purpoſe the mother and young ones fix themſelves to the ſubſtance upon which they may be ſituated. They have then only to give a ſudden jerk, and they are divided, and become two diſtinct beings. There are ſome trifling differences to be obſerved now and then in their performing this operation, which it would be too tedious to enumerate. The young ones ſhoot in proportion to the warmth of the weather, and the nature of the food eaten by the mother; ſome have been obſerved to be perfectly formed in twenty-four hours, while others have required fifteen days for the ſame purpoſe; the firſt were produced in the midſt of ſummer, the latter in a cold ſeaſon.

The tail of the young polype communicates with, and partakes of, the food from the parent, in the ſame manner as its own arms do, and the food lies in the ſame manner as in the arms. When this fœtus is furniſhed with arms, it catches its prey, ſwallows, digeſts, and diſtributes the juices thereof even to the parent body; every good is common to each. Here then we have evident communication between the fœtus and the mother; this communication was further proved by the following experiment: A large polype, one of the hydra fuſca, was placed on a ſlip of paper, in a little water; the middle of the body of the young one was cut, and the ſuperior part of that end which remained fixed to the parent was found to be open. The parent polype was then cut on each ſide of the ſhoot. Thus a ſhort cylinder was obtained, which was open at both ends. This being viewed through a microſcope, the light was ſeen to come through the ſide ſlip, or young one, into the ſtomach of the old one. For further conviction, the cylindrical portion was cut lengthways; on obſerving theſe parts, not only the hole of the communication was diſtinctly ſeen, but one might ſee through the end of the young one. This communication between the parent polype and its young ones may further be ſeen on feeding them; for, after the parent has eaten, the bodies of the young ones ſwell, being filled with the aliments as if they themſelves had been eating.

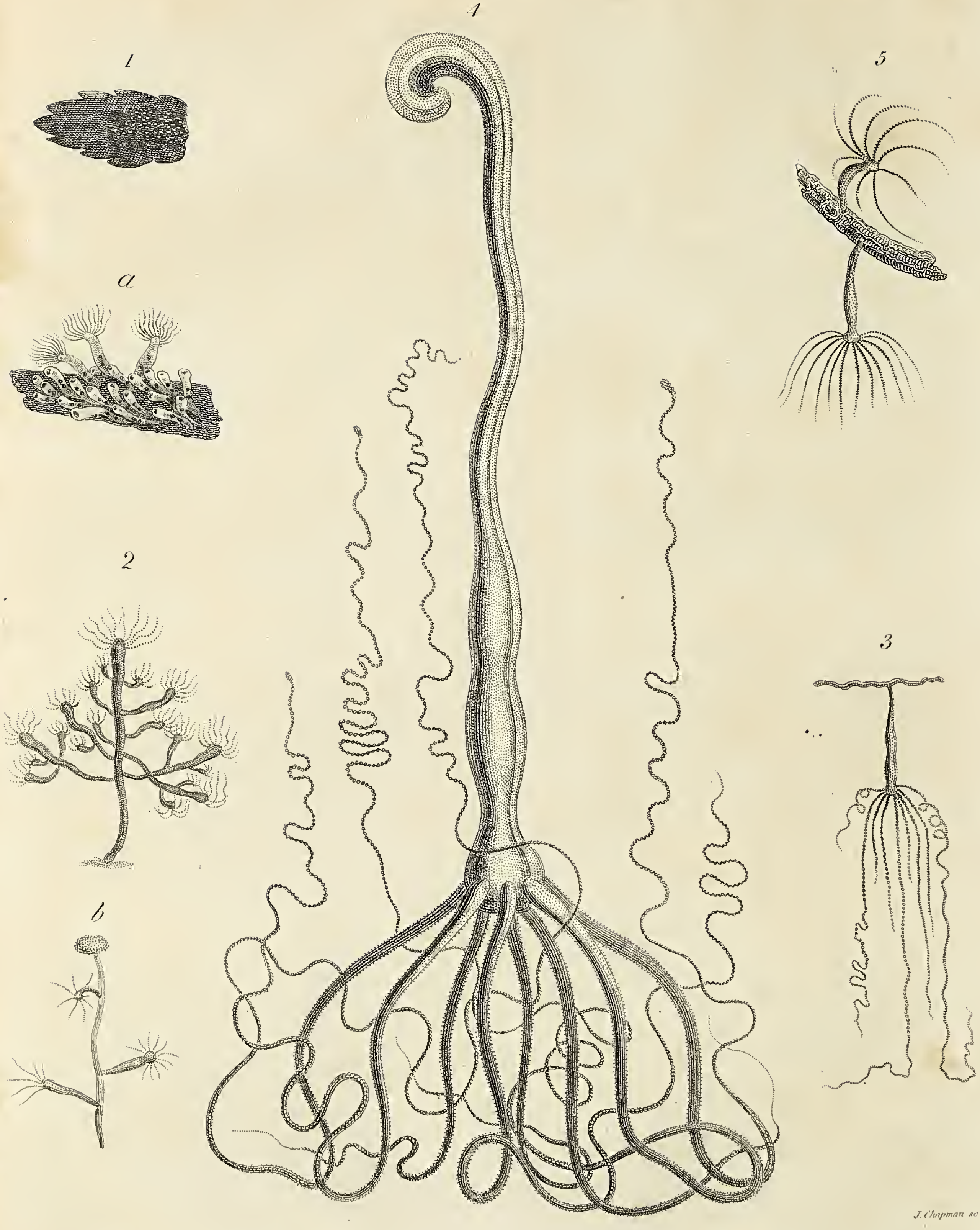
A polype puts forth frequently five or ſix young ones at the ſame time. Trembley has had ſome that have produced nine or ten at the ſame time, and when one dropped off another came in its place. Though this gentleman had for two years thouſands of them under his eye, and conſidered them with the moſt ſcrupulous attention, he never obſerved any thing like copulation. To be more certain on this head, he took two young ones the inſtant they came from their parent, and placed them in ſeparate glaſſes; they both multiplied, not only themſelves, but their offspring, which were ſeparated and watched in the ſame manner to the ſeventh generation; nay, they have even the faculty of multiplying while they adhere to the parent. The arms of the young ones do not ſprout till the body has attained ſome length. Several excreſcences or buds often appear at the ſame time on a polype, which are ſo many polypes growing from one trunk; whilſt theſe are developing, they alſo bud, which buds again put forth little ones, the parent and the young ones forming a ſingular kind of animal ſociety, in which all participate of the ſame life, and the ſame wants. In this ſtate, the parent appears like a ſhrub thick ſet with branches. Several generations are often thus attached to one another, and all to the parent polype; after a time, this tree of polypes, or hydræ, is decompoſed, and gives birth to new generations, or freſh genealogical trees. Here we ſee a ſurpriſing chain of exiſtence continued, and numbers of animals naturally produced, without any union of ſexes; every polype raiſing a numerous poſterity by a kind of animal vegetation.

So ſtrange is the nature of this creature's life, that the method by which other animals are killed and deſtroyed becomes a means of propagating theſe. When divided and cut to pieces in every direction that fancy can ſuggeſt, it not only continues to exiſt, but each ſection becomes an animal of the ſame kind. A polype cut tranſverſely or longitudinally, in two or three parts, is not deſtroyed; each part in a little time becomes a perfect polype. This ſpecies of fecundity is ſo great in theſe animals, that even a ſmall portion of their ſkin will become a little polype, a new animal riſing as it were from the ruins of the old, each ſmall fragment yielding a polype. If the young ones be mutilated while they grow upon the parent, the mutilated parts are re-produced; the ſame changes ſucceed alſo in the parent. A truncated portion will put forth young before it is perfectly formed itſelf, or has acquired its new head and tail; ſometimes the head of the young one ſupplies the place of that which would grow out of the anterior part of the trunk. If a polype be ſlit, beginning at the head, and proceeding to the middle of the body, a polype will be formed with two heads, and will eat at the ſame time with both. If the polype be ſlit into ſix or ſeven parts, it becomes a hydra with ſix or ſeven heads. If theſe be again divided, we ſhall have one with fourteen; cut off theſe, and as many new ones will ſpring up in their place, and the heads thus cut off will become new polypes, of which ſo many new hydræ may again be formed; ſo that in every reſpect it exceeds the fabulous relation of the Lernean hydra.

As if the wonders already related of the polype were not ſufficient to engage our attention to theſe ſingular animals, new circumſtances, as ſurpriſing as the foregoing, preſent themſelves to convince us of the imperfection of our ideas of animality. The polypes may be as it were grafted together. If the truncated portions of a polype be placed end to end, and then puſhed together with a gentle force, they will unite, and form a ſingle one. The

union

# HYDRA.



J. Chapman sc.

Different Species of the Hydra, or Polypus.

London, Published as the Act directs, Jan$^{y}$. 3$^{d}$. 1807, by J. Wilkes.

union is at firſt made by a fine thread, and the portions are diſtinguiſhed by a narrow neck, which gradually fills up and diſappears, the food paſſing from one portion to another. Portions not only of the ſame, but pieces of different polypes, may be thus united together. You may fix the head of one polype to the trunk of another; and that which is thus produced, will grow, eat, and multiply, like another. There is ſtill another method of uniting theſe animals together, more wonderful in its nature, and leſs analogous to any known principles of animation, and more difficult to perform. It is effected by introducing one within the other, forcing the body of one into the mouth of the other, and puſhing it down ſo that their heads may be brought together; in this ſtate it muſt be kept for ſome time; the two individuals are at laſt united, and grafted into each other; and the polype, which was at firſt double, is converted into one, with a great number of arms, and performs all its functions like another. Some ſpecies furniſh us with another prodigy, to which we know nothing that is ſimilar either in the animal or vegetable kingdom. They may be turned inſide out like a glove, and, notwithſtanding the apparent improbability of the circumſtance, they live and act as before. The lining or coating of the ſtomach now forms the epidermis, and the former epidermis now conſtitutes the coating of the ſtomach. A polype thus turned, may often have young ones attached to its ſide. If this be the caſe, after the operation they are of courſe incloſed in the ſtomach. Thoſe which have acquired a certain ſize extend themſelves towards the mouth, that they may get out when ſeparated from the body; thoſe which are but little grown, turn themſelves inſide out, and by theſe means place themſelves again on the outſide of the parent polype. The polype thus turned combines itſelf a thouſand different ways. The fore-part often cloſes itſelf, and becomes a ſupernumerary tail. The polype which was at firſt ſtraight, now bends itſelf, ſo that the two tails reſemble the legs of a pair of compaſſes, which it can open and ſhut. The old mouth is at the joint as it were of the compaſſes; it cannot, however, act as one, ſo that a new one is formed near it, and in a little time a new ſpecies of hydra is formed with ſeveral mouths.

Having given the general hiſtory of this curious animal ſo much at length, we ſhall have little more to do than to enumerate the different ſpecies; theſe are five in number, four of which are delineated on the annexed Hydra Plate II.

1. Hydra gelatinoſa, the gelatinous polype: minute, gelatinous, milk-white, cylindrical, with twelve tentacula ſhorter than the body. Inhabits Denmark, in cluſters on the under ſide of fuci. See this ſpecies on the Plate at fig. 1, and the ſame magnified and diſplayed at *a*.

2. Hydra viridis, the green hydra: with about ten tentacula ſhorter than the body. Inhabits ſtagnant waters and ſlow ſtreams of Europe, generally on the under ſurface of plants, and appears like a little tranſparent green jelly when contracted and quieſcent; when expanded it is a linear body, fixed at one end, and ſurrounded at the other by tentacula or arms placed in a circle round the mouth, and gradually producing its young from the ſides, which at firſt ſeem ſmall papillæ, increaſing in length, till they aſſume the form of the parent, and then dropping off. See fig. 2, and underneath at *b*, a young one, lately fallen from the parent, with its tentacula retracted.

3. Hydra fuſca, the brown hydra: ſometimes with nine tentacula, as ſhown at fig. 3; but moſtly with eight, many times longer than the body. Inhabits freſh waters of Europe; grey-brown, a little taper towards the baſe. A ſpecimen with eight arms is ſhown, greatly magnified, at fig. 4.

4. Hydra griſea, the grey polype: with about ſeven tentacula longer than the body. Inhabits rivulets and ſtagnant waters; yellowiſh, tapering towards the baſe; with ſometimes twelve arms or tentacula, as at fig. 5.

5. Hydra pallens, the pale hydra: with about ſix tentacula as long as the body. Inhabits clear waters of Europe, but not ſo common as the others; body pale yellowiſh, tapering towards the baſe, very tender, with whitiſh tentacula or arms. It brings forth young from all parts of its body.

HY'DRA, a ſmall iſland in the Grecian Archipelago. Lat. 37 15. N. lon. 42. 25. E. Ferro.

HY'DRA-HEADED, *adj.* Increaſing in means of ſtrength:

Nor ever *hydra-headed* wilfulneſs
So ſoon did loſe his ſeat. *Shakeſpeare.*

HYDRAG'ONUM, *ſ.* See ANDROMEDA CALYCULATA.

HYDRAN'GEA, *ſ.* [ſo named by Gronovius, from υδωρ, Gr. water, and αγγος, a veſſel.] In botany a genus of the claſs decandria, order digynia, natural order of ſucculentæ; (ſaxifragæ, *Juſſ.*) The generic characters are—Calyx perianthium one-leafed, five-toothed, permanent, ſmall. Corolla: petals five, equal, roundiſh, larger than the calyx. Stamina: filaments ten, longer than the corolla; alternately longer and ſhorter. Antheræ roundiſh, twin. Piſtillum: germ roundiſh, inferior; ſtyles two, ſhort, diſtant; ſtigmas blunt, permanent. Pericarpium: capſule roundiſh, twin, two-beaked with the double ſtyle, angular with ſeveral nerves, crowned with the calyx, two-celled with a tranſverſe partition, opening by a hole between the horns. Seeds: numerous, angular, acuminate, very ſmall.—*Eſſential Character.* Capſule two-celled, two-beaked, containing many ſeeds; corolla five-petalled; calyx five-cleft, ſuperior.

*Species.* 1. Hydrangea arboreſcens, or ſhrubby hydrangea: leaves ovate, ſmooth, alternate; ſtamens longer. This has a ſpreading woody root, which produces ſeveral ſoft, pithy, woody, ſtems, from three to four feet high; they are four-cornered when young, and have a green bark, but as they grow older they become taper, and have a light-brown bark. Leaves at each joint oppoſite, three inches long, and two broad near the baſe, pointed, ſerrate; they are deep green above, and pale underneath, with many tranſverſe veins; the petioles are about an inch long. Flowers terminating in a cyme. Corolla ſmall, white, having an agreeable odour. The flowers have ſometimes eight ſtamens only, according to Du Roi. The calyx is faſtened to the pericarp, which is a ſmall capſule, almoſt hemiſpherical; marked with ten ſtreaks, flattiſh above, not opening by valves, but by a central hole between the ſtyles. Partition membranaceous, pervious at top when ripe. Seeds about twenty in each cell, compreſſed like a lens, netted-veined, brown. Linnæus had deſcribed the capſule as opening between the horns, formed by the two permanent ſtyles; we are at a loſs to know why in his firſt mantiſſa he corrected this, and affirmed that the capſule is what he terms *circumſciſſa*, or cut round horizontally into two hemiſpheres. Gærtner however ſuggeſts, that, although in all his ſpecimens the capſules opened by a hole at top, yet in ſome it may be otherwiſe, and they may ſplit in half horizontally; of this we have an inſtance in Heuchera. Native of Virginia and Canada. Introduced in 1736, by Peter Collinſon. The flowers appear towards the end of July, and in Auguſt; but ſeldom perfect their ſeeds in England.

2. Hydrangea radiata, or downy hydrangea: leaves lobed, tomentoſe underneath. This has a ſomewhat ſhrubby ſtem, branched, and growing to the height of about five feet; the leaves are broad, heart-ſhaped, ſerrated, and ſharp-pointed; they are footſtalked and ſtand oppoſite, and the lower ſurface is downy, and of a ſilvery appearance. Gathered in Carolina by T. Walter, eſq. and in Florida by Mr. J. Bartram.

3. Hydrangea hortenſis, garden hydrangea, or Chineſe guilder-roſe: leaves elliptical, ſerrate, very ſmooth; ſtamens all of an equal length. The celebrated Commerſon named this ſhrub *Hortenſia*, from Hortenſia Lepaute, the

wife of his intimate friend, Lepaute, a watch-maker. In Duhamel's recent work, Traité des Arbres, &c. it is made a diſtinct genus. It is a ſhrub which riſes to two or three feet, ſomewhat ligneous. Stems branchy, thick, cylindrical, ſtraight; branches furniſhed with oppoſite leaves. Leaf-ſtalk, ſhort, thick, of a whitiſh-green, ſlightly tile-channelled on the upper ſurface; leaves elliptical, large, from ſix to nine inches long, ſmooth on both ſides, gloſſy on the upper ſurface, tipped with a beautiful green, and ſometimes with a purpliſh red, marked by large fibres, which form an acute angle with the mid-rib, and deeply ſerrated on the edges. Flowers of a red colour, in a terminating corymbus. It is a native of China and Japan; and it is only of late that the plant has been known in Europe. It was formerly cultivated at the Réduit, a garden in the Iſle of France, having been brought thither from China. In 1789, the date of the then catalogue, it had not found admiſſion into the royal garden there. At preſent, it is very common in the environs of Paris, and in moſt parts of France. Of the ornamental ſhrubs which have been recently domeſticated in France and England, few are more intereſting than the hortenſia. Its beautiful bloſſoms of a roſy hue, and deſtined to retain their gayeſt aſpect during ſeveral months of ſummer, entitle it to the attention of every floriſt. Though deſtitute of ſmell, this ſhowy plant has long been an object of particular attention among the Chineſe; for we find its bloſſoms painted on moſt of the ſtuffs and papers which we import from their country.

*Propagation and Culture.* The firſt ſort is eaſily increaſed by parting the roots at the end of October, which is alſo the beſt time to tranſplant them. It ſhould have a moiſt ſoil, for it grows naturally in marſhy places; and requires no other culture but to keep the plants clean from weeds, and to dig the ground between them every winter. If in ſeveral froſts the ſtalks are killed, they will put out new ones the following ſpring. The ſecond has not been introduced here. But the third, being very eaſily increaſed by cuttings, has been pretty generally diffuſed within the compaſs of a few years. The ſoil that it thrives beſt in is a good rich loam. Some trials have been made with it to ſtand abroad; and it is hardy enough, in a ſheltered ſituation and warm ſoil, to endure moſt of our winters; but it does not flower ſo well in the open air as in a green-houſe. It therefore muſt be conſidered rather as a green-houſe-plant than a hardy one; and ſuperfluous plants only ventured in the open borders of the flower-garden.

HYDRACH'NA, ſ. The Water-Mite; in entomology, a genus of apterous inſects; of which the generic characters are: Head, thorax, and abdomen, united or connate; feelers two, jointed; eyes two, four, or ſix; legs eight, formed for ſwimming. The genus hydrachna, allied in the cloſeſt manner to that of acarus, under which the only ſpecies known to Linnæus were arranged, was firſt inſtituted by the ingenious Muller, by whoſe induſtrious reſearches many new and curious kinds have been diſcovered. They are inhabitants of ſtagnant waters, and ſwim with great velocity; they prey on the larvæ of tipulæ and monoculi. The eggs are red, and at firſt ſpherical, but afterwards become ſemilunar. The larva is ſix-footed, and furniſhed with a very ſingular proboſcis. There are forty-nine ſpecies, in five diviſions.

I. Eyes two; body tailed. 1. Hydrachna globator: body globular, with red eyes. The male is greeniſh ſpotted; the female bluiſh, immaculate, and twice as large. This ſpecies is found plentifully in ſtagnant waters.

2. Hydrachna tabulator: globular, yellowiſh with a ſpotted diſk; tail cylindrical, equal. Inhabits ſtagnant waters.

3. Hydrachna buccinator: obovate, red, and black behind; tail cylindrical, yellow, and narrowed at the baſe. Body beneath black; eyes reddiſh; legs black. Found in banks of rivers.

4. Hydrachna cuſpidator: brown; truncate before and mucronate behind; tail depreſſed, two-toothed. Body depreſſed and broadiſh on the fore-part, behind narrowed and armed with an erect triangular ſpine; eyes black; legs pale. Inhabits fiſh-ponds.

5. Hydrachna puſtulator: gibbous, red; tail depreſſed, with obtuſe angles. Body ſmooth, and generally covered with vorticelli. Inhabits graſſy ſtreams.

6. Hydrachna albator: rounded, grey, with a white diſk: tail depreſſed, three-toothed. Inhabits fiſh-ponds.

7. Hydrachna maculator: rounded, cinereous, ſpotted, and mucronate behind; tail depreſſed, three-toothed. Breaſt whitiſh; legs green. Found in ditches.

8. Hydrachna tricuſpidator: red, with a triple gibboſity on the back; tail depreſſed, three-toothed. Body ſubreticulate; breaſt blackiſh; feelers and legs whitiſh. Inhabits pools.

9. Hydrachna emarginator: red, with a gibbous back; tail depreſſed, emarginate. Reſembles H. puſtulator. Feelers and legs greeniſh. Inhabits bogs.

10. Hydrachna ſinuator: grey; the back yellowiſh on the fore-part, and tri-punctured behind; tail depreſſed, ſinuate. Body reticulate; feelers and legs white. Inhabits ſtagnant water.

11. Hydrachna integrator: green, immaculate, with a depreſſed, entire, tail. Body roundiſh-oval, depreſſed and contracted behind; breaſt yellowiſh; legs hyaline. Inhabits ditches.

12. Hydrachna papillator: rounded; purple, with an excreſcence on each ſide the tail; legs black. Inhabits wet meadows.

II. Eyes two; back marked with a fork. 13. Hydrachna craſſipes: obovate; black, the diſk black, with a reddiſh fork; tail papillous; fore-legs thick. Body pellucid, with a white breaſt; legs three or four times as long as the body. Inhabits ditches.

14. Hydrachna groſſipes: nearly ſquare; white, with three ſpots, and a rufous fork; fore-legs thick. Body pellucid, glabrous; legs twice as long as the body. Inhabits fiſh-ponds.

15. Hydrachna clavicornis: obovate; rufous, with a yellow fork; feelers clavate; legs pale. Eyes black; feelers and legs white. Inhabits ponds.

16. Hydrachna ſpinipes: oval; greeniſh-yellow, with eight dots and a rufous fork; legs ſpinous. Body poliſhed, with black eyes, breaſt, legs, and dots on the back. Inhabits pools.

17. Hydrachna longicornis: nearly ſquare; white, with five brown ſpots, and a rufous fork; feelers long. Inhabits rivulets.

18. Hydrachna vernalis: oval; greeniſh, with a deeper diſk, and rufous fork. Has the appearance of a grey dot, with extended white legs. Inhabits overflowed meadows.

19. Hydrachna lunipes: oval; white, ſpotted, with a clear white fork; fourth joint of the hind legs lunate. Body pellucid, with large eyes; feelers and legs pale. Inhabits ditches.

20. Hydrachna trifurcalis: oval; whitiſh, with a brown back, and triple ſilvery fork. Feelers ending in a claw, and with the legs pale greeniſh-white; eyes black; abdomen beneath, ſometimes brown, with a white line. Inhabits wet meadows.

21. Hydrachna orbicularis: depreſſed; orbicular, pale yellow, with black ſpots on the diſk, and a rufous fork Eyes black; legs white. Inhabits fords of rivers.

22. Hydrachna ſtellaris: globular; blue, with a cinereous back, and ſtellate fork. Body reticulate; legs hardly longer than the body. Inhabits banks of rivulets.

23. Hydrachna ovalis: ovate compreſſed; greeniſh and flattiſh above, carinate and yellow-brown beneath; feelers placed beneath. Eyes and legs black; feelers placed beneath the legs. Inhabits overflowed meadows.

24. Hydrachna elliptica: rounded; blue, with fulvous ſpots and dots. Eyes black; legs white; breaſt, tail, and hind margin, yellowiſh. Inhabits rivulets.

25. Hydrachna orbiculata: depreſſed; orbicular, violet, with a white ſpot and circle. Breaſt fulvous, with a greeniſh tip; feelers and legs whitiſh; eyes black. Inhabits muddy ditches.

26. Hydrachna lugubris: globular; browniſh, with black ſtreaks; legs green. Eyes black; feelers green. Inhabits bogs.

27. Hydrachna truncatella: grey; oblong, truncate behind, with duſky dots and lines. Eyes black; feelers white. Inhabits marſhes.

III. Eyes two; body glabrous. 28. Hydrachna deſpiciens: rounded; red, with numerous ſpots; eyes placed beneath. Body ſlightly depreſſed, thick, and wrinkled; eyes blackiſh; legs pale yellow. Inhabits ditches.

29. Hydrachna geographica: ſo named from the fancied map-like diſtribution of its variegations. It is one of the largeſt of the genus, and occaſionally ſeen in clear ponds and other ſtagnant waters, but is one of the rarer kinds; its ſhape is globular, and its colour a poliſhed black, decorated with carmine-coloured ſpots and patches, which, in a certain light, are accompanied by a kind of gilded luſtre: four round ſpots of this colour are ſituated on the middle of the upper part of the body, and are bounded by four larger angular patches; beſides which, on the ſides and lower part of the body, are ſome others; the legs are varied with black and red, and, as in the reſt of the genus, beautifully ciliated with long hairs; eyes two. This inſect ſwims with great celerity, and appears in almoſt conſtant motion. When ſeen in its ſtate of perfection, it may be numbered among the moſt beautiful of the Britiſh inſects.

30. Hydrachna abſtergens: globular; carmine, immaculate, with black legs. Body with black lines beneath; eyes and feelers black. Inhabits ſtagnant water.

31. Hydrachna extendens: rounded; red, hind-legs contracted. Inhabits ditches.

32. Hydrachna cruenta: diſtended; red; legs equal. Eyes red; feelers pubeſcent. Inhabits wet meadows.

33. Hydrachna impreſſa: diſtended; red, with impreſſed dots; feelers ſhort. There is a variety with the feelers long. Inhabits marſhes.

34. Hydrachna lunaris: oval; rufous, with a black lunate ſpot on the back. Eyes black; legs grey. Inhabits fiſh-ponds.

35. Hydrachna liliacea: obovate; whitiſh, the diſk lily-white, with a black ſpot each ſide. Feelers, legs, and breaſt, pale; the latter ſpotted with black. Inhabits fens.

36. Hydrachna ovata: obovate; grey-brown, with a triangular fulvous ſpot; legs pale black. Back marked with a fulvous croſs; legs black; eyes and feelers black. Inhabits ditches.

37. Hydrachna torris: oval; yellowiſh, with lateral black ſpots, and red in the middle; hind-ſhanks lamellate. Eyes black; legs white. Inhabits ditches.

38. Hydrachna ſtrigata: oblong; yellowiſh-green, the fore-part depreſſed, with two blackiſh ſtreaks which unite behind. Eyes black; feelers and legs white. Found near the banks of rivers.

39. Hydrachna nodata: red; truncate before, and ſpotted each ſide; hind-legs knotty. Eyes black; feelers annulate; legs yellowiſh, and longer than the body. Inhabits ditches.

40. Hydrachna obſoleta: rounded; reddiſh-brown, with a double obſolete ſtreak behind the eyes. Eyes black; feelers pellucid; legs pale browniſh. Inhabits moiſt woods.

41. Hydrachna complanata: green; depreſſed and emarginate before, with a white band in the middle. Body elliptic; eyes black; feelers and legs pellucid. Inhabits ditches.

42. Hydrachna muſculus: green; oval, compreſſed; above grooved, beneath carinate. Varies in colour. Eyes black; feelers white, pellucid. Inhabits marſhes.

43. Hydrachna latipes: oval; yellowiſh, and ſpotted each ſide; fourth joint of the hind-legs dilated. Legs pale, or bluiſh, tipt with brown. Inhabits marſhes.

44. Hydrachna verſicolor: nearly ſquare; with whitiſh blue and brown ſpots. Body white; beneath brown, with a yellowiſh margin; feelers and legs white, pellucid. Inhabits wet meadows.

IV. Eyes four. 45. Hydrachna calcarea: rounded; brown, with a clear white diſk. Eyes black; feelers pointed; legs pale, pellucid. Inhabits marſhes.

46. Hydrachna fuſcata: ovate; reddiſh-brown, with a darker diſk, and pale rufous fork. Body convex; ſpotted on the back; eyes black; legs and feelers white, pellucid. Inhabits muddy ditches.

47. Hydrachna undulata: oval; pale yellow, with flexuous black ſtreaks. Body ſubglobular; pellucid, with black eyes. Inhabits marſhes.

48. Hydrachna maculata: oval; red, with black ſpots on the back. Eyes black; legs pale yellow, pellucid; feelers pale yellow, and ſometimes long and ſometimes ſhort. Inhabits ditches.

V. Eyes ſix. 49. Hydrachna umbrata: rounded; red, with numerous darker ſpots. Body glabrous; ſubdepreſſed, with ten darker ſpots above; eyes black; feelers yellowiſh at the tip; legs yellow. Inhabits marſhy woods.

HYDRAGO'GA, or HY'DRAGOGUES, *ſ.* [from υδωρ, Gr. water, and αγω, to lead.] Medicines to purge off watery humours.

HYDRAGOG'ICAL, *adj.* Conveying water.

HYDRAG'OGY, *ſ.* The art of conveying water; the conveyance of water from one place to another.

HYDRAO'TES, a river of India, croſſed by Alexander. See HYDASPES.

HYDRAR'GYRAL, *adj.* Belonging to quickſilver.

HYDRAR'GYRUM, or HYDRAR'GYRUS, *ſ.* [υδωρ, Gr. water, and αργυρος, ſilver; from its having the appearance of fluid ſilver.] Quickſilver, or mercury. For its chemical properties, ſee CHEMISTRY, vol. iv. alſo the article MINERALOGY.

HY'DRAS, a port on the Pirate Coaſt in Weſtern Hindooſtan; ſo called in alluſion to the fabled ſerpent which makes every thing its prey. *Pennant.*

HYDRAS'TIS, *ſ.* [ſo named by Ellis, *a nobliſſima virgine Americana.* Linn. Probably it was ſent to Ellis by Miſs Colden. May it not be derived from υδραινω? Miller calls it *Warneria*, from Richard Warner, eſq. of Woodford Row, Eſſex, a very curious botaniſt, and a great collector of growing plants.] In botany, the YELLOW ROOT; a genus of the claſs polyandria, order polygynia, natural order of ranunculaceæ, *Juſſ.* The generic characters are—Calyx: none. Corolla: petals three, ovate, regular. Stamina: filaments numerous, linear, compreſſed, a little ſhorter than the corolla; antheræ compreſſed, blunt. Piſtillum: germs numerous, ovate, collected into an ovate head; ſtyles very ſhort; ſtigmas broadiſh, compreſſed. Pericarpium: berry compounded of oblong acini, or granulations. Seeds ſolitary, oblong.—*Eſſential Character.* Calyx none; petals three; nectary none; berry compoſed of one-ſeeded acini, or granulations.

Hydraſtis Canadenſis, or Canadian yellow-root: a ſingle ſpecies; the Hydrophyllum verum Canadenſium of Linnæus. The root is compoſed of thick fleſhy tubers, of a deep yellow colour within, but covered by a brown ſkin, ſending out fibres from ſeveral parts in the ſpring. It ſends up one or two ſtalks about nine inches high, at their firſt appearance of a light green, but afterwards changing to a purpliſh colour, and hairy towards the top. Each ſtalk has one or two leaves, the lower petioled, but the upper embracing; they are ſix or ſeven inches in diameter, and are deeply cut into three, four, or five, lobes, which are irregularly ſerrate; they are of a light green in the ſpring, but change afterwards to a deep green, with ſome dark ſpots or marks, and after the flower is decayed turn to a purpliſh colour. The ſtalk is terminated by one flower, which is white, and of very ſhort duration, ſeldom continuing above three or four hours after it is expanded. The fruit is red and ſucculent; a compound berry like the raſpberry and mulberry. Native of Canada. It was cultivated in 1759, by Mr. Miller; and flowers in May and June. This plant, not increaſing much, is rather uncommon in the Engliſh gardens; it delights in great ſhade and moiſture; and when planted in dry ground, or much expoſed to the ſun, it rarely lives through one ſummer. In a moiſt loamy ſoil and ſhady ſituation, if it be left undiſturbed three or four years, it will flouriſh.

HYDRAU'LICS, *ſ.* The ſcience of the motion of fluids, and the conſtruction of all kinds of inſtruments and machines relating thereto. See the article MECHANICS.

HYDRAU'LUS, *ſ.* [*υδωρ*, water, and *αυλος*, Gr. a pipe.] An organ played by the motion of water.

HYDRENTEROCE'LE, *ſ.* [*υδωρ*, Gr. water, *εντερον*, an inteſtine, and *κηλη*, a tumour.] A dropſy of the ſcrotum. Vogel deſcribes this diſorder as compounded of a dropſy and hernia.

HY'DRIA, or IDRIA, a town of Germany in the duchy of Carniola: nine miles ſouth-ſouth-weſt of Crainburg, and 154 ſouth-ſouth-weſt of Vienna. Lat. 46. 12. N. lon. 31. 44 E. Ferro.

HY'DRIA, a river of Germany, which riſes near Gewelb, paſſes by the town of Hydria, and runs into the Liſonzo, in the duchy of Carniola.

HYDROCE'LE, *ſ.* [*υδωρ*, Gr. water, and *κηλη*, a tumour.] The dropſy in the ſcrotum. See the article PATHOLOGY.

HYDROCEPH'ALUS, *ſ.* [*υδωρ*, Gr. water, and *κεφαλη*, the head.] A dropſy in the head.

HYDROCERATOPHYL'LUM, *ſ.* in botany. See CERATOPHYLLUM.

HYDROCH'ARIS, *ſ.* [from *υδωρ*, Gr. water, and *χαρις*, grace; the grace or beauty of the water.] In botany, the FROG-BIT; a genus of the claſs dioecia, order enneandria, natural order of palmæ, (hydrocharides, *Juſſ.*) The generic characters are—I. Male. Calyx: ſpathe three-flowered, two-leaved, oblong. Perianthium: proper, three-leaved; leaflets ovate-oblong, concave, membranaceous at the edge. Corolla: petals three, roundiſh, flat, large. Stamina: filaments nine, awl-ſhaped, upright, in three rows, the middle one puts forth an awl-ſhaped ſtipe from the inner baſe, like a ſtyle, which is placed in the centre; the two others are connected at the baſe, ſo that each inner filament coheres with each outer. Antheræ ſimple. Piſtillum: the rudiment of a germ in the centre. II. Female. Calyx: ſpathe none; flowers ſolitary. Perianthium, as in the male, ſuperior. Corolla, as in the male. Piſtillum: germ roundiſh, inferior; ſtyles ſix, the length of the calyx, compreſſed, bifid-channelled; ſtigmas bifid, acuminate. Pericarpium: capſule coriaceous, roundiſh, ſix-celled, ſeeds numerous, very ſmall, roundiſh.—*Eſſential Character.* Male. Spathe two-leaved; calyx trifid; corolla three-petalled; filaments the three inner ſtyle-bearing. Female. Calyx trifid; corolla three-petalled; ſtyles ſix; capſule ſix-celled, many-ſeeded, inferior.

Hydrocharis morſus ranæ, or frog-bit: a ſingle ſpecies. It has a root of many long thick white fibres; leaves at each joint of the ſtalk, ſix or eight together, floating, roundiſh, kidney-ſhaped, fleſhy, ſmooth, thick, perfectly entire, almoſt tranſparent, reddiſh underneath, marked with a few circular and many tranſverſe veins; they are about an inch and a half in diameter, and, when dry, on removing the outer ſkin, a moſt beautiful cloſe net-work of veins is ſeen. Leaf-ſtalks from three to ſix or ſeven inches long, round, ſmooth, thick, tranſparent, having numerous croſs bars. Sheaths in plants of both ſexes numerous, next the root, ovate, tranſparent; in the male plant there is alſo a pair about the middle of the flower-ſtalk, containing the tender unopened bloſſoms as in a bladder. Flower-ſtalks the ſame length with the leaf-ſtalks, upright; in the male producing three or four flowers, in the female only one; corolla white, with a yellow bottom, a little wrinkled and tender; calyx yellowiſh. This plant increaſes by runners, furniſhed with pendulous gems, ſupported on long foot-ſtalks. Theſe gems conſiſt of two ſtipulaceous ſcales, folded together, within which are curiouſly enveloped the embryo leaves of the future plant. Native of many parts of Europe, in deep ditches, and ſlow ſtreams, with a muddy bottom, multiplying itſelf greatly by runners which ſhoot out to a great length, and at the joints drop down long roots, which penetrate deep into the mud. It flowers from June through the autumn. Ray found a variety, with a double flower ſmelling very ſweet, in a ditch by the ſide of Audrey-cauſeway, cloſe by the great wooden bridge, in the iſle of Ely, plentifully.

HYDROCOT'YLE, *ſ.* [from *υδωρ*, Gr. water, and *κοτυλη*, a ſmall cavity, veſſel, or cup; becauſe it grows in water, and the leaves are hollow; or the leaves, being hollow, contain water.] WATER NAVELWORT, MARSH PENNYWORT, or SHEEP'S-BANE; in botany, a genus of the claſs pentandria, order digynia, natural order of umcellatæ or umbelliferæ. The generic characters are—Calyx: umbel ſimple; involucre commonly four-leaved, ſmall. Perianthium ſcarcely any. Corolla: univerſal uniform in figure, not in ſituation; florets all fertile; proper, five-petalled; petals ovate, acute, ſpreading, entire. Stamina: filaments five, awl-ſhaped, ſhorter than the corolla; antheræ very ſmall. Piſtillum: germ upright, compreſſed, orbiculate, inferior, peltate; ſtyles two, awl-ſhaped, very ſhort; ſtigmas ſimple. Pericarpium none; fruit orbiculate, compreſſed, tranſverſely bipartile. Seeds two, ſemi-orbiculate, compreſſed.—*Eſſential Character.* Umbel ſimple, with a four-leaved involucre; petals entire; ſeeds ſemiorbiculate-compreſſed.

*Species.* 1. Hydrocotyle vulgaris, common marſh pennywort, or ſheep's-bane: leaves peltate, crenate, umbels five-flowered. Roots perennial, capillary, whitiſh. Stems creeping, round, ſmooth, ſtriking root at the joints. Leaves orbicular, ſmooth, gloſſy, bright green, about an inch in diameter, waved, ſcalloped or ſomewhat lobed and notched on the edge, the centre a little depreſſed, and marked with a white dot; the veins form a kind of net-work on both ſurfaces; leaf-ſtalks about two inches long, upright, round, ſmooth, naked below, above beſet with briſtly, horizontal, diſtant, hairs. Seeds of a pale brown colour. Linnæus remarks, that this plant has a ſimple umbel proliferous from the centre, and the two ſtyles diſtant. Native of moſt parts of Europe in marſhes; alſo in Japan and Jamaica; but not common. It flowers with us from May or June through July and Auguſt. The flowers, being very ſmall, and hidden by the leaves, are not much remarked, though they are abundant in their ſeaſon; but the plant is eaſily known by the petiole of the leaf being inſerted into the middle of it, a circumſtance uncommon in European plants.

Gerarde calls this plant *water penny-woort*, *ſheep-killing penny-graſſe*, *penny-rot*; in the north country, he ſays, it is called *white-rot*, to diſtinguiſh it from the droſera, or *red-rot*; in Norfolk *flowkwoort* (from its being ſuppoſed to occaſion the flukes in the liver of rotten ſheep); and by the huſbandmen *ſheep's-bane*, becauſe it killeth ſheep that do eat thereof. This however is now known to be a vulgar error; for the rot in ſheep is owing to an inteſtinal worm, which we know could never be generated by vegetable food even of the rankeſt kind. See the article FASCIOLA, vol. vii. p. 267, and the correſpondent Engraving for a correct figure of the fluke-worm. See alſo the article HELMINTHOLOGY, Plate II. fig. 19. vol. ix. p. 348, 349. This plant, (Hydrocotyle vulgaris,) together with Droſera, or ſundew, and Pinguicula, or butterwort, is very common in marſhy places, and therefore the diſorder has been aſcribed to theſe; though it is pretty certain that neither ſheep nor any other quadruped feed on theſe plants. That ſheep-farmers, however, may be acquainted with this plant, we have given an exact repreſentation of it at fig. 2, on the annexed Engraving. A leaf of it is alſo repreſented on the Botany Plate IV. fig. 34.

β. H. natans, or Italian floating hydrocotyle, has very ſlender ſimple fibres collected into a head, iſſuing from the joints of the ſtems, and faſtening themſelves into the mud. Stems horizontal, thick, even, fleſhy, tinged with browniſh red, horizontal, jointed, floating. A ſingle leaf comes out from each joint, on petioles a ſpan long or more, curved inwards, thick at the baſe, fleſhy, growing thinner at the top; the leaves are kidney-form, crenate-lobed or repand, with five large lobes, the middle one ſmall, the two or three others with three-lobed notches; in front they are cut to the very centre with a ſcarcely gaping ſinus, as in H. Americana. All of them are floating. Flowers from five to ten, ſmall, collected into a head. Seeds compreſſed, ſemiorbiculate. The peduncles are three inches long, and iſſue from the joints of the ſtem. The leaves are not peltate and emarginate, as in the common ſort, but kidney-form and ſublobate, the ſtems thick, and the petioles very fleſhy. It ſeems to approach nearer to H. Americana. Native of Italy.

2. Hydrocotyle umbellata, or navelwort: leaves peltate, crenate-gaſhed, umbels many-flowered. According to Linnæus it is very like the common ſort, and has been confounded with it; but it differs in having the ſcape twice as long as the leaves, and more than twenty florets in a ſimple umbel. Native of Jamaica, in marſhes; of ſeveral parts of the continent of America; and alſo of Cochin-china; if the plant which theſe authors deſcribe be the ſame.

3. Hydrocotyle Americana, or American navelwort: leaves kidney-form, ſublobate, crenate. This has the appearance and ſize of the firſt. The leaves are cut in front to the very centre with a ſinus that ſcarcely gapes, and are divided at the edge into nine obſolete lobes, each of which has three ſmaller notches. Native both of North and South America, and the Eaſt Indies.

4. Hydrocotyle hirſuta, or hairy navelwort: hirſute, leaves kidney-form, lobate, crenate; whorls four-flowered. Native of Hiſpaniola.

5. Hydrocotyle Aſiatica, or Aſiatic navelwort: leaves kidney-form, toothletted. This differs from the fourth ſpecies in having the toothlets or notches round the leaves equal, the ſubſtance alſo of the leaves is twice as thick, and they are almoſt hoary, and there are ſeveral together at each joint of the ſtalk, whereas in that they are ſingle. Native of the Eaſt Indies, Japan, the Cape of Good Hope, Jamaica, &c. Introduced here in 1774 by Mr. Francis Maſſon.

6. Hydrocotyle Chinenſis, or Chineſe navelwort: leaves linear, umbels many-flowered. This is of the ſame ſize with the foregoing ſorts. Native of China.

7. Hydrocotyle villoſa, or villoſe navelwort: leaves cordate, entire, villoſe. Root fibrous; leaves petioled, undivided, quite entire, reſembling thoſe of the ſweet violet (Viola odorata), mucronate, tomentoſe, both at the roots, and about the extremities of the ſtems, which are proſtrate, and have flowers at the ends with the leaves. Flowers ſmall. Native of the Cape of Good Hope.

8. Hydrocotyle glabra, or ſmooth navelwort: leaves obovate, ſmooth. This alſo is a native of the Cape of Good Hope.

9. Hydrocotyle virgata, or ſtriped navelwort: leaves linear, ſmooth. Found at the Cape of Good Hope by Thunberg.

10. Hydrocotyle linifolia, or linear navelwort: leaves linear-lanceolate, hirſute, entire. This is like the preceding, but the leaves are much longer; the peduncles more ſlender, and alſo longer. Found at the Cape of Good Hope by Thunberg.

11. Hydrocotyle tomentoſa, or prickly navelwort: leaves obovate, toothed, tomentoſe. The central flower being fertile (having ſix ſtamens and a piſtil), and being ſurrounded by barren flowers, Linnæus made a diſtinct genus of it, placed it in the order monoecia of the claſs polygamia, and named it *Solandra*, from the amiable and learned Dr. Solander, who found it at the Cape of Good Hope; in the Supplement, however, and in the fourteenth edition of the Syſtema, it is removed into this genus, with which it certainly agrees in habit.

12. Hydrocotyle tridentata, or trifid navelwort: leaves wedge-ſhaped, trifid, villoſe. This is very like the preceding, but differs in having linear leaves, narrower towards the baſe, with three equal teeth at the end; not ovate, and five or ſeven toothed, as in that; peduncles much ſhorter than the leaf, not equal in length; ſtem ſhorter, woolly, herbaceous, not woody and proſtrate. The central is certainly hermaphrodite in this. Found at the Cape of Good Hope by Sparrmann.

13. Hydrocotyle ranunculoides, or quinquefid navelwort: leaves five-parted, gaſhed. Found in Mexico by Mutis.

14. Hydrocotyle erecta, or upright navelwort: leaves cordate crenate, ſcapes few-flowered, the length of the petioles. Native of Jamaica.

15. Hydrocotyle moſchata, or ſeptemfid navelwort: leaves kidney-form, ſeven-lobed, ſerrate, villoſe; umbels many-flowered. Native of New Zealand.

HY'DROGEN, *ſ.* [*hydrogenium*, Lat. from υδωρ, water, and γινομαι, to become, or γενναω, to produce.] One of the conſtituent parts of water, and perhaps of muriatic acid. Though its gas is unfit for reſpiration, it is not poiſonous. Its effects on the animal economy are not peculiarly ſtriking, but it appears to affect the irritability of the muſcular fibre in a conſiderable degree; and animals killed by it are ſuppoſed to putrefy quickly. The latter opinion ſeems, however, from Chaptal's Experiments, to be founded on a miſtaken obſervation. See the article CHEMISTRY, vol. iv. p. 156, 158.

HYDROG'RAPHER, *ſ.* [from υδωρ, Gr. water, and γραφω, to write,] One who deſcribes or draws maps of the ſea.

HYDROGRAPH'IC, or HYDROGRAPHICAL, *adj.* Belonging to hydrography; belonging to a deſcription or map of the ſeas.

HYDROG'RAPHY, *ſ.* The art of meaſuring and deſcribing the ſea, rivers, canals, lakes, &c. With regard to the ſea, it gives an account of its tides, counter-tides, ſoundings, bays, gulfs, creeks, &c. as alſo of the rocks, ſhelves, ſands, ſhallows, promontories, harbours; the diſtance and bearing of one port from another; with every thing that is remarkable, whether out at ſea or on the coaſt.

HYDRO'LEA, *ſ.* in botany, a genus of the claſs pentandria, order digynia, natural order of convolvuli, *Juſſ.* The generic characters are—Calyx: perianthium five-parted; parts oblong, acute, unequal, permanent. Corolla: one-petalled, wheel bell-ſhaped; tube ſhorter than the calyx; limb five-parted, ſpreading; ſegments ovate, incumbent. Stamina: filaments five, awl-ſhaped, cordate at the baſe; antheræ oblong, curved, incumbent. Piſtillum: germ ovate; ſtyles two, filiform, ſpreading: ſtigmas truncate. Pericarpium: capſule ovate, two-celled, two-valved; partition contrary. Seeds very many, minute, imbricated; with an ovate large receptacle. In ſome flowers the calyx and corolla are ſix-cleft, with ſix ſtamens.—*Eſſential Character.* Calyx five-leaved; corolla wheel-ſhaped; filaments cordate at the baſe; capſule two-celled, two-valved.

*Species.* 1. Hydrolea ſpinoſa, or prickly hydrolea: ſtems with axillary ſpines, flowers cluſtered, terminating. Stems upright, a foot high, with alternate branches. Leaves lanceolate, ſeſſile, ſomewhat waved, viſcid. Spines axillary, ſpreading. Flowers terminating, ſub-ſeſſile, few, cluſtered. Seeds ovate, attenuated towards the umbilicus, very obſcurely grooved, pale browniſh red. When the flowers are ſix-cleft and have ſix ſtamens, there are three ſtyles, and the capſule is three-celled and three-valved, with a three-ſided partition. Native of South America.

2. Hydrolea inermis, or unarmed hydrolea: ſtem unarmed,

armed, flowers ſolitary lateral. Stem herbaceous, annual, one foot high, upright, almoſt ſimple. Flowers blue, on one-flowered peduncles; corolla not properly wheel-ſhaped, but wheel-bell-ſhaped. Native of Canton in China, in moiſt places.

3. Hydrolea Zeylanica, or Ceylon hydrolea: ſtem unarmed, flowers ſubracemed, leaves lanceolate. Stem herbaceous, half a foot high, even, upright, branched. It is thus deſcribed under the name of *Steris* in the firſt Mantiſſa: Appearance that of a ſmall capſicum; ſtem herbaceous, very much branched, and even. Leaves alternate, petioled, oval-oblong, quite entire, ſharpiſh, even; peduncles oppoſite to the leaves, axillary or terminating, ſubdivided or one-flowered. Corolla blue, the ſame ſize as that of capſicum. Native of the Eaſt Indies.

4. Hydrolea trigyna, or three-ſtyled hydrolea: ſtem ſpiny, leaves oblong hirſute, flowers three-ſtyled axillary. Native of the Weſt Indies.

HYDROL'OGY, *ſ.* That part of natural hiſtory which examines and explains the nature and properties of water in general.

HYDROM'ANCER, *ſ.* One that practiſes hydromancy. *Cole.*

HYDROM'ANCY, *ſ.* The act or art of divining or foretelling future events by means of water. This is one of the four general kinds of divination: the other three reſpecting the other elements, fire, air, and earth, are denominated reſpectively pyromancy, aeromancy, and geomancy.

HYDROMAN'TIC, *adj.* Belonging to hydromancy. *Cole.*

HY'DROMEL, *ſ.* Honey diluted in nearly an equal weight of water. When this liquor has not fermented, it is called *ſimple hydromel*; and, when it has undergone the ſpirituous fermentation, it is called the *vinous hydromel*, or *mead.* See the article HONEY, p. 265 of this volume.

HYDROM'ETER, *ſ.* An inſtrument to meaſure the gravity, denſity, velocity, force, &c. of water and other fluids. See *Hydroſtatics*, under the article MECHANICS. Profeſſor Beckmann ſuppoſes it to have been the invention of Archimedes, though the firſt mention of it occurs in the fifth century; and it is noticed in the Letters of Syneſius to Hypatia. It was afterwards forgotten, and is not again mentioned till it occurs in a treatiſe written by Tholden in the year 1600.

HYDROM'PHALUS, *ſ.* A tumor in the navel, ariſing from a collection of water.

HYDROPH'ACE, *ſ.* in botany. See LEMNA.

HYDROPH'ILUS, *ſ.* the WATER-LOVER; in entomology, a genus of coleopterous inſects; of which the generic characters are: Antennæ clavate, the club perfoliate; feelers four, filiform; hind legs formed for ſwimming, being fringed or finned on the inner ſide. This genus differs from that of Dytiſcus only in the ſtructure of the antennæ, which, inſtead of being ſetaceous, are ſhort, and furniſhed with a clavated and perfoliated tip or knob. Both are inhabitants of ponds and ſtagnant waters, where they ſwim with much velocity, turning round with great dexterity. They are extremely voracious, and deſtructive to the more tender aquatic inſects, worms, and young fiſh, which they ravenouſly ſeize with their forked jaws, and deſtroy by ſucking out their juices. It may be added, that the hydrophili, like the dytiſci, ſometimes emerge from the waters, and fly about the fields, and thus migrate occaſionally from water to water; but, as this happens chiefly by night, it is not generally obſerved. The genus hydrophilus, like that of dytiſcus, has been greatly increaſed by the perſevering reſearches of modern entomologiſts. Dr. Turton enumerates thirty-one ſpecies.

1. Hydrophilus piceus, the water-clock. This is perhaps the largeſt of the Britiſh coleoptera, if we except the lucanus cervus; meaſuring nearly an inch and a half in length. It is entirely black, and of a ſmooth ſurface, and is particularly diſtinguiſhed by the form of its thorax, which is produced beneath into a very long and ſharp-pointed ſpine, ſtretching to a conſiderable diſtance down the abdomen: the hind-legs are furniſhed on each ſide with ſtrong, but very fine, hairs, as in the dytiſci, which the animal reſembles in its manners. It is a native of ſtagnant waters, where its larva is principally obſerved to prey on the ſmaller kind of water-ſnails, and is diſtinguiſhed by a particularity in the higheſt degree remarkable: this conſiſts in the apparently anomalous ſituation of the legs, which ſeem, unleſs very accurately conſidered, to be placed, not beneath the thorax, as in other inſects, but on the upper part, and from thence to be deflected towards the ſides. This uncommon appearance however is not owing to a real dorſal inſertion of the legs, but principally to the peculiar ſhape and poſition of the head; and the deception is ſo much heightened by the inverted poſture in which the inſect generally ſwims and reſts, that it is by no means eaſy even for the moſt ſcientific obſerver to diveſt himſelf of the erroneous idea before mentioned. Friſch, in his Hiſtory of Inſects, appears to have been completely convinced of the reality of the dorſal inſertion of the legs; and the celebrated Reaumur, having diſcovered ſomething ſimilar in another aquatic inſect, was ſo ſtruck with the unuſual appearance, that he has commemorated it as a circumſtance unparalleled in the animal world. The author of the fourth volume of Seba's Theſaurus was of the ſame opinion; and expreſsly warns his readers, that his engraver, thinking to rectify what he ſuppoſed an erroneous drawing, has repreſented the legs in this larva as ſituated beneath the thorax, and not on the upper part. The ſagacious Lyonet, in his obſervations on Leſſer's Théologie des Inſectes, ſeems to have been the firſt who detected the common error, and aſcertained the real ſtructure of the animal, which he has clearly and ſatisfactorily explained. The larvæ are ſuppoſed to remain about two years before they change into pupæ or chryſalides. When the larva is arrived at its full growth, it ſecretes itſelf in the bank of the water it inhabits, and, having formed a convenient cavity or cell, lies dormant for ſome time, after which it diveſts itſelf of its ſkin, and appears in the form of a chryſalis, in which ſtate having continued for ſome time longer, it again delivers itſelf from its exuviæ, and appears in its complete or beetle form. When firſt diſengaged from the ſkin of the chryſalis, it is of a pale colour, and very tender; but in the ſpace of a few hours the elytra or wing-caſes acquire a degree of ſtrength and colour, which gradually grows more and more intenſe, till the animal, finding itſelf ſufficiently ſtrong, comes forth from its retreat, and commits itſelf in its new form to the waters. The male is diſtinguiſhed from the female by the ſtructure of the fore-legs, which, as in the genus dytiſcus, are furniſhed, near the ſetting-on of the feet, with a ſort of horny concave flap or ſhield; the legs of the females being deſtitute of this part. The ſtructure of the hind legs is finely calculated for the animal's aquatic mode of life, being furniſhed on the inſide with a ſeries of cloſe-ſet filaments, ſo as to give a ſort of finny appearance to the legs, and to enable the animal to ſwim with the greateſt eaſe and celerity. It may be added, that the female of the Hydrophilus piceus affords an example of a faculty which ſeems to be exerciſed by no other coleopterous inſect; viz. that of ſpinning a kind of web or flattiſh circular caſe of ſilk, which it leaves floating on the water, and in which it depoſits its eggs. This caſe is terminated on its upper ſurface by a lengthened conical proceſs reſembling a horn, of a brown colour, and of a much ſtronger or denſer nature than the caſe itſelf, which is white. The young larvæ, as ſoon as hatched, make their eſcape from the envelopment of the caſe, and commit themſelves to the water. This curious particular in the hiſtory of the hydrophilus piceus was firſt diſcovered by Lyonet.

2. Hydrophilus olivaceus: olive; ſternum channelled with a long recurved ſpine; ſhells emarginate. Body en-

tirely olive or dull green, ſmooth, glabrous; antennæ and thighs piceous; ſpine on the ſternum nearly as long as the body. Inhabits Coromandel.

3. Hydrophilus atratus: black; ſhells ſtriate rounded; ſternum ſpinous behind. Body gloſſy-black; ſhells ſtriate, punctured; club of the antennæ ferruginous. Inhabits South America; ſize of H. olivaceus.

4. Hydrophilus caraboides: black, poliſhed; ſhells ſubſtriate. Inhabits Europe.

5. Hydrophilus lateralis: gloſſy-black; edges of the thorax and ſhells yellow. Sternum projecting backwards into a ſharp point, with a yellow dot in the middle; legs ferruginous. Inhabits South America; half the ſize of the laſt.

6. Hydrophilus rufipes: ſhining black; legs rufous, ſternum with a recurved ſpine. Antennæ ferruginous, the club brown; body glabrous, immaculate. Inhabits China; half the ſize of H. caraboides.

7. Hydrophilus emarginatus: duſky-brown; ſhield emarginate. Body gibbous, opake; ſhield widely emarginate. Inhabits Europe; adheres to aquatic plants.

8. Hydrophilus ſcaraboides: black; ſhells ſtriate; legs piceous. Inhabits Europe.

9. Hydrophilus picipes: black; legs piceous; ſhells ſmooth. Body ſmooth, glabrous. Inhabits Germany.

10. Hydrophilus orbicularis: roundiſh; body glabrous, black. Quite ſmooth, and ſhining. Inhabits Germany.

11. Hydrophilus ſubrotundus: roundiſh; glabrous, black; ſhells ſtriate. Inhabits America; a little leſs than the laſt.

12. Hydrophilus bicolor: ovate; above yellowiſh, beneath black. Fore-feelers longer than the antennæ; legs yellow. Inhabits Denmark; larger than H. collaris.

13. Hydrophilus collaris: black; mouth, ſides of the thorax, and a few abbreviated lines on the ſhells, ferruginous. Antennæ and legs brown; edge of the ſhells ferruginous; body gibbous. Inhabits South America.

14. Hydrophilus undatus: ovate, black; thorax pale; ſhells ſtriate, grey. Head gloſſy-black; antennæ and feelers yellow; thorax with a double black dorſal line; ſhells obſcurely waved with black; body black; legs yellow. Inhabits South America; rather larger than H. luridus.

15. Hydrophilus erythrocephalus: ovate, black; head, thorax, and border of the ſhells, rufous. Legs rufous; thighs black. A little leſs than H. collaris.

16. Hydrophilus hæmorrhoidalis: black; ſhells ſtriate, tipt with ferruginous; ſhanks ferruginous. Inhabits Germany; leſs and more oblong than H. orbicularis.

17. Hydrophilus marginellus: gloſſy-black; thorax and ſhells edged with rufous. Shells ſmooth; legs black; tarſi ferruginous. Inhabits Germany; ſize of the laſt.

18. Hydrophilus ſtriatus: gloſſy-black; ſhells ſtriate, ferruginous at the baſe and tip. Head and thorax ſmooth, immaculate; legs ſubferruginous. Inhabits Germany.

19. Hydrophilus luridus: thorax brown; ſhells ſtriate, and cinereous-brown; body black. Inhabits Europe.

20. Hydrophilus minutus: ovate, black; ſhells and legs grey. Inhabits Europe; makes a buzzing noiſe towards night.

21. Hydrophilus griſeus: above cinereous, beneath brown; legs cinereous. Inhabits Saxony; ſize of H. minutus.

22. Hydrophilus bipunctatus: thorax black, edged with grey; ſhells brown, with a whitiſh margin and dot behind. Head black, with a grey marginal dot each ſide; dot on the ſhells ſometimes hardly viſible. Inhabits Europe; ſmall.

23. Hydrophilus pygmæus: grey; head black behind; thorax yellowiſh. Shells ſmooth, grey, immaculate; body and legs darker. Inhabits South America; very minute.

24. Hydrophilus tricolor: body black; ſhells piceous, edged with black and ochraceous; legs tawny. Inhabits Berlin.

25. Hydrophilus cordiger: body black; ſhells, and edge of the thorax red; in the middle of the ſhells a black heart-ſhaped ſpot; legs brown, and finely toothed. Inhabits Berlin.

26. Hydrophilus rufus: rufous; ſhells very ſmooth, darker; the outer edge whitiſh, two-toothed before. Inhabits Italy.

27. Hydrophilus obſcurus: livid; abdomen black; ſhells gloſſy, with crowded dots. Is properly no more than a variety of H. luridus. Inhabits Denmark.

28. Hydrophilus puſillus: black; ſhells very ſmooth; antennæ and tarſi brown. Inhabits Denmark.

29. Hydrophilus pilula: black; above poliſhed with crowded dots. Inhabits Europe.

30. Hydrophilus niger: gloſſy-black; ſhells finely ſtriate, with diſtant dots; antennæ and ends of the legs ferruginous. Inhabits Europe.

31. Hydrophilus ater: black, glabrous; antennæ and ſhanks reddiſh. Inhabits Europe.

HYDROPHO'BIA, [from υδωϱ, Gr. water, and φοϐεω, to fear.] A dread of water; a ſymptom of the diſeaſe cauſed by the bite of a mad dog. The principal and original ſeat ſeems to be about the ſtomach, and parts contiguous to it. Dr. Seleg thinks that it is ſeated in the par vagum and intercoſtal nerves; for moſt of the ſymptoms happen where theſe nerves are interſperſed. When a dog is affected with madneſs, he becomes dull, ſolitary, and endeavours to hide himſelf, ſeldom barking, but making a murmuring noiſe, and refuſing all kinds of meat and drink. He flies at ſtrangers; but, in this ſtage, he remembers and reſpects his maſter; his ears and head hang down; he walks as if overpowered with ſleep; and a bite at this period, though dangerous, ſeldom conveys the diſeaſe. After theſe ſymptoms, the dog begins to pant; he breathes quick and heavy; hangs out his tongue to diſcharge a great quantity of froth from his mouth, which he keeps perpetually open; ſometimes he walks ſlowly, as if half aſleep, and then ſuddenly runs, but not always directly forward; at length he forgets his maſter; his eyes look diſpirited, dull, full of tears, and red; his bark is hollow and hoarſe; his tongue of a lead colour; he grows faint, thin, and weak, often falls down, again riſes, attempts to fly at every thing, and ſoon grows furious; this ſecond ſtage ſeldom continues thirty hours; death by that time putting an end to the diſeaſe, and a bite received at this time is the moſt dangerous. For the effects of this dreadful malady on the human ſubject, and the moſt approved methods of prevention and cure, ſee the article PATHOLOGY, in this Encyclopædia.

HYDROPH'ORA, *ſ.* in botany, a genus of the claſs cryptogamia, order fungi. The generic characters are—Fungus globular, watery; on a nearly-erect capillary ſtem.

*Species.* 1. Hydrophora minima: colourleſs, ſtem yellowiſh.

2. Hydrophora tenella: colourleſs, ſtem grey.

3. Hydrophora ſtercorea: head and ſtem dirty yellow.

HYDROPHO'RIA, *ſ.* in Grecian antiquity, a feſtival in memory of thoſe who periſhed in the deluge.

HYDROPH'YLAX, *ſ.* [from υδωϱ, Gr. water, and φυλαξ, a keeper or guardian.] In botany, a genus of the claſs tetrandria, order monogynia, natural order of rubiaceæ, *Juſſ.* The generic characters are—Calyx: perianthium one-leafed, upright, four-parted; ſuperior, permanent; ſegments ovate, acute, margined, ſomewhat fleſhy. Corolla: one-petalled, funnel-form; tube longer than the calyx; limb angular, four-cleft; ſegments ovate, revolute; throat bearded. Stamina: filaments four, placed on the tube, decurrent, upright, longer than the corolla; antheræ ſubhaſtate. Piſtillum: germ oblong, inferior; ſtyle filiform, curved; ſtigma bifid. Pericarpium: berry juiceleſs, ovate, compreſſed, with three ribs on each ſide, the middle one higher, with an attennated margin, a little bowed in, fungus two-celled; with a tranſverſe partition. Seeds: ſolitary, oblong, bowed in a little, three-ſided, two-grooved on the inner ſide, ſomewhat rugged.—*Eſſential Character.* Calyx four-parted; corolla funnel-form; fruit ancipital, one-ſeeded.

Hydrophylax maritima, or ſea-hydrophylax, a ſingle ſpecies. It has the appearance of Arenaria rubra maritima, but is larger. Root ſimple, filiform, blood-red, long, fleſhy, ſweet; ſtem creeping, filiform, ſmooth, coloured, jointed, ſheathed with blunt membranaceous permanent ſheaths, very long; leaves oppoſite, ſpreading, ovate, acute, quite entire, approximating, fleſhy, ſhining, roughened with very ſmall, whitiſh, pellucid, calluſes; petioles ſhort, membranaceous, margined, ſheathing the ſtem, permanent; when the leaves fall theſe become permanent ſheaths of the ſtalks; flowers axillary, ſubſeſſile, uſually two together, but not oppoſite, erect; corolla pale blue; antheræ blue. Found by Koenig in driving ſand on the ſea-ſhore near Guduluhr in the Eaſt Indies.

HYDROPHYL'LUM, *ſ.* [from *υδωϱ*, Gr. water, and *φυλλον*, a leaf.] Water-leaf; in botany, a genus of the claſs pentandria, order monogynia, natural order of borragineæ, *Juſſ.* The generic characters are—Calyx: perianthium five-parted, ſcarcely ſhorter than the corolla, ſpreading, permanent, with awl-ſhaped ſegments. Corolla: one-petalled, bell-ſhaped, five-cleft; ſegments upright, obtuſe, emarginate. Nectary, a cleft cloſed by two longitudinal converging plates, faſtened to the petal within the middle of each ſegment. Stamina: filaments five, awl-ſhaped, longer than the corolla; antheræ incumbent, oblong. Piſtillum: germ ſuperior, ovate, acuminate; ſtyle awl-ſhaped, the length of the ſtamens; ſtigma bifid, acute, ſpreading. Pericarpium: capſule globular, one-celled, two-valved. Seed: ſingle, round, large; (ſeeds four, neſtling within a berried receptacle, *Gærtner.*)—*Eſſential Character.* Corolla bell-ſhaped, having five longitudinal melliferous ſtreaks on the inſide; ſtigma bifid; capſule globular, two valved.

*Species.* 1. Hydrophyllum Virginicum, or Virginian water-leaf: leaves pinnatifid. The root is compoſed of many ſtrong fleſhy fibres, which ſpread wide on every ſide; from this ariſe many leaves on foot-ſtalks five or ſix inches long, jagged into three, five, or ſeven, lobes, almoſt to the midrib; they are indented on their edges, have ſeveral veins running from the midrib to the ſides, and are of a lucid green. The flowers riſe with foot-ſtalks from the root, having one or two ſmall leaves of the ſame ſhape with the lower; they are in looſe cluſters hanging down, of a dirty white, and making no great figure. Capſule marked on each ſide with a ſhallow-groove, and ſprinkled all over with ſmall white briſtles. Receptacle globular, free, filling the whole cavity of the capſule, at firſt herbaceous and fleſhy, divided into little cells equal in number with the naſcent germs, afterwards membranaceous and ſpongy, rufeſcent, ſplitting in two with the capſule. Seeds regularly four, but often fewer, neſtling in the receptacle, irregularly ovate and angular, elegantly netted with very minute excavations, yellowiſh white. It flowers here in May and June, and the ſeeds ſometimes ripen in Auguſt. Native of Virginia and Carolina, on moiſt ſpongy ground. It was cultivated in 1739, by Mr. Miller. He ſuppoſes that Morinus gave it the title of *water-leaf* becauſe in ſpring water ſtands in the cavities of the leaf, and not from its growing in water, as Tournefort conjectures.

2. Hydrophyllum Canadenſe, or Canadian water-leaf: leaves lobate-angular. This has all the ſame ſtructure with the preceding, and differs only in the leaves, which have the ſame ſhape with thoſe of the maple, half-five-lobed, ſmooth, with the lobes acute, ſlightly toothed, and having a ſinus at the petiole, as in the leaves of maple. Native of Canada. It flowers in May.

*Propagation and Culture.* Theſe plants are very hardy in reſpect to cold, but they ſhould be planted in a moiſt, rich, ſoil, and ſhady ſituation; in a warm dry ſoil they will not proſper, unleſs they be conſtantly watered in dry weather. They may be increaſed by parting the roots in autumn; for, if they are not well-rooted before ſpring, they will require abundance of water. See Hydrastis.

HYDROPI'PER, *ſ.* in botany. See Elatine and Polygonum.

HYDROP'IC, or Hydrop'ical, *adj.* [*υδϱοπικος*, *hydropique*, Fr. from *hydrops*, Lat.] Dropſical; diſeaſed with extravaſated water.—*Hydropical* ſwellings, if they be pure, are pellucid. *Wiſeman.*

*Hydropic* wretches by degrees decay,
Growing the more, the more they waſte away;
By their own ruins they augmented lye,
With thirſt and heat amidſt a deluge fry. *Blackmore.*

Reſembling dropſy.—Some men's *hydropic* inſatiableneſs learned to thirſt the more, by how much more they drank. *King Charles.*

HY'DROPS, *ſ.* the Dropsy. For the cauſe and cure, ſee the article Pathology.

HYDROPY'RETOS, *ſ.* [from *υδωϱ*, Gr. water, and *πυϱ*, fire.] The hydronoſus, the ſweating ſickneſs.

HYDROROS'ATON, *ſ.* [from *υδωϱ*, Gr. water, and *ϱοδον*, a roſe.] A drink made of water, honey, and the juice of roſes.

HYDRORHOD'INON, *ſ.* [*υδωϱ*, Gr. water, and *ϱοδινον*, oil of roſes.] Water mixed with the oil of roſes; given by Galen as an emetic in caſes of poiſon.

HYDROSAC'CHARUM, *ſ.* [*υδωϱ*, Gr. water, and *σαϰχαϱον*, ſugar.] A compoſition of ſugar and water, which anſwers to the hydromeli by changing honey for ſugar.

HYDROSA'RCA, *ſ.* [*υδωϱ*, Gr. water, and *σαϱξ*, fleſh.] A tumour or abſceſs containing water and fleſh.

HYDROSARCOCE'LE, *ſ.* See Sarcocele.

HY'DROSCOPE, *ſ.* An inſtrument anciently uſed for the meaſuring of time. The hydroſcope was a kind of water-clock, conſiſting of a cylindrical tube, conical at bottom; the cylinder was graduated, or marked out with diviſions, to which the top of the water becoming ſucceſſively contiguous, as it trickled out at the vertex of the cone, pointed out the hour. See the head *Water-Clocks*, under the article Horology, in this volume.

HYDROSTAT'ICAL, *adj.* [*υδωϱ*, Gr. and *ϛατιϰη*.] Relating to hydroſtatics; taught by hydroſtatics.—A human body forming in ſuch a fluid, will never be reconcileable to this *hydroſtatical* law; there will be always ſomething lighter beneath, and ſomething heavier above; becauſe bone, the heavieſt in ſpecie, will be ever in the midſt. *Bentley.*

HYDROSTAT'ICALLY, *adv.* According to hydroſtatics.—The weight of all bodies around the earth is ever proportional to the quantity of their matter; for inſtance, a pound weight, examined *hydroſtatically*, doth always contain an equal quantity of ſolid maſs. *Bentley.*

HYDROSTAT'ICS, *ſ.* The ſcience of weighing fluids; weighing bodies in fluids. See the article Mechanics.

HYDROT'IC, *adj.* Having a power or quality of purging watery humours.

HYDROT'IC, *ſ.* Purger of water or phlegm.—He ſeems to have been the firſt who divided purges into *hydrotics* and purgers of bile. *Arbuthnot.*

HY'DRUS, or Water Serpent, one of the new ſouthern conſtellations, including only ten ſtars.

HY'DRUS, a port on the Pirate Coaſt in Weſtern Hindooſtan; ſo called in alluſion to the fabled ſerpent which makes every thing its prey. *Pennant.*

HYE'MAL, *adj.* [from *hyems*, Lat. winter.] Belonging to winter. *Not much uſed.*

HYEMA'TION, *ſ.* [from *hyems*, Lat.] Shelter from winter's cold.—Where we ſet them [exotic plants] in for *hyemation. Evelyn.*

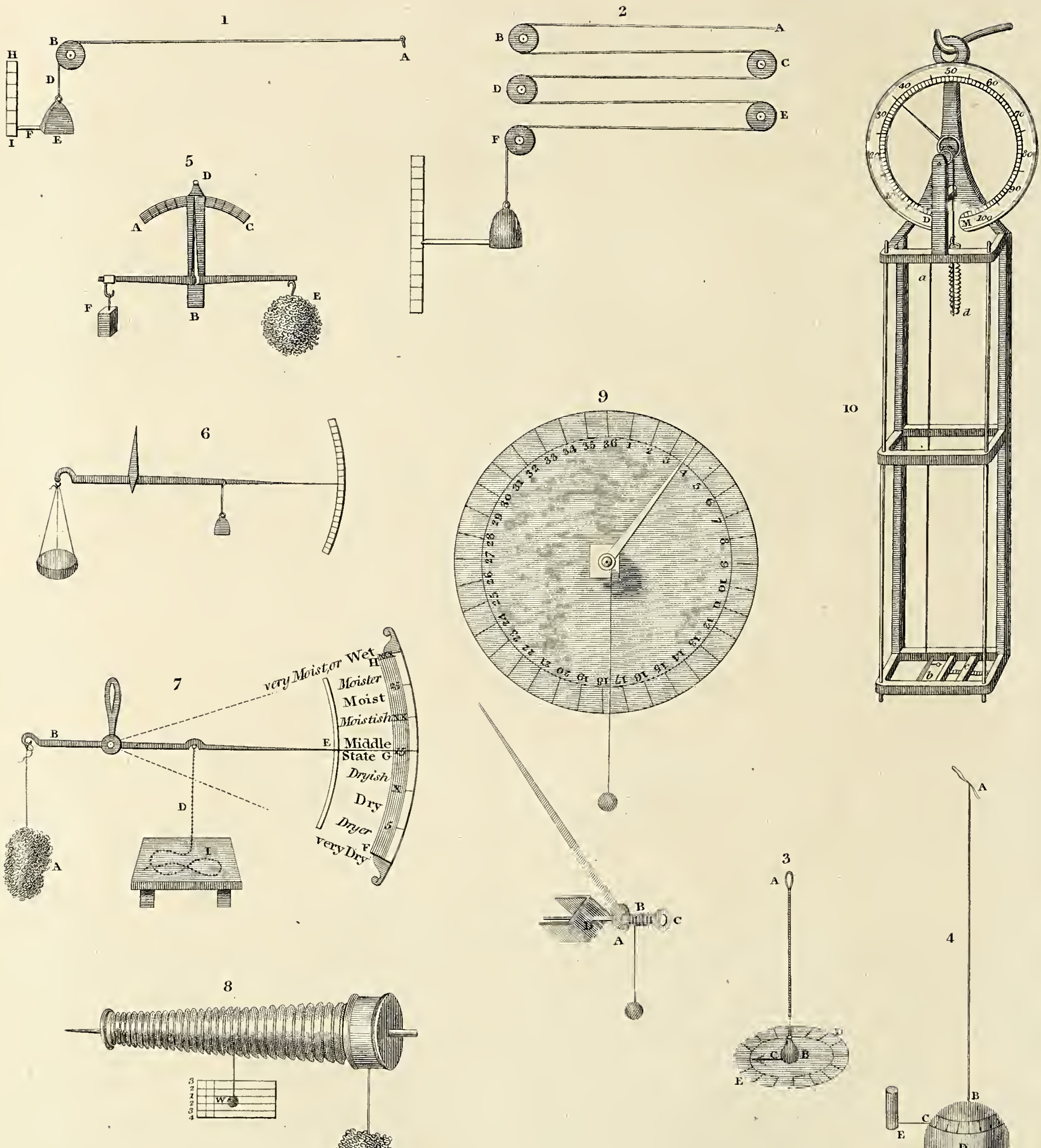
HY'EMS, *ſ.* [Latin.] Winter:

And on old *hyems'* chin and icy crown
An odorous chaplet of ſweet ſummer buds
Is, as in mockery, ſet. *Shakeſpeare.*

HYE'NA, *ſ.* [*hyene*, Fr. *hyæna*, Lat.] An animal like a wolf.—The keen *hyena*, felleſt of the fell. *Thomſon.*

HYGE'IA,

# HYGROMETRY.



Pass sc.

*Instruments for Measuring the moisture of the Air.*

London Pub.d as the Act directs, June 1.1810. by J. Wilkes.

HYGE'IA, in mythology, the goddeſs of health, daughter of Æſculapius, held in great veneration among the ancients. Her ſtatues repreſented her with a veil, and the matrons uſually conſecrated their locks to her. She was alſo repreſented on monuments like a young woman holding a ſerpent in one hand, and in the other a cup, out of which the ſerpent ſometimes drank. According to ſome authors, Hygeia is the ſame as Minerva, who received that name from Pericles, who erected her a ſtatue, becauſe in a dream ſhe had told him the means of curing an architect, whoſe aſſiſtance he wanted to build a temple. *Pauſanias.*

HYGI'NUS (Caius Julius), an ancient grammarian, ſaid by Suetonius to have been a native of Spain, though ſome ſuppoſed him an Alexandrian, and to have been brought to Rome after the capture of that city by Julius Cæſar. He became a freedman of Auguſtus; and was appointed keeper of the Palatine library. He was very intimate with the poet Ovid, and with the conſular hiſtorian Caius Licinius. Suetonius ſays, that Hyginus was a ſedulous imitator of Cornelius Alexander, a Greek grammarian. He wrote lives of illuſtrious men, referred to by A. Gellius and others; alſo a volume of Examples; and a copious Treatiſe on the Cities of Italy, quoted by Servius and Macrobius. A work of his on Genealogies is alſo recorded; likewiſe a Commentary on Virgil, and ſeveral other writings. There are come down to our times, in his name, only a piece entitled *Poeticon Aſtronomicon, de Mundi & Sphæræ, ac utriuſque Partium, Declaratione, Lib. IV.* and a book of mythological fables. The beſt edition of both in conjunction is contained in Munker's *Mythographi Latini*, 2 vols. 8vo.

HYGRAU'LIC, *adj.* [from υγρος, Gr. moiſt, and αυλος, a pipe.] Belonging to a method of conveying water or moiſture in pipes.

HYGROCIRSOCE'LE, *ſ.* [from υγρος, Gr. humid, κιρσος, a varix, and κηλη, a tumour.] A ſpecies of hernia, from a varicous ſpermatic vein, while the ſcrotum is at the ſame time filled with water.

HYGROCOLLYR'IUM, *ſ.* [from υγρος, Gr. humid, and κολλυριον, a collyrium.] A liquid collyrium, or conſiſting chiefly of liquids.

HYGROM'ETER, or HY'GROSCOPE, *ſ.* An inſtrument for meaſuring the degrees of moiſture in the air.

HYGROM'ETRY, *ſ.* The ſcience of the meaſurement of the moiſture of the air, with the principles on which hygrometers are conſtructed. Of theſe there are various kinds; for whatever body either ſwells by moiſture, or ſhrinks by dryneſs, is capable of being formed into an hygrometer. Such are woods of moſt kinds, particularly deal, aſh, poplar, &c. Such alſo is catgut, the beard of a wild oat, and twiſted cord, &c. The moſt ſimple contrivances for this purpoſe are as follow:

Stretch a common cord, as repreſented in the annexed Engraving at fig. 1, or a fiddle-ſtring A B D, along a wall, paſſing it over a pulley B; fixing it at one end A, and to the other end hanging a weight E, carrying a ſtyle or index F. Againſt the ſame wall fit a plate of metal H I, graduated or divided into any number of equal parts; and the hygrometer is complete. For it is matter of conſtant obſervation, that moiſture ſenſibly ſhortens cords and ſtrings; and that, as the moiſture evaporates, they return to their former length again. The like may be ſaid of a fiddle-ſtring; and from hence it happens that ſuch ſtrings are apt to break in damp weather, if they are not ſlackened by the ſcrews of the violin. Hence it follows, that the weight E will aſcend when the air is more moiſt, and deſcend again when it becomes drier. By which means the index F will be carried up and down, and, by pointing to the ſeveral diviſions on the ſcale, will ſhow the degrees of moiſture or dryneſs.

For a more ſenſible and accurate hygrometer, ſee fig. 2. Strain a whipcord or catgut over ſeveral pulleys B, C, D, E, F; and proceed as before for the reſt of the conſtruction. Nor does it matter whether the ſeveral parts of the cord be parallel to the horizon, as expreſſed in the annexed figure, or perpendicular to the ſame, or in any other poſition; the advantage of this, over the former method, being merely the having a greater length of cord in the ſame compaſs; for the longer the cord, the greater is the contraction and dilatation, and conſequently the degrees of variation of the index over the ſcale, for any given change of moiſture in the air.

For another hygrometer, ſee fig. 3. Faſten a twiſted cord, or fiddle-ſtring, A B, by one end at A, ſuſtaining a weight at B, carrying an index C, round a circular ſcale D E, deſcribed on a horizontal board or table. For a cord or catgut twiſts itſelf as it moiſtens, and untwiſts again as it dries. Hence, upon an increaſe or decreaſe of the humidity of the air, the index will ſhow the quantity of twiſting or untwiſting, and conſequently the increaſe or decreaſe of moiſture or dryneſs. Thoſe Dutch toys called *weather-houſes*, where a ſmall image of a man, and one of a woman, are fixed upon the ends of an index, are conſtructed upon this principle. For the index, being ſuſtained by a cord or twiſted catgut, turns backwards and forwards, bringing out the man in wet weather, and the woman in dry.

For another very ſimple hygrometer, ſee fig. 4. Faſten one end of a cord, or catgut, A B, to a hook at A; and to the other end a ball D, of about one pound weight; upon which draw two concentric circles, and divide them into any number of equal parts, for a ſcale; then fit a ſtyle or index, E C, into a proper ſupport at E, ſo as the extremity C may almoſt touch the diviſions of the ball. Here the cord twiſting or untwiſting, as in the former caſe, will indicate the change of moiſture, by the ſucceſſive application of the diviſions of the circular ſcale, as the ball turns round, to the index C.

Inſtead of catgut, Caſſebois, a benedictine monk at Mentz, propoſed to make hygrometers of the gut of a ſilk-worm. When that inſect is ready to ſpin, there are found in it two veſſels proceeding from the head to the ſtomach, to which they adhere, and then bend towards the back, where they form a great many folds. The part of theſe veſſels next the ſtomach is of a cylindrical form, and about a line in diameter. Theſe veſſels contain a gummy ſort of matter from which the worm ſpins its ſilk; and, though they are exceedingly tender, means have been deviſed to extract them from the inſect, and to prepare them for the above purpoſe. When the worm is about to ſpin, it is thrown into vinegar, and ſuffered to remain there twenty-four hours; during which time the vinegar is abſorbed into the body of the inſect, and coagulates its juices. The worm being then opened, both the veſſels, which have now acquired ſtrength, are extracted; and, on account of their pliability, are capable of conſiderable extenſion. That they may not, however, become too weak, they are ſtretched only to the length of about fifteen or twenty inches. It is obvious that they muſt be kept ſufficiently extended till they are completely dry. Before they attain to that ſtate, they muſt be freed, by means of the nail of the finger, from a ſlimy ſubſtance which adheres to them. Such a thread will ſuſtain a weight of ſix pounds without breaking, and may be uſed for an hygrometer in the ſame manner as catgut.

An hygrometer may be made of the thin boards of aſh or fir, by their ſwelling or contracting. But this, and all the other kinds of this inſtrument, above deſcribed, become in time ſenſibly leſs and leſs accurate; till at laſt they loſe their effect entirely, and ſuffer no alteration from the weather. But the following are much more durable, ſerving for many years with tolerable accuracy. Take a balance, fig. 5, and to the tongue or index fix an upright piece, D B, at the top of it an arched graduated plate A C; then at the end F hang a weight, and at the end E hang a ſponge, or other body, that eaſily imbibes moiſture. To prepare the ſponge, it may be proper firſt to waſh it in water very clean; and, when dry again, in water or vinegar in which there has been diſſolved ſal ammoniac, or ſalt of tartar; after which let it dry again. Now, if the air become moiſt, the ſponge will imbibe it and grow heavier, and conſequently will preponderate, and draw the index towards C; on the contrary, when the air becomes drier, the ſponge becomes lighter, and the index turns towards A; thus ſhowing the ſtate of the air. In this hygrometer, Mr. Gould, in the Phil. Tranſ. inſtead of a ſponge, recommends oil of vitriol, which grows ſenſibly lighter or heavier from the degrees of moiſture in the air; ſo that, being ſaturated in the moiſteſt weather, it afterwards retains or loſes its acquired weight, as the air proves more or leſs moiſt. The alteration in this liquor is ſo great, that in the ſpace of fifty-ſeven days it has been known to change its weight from three drams to nine; and has ſhifted a tongue or index of a balance thirty degrees. So that in this way a pair of ſcales may afford a very nice hygrometer. The ſame author ſuggeſts, that oil of ſulphur, or campanam, or oil of tartar per deliquium, or the liquor of fixed nitre, might be uſed inſtead of the oil of vitriol.

This balance may be contrived in two ways; by either having the pin in the middle of the beam, with a ſlender tongue a foot and a half long, pointing to the diviſions on an arched plate, as repreſented in the laſt figure. Or the ſcale with the liquor may be hung to the point of the beam near the pin, and the other extremity made ſo long, as to deſcribe a large arch on a board placed for the purpoſe; as in fig. 6.

Mr. Arderon has propoſed ſome improvement in the ſponge-hygrometer. He directs the ſponge A, fig. 7, to be ſo cut, as to contain as large a ſuperficies as poſſible, and to hang by a fine thread of ſilk upon the beam of a balance B, and exactly balanced on the other ſide by another thread of ſilk at D, ſtrung with the ſmalleſt lead ſhot, at equal diſtances, ſo adjuſted as to cauſe an index E, to point at G, the middle of a graduated arch F G H, when the air is in a middle ſtate between the greateſt moiſture and the greateſt dryneſs. Under this ſilk, ſo ſtrung with ſhot, is placed a little table or ſhelf I, for that part of the ſilk or ſhot to reſt upon which is not ſuſpended. When the moiſture imbibed by the ſponge increaſes its weight, it will raiſe the index, with part of the ſhot, from the table, and vice verſa when the air is dry.

From a ſeries of hygroſcopical obſervations, made with an apparatus of deal-wood, deſcribed in the Phil. Tranſ. N° 480, Mr. Coniers concludes, 1ſt, That the wood ſhrinks moſt in ſummer, and ſwells moſt in winter, but is moſt liable to change in the ſpring and fall. 2d, That this motion happens chiefly in the day-time, there being ſcarcely any variation in the night. 3d, That there is a motion even in dry weather, the wood ſwelling in the morning, and ſhrinking in the afternoon. 4th, That the wood, by night as well as by day, uſually ſhrinks when the wind is in the north, north-eaſt, and eaſt, both in ſummer and winter. 5th, That by conſtant obſervation of the motion and reſt of the wood, with the help of a thermometer, the direction of the wind may be told nearly without a weather-cock. He adds, that even the time of the year may be known by it; for in ſpring it moves more and quicker than in winter; in ſummer it is more ſhrunk than in ſpring; and has leſs motion in autumn than in ſummer.

Drs. Hales and Deſaguliers contrived another form of ſponge-hygrometer, on this principle. They made an horizontal axis, fig. 8, having a ſmall part of its length cylindrical, and the remainder tapering conically with a ſpiral thread cut in it, after the manner of the fuſee of a watch. The ſponge is ſuſpended by a fine ſilk thread to the cylindrical part of the axis, upon which it winds. This is balanced by a ſmall weight W, ſuſpended alſo by a thread, which winds upon the ſpiral fuſee. Then when the ſponge grows heavier, in moiſt weather, it deſcends and turns the axis, and ſo draws up the weight, which coming to a thicker part of the axis it becomes a balance to the ſponge, and its motion is ſhown by an attached ſcale; and vice verſa when the air becomes drier. Salt of tartar, or any other ſalt, or pot-aſhes, may be put into the ſcale of a balance, and uſed inſtead of the ſponge. Deſag. Exper. Philoſ. vol. ii.

The hygrometers which are conſtructed with an oat-beard index moving upon a dial, are in general made to go one way for moiſture, and another for dryneſs, the dial being numbered or graduated accordingly; but in Forſter's winding oat-beard hygrometer, the graduated circle, fig. 9, is numbered completely round, inſtead of half round each way. Underneath the figure the parts are ſhown diſtinct. On the top of the oat-beard is cemented a circular piece of paper A, on which is fixed a tubular piece of ſtraw B, which is capped with another piece of paper C. D, is a ſupport to keep the beard upright, made of card-paper. On the ſtraw tube, or little cylinder, is faſtened a piece of fine ſilken ſtring, on which is hung a pea, to ſerve as a weight to keep the ſtring ſtretched. As the oat-beard untwiſts with moiſture, the index (made of ſtraw) moves the ſame way round as the hand of a watch, and, thus moving, coils the ſtring round the ſtraw tube or axis; by which means the number of revolutions from any time obſerved may be known; and thus the confuſion will be avoided which is occaſioned by the index moving more than once round, which it does in paſſing from extreme dryneſs to wet. The ſtring may be ſo placed as to wind *up* when the index moves the contrary way, that is, from moiſt to dry, if the maker ſo chooſes; and in this caſe, the circle muſt be numbered the contrary way from the above. The oat-beard is fixed, and the index is not to be turned or ſet to a certain point, as is the caſe with the common hygrometer, by a contrivance behind the caſe. The beard of the *avena ſterilis*, on account of its ſize, is preferable to the beard of the common oat.

The method of keeping a regiſter of this hygrometer will be thus: When on the upper part of the axis there is
One coil, and the index points at 6, ſet down 1—6
Two coils - - 6, - 2—6, &c.

If the circle be divided into 100 diviſions, the reckoning will be: No coil, and the hand at 10, ſet down 10
1 coil - - 10 - - - 110
2 coils - - 10 - 210, &c.
which, if the circle be large enough, will be a very convenient mode of regiſtering.

M. de Luc's contrivance for an hygrometer is very ingenious, and on this principle. Finding that even ivory ſwells with moiſture, and contracts with dryneſs, he made a ſmall and very thin hollow cylinder of ivory, open only at the upper end, into which is fitted the under or open end of a very fine long glaſs-tube, like that of a thermometer. Into theſe is introduced ſome quickſilver, filling the ivory cylinder, and a ſmall part of the length up the glaſs-tube. The conſequence is this: when moiſture ſwells the ivory cylinder, its bore or capacity grows larger, and conſequently the mercury ſinks in the fine glaſs-tube; and, vice verſa, when the air is drier, the ivory contracts, and forces the mercury higher up the tube of glaſs. It is evident that an inſtrument thus conſtructed is in fact alſo a thermometer, and muſt neceſſarily be affected by the viciſſitudes of heat and cold, as well as by thoſe of dryneſs and moiſture; or that it muſt act as a thermometer as well as an hygrometer. The ingenious contrivances in the ſtructure and mounting of this inſtrument may be ſeen in the Phil. Tranſ. vol. lxiii. art. 38; where it may be known how the above imperfection is corrected by ſome ſimple and ingenious expedients, employed in the original conſtruction and ſubſequent uſe of the inſtrument; in conſequence of which, the variations in the temperature of the air, though they produce their full effects on the inſtrument as a thermometer, do not interfere with or embarraſs its indications as an hygrometer.

In the Phil. Tranſ. for 1791, M. de Luc has given a ſecond paper on hygrometry. This was chiefly occaſioned by a Memoir of M. de Sauſſure on the ſame ſubject, entitled *Eſſais ſur l'Hygrometrie*, in 4to. 1783. In this work M. de S. deſcribes a new hygrometer of his conſtruction, on the following principle. It is a known fact that a hair will ſtretch when it is moiſtened, and contract when dried; and M. de Sauſſure found, by repeated experiments, that the difference between the greateſt extenſion and contraction, when the hair is properly prepared, and has a weight of about three grains ſuſpended by it, is nearly one fortieth of its whole length, or one inch in forty. This circumſtance ſuggeſted the idea of a new hygrometer. To render theſe variations of the length of the hair perceptible, an apparatus was contrived, in which one of the extremities of the hair is fixed, and the other, bearing the counterpoiſe above-mentioned, ſurrounds the circumference of a cylinder, which turns upon an axis to which a hand is adapted, marking upon a dial in large diviſions the almoſt inſenſible motion of this axis. About twelve inches high is recommended as the moſt convenient and uſeful; and, to render them portable, a contrivance is added, by which the hand and the counterpoiſe can be occaſionally fixed.

But M. de Luc, in his *Idées ſur la Meteorologie*, vol. i. anno 1786, ſhows that hairs, and all the other animal or vegetable hygroſcopic ſubſtances, taken lengthwiſe, or in the direction of their fibres, undergo contrary changes from different variations of humidity; that, when immerſed in water, they lengthen at firſt, and afterwards ſhorten; that, when they are near the greateſt degree of humidity, if the moiſture be increaſed, they ſhorten themſelves; if it be diminiſhed, they lengthen themſelves firſt before they contract again. Theſe irregularities, which render them incapable of being true meaſures of humidity, he ſhows to be the neceſſary conſequence of their organic reticular ſtructure. De Sauſſure takes his point of extreme moiſture from the vapours of water under a glaſs bell, keeping the ſides of the bell continually moiſtened; and affirms, that the humidity is there conſtantly the ſame in all temperatures; the vapours even of boiling water having no other effect than thoſe of cold. De Luc, on the contrary, ſhows that the differences in humidity under the bell are very great, though de Sauſſure's hygrometer was not capable of diſcovering them; and that the real undecompoſed vapour of boiling water has the directly oppoſite effect to that of cold, the effect of extreme dryneſs; and on this point he mentions an intereſting fact, communicated to him by Mr. Watt, viz. that wood cannot be employed in the ſteam-engine for any of thoſe parts where the vapour of the boiling water is confined, becauſe it dries ſo as to crack as if expoſed to the fire.

To theſe charges of M. de Luc, a reply is made by M. de Sauſſure, in his Defence of the Hair-Hygrometer, in 1788; where he attributes the general diſagreement between the two inſtruments to irregularities of M. de Luc's; and aſſigns ſome aberrations of his own hygrometer, which could not have proceeded from the above cauſe, but to its having been out of order, &c.

This has drawn from M. de Luc a third paper on hygrometry, publiſhed in the Phil. Tranſ. This author here reſumes the four fundamental principles which he had ſketched out in the former paper, viz. 1ſt, That fire is a ſure, and the only ſure, means of obtaining extreme dryneſs. 2d, That water, in its liquid ſtate, is a ſure, and the only ſure, means of determining the point of extreme moiſture. 3d, There is no reaſon, a priori, to expect, from any hygroſcopic ſubſtance, that the meaſurable effects, produced in it by moiſture, are proportional to the intenſities of that cauſe. But, 4th, perhaps the comparative changes of the dimenſions of a ſubſtance, and of the weight of the ſame or other ſubſtances, by the ſame variations of moiſture, may lead to ſome diſcovery in that reſpect. On theſe heads M. de Luc expatiates at large in this paper, ſhowing the imperfections of M. de Sauſſure's principles of hygrometry, and particularly as to a hair, or any ſuch ſubſtance when extended lengthwiſe, being properly uſed as an hygrometer. On the other hand, he ſhows that the expanſion of ſubſtances acroſs the fibres, or grain, renders them, in that reſpect, by far the moſt proper for this purpoſe. He chooſes ſuch as can be made very thin, as ivory, or deal ſhavings; but over all he finds *whalebone* to be far the beſt of any, being of greater expanſibility than any other ſubſtance. A ſlip of whalebone will lengthen about one-eighth of itſelf from extreme dryneſs to extreme moiſture. It is a ſubſtance eaſy to be cut into ſlips; and they have been made ſo fine, as in a length of ſix or eight inches to weigh only one-tenth of a grain; on this account it is the moſt ſuitable ſubſtance for a common hygrometer.

At fig. 10 is ſhown M. de Luc's whalebone-hygrometer as now made for common uſe. The frame-work is of braſs, lightly conſtructed. The ſlip of whalebone is repreſented by *a b*, and at its end *a* is ſhown a ſort of pincers made of flattened bent wire, tapering in the part that holds the ſlip, and preſſed by a ſliding ring. The end *b* is fixed to a moveable bar, *c*, which is moved by a ſcrew for adjuſting firſt the index on the dial ring. The end *a* of this ſlip is hooked to a thin braſs wire, to the other end of which is alſo hooked a very thin lamina, that has at that end pincers ſimilar to thoſe of the ſlip, and which is fixed by the other end to the axis of a pin in a proper hole. The ſpring, *d*, by which the ſlip is ſtretched, is made of ſilver-gilt wire; it acts on the ſlip as a weight of about twelve grains. The central pulley or axis has very ſmall pivots, the ſhoulders of which are prevented from coming againſt the frame by their ends being confined, though freely, between the flat bearings of two ſcrews, the fronts of which appear in the figure. The dial ring at top is divided into one hundred equal parts, ſhowing the expanſion of the ſlip from extreme dryneſs, marked D, to extreme moiſture, marked M. A principal nicety in conſtructing the inſtrument is in ſo proportioning the diameter of the axis or pulley, that this whole expanſion may exactly commenſurate the circumference of the ring, as pointed out by the index. The form of the inſtrument as now deſcribed adapts it chiefly for uſe within doors. For expoſure at the outſide of a window, the ſlip of whalebone is generally incloſed within a half braſs-tube perforated with two vertical rows of large holes, and a whole tube is made to go over this half one, which has alſo two vertical rows of holes at ſuch a diſtance from one another, that, when one of them correſponds to one of the rows of the half tube, the other is in front. The rows of holes of the tube are to be turned towards the room to prevent the rain from falling on the ſlip; and, the dial with the axis and index being included in a box with a glaſs in front, no rain can get into the inſtrument. It muſt alſo be fixed in a place not much expoſed to the ſun, or be ſcreened from it, without preventing the circulation of the air. In the preparation of the ſlip of whalebone, the points of extreme dryneſs and extreme moiſture are to be carefully aſcertained. The former M. de Luc directs to be found by means of large pieces of quicklime, taken from the kiln and ſuffered only to loſe the red heat, put into a lime-veſſel; and the latter, ſimply by immerſion in water.

The beſt lime-veſſel M. de Luc conſtructed and contrived, is as follows: it conſiſts of two tin veſſels, the firſt of which and the moſt uſed is 16½ inches high, 15½ inches wide, and five inches deep. The front of this veſſel is a plate of glaſs, and the back a tin-plate ſlider, which, being taken off, leaves that ſide of the veſſel quite open. The ſecond veſſel has the ſame dimenſions as the firſt, but its back is ſoldered, and its front is of woven braſs wire. This veſſel may be applied to the back of the former, in ſuch a manner as to make of both one ſingle veſſel; which, when the ſlider of the fore-part is taken off, is only divided by a vertical partition of the woven braſs wire. The uſe of that ſecond veſſel is to produce extreme dryneſs in the other, for which purpoſe it is filled with large pieces of quicklime taken from the kiln. When that veſſel is not uſed, it is kept in a tin-box which it fills entirely; and when it is in, as well as while it is out for uſe, that box is kept ſhut with putty, by which means the lime may ſerve many times, in the following manner: When I want to produce extreme dryneſs in the firſt veſſel, (ſays M. de Luc,) I apply it to the ſecond, faſtened with hooks; I then pull out the ſlider of the firſt, and ſtop with putty the chinks between them. When that firſt operation is completed, I put again the ſlider to the fore veſſel, and take off the other. In this laſt operation, ſome moiſture might be introduced through the chinks of the ſlider before they are again ſtopped with putty, eſpecially as the deſtruction of the air in the veſſel has made room for more air to come in; but I prevent it, by making firſt the apparatus ſenſibly warmer than it was when I put on the lime-veſſel; by which means, in the little time employed for the operation, the motion of the air is from the inſide to the outſide, which prevents all acceſs of moiſture in the veſſel. On the top of this veſſel may be made ſquare openings with cloſe ſhutters, and withinſide, juſt underneath a wire faſtened acroſs with ſeveral hooks, upon which are to be ſuſpended hygrometers to be adjuſted to extreme dryneſs. A few hours is the time generally neceſſary; but of this the practitioner can very readily judge. This veſſel was conſtructed by M. de Luc to aſſiſt in his experiments on the comparative changes of weight and dimenſions of ſome hygroſcopic ſubſtances; but it is equally uſeful for the purpoſe of adjuſting the hygrometers.

The beſt hygrometer for aſcertaining the *quantity* as well as the degree of moiſture in the variation of the hygrometer, is of the contrivance of Mr. Coventry, Southwark, London. The account he has favoured us with is as follows: "Take two ſheets of fine tiſſue paper, ſuch as is uſed by hatters; dry them carefully at about two feet diſtance from a tolerably good fire, till, after repeatedly weighing them in a good pair of ſcales, no moiſture remains. When the ſheets are in this perfectly dry ſtate, reduce them to exactly fifty grains; the hygrometer is then fit for uſe. The ſheets muſt be kept free from duſt, and expoſed a few minutes in the open air; after which it may be always known by weighing them the exact quantity of moiſture they have imbibed. For many years the hygrometer has (ſays Mr. Coventry) engroſſed a conſiderable ſhare of my attention; and every advantage propoſed by others, either as it reſpected the ſubſtances of which the inſtrument was compoſed, or the manner in which its operations were to be diſcerned, has been impartially examined. But (adds he) I have never ſeen an hygrometer ſo ſimple in itſelf, or that would act with ſuch certainty or ſo equally alike, as the one I have now deſcribed. The materials of which it is compoſed being thin, are eaſily deprived wholly of their moiſture; which is a circumſtance eſſentially neceſſary in fixing a *datum* from which to reckon, and which, I think cannot be ſaid of any ſubſtance hitherto employed in the conſtruction of hygrometers; with equal facility they imbibe or impart the humidity of the atmoſphere, and ſhow with the greateſt exactneſs when the leaſt alteration takes place."

When the paper is prepared, as already deſcribed, it will ſerve, without the trouble of drying, as a ſtandard for any number of ſheets intended for the ſame purpoſe. But then the ſheets muſt be kept together in the open air for a few hours; becauſe, whatever alteration may take place by this expoſure, the paper already weighed muſt have undergone the ſame; being conſequently in the ſame ſtate, they muſt be cut to the ſame weight. For eaſier weighing the paper, take a piece of round tin or braſs, the ſize of a crown-piece, through the centre of which drill a hole, and alſo three others round it at equal diſtances; then cut about one hundred papers; and after putting them under the tin or braſs, drive through each hole a ſtrong pin into a board, in order to round them to the ſhape of the plate; the papers muſt be then ſeparated and expoſed to the air a few hours with that already weighed, and ſo many of them taken as are equal to the weight already ſpecified. This done, threadle them together through thoſe holes made by the pins, putting between every paper on each thread a ſmall bead, in order to prevent the papers from touching each other, and alſo that the air may be more readily admitted. The top of the hygrometer is covered with a card cut to the ſame ſize; and which, by reaſon of its ſtiffneſs, ſupports all the papers, and keeps them in proper ſhape. Before the papers are threaded, the beads, ſilk, card, and a thin piece of braſs about the ſize of a ſixpence, which muſt be placed at the bottom, and through which the centre ſtring paſſes, muſt be weighed with the greateſt exactneſs, in order to bring them to a certain weight, ſuppoſe fifty grains; now, the paper in its drieſt ſtate being of equal weight, they will weigh together one hundred grains, conſequently what they weigh more at any time is moiſture.

The ſubſtances of which hygrometers may be conſtructed are ſo numerous, that we cannot notice them all. We ſhall juſt ſtate the improvements of Meſſrs. Lowitz and Hockheimer, and then conclude with a few general remarks.

Mr. Lowitz had obſerved, at Dmitrieuſk, in Aſtracan, on the banks of the Wolga, a thin bluiſh kind of ſlate which attracted moiſture remarkably ſoon, but again ſuffered it as ſoon to eſcape. A plate of this ſlate weighed, when brought to a red heat, 175 grains, and, when ſaturated with water, 247; it had therefore imbibed, between complete dryneſs and the point of complete moiſture, ſeventy-two grains of water. Lowitz ſuſpended a round thin plate of this ſlate at the end of a very delicate balance, faſtened within a wooden frame, and ſuſpended at the other arm a chain of ſilver wire, the end of which was made faſt to a ſliding nut that moved up and down in a ſmall groove on the edge of one ſide of the frame. He determined, by trial, the poſition of the nut when the balance was in equilibrio and when it had ten degrees of over-weight, and divided the ſpace between theſe two points into ten equal parts, adding ſuch a number more of theſe parts as might be neceſſary. When the ſtone was ſuſpended from the one arm of the balance, and at the other a weight equal to 175 grains, or the weight of the ſtone when perfectly dry, the nut in the groove ſhowed the exceſs of weight in grains when it and the chain were ſo adjuſted that the balance ſtood in equilibrio. A particular apparatus on the ſame principles as a vernier, applied to the nut, ſhowed the exceſs of weight to ten parts of a grain. Lowitz remarked that this hygrometer in continued wet weather gave a moiſture of more than fifty-five grains, and in a continued heat of 113 degrees of Fahrenheit, only 1½ degree of moiſture.

The hygrometer thus invented by Lowitz was, however, attended with this fault, that it never threw off the moiſture in the ſame degree as the atmoſphere became drier. It was alſo ſometimes very deceitful, and announced moiſture when it ought to have indicated that dryneſs had again begun to take place in the atmoſphere. To avoid theſe inconveniences, M. Hockheimer propoſes the following method: 1. Take a ſquare bar of ſteel about two lines in thickneſs, and from ten to twelve inches in length, and form it into a kind of balance, one arm of which ends in a ſcrew. On this ſcrew let there be ſcrewed a leaden bullet of a proper weight, inſtead of the common weights that are ſuſpended. 2. Take a glaſs plate about ten inches long, and ſeven inches in breadth, deſtroy its poliſh on both ſides, free it from all moiſture by rubbing it over with warm aſhes, ſuſpend it at the other end of the balance, and bring the balance into equilibrium by ſcrewing up or down the leaden bullet. 3. Mark now the place to which the leaden bullet is brought by the ſcrew, as accurately as poſſible, for the point of the greateſt dryneſs. 4. Then take away the glaſs-plate from the balance, dip it completely in water, give it a ſhake that the drops may run off from it, and wipe them carefully from the edge. 5. Apply the glaſs-plate thus moiſtened again to the balance, and bring the latter into equilibrium by ſcrewing the leaden bullet. Mark then the place at which the bullet ſtands as the higheſt degree of moiſture. 6. This apparatus is to be ſuſpended in a ſmall box of well-dried wood, ſufficiently large to ſuffer the glaſs-plate to move up and down. An opening muſt be made in the lid, exactly of ſuch a ſize as to allow the tongue of the balance to move freely. Parallel to the tongue apply a graduated circle, divided into a number of degrees at pleaſure from the higheſt point of dryneſs to the higheſt degree of moiſture. The box muſt be pierced with ſmall holes on all the four ſides, to give a free paſſage to the air; and to prevent moiſture from penetrating into the wood by rain, when it may be requiſite to expoſe it at a window, it muſt either be lackered or painted. To ſave it at all times from rain, it may be covered, however, with a ſort of roof fitted to it in the moſt convenient manner. But all theſe external appendages may be improved or altered as may be found neceſſary.

Such are the moſt approved inſtruments for meaſuring the moiſture and dryneſs of the air; from which the judicious reader will diſcern, that a perfect hygrometer is yet a deſideratum; and, as the whole atmoſpheric economy, as far at leaſt as relates to the weather, depends upon, or is connected with, the ſtate of vapour it contains, it is rather ſurpriſing that we find ſo few hygrometrical obſervations among the many meteorological diaries that have been publiſhed. From time immemorial, the effects of moiſture have been conſidered as a prognoſtic of the weather, as is evident by the confidence the houſewife places in her ſalt-box, the carter in his whip leather thong, and the ſailor in his ſhrouds. But, whether the hygrometer be a prognoſtic or not of the weather, it is certainly of the utmoſt importance to the natural philoſopher, and would probably prove a valuable oracle to the farmer, which is fully evinced by the following obſervation of Mr. Marſhall, in his Minutes of Agriculture: "Yeſterday morning, ſays he, while the hygrometer ſtood at two degrees moiſt, the peaſe were by no means fit for carrying; the balm was green, and the peaſe ſoft. About ten o'clock the hygrometer fell to one degree dry; before one, the peaſe were in good order; I went into the field, merely on the word of the hygrometer, and found the peaſe fit to be carried." It is plain therefore, that on a ſcattered farm, in hay-time and harveſt, an hygrometer muſt be peculiarly uſeful.

In conſidering the action of hygrometers, it will be neceſſary to recur to the phenomena of EVAPORATION, as explained under that article in vol. vii. p. 46, 7. Thus vapours are decompoſed not only by the mutual approach of the particles, but alſo in virtue of the affinity of water to thoſe ſubſtances that are called hygroſcopic, of which fire may be reckoned one. The principal law of this affinity is, that the water diſtributes itſelf to all the ſubſtances of the claſs that are within its reach, to every one alike, proportional to its capacity of retention. If new fire be introduced into a given ſpace, where there is no ſuperabundant water, it will take away ſome of the water from all the hygroſcopic ſubſtances, and diminiſh their humidity. If ſome of the fire be taken away, the water that was united thereto will be divided among all the reſt; and if any other hygroſcopic ſubſtances be introduced, containing a greater or leſs quantity of humidity than thoſe already there, the ſurplus of humidity will be divided among them. It is by fire that this diſtribution is effected; the particles of this element, being always in motion, take up the water from one that has more than its ſhare, and give it out to another that has leſs. Thus hygroſcopic ſubſtances have their humidity always proportional to the places they are in.

Hygroſcopic ſubſtances are of three diſtinct claſſes: 1. Thoſe that ſeize on the water of vapour by a chemical affinity with that liquid; among theſe are acids, ſalts, and calces. 2. Thoſe that imbibe the water, by the tendency it has to propagate itſelf in capillary pores, but from their nature receive no ſenſible increaſe of bulk by its introduction; ſuch are porous ſtones. 3. Thoſe that, imbibing a certain quantity of water, are thereby expanded; and theſe are moſt of the ſolids of the vegetable and animal kingdoms. M. de Luc, by a long ſeries of experiments, ſhows, that the ſubſtances of the laſt claſs are the only ones proper for hygrometers, and that even in this claſs, to avoid fallacy in reſpect to the moſt important phenomena, we muſt uſe thoſe that ceaſe to lengthen only when they can be penetrated with more water.

Here, however, it will be neceſſary to define in what ſenſe we uſe the words moiſture and humidity; for, in the manner they are commonly uſed, they ſometimes imply a cauſe, ſometimes an effect. Moiſture, in a general ſenſe, may be conſidered as inviſible water, producing obſervable phenomena. Thus in hygroſcopic bodies, the quantity of water which expands them, and increaſes their weight, is concealed within their pores; and in the ambient medium, that water which affects hygroſcopic bodies, being there under the form of vapour, is as inviſible as the air itſelf. But in reſpect to hygrometry, where moiſture is conſidered as having correſpondent degrees in the medium, the word requires a more particular determination. Moiſture may be either totally abſent or abſolutely extreme, both in the hygroſcopic bodies and in the ambient medium; hence, both in the whole and in correſpondent parts, moiſture aſſumes in the medium the character of a cauſe, and in hygroſcopic bodies that of an effect. Theſe two circumſtances furniſh us alſo with a fixed module for determining correſpondent degrees.

Moiſture is totally abſent, firſt, in the medium when it contains no vapour; and then as a conſequence in hygroſcopic bodies, becauſe they contain no more water that can evaporate, without a decompoſition of their component parts. The caſe here ſuppoſed is, that when, by ſome adequate cauſe, no ſenſible quantity of vapour is permitted to remain in the medium, as in the lime-veſſel uſed by M. de Luc to obtain the point of extreme dryneſs. Moiſture is extreme, firſt, in the medium, whether air or a ſpace free from air, when no more vapour can be introduced therein without a part being decompoſed; and then, as a conſequence, in hygroſcopic bodies, becauſe no more water can be admitted into their pores.

Here it is to be obſerved, that from the nature of the laſt of theſe maxima the quantity of water which produces it, i. e. extreme moiſture, in a given body, is fixed, becauſe it is determined by the actual capacity of its pores; but the quantity of water which produces extreme moiſture in a medium of a given extent, is as variable as the temperature. The equilibrium, therefore, between the medium and hygroſcopic bodies in different ſtages of moiſture, which equilibrium is the object of hygrometry as a ſcience, does not depend on certain quantities of water contained in the medium of which bodies may receive their ſhare; it depends on different aptitudes of the vapour contained in the medium, to communicate water to thoſe bodies; which aptitudes vary not only with the different denſities of that fluid, but alſo in vapour of the ſame denſity according to the temperature.

From the hygrometer we have learned, that, in the phenomenon of dew, the graſs often begins to be wet when the air a little above it is ſtill in a middle ſtate of moiſture; and that extreme moiſture is only certain in that air, when every ſolid expoſed thereto is wet. It has taught us, that the maximum of evaporation in a cloſe ſpace is far from being identical with the maximum of moiſture; this depending conſiderably, though with the conſtant exiſtence of the other, on the temperature common to the ſpace and the water that evaporates. It has ſhown, that the caſe of extreme moiſture exiſting in the open tranſparent air in the day, even when it rains, is extremely rare; M. de Luc has only found it once in this ſtate, the temperature being 39°. Meſſrs. de Sauſſure and de Luc have proved by the hygrometer, that the air is drier and drier as we aſcend in the atmoſphere; ſo that, in the upper attainable regions, it is conſtantly very dry, except in the clouds. M. de Sauſſure has ſhown, that, if the whole atmoſphere paſſed from extreme dryneſs to extreme moiſture, the quantity of water thus evaporated would not raiſe the barometer half an inch. Laſtly, in chemical operations on the air, the greateſt quantity of evaporated water that may be ſuppoſed in them at the common temperature of the atmoſphere, even if they were at extreme moiſture, is not ſo much as the one-hundredth part of their maſs. The two laſt very important propoſitions have been demonſtrated by M. de Sauſſure. See *Adams's Lectures*, vol. iv.

HY'GROSCOPE, *ſ.* [from υγϱος, Gr. moiſt, and σκοπεω, to view.] An inſtrument to ſhow the different degrees of moiſture in the air. It is commonly uſed in the ſame ſenſe with Hygrometer. Wolfius, however, regarding the etymology of the word, makes ſome difference. According to him, the hygroſcope only ſhows the alterations of the air in reſpect of humidity and dryneſs, but the hygrometer meaſures them. A hygroſcope therefore is only an indefinite or leſs accurate hygrometer.

HYGROSCOP'IC, *adj.* Having affinity to water.—*Hygroſcopic* ſubſtances have their humidity always proportionable to the places they are in. *Adams.*

HYGROSTAT'IC, *adj.* [from υγϱος, Gr. moiſt, and ςατικη, the ſcience of weights.] Belonging to the art of determining the ſpecific weight of moiſt bodies.

HYGROSTAT'ICS, [υγϱος, Gr. and ςατικη.] The ſcience of comparing degrees of moiſture.—Meaſures and equations of time by accurate pendulums, and other motions; hydro and *hygroſtatics*; divers engines, powers, and *automata. Evelyn.* See Hygrometry.

HY'LA, or Hy'las, a river of Myſia, where Hylas was drowned. *Virgil.*—A colony of Phocis.

HYLAR'CHICAL, *adj.* [υλη, and αϱχη, Gr.] Preſiding over matter.

HYL'ARET (Maurice), a French divine and preacher of great celebrity, born at Angoulême in 1539. He entered early among the Cordeliers, and went through his courſe of philoſophy at Paris. He was admitted into prieſt's orders at the age of nineteen, and in 1562 was appointed to the philoſophical chair in his order. Afterwards he was nominated to the profeſſorſhip of theology, the duties of which he diſcharged till the year 1571. In the preceding year, he had been admitted a doctor of the faculty of the Sorbonne. The fame of his great popularity occaſioned his being invited to Orleans in 1572, where he died in 1591. He was the author of a number of Homilies, in Latin, publiſhed at different times at Paris and Lyons, in 5 vols. 8vo.

HY'LAS, in fabulous hiſtory, a ſon of Thiodamus, king of Myſia and Menodice, ſtolen away by Hercules, and carried on-board the ſhip Argo to Colchis. On the Aſiatic coaſt the Argonauts landed to take a ſupply of freſh water; and Hylas, following the example of his companions, went to the fountain with a pitcher, and fell into the water and was drowned. The poets have embelliſhed this tragical ſtory, by ſaying, that the nymphs of the river, enamoured of the beautiful Hylas, carried him away; and that Hercules, diſconſolate at the loſs of his favourite youth, filled the woods and mountains with his complaints: and, at laſt, abandoned the Argonautic expedition to go and ſeek him. *Apollod. Virgil.*

HYLE, *ſ.* [from υλη, Gr. matter.] The firſt matter; the original chaos.

HY'LEG, *ſ.* in aſtrology, the planet which, according to its poſition at a nativity, becomes the giver of life; in contra-diſtinction to the *anareta*, or deſtroying planet.

HYLEGI'ACAL, *adj.* Belonging to the hyleg.

HYL'IAS, in ancient geography, a river of Magna Græcia.

HYL'LUS, in fabulous hiſtory, a ſon of Hercules and Dejanira; who, ſoon after his father's death, married Iole. He, as well as his father, was perſecuted by the envy of Euryſtheus, and obliged to fly from the Peloponneſus. The Athenians gave a kind reception to Hyllus and the reſt of the Heraclidæ, and marched againſt Euryſtheus. Hyllus obtained a victory over his enemies, and killed with his own hand Euryſtheus, and ſent his head to Alcmena, his grandmother. Some time after he attempted to recover the Peloponneſus with the Heraclidæ, and was killed in ſingle combat by Echemus, king of Arcadia.

HYLO'BII, *ſ.* [from υλη, Gr. wood, and ϐιος, life.] Philoſophers who retired into the woods and deſert places for the purpoſes of contemplation.

HYLON'OME, the wife of Cyllaras, who killed herſelf the moment her huſband was murdered by the Lapithæ. *Ovid.*

HYLOZO'ISTS, [formed of υλη, Gr. matter, ζωη, life.] The name of a ſect of atheiſts among the ancient Greek philoſophers, who held matter to be animated; maintaining that matter had ſome natural perception, without animal ſenſation or reflection, in itſelf conſidered; but that this imperfect life occaſioned that organization whence ſenſation and reflection afterwards aroſe.

HY'MEN, or Hymenæ'us, the god of marriage among the Greeks, was ſon of Bacchus and Venus, or, according to others, of Apollo and one of the muſes. Hymenæus, according to the more received opinions, was a young Athenian of extraordinary beauty, but ignoble origin. He became enamoured of the daughter of one of the richeſt and nobleſt of his countrymen; and, as the rank and elevation of his miſtreſs removed him from her preſence and converſation, he contented himſelf to follow her wherever ſhe went. In a certain proceſſion, in which all the matrons of Athens went to Eleuſis, Hymenæus, to accompany his miſtreſs, diſguiſed himſelf in woman's clothes, and joined the religious troop. His youth, and the fairneſs of his features, favoured his diſguiſe. A great part of the proceſſion was ſeized by the ſudden arrival of ſome pirates; and Hymenæus, who ſhared the captivity of his miſtreſs, encouraged his female companions, and aſſaſſinated their raviſhers while they were aſleep. Immediately after this, Hymenæus repaired to Athens, and promiſed to reſtore to liberty the matrons who had been enſlaved, provided he was allowed to marry one among them who was the object of his paſſion. The Athenians conſented; and Hymenæus experienced ſo much felicity in his marriage ſtate, that the people of Athens inſtituted feſtivals in his honour, and ſolemnly invoked him at their nuptials, as the Latins did their Thalaſſius. Hymen was generally repreſented as crowned with flowers, chiefly with marjoram or roſes, and holding a burning torch in one hand, and in the other a veſt of a purple colour.

HY'MEN, *ſ.* [υμην, Gr. a membrane; from *Hymen*, the god of marriage.] The membrane which appears in the form of a creſcent, ſituated at the entrance of the vagina, called alſo *clauſtrum virginitatis, eugeos,* and *buction*; ſuppoſed to be torn in the firſt intercourſe with man. When this membrane is ruptured, it is ſhrivelled up, and forms the *carunculæ myrtiformes.* It naturally ſhrinks with years, or is torn by ſtraining, and ſometimes diſappears before the age of twenty; it can, therefore, be no proof of virginity. In infants this membrane is ſhrivelled, and appears a mere rugoſity, ſo that De Graaf thought it wanting; in others it cloſes up the urethra, that the urine cannot be voided; or the vagina, that the menſes cannot flow; and an operation is neceſſary. When the mark of perforation cannot be ſeen, the cure was thought impracticable; but a trochar and canula have been found to ſucceed, though a paſſage of four inches was perforated before the end was obtained.

HYMENÆ'A, *ſ.* [from *Hymen*, the god of marriage.] Locust-tree; in botany, a genus of the claſs decandria, order monogynia, natural order of lomentaceæ, (leguminoſæ, *Juſſ.*) The generic characters are—Calyx: perianthium one-leafed, coriaceous; tube ſhort, turbinate, compreſſed, permanent, with an oblique mouth; limb five-parted, almoſt regular, upright, deciduous; ſegments ovate, blunt; two oppoſite flattiſh, a little broader; two others concave, with one ſide narrower. Corolla: five-petalled, inſerted into the neck of the calyx, ſubpapilionaceous, with the petals almoſt equal. Banner, the two uppermoſt petals, obliquely ovate, obtuſe, ſeſſile, at the upper concave ſegment of the calyx. Wings, two petals, ſimilar, lateral, a little narrower. Keel, the loweſt petal, channelled and excavated, approximating to the wings, within the lower hollow ſegment of the calyx. Stamina: filaments ten, diſtinct, awl-ſhaped, erect, bent down above the middle, very long, between the keel and the wings, inſerted into the neck of the calyx; antheræ linear, fixed by the back. Piſtillum: germ ſabre-ſhaped, compreſſed, pedicelled; ſtyle very long, briſtle-ſhaped, bent down; ſtigma thickened, obliquely truncate. Pericarpium: legume woody, very large, ovate-oblong, obtuſe, one-celled, filled with farinaceous pulp. Seeds: ſeveral, (four to eight, large,) ovate, wrapped up in pollen and fibres.—*Eſſential Character.* Calyx five-parted; petals five, almoſt equal; ſtyle twiſted inwards; legume filled with farinaceous pulp.

Hymenæa courbaril, the locuſt-tree: a ſingle ſpecies. Plumier calls it Courbaril; Marcgrave, Jetaiba. It is a very large ſpreading tree in the Weſt Indies, where it grows in great plenty; having a large ſtem, covered with a ruſſet bark, which divides into many ſpreading branches, garniſhed with ſmooth ſtiff leaves, ſtanding by pairs, their baſe joining at the foot-ſtalk, to which they ſtand oblique, one ſide being much broader than the other, the two outer ſides being rounded, and their inſide ſtraight, ſo that they reſemble a pair of ſheep-ſhears; they are pointed at the top, and ſtand alternately on the ſtalk. The flowers are produced in looſe ſpikes at the end of the branches, ſome of the ſhort ligneous foot-ſtalks ſupporting two, and others three, flowers, which are compoſed of five yellow petals ſtriped with purple; the petals are ſhort and ſpread open; the ſtamina are much longer, and of a purpliſh colour; theſe flowers are ſucceeded by thick fleſhy brown pods, ſhaped like thoſe of the garden-bean; they are ſix inches long, and two inches and a half broad, of a purpliſh-brown colour, and a ligneous conſiſtence, with a large future on both edges; they contain three or four roundiſh compreſſed ſeeds, divided by tranſverſe partitions, and incloſed in a whitiſh ſubſtance of fine filaments, as ſweet as honey. The Indians eat this ſubſtance with great avidity, though it is apt to purge when freſh gathered: but it loſes this quality as it grows old. Between the principal roots of the tree exudes a fine tranſparent reſin, yellowiſh or red, which is collected in large lumps, is called *gum anime*, and makes the fineſt varniſh that is known, ſuperior even to the Chineſe *lacca*: for this latter uſe it is diſſolved in the higheſt-rectified ſpirit of wine. It burns readily, and with a clear flame, emitting a grateful and fragrant ſmell; for which reaſon it is ſometimes ordered by way of fumigation in the chambers of perſons labouring with aſthmas or ſuffocative catarrhs. Its vapours not only ſtrengthen the head, but all parts of the body affected with cold. Some apply it outwardly, diſſolved in oil or ſpirits of wine, to ſtrengthen the nerves. An oil may be diſtilled from it, prevalent in palſies, cramps, and contractions of the ſinews. The ſolution in ſpirits has been thought not inferior to guaiacum in venereal caſes. A decoction of the leaves expels flatulencies, and gives eaſe in cholicky pains, by gently opening the bowels; and the inward bark is an excellent vermifuge in ſubſtance or decoction. Wild bees are fond of building their neſts in this this tree, which grows to a conſiderable ſize, and is looked upon as excellent timber; but it muſt be very old before it is cut, otherwiſe the heart will be but ſmall. It is in great requeſt for wheel-work in the ſugar-mills, particularly for cogs to the wheels, being extremely hard and tough; it is ſo heavy, that a foot cube weighs about a hundred pounds, and it will take a fine poliſh. Native of the Weſt-Indian iſlands, and the continent of America. It is eaſily raiſed from the ſeeds if they are freſh; theſe muſt be ſown in pots, and plunged into a hot-bed of tanners' bark; there ſhould be but one ſeed put into each pot, or, if there be more, when the plants appear they ſhould be all drawn out to one ſoon after they come up, before their roots entangle, when it will be hazardous doing it; for, if great care be not taken, the plant intended to be left may be drawn out with the other. As the roots of this plant are but ſlender, ſo they are very difficult to tranſplant; for, unleſs a ball of earth is preſerved to their roots, they ſeldom ſurvive their removal, therefore they muſt be ſeldom tranſplanted from one pot to another. The plants muſt conſtantly remain in the tan-bed in the ſtove, and ſhould be treated the ſame way with other tender plants of the ſame country, giving but little water to them, eſpecially in the winter. When theſe plants firſt appear, they make conſiderable progreſs for two or three months, after which time they are at a ſtand perhaps a whole year without ſhooting, being in their growth very like the anacardium, or caſhew-nut, and very difficult to preſerve long in this country.

HYMENE'AL, or Hymene'an, *ſ.* [*υμεναιος*, Gr.] A marriage ſong.—And heav'nly choirs *hymenean* ſung. *Milton.*

For her the ſpouſe prepares the bridal ring;
For her white virgins *hymeneals* ſing. *Pope.*

HYMENE'AL, or Hymene'an, *adj.* Pertaining to marriage:

The ſuitors heard, and deem'd the mirthful voice
A ſignal of her *hymeneal* choice. *Pope.*

HYMENE'US, a man's name.

HYMENOPAP'PUS, *ſ.* in botany, a genus of the claſs ſyngeneſia, order æqualis.—Eſſential generic character, Receptacle naked; ſeeds crowned with many chaffy leaves; calyx many-leaved, ſpreading.

Hymenopappus ſcabioſæus: a ſingle ſpecies. Stem angular, a little woolly; leaves doubly pinnatifid, with lanceolate ſegments, downy underneath; corymb terminal; flowers highly odorous. Inhabits Carolina.

HYMENOPHYL'LUM. See Trichomanes.

HYMENOP'TERA, *ſ.* [from *υμην*, Gr. membrane, and *ϖτερον*, wing.] An order of inſects, having four membranaceous wings, and the tails of the females are furniſhed with ſtings, which in ſome are uſed for inſtilling poiſon, and in others for merely piercing the bark and leaves of trees, and the bodies of other animals, in which they depoſit their eggs. See the article Entomology, vol. vi. p. 833.

HYMET'TUS, in ancient geography, a mountain of Attica, about twenty-two miles in circumference, and about two miles from Athens, ſtill famous for its bees and excellent honey. There was alſo a quarry of marble there. Jupiter had there a temple; whence he is called *Hymettius.*

HYMN, *ſ.* [*hymne*, Fr. *υμνος*, Gr.] An encomiaſtic ſong, or ſong of adoration to ſome ſuperior being:

Farewell, ye happy ſhades,
Where angels firſt ſhould practice *hymns*, and ſtring
Their tuneful harps, when they to heav'n would ſing. *Dryd.*

*To* HYMN, *v. a.* [*υμνεω*, Gr.] To praiſe in ſong; to worſhip with hymns:

Whoſe buſineſs were to ſerve the Lord
High up in heav'n, with ſongs to *hymn* his throne. *Milton.*

*To* HYMN, *v. n.* To ſing ſongs of adoration:

They touch'd their golden harps, and *hymning* praiſ'd
God and his works. *Milton.*

HYM'NIC, *adj.* [υμνος, Gr.] Relating to hymns:

He rounds the air, and breaks the *hymnic* notes
In birds, heav'n's choriſters, organic throats;
Which, if they did not die, might ſeem to be
A tenth rank in the heavenly hierarchy. *Donne.*

HYNE LOUGH, a bay of the Atlantic, on the ſouth coaſt of Ireland, between Toe Head and Baltimore Harbour.

HYN'NERY, a town of Sweden, in the province of Smaland: forty-five miles weſt-ſouth-weſt of Wexio.

HYOBAN'CHE, *ſ.* in botany, a genus of the claſs didynamia, order angioſpermia, natural order of perſonatæ, (pediculares, *Juſſ.*) The generic characters are—Calyx: perianthium ſeven-leaved; leaflets linear, acuminate, erect, the length of the corolla. Corolla: one-petalled, ringent; upper lip vaulted, emarginate; lower none. Stamina: filaments four, twin, inſerted into the baſe of the corolla, of a middling length; antheræ ovate, nodding, opening on the upper ſide. Piſtillum: germ ovate; ſtyle filiform, curved at the top; ſtigma thickened, blunt, emarginate. Pericarpium: capſule roundiſh, two-celled. Seeds: numerous, ſmall.—*Eſſential Character.* Calyx ſeven-leaved; corolla ringent, without any lower lip; capſule two-celled, many-ſeeded. There is but one ſpecies, called

Hyobanche ſanguinea, or bloody hyobanche. Stem half a foot high, quite ſimple, woody, thick, cloſely imbricated with leaves, or rather ovate ſcales, convex on the outſide, ſmooth, blunt. Spike terminating, denſe, fleſhy, villoſe, the length of the ſtem, and three times as broad, imbricated with bractes and flowers. Bractes (one to each flower) ovate-oblong, hirſute on the outſide, the ſame length with the tube of the flowers, which are ſeſſile. The whole plant reſembles the orobanche in ſtature, but it is blood red. The ſeven-leaved calyx, and corolla deſtitute of a lower lip, are ſufficient reaſons for the removal of this plant from the genus orobanche. It is a native of the Cape of Good Hope, and is paraſitical at the roots of ſhrubs.

HYO'NA, or ICOLMKILL, one of the Hebrides Iſlands. See ICOLMKILL.

HYOSCY'AMUS, *ſ.* [υος κυαμος, Gr. hog-bean; theſe animals, according to Ælian, being poiſoned with it, and dying, unleſs drenched within and without with water.] HENBANE; in botany, a genus of the claſs pentandria, order monogynia, natural order of luridæ, (ſolaneæ, *Juſſ.*) The generic characters are—Calyx: perianthium one-leafed, tubular, ventricoſe at bottom, with a five-cleft ſharp mouth, permanent. Corolla: one-petalled, funnel-form; tube cylindrical, ſhort; limb from erect ſpreading, half-five-cleft; ſegments obtuſe, one broader than the others. Stamina: filaments five, awl-ſhaped, inclining; antheræ roundiſh. Piſtillum: germ roundiſh; ſtyle filiform, the length of the ſtamens; ſtigma headed. Pericarpium: capſule ovate, obtuſe, marked with a line on each ſide, two-celled, two capſules cloſely approximating, with a lid opening horizontally; receptacles half ovate, fixed to the partition. Seed: numerous, unequal, irregular.—*Eſſential Character.* Corolla funnel form, obtuſe; ſtamina inclined; capſule two-celled, covered with a lid.

*Species.* 1. Hyoſcyamus niger, black or common henbane: leaves ſtem-claſping, ſinuate; flowers ſeſſile. Common black henbane has long fleſhy roots, which ſtrike deep into the ground, and are branched. Bottom leaves ſoft, deeply ſlaſhed on their edges, and ſpreading on the ground. The ſtalks, which do not riſe till the ſecond ſpring, have leaves of the ſame ſhape, but ſmaller, and claſping, and are about two feet high; on the upper part are flowers ſtanding on one ſide in a double row, ſitting cloſe to the ſtalk alternately. The whole plant is covered with unctuous fetid hairs. The corolla is yellow, or rather pale yellowiſh-brown, beautifully netted with purple veins, and a dark purple eye or baſe; the ſhape is irregular, gradually tapering into the tube, with five prominent ribs on the outſide; the upper ſegment is the largeſt, the reſt gradually diminiſhing downwards; the upper inciſions are ſhallow, the lowermoſt extending half way to the baſe, and much wider than the reſt; calyx a little diſtended on the under ſide, woolly at the baſe with long ſoft hairs, matted with thoſe of the flowers next above and below; filaments white, with ſoft hairs below; the uppermoſt ſhorteſt, thoſe below gradually increaſing in length; anthers and ſtyle of a fine deep purple. The capſules do not ſplit, as moſt others do, into two or more valves, but are covered with a lid, that rain, as Linnæus expreſſes it, may not ſpoil the ſeeds. This lid, though it may eaſily be ſeparated with a knife, yet adheres ſo ſtrongly to the body of the capſule, that the ſeeds more frequently eſcape by the perforations of inſects than from the falling off of the lid. The calyx becomes rigid, and the capſules continue on the dead plant till the plants of the next year are in flower; when, the leaves being fallen off, the fruit appears in bunches pointing one way, in two rows from one ſide of the ſtem and branches. Seeds very abundant, grey, excavated and angular. The whole plant has a ſtrong and peculiar odour, ariſing from the viſcid hairs with which it is covered, greatly affecting the head of ſome perſons, as ſoon as they come within its atmoſphere.

The root, herb, and ſeeds, taken internally, are reputed poiſonous, and well-atteſted inſtances of their bad effects are recorded. Madneſs, convulſions, and death, are the general conſequence. Dr. Smith ſays, he has often eaten the ſeeds with impunity, but this muſt have been in ſmall quantities. Lightfoot, however affirms, that a few of the ſeeds have been known to deprive a man of his reaſon and limbs; relying probably on the relation of Haller, that one of his fellow-pupils under Boerhaave, at Leyden, in the year 1725, having eaten aconite, apocynum, and belladonna, with impunity, was at length taken in by the ſeeds of henbane, loſt his reaſon and the uſe of one ſide; but his life was ſaved by Boerhaave. Linnæus affirms, that the roots have been frequently eaten for parſnips, and have produced delirium, and not unfrequently death. Mr. Miller informs us, that a mixture of theſe roots having been imported with gentian, has been attended with very bad effects. Other relations of the narcotic and poiſonous effects of the ſeveral parts of henbane may be met with in almoſt all the authors who have treated of this nauſeous plant. Linnæus ſays, it is not touched by any quadruped, except perhaps the goat, and that animal is not fond of it. Sheep, it is ſaid, will ſometimes eat it when young. There is a ſort of bug (cimex hyoſcyami) very common on it; chryſomela hyoſcyami alſo feed upon it. According to Linnæus, the roots ſcattered about a houſe will drive away mice. Henbane, like other poiſons, has been uſed medicinally from time immemorial; and there is no doubt of its being an uſeful medicine under proper management. The Edinburgh college order the expreſſed juice of the plant to be evaporated to an extract; and perhaps in this ſtate it may be advantageouſly joined with opium, where the effects of the medicine are deſirable, and coſtiveneſs is to be avoided. The doſe is from half a ſcruple to half a dram. Villars ſays, the extract may be given ſafely in a doſe of two or three grains, increaſing the quantity gradually; but that it ought to be prepared from the plant juſt going into flower, and in balneo mariæ; for it has neither odour nor activity, if the plant be young, or if the extract be made with an open ſtrong fire: he has adminiſtered it internally in epilepſy and convulſions, and found that it put off the fits, and diminiſhed their violence, but did not effect a cure. Stoerck, and others after him, have recommended it not only in the above diſorders, but in mania, hæmoptoe, the dry cough, but univerſally wherever an anodyne is wanting to quiet the nervous irritation; beginning with a ſingle grain of the extract, and increaſing the doſe gradually to five grains; ſome more daring practitioners proceed as far as fifteen grains; but in general, perhaps it is more adviſable to continue the uſe of the medicine longer than to give it in very large doſes. It has been even adminiſtered in a cataract, to the quantity of two grains, mixed with mercurius dulcis. The leaves bruiſed and fried have been applied with effect to the piles, and in muſcular ſpaſms. Like other narcotics, they aſſiſt in ſoftening indurations of the glands. An oil expreſſed from the ſeeds is uſed outwardly as an anodyne; and the common people ſometimes ſmoke them for the tooth-ach; or put a piece of the root boiled in milk at the root of the tooth. The roots alſo cut in pieces, and ſtrung like beads, are uſed for anodyne necklaces to hang about children's necks to prevent fits, and cauſe the teeth to breed eaſily. Some give a decoction of henbane in cluſters to aſſuage the pains of the inteſtines; but this is dangerous. In general it is a medicine not to be trifled with, or taken without good advice.

Henbane is a native of moſt parts of Europe, in waſte places, particularly near towns and villages; whence Linnæus remarks, that it aſſociates with mankind, like the magpie, and ſome other birds. It is generally known by its peculiar fetid odour. The Engliſh name *henbane* is probably derived from a notion of its being noxious to poultry; but whether this notion be well founded or not, we have not had any opportunity of knowing. In German it is *bilſenkraut*; in Dutch, *bilſenkruid*; in Daniſh, *bulme*, *honſebane*, &c. in Swediſh, *bolmort*, *honſabale*; in French, *juſquiame*; in Italian, *giuſquiamo*, *fava porcina*; in Spaniſh, *beleno*, *veleno*; in Portugueſe, *miemendro*, *velenho*, *yoſciamo*; in Ruſſian, *belena*.

A variety of this was found by profeſſor John Martyn, near the Caſtle at Cambridge, about the year 1729, with the corolla and anthers of a pure brimſtone colour, without the leaſt tinge of purple. The ſeeds, being ſown in the botanic garden at Chelſea, produced the very ſame variety. Henbane is a biennial plant, forming the root and lower leaves the firſt ſeaſon, and the ſtem with the fructification the ſecond. It flowers in June.

2. Hyoſcyamus reticulatus, or Egyptian henbane: ſtem-leaves petioled, cordate, ſinuate, acute; floral leaves quite entire; corollas ventricoſe. This riſes with a branching ſtalk two feet high. The lower leaves are regularly cut on both ſides into acute ſegments, which are oppoſite, but the upper leaves are entire. The flowers grow at the end of the ſtalk in bunches; they are of a worn-out red colour, and ſhaped like thoſe of the common ſort, but their tubes are ſwollen. The whole plant is ſmooth. It reſembles common henbane, but the ſtem-leaves are ovate, repand, more ſmooth above; the floral leaves ovate, ſeſſile, entire. Flowers on a very ſhort peduncle; corolla bell-ſhaped, red, beautifully netted with dark veins. Native of Egypt; of Syria near Aleppo, according to Rauwolff; and of the iſland of Crete or Candia, according to Cluſius. It is an annual plant, flowering in July, and was cultivated by Mr. Miller in 1731. This ſpecies was left out in the twelfth, thirteenth, and fourteenth, editions of Syſtema Vegetabilium: but is reſtored by Reichard, Retzius, and others.

3. Hyoſcyamus albus, or white henbane: leaves petioled, ſinuate, obtuſe; flowers ſeſſile. White henbane reſembles the black in moſt circumſtances, but the leaves are more rounded or obtuſe, petioled, ſinuate, very ſoft, bearded with white hairs, as is alſo the ſtem. Flowers fewer, the lower ones on longer peduncles, but the upper flowers have very ſhort ones; calyx green, five-toothed, hairy. Seeds very numerous, ſmall, compreſſed a little, incurved or kidney-form, cloſely ſcrobiculate, whitiſh aſh-coloured. Native of the ſouth of Europe. Annual. Flowering in Auguſt. Cultivated here in 1570.

The corolla varies with the baſe dark purple, or green. Hence Miller has made two ſpecies, *major* and *albus*; the firſt having the flowers on ſhort peduncles, of a pale yellow colour, with very dark purple bottoms, and growing naturally in the iſlands of the Archipelago; this is H. major, albo ſimilis, umbilico floris atro-purpureo, *Tournef. cor.* The ſecond has the flower in larger bunches, ſitting very cloſe on the ends of the branches, of a greeniſh yellow colour, with green bottoms. This is the white henbane of the ſouth of Europe. H. major, albo ſimilis umbilico floris virenti, *Juſſieu.*

4. Hyoſcyamus aureus, or golden-flowered or ſhrubby henbane: leaves petioled, toothed, acute; flowers peduncled, fruits pendulous. This is a plant with weak ſtalks, which require a ſupport. The flowers come out at each joint of the ſtalk; they are large, and of a bright yellow, with a dark purple bottom. The ſtem is hairy, and about a foot high. Native of Candia, and other parts of the Levant. It flowers moſt part of the ſummer, and ſometimes ripens ſeeds in the autumn. Cultivated in 1640, by Parkinſon. Proſper Alpinus and others make two varieties of this, differing only in ſize and the ſhade of colour in the corolla.

5. Hyoſcyamus muticus, or awnleſs henbane: leaves petioled, ovate, acutangular; calyxes awnleſs, bractes undivided. Stem a foot high, the thickneſs of a finger, erect, roundiſh. Native of Egypt and Arabia. Biennial. Miller deſcribes his *minor* as having a ſmaller ſtalk than the preceding, with joints farther diſtant; the leaves roundiſh, and deeply indented in obtuſe ſegments, ſtanding upon pretty long foot-ſtalks; the flowers coming out ſingly from the ſide of the ſtalks, at a good diſtance from each other; of a yellow colour, with dark bottoms. It was brought from the Levant by Tournefort.

6. Hyoſcyamus puſillus, or dwarf henbane: leaves lanceolate, toothed; lower floral leaves in pairs; calyxes ſpiny. This is an annual plant, a hand in height. Gouan ſays, that the root-leaves in the wild plants are always bipinnatifid, with the ſegments ſharply toothed; but that it occurs alſo with lanceolate leaves, if the ſeeds be ſown very late, or be cultivated in a poor lean ſoil. Native of Perſia. Cultivated in 1691 by Compton, biſhop of London, at Fulham. It flowers in July.

7. Hyoſcyamus phyſaloides, or purple-flowered henbane: leaves ovate, quite entire; calyxes inflated, ſubglobular. Root perennial. Stems a foot high, ſimple, erect, round, rough-haired. Native of Siberia: introduced here in 1777, by Meſſrs Gordon and Græffer. The deſcription is repeated in the Appendix to Linnæus's Species Plantarum, p. 1668, under Pulmonaria hirta.

8. Hyoſcyamus Scopolia, or nightſhade-leaved henbane: leaves ovate, entire; calyxes inflated bell-ſhaped even. Root perennial, tranſverſe, knobbed, thick, irregular, branched, flexuoſe, the thickneſs of the human thumb. Stem herbaceous, annual, upright, round, ſmooth, ſcarcely more than a foot high, according to Linnæus and Jacquin; but even three feet in height, according to Scopoli; the thickneſs of the human finger, trifid and bifid, with dichotomous branches. Branches only two, according to Linnæus, ſpreading, and entirely ſimple; or, as Jacquin ſays, ſubtrichotomous, with a groove running down from the leaves. Leaves ovate and oblong, the length of the human finger; the lower quite entire; the upper frequently moderately ſinuate or repand; but, according to Linnæus, petioled, naked, ſomewhat wrinkled, ſpreading; on the ſtem alternate, ſolitary; under the forkings in threes, two of which approximate; on the branches alternate, but two together on the ſame tooth or baſe, one of which is a little leſs than the other: according to Jacquin, they are ſubovate or lanceolate, entire except the lower ones, which in gardens at leaſt are ſinuate-toothed in front, veined, wrinkled, decurrent; the lower ones oppoſite, the reſt ſcattered. Seeds in each cell from twenty to twenty-four, fixed to an orbiculate receptacle; kidney-form, rather large, elegantly dotted very cloſely in rows, with little holes, and of a very pale yellow colour. It differs from Atropa, which it very much reſembles in habit, in the calyx, ſtigma, and nectareous teeth of the receptacle, but principally in its capſular fruit. Frequent in the woods about Idria in Friuli, flowering about the middle of April. It flowers with us in May; and was introduced in 1780, by Mr. Daniel Grimwood.

Jacquin, thinking that this plant is generically diſtinct from Solanum, with which the old authors had placed it;

from Atropa, wherein Scopoli had put it in the firſt edition of his Flora Carniolica; and from Hyoſcyamus; made a new genus of it under the name of *Scopola*, from Giov. Ant. Scopoli, phyſician at Idria, and afterwards profeſſor at Pavia; but he with ſingular modeſty declined the honour in the following words: "Veruntamen merita mea in re herbaria non ea eſſe fateor, quæ me viris illis adnumerare queant, quorum cognomina novis plantarum generibus data fuerunt. Alii ſunt his honoribus longe digniores." Had only ſuch received this honour, the names of plants of this ſort would have been very few. Modern botaniſts, however, have agreed to conſider this plant as a ſpecies of Hyoſcyamus; and it has been reſerved to Dr. Smith to name a plant from this amiable and ſkilful naturaliſt.

*Propagation and Culture.* All theſe are biennial plants, which periſh ſoon after they have perfected their ſeeds. They flower in June and July, and their ſeeds ripen in the autumn, which, if permitted to ſcatter, will produce plenty of the plants the following ſpring; or if the ſeeds are ſown at that ſeaſon, they will ſucceed much better than in the ſpring; for, when they are ſown in ſpring, the plants ſeldom come up the ſame year. They are all hardy except the ſecond ſort, and require no other culture but to keep them clean from weeds, and thin the plants where they are too cloſe. The ſecond ſort ſhould have a warm ſituation and a dry ſoil, in which it will live much better through the winter than in rich ground. The fourth ſort is a perennial plant. If the ſeeds are ſown in pots as ſoon as they are ripe, and placed under a hot-bed frame in winter, the plants will come up in the ſpring; but, if they are kept out of the ground till the ſpring, they rarely ſucceed. This ſort will continue ſeveral years, if it be kept in pots and ſheltered in winter, for it will not live in the open air at that ſeaſon, but only requires to be protected from froſt; therefore, if theſe plants are placed under a common hot-bed in winter, where they may enjoy as much free air as poſſible in mild weather, they will thrive better than when they are more tenderly treated. This ſort may be eaſily propagated by cuttings, which, if planted in a ſhady border during any of the ſummer-months, will take root in five or ſix weeks, and may be afterwards planted in pots, and treated like the old plants. See OENOTHERA and PEDALIUM.

HYOS'ERIS, *ſ.* [*υος σεϱις*, Gr. ſwine's lettuce, or ſuccory, *Linn.*] YELLOW EYE; in botany, a genus of the claſs ſyngeneſia, order polygamia æqualis, natural order of compoſitæ ſemifloſculoſi, (cichoraceæ, *Juſſ.*) The generic characters are—Calyx: common cylindric-angular, conſiſting of about eight leaves, permanent; ſcales lanceolate, erect, acute, ſlightly keeled, equal; calycled at the baſe with fewer very ſhort cloſe ſcales. Corolla: compound, ſubimbricate, uniform; compoſed of many hermaphrodite corollets; proper, one-petalled, ligulate, linear, truncate, five-toothed. Stamina: filaments five, capillary, very ſhort; antheræ cylindrical, tubular. Piſtillum: germ oblong; ſtyle filiform, the length of the ſtamens; ſtigmas two, reflex. Pericarpium: none; the common calyx cloſe or ſpreading. Seeds: ſolitary, oblong, membranaceous, ſtreaked on one ſide along the middle, almoſt the length of the calyx.—*Eſſential Character.* Calyx almoſt equal; down hairy and calycled; receptacle naked.

*Species.* I. Stem naked. 1. Hyoſeris foetida, or ſtinking hyoſeris: ſcapes one-flowered, leaves pinnatifid, ſeeds naked. Root perennial, ſingle, cylindrical, thick, woody, fetid. Leaves radical, ſmooth, pinnatifid or runcinate, cut into ſeveral triangular ſegments, which are almoſt equal and regular, ſometimes having a few teeth on the hinder ſide, terminated, as well as the ſegments themſelves, by an herbaceous ſpinule; nerve hairy. From the centre of theſe ſpring from ſix to ten ſimple naked flowering-ſtalks or ſcapes, a little longer than the leaves, each terminated by a middle-ſized flower, yellow above, and red beneath. Seeds naked, yellowiſh, ſomewhat villoſe; receptacle villoſe, flat. The whole plant has a diſagreeable ſmell: it has much reſemblance to dandelion, but the flower is ſmaller, and of a deeper yellow colour. Native of the mountains of Italy, Dauphiny, Carniola, and Swiſſerland. Introduced in 1775, by Drs. Pitcairn and Fothergill. It flowers in July.

2. Hyoſeris radiata, or ſtarry hyoſeris: ſcapes one-flowered, leaves ſmooth, runcinated, with toothed angles, laciniated at top. Native of the ſouth of France, the county of Nice on hills near the coaſt, and of Spain. It was cultivated here in 1640. Allioni ſays it is an annual plant; by Linnæus, and in the Kew catalogue, it is marked as perennial.

3. Hyoſeris lucida, or ſhining hyoſeris: ſcapes one-flowered, leaves ſomewhat fleſhy, runcinate, angular, toothed. This reſembles the preceding very much, but the leaves are thicker, ſomewhat fleſhy, lucid, and more ſhortly toothed. According to Vahl, the wild plant (which has a very different appearance from the cultivated one) is very ſmooth, a finger's length in height, with the ſcape a little longer than the leaves. The ſegments of theſe are fleſhy, oblong, quite entire, or ſometimes, but very ſeldom, having an angle or toothlet on the outſide, imbricated, covering the middle of the preceding ſegment, terminated by a whitiſh dagger-point. In the cultivated plant theſe ſegments are diſtinct or remote from each other. Calyx calycled; ſcales ovate, the inner ones lanceolate. Native of the Levant. Introduced in 1770, by Monſ. Reichard. It flowers from June to Auguſt.

4. Hyoſeris ſcabra, or rugged hyoſeris: ſcapes one-flowered, leaves rugged, ſeeds downy. Native of Sicily, Nice, Villafranca, &c. It is an annual, according to Allioni.

5. Hyoſeris Virginica, or Virginian hyoſeris: ſcapes one-flowered, leaves lanceolate, lyrate, ſmooth. Native of Virginia.

6. Hyoſeris pygmæa, or dwarf hyoſeris: ſcapes one-flowered, leaves ſpatulate toothed ciliate, calyxes hairy, hairs and cilias forked, down ſtiped, feathered. This is an annual plant, native of Madeira, flowering in June and July.

7. Hyoſeris minima, or leaſt hyoſeris: ſtem divided, naked, peduncles thickened. Root annual, ſmall but woody, with a few rigid fibres. Leaves ſpreading in a circle, bluntly oval, tapering into the foot-ſtalk, toothed on the ſides, entire at the baſe and ſummit, when viewed with a glaſs ſlightly hairy, particularly at the margins. Stems ſeveral, ſix to nine inches high, naked, round, ſmooth, reddiſh and wiry at the bottom, green and hollow upwards, gradually ſwelling for ſome diſtance below the calyx, ſometimes ſimple, but oftener with one, ſometimes two, branches; theſe are alſo rigid and reddiſh at the baſe, ſwelling upwards, and ſometimes again branched; before the flowers expand nodding, afterwards erect. The florets are truncated, and have commonly five teeth; thoſe in the ray are tinged with purple underneath; they amount ſometimes to ſeventy-ſix in number in one flower. Native of moſt parts of Europe in paſtures and corn-fields in a ſandy ſoil. In Britain not very common; about Hampton-court and in Teddington-field; Walthamſtow, Eſſex; near Perſhore, in Worceſterſhire; near Norwich; near Gamlingay, in Cambridgeſhire; Spratton, in Northamptonſhire; about Forfar, and between Dundee and St. Andrew's, in Scotland. It flowers in May and June.

II. Stem leafy. 8. Hyoſeris hedypnonis, or branching hyoſeris: fruits ovate, ſmooth, ſtem branched. Root annual. Stems branched, weak, and bending at each joint, whence ſprings one ſeſſile, ſmooth, oblong, toothed leaf. Flower yellow, ſmall, nodding. Native of the ſouth of Europe. Cultivated in 1683 by Mr. James Sutherland. It flowers in June.

9. Hyoſeris rhagadioloides, or nipplewort hyoſeris: fruits ovate, hairy, ſtem branched. This alſo is an annual plant. Villars ſuſpects it to be no more than a variety of

the preceding. It is a native of the ſouth of Europe; and was introduced in 1773 by Monſ. Reichard. It flowers in July and Auguſt.

10. Hyoſeris Cretica, or Cretan hyoſeris: fruits ovate, rugged, ſtem branched. Root annual, round, fibrous, white within, brown without. Stems ſeveral, half a foot high, ſpreading, ſomewhat hiſpid. Native of Candia, the county of Nice, and common about Madrid, flowering in May and June; with us in June and July. It was cultivated by Mr. Miller in 1739.

*Propagation and Culture.* Theſe are all hardy plants, except the ſixth, and may eaſily be propagated from ſeeds, either ſown in the ſpring, or left to ſcatter of themſelves. The ſixth requires the protection of a green-houſe. They moſtly require a dry ſoil.

HYP, *ſ.* [from *hypochondria.*] The hypochondria; a kind of melancholy, lowneſs of ſpirits.

*To* HYP, *v. a.* [barbarouſly contracted from *hypochondriac.*] To make melancholy; to diſpirit.—I have been to the laſt degree *hypped* ſince I ſaw you. *Spectator.*

HYP'ALLAGE, *ſ.* [Greek.] A figure by which words change their caſes with each other.

HYP'ANIS, a river of European Scythia, now called *Bog*, which falls into the Boryſthenes, and with it into the Euxine.—A river of India.—Another of Pontus.—A Trojan who joined himſelf to Æneas, and was killed by his own people, who took him for one of the enemy, in the night that Troy was burned by the Greeks.

HYPA'TIA, a female philoſopher of the eclectic ſect, whoſe extenſive learning, elegant manners, and tragical end, have rendered her name immortal, was the daughter of Theon, the celebrated mathematician of Alexandria. As ſhe exhibited early proofs that ſhe poſſeſſed an acute and penetrating judgment, and great fertility of genius, her talents were cultivated with aſſiduity by her father, and other preceptors. Beſides being educated in all the qualifications belonging to her ſex, and made miſtreſs of the different branches of polite learning, ſhe became moſt intimately converſant in the ſciences of geometry and aſtronomy, as far as they were then underſtood. Afterwards ſhe entered upon the ſtudy of philoſophy, which ſhe proſecuted with ſuch uncommon ſucceſs, that, according to the teſtimony of Socrates the eccleſiaſtical hiſtorian, ſhe excelled all the philoſophers of her time. So high was the reputation which ſhe acquired, that ſhe was ſtrongly ſolicited to become a public preceptreſs in the ſchool where Ammonius, Hierocles, and other celebrated philoſophers, had taught. Such was her love of ſcience, that it enabled her ſo far to ſubdue the natural diffidence of her ſex, that ſhe yielded to the public voice, and exchanged her female decorations for the philoſopher's cloak. In the ſchools, and other places of public reſort, ſhe diſcourſed upon philoſophical topics, explaining, and endeavouring to reconcile, the ſyſtems of Plato, Ariſtotle, and other maſters. Her fame ſoon became ſo extended, that perſons who made philoſophy their ſtudy crowded to Alexandria from all parts. She was diſtinguiſhed by a ready elocution, and graceful addreſs; which, united with true erudition and ſound judgment, procured her as many admirers as ſhe had auditors. Among other ſcholars who attended her inſtructions was Syneſius, afterwards biſhop of Ptolemais in Africa. She was held in reſpect and admiration, however, not only by thoſe who formed her auditories in the ſchools, but by the moſt eminent characters in Alexandria, of all ranks and orders, and was frequently conſulted by the magiſtrates in caſes of importance. What reflects the higheſt honour on her memory is, that ſhe was not intoxicated by the court that was paid to her from all quarters; that, though ſhe excelled moſt of the philoſophers of her age in mathematical and philoſophical ſcience, ſhe diſcovered no pride of learning; and that, though in perſon exceedingly beautiful, ſhe never yielded to the impulſe of female vanity, or gave occaſion to the ſlighteſt ſuſpicion againſt her chaſtity. With a perſon poſſeſſed of ſuch extraordinary accompliſhments and virtues, it would be the pride of the moſt illuſtrious characters in Alexandria to become acquainted. Accordingly, her houſe became the general reſort of perſons of learning and diſtinction. But it was impoſſible that ſo much merit ſhould not excite envy; and unhappily, the qualifications and attainments to which ſhe was indebted for her celebrity, proved in the iſſue the occaſion of her deſtruction. At that time Oreſtes, a man of a liberal education, and intimately acquainted with Hypatia, whom he frequently conſulted, was governor of Alexandria; and Cyril, a biſhop of great authority, filled the patriarchal chair of that city. This prelate, in the vehemence of his bigoted zeal, was guilty of an unpardonable ſtretch of eccleſiaſtical power, in ſuffering the populace to plunder the property of the Jews, and expelling them from Alexandria. Oreſtes laid this oppreſſive conduct before the emperor; and Cyril, on his part, complaining of the ſeditious temper of the Jews, endeavoured to juſtify his proceedings. But, as the emperor declined to interpoſe his authority, Alexandria ſoon became a ſcene of tumult and conteſt between the partiſans of the governor and biſhop. It is noticed above that Oreſtes was intimately acquainted with Hypatia; and it appears that at this time ſhe had frequent conferences with him. This intimacy now became a ground of jealouſy and envy to Cyril, who could not bear that his rival ſhould have it in his power to avail himſelf of her wiſe advice; on which account alſo, ſhe was much calumniated by his partiſans, as if ſhe prevented a reconciliation between Cyril and Oreſtes. Their reſentment at length roſe to ſuch a height, that they entered into a conſpiracy againſt her life. After watching for a favourable opportunity of carrying their murderous deſign into execution, a band of ruffians ſeized upon her as ſhe was returning home from the ſchools, forced her from her chair, and then dragged her through the ſtreets to the Cæſarean church; where, after ſtripping her naked, they maſſacred her with extreme barbarity, and, having torn her body limb from limb, committed it to the flames. This horrid and infamous deed brought no little diſgrace on Cyril and the Alexandrian church. Attempts have been made to remove all imputation from the biſhop, of being in any reſpect concerned in it; but they are far from being ſatisfactory. Hypatia was murdered under the reign of the emperor Theodoſius II. in the year 415. Hence it is certain that ſhe could not have been, as Suidas relates, the wife of Iſidorus the philoſopher, who was not born till about fifty years afterwards. It is probable that through her whole life ſhe remained in a ſtate of celibacy.

HYPEC'OUM, *ſ.* [from *υπηχεω*, Gr. to reſound.] Wild Cummin; in botany, a genus of the claſs tetrandria, order digynia, natural order of corydales, (papaveraceæ, *Juſſ.*) The generic characters are—Calyx: perianthium two-leaved, ſmall; leaflets ovate, acute, erect, oppoſite, deciduous. Corolla: four-petalled; the two outer petals oppoſite, broader, trifid, obtuſe; the two inner alternate with the others, ſemitrifid; the middle ſegment concave, compreſſed, erect. Stamina: filaments four, awl-ſhaped, erect, covered by the middle ſegment of the inner petals. Anthers erect, oblong. Piſtillum: germ oblong, cylindrical; ſtyles two, very ſhort; ſtigmas acute. Pericarpium: ſilique long, curved inwards, jointed. Seeds: ſolitary in each joint of the pericarpium, globular, compreſſed.—*Eſſential Character.* Calyx two-leaved; petals four, the two outer broader and trifid; fruit a ſilique.

*Species.* 1. Hypecoum procumbens, or procumbent hypecoum: ſiliques bowed, compreſſed, jointed. Root ſimple, ſometimes bifid, long, but annual, having but few fibres. Leaves divided by many inciſures, ſomewhat reſembling thoſe of fumitory, pale green with a tinge of greyiſh or glaucous colour, ſpread on the ground. Stems ſeveral, ſlender, ſomewhat compreſſed, naked at bottom, but having two or three ſmall leaves at top, of the ſame ſhape and colour with the under ones; from among theſe leaves come out the peduncles, each ſuſtaining one ſmall yellow flower. The fruit is a capſule, ſhaped like a ſilique or pod, long, bowing, compreſſed and ancipital, jointed with tranſverſe knots, and grooved with longitudinal ſtreaks, many-celled; the cells in a ſingle longitudinal row, and ſcarcely ſeparating ſpontaneouſly. Seeds from ten to twenty, roundiſh, cut off as it were on one ſide, compreſſed like a lens, ſomewhat wrinkled, dotted in relievo, very dark brown, inſerted alternately into the outer and lower angles of the cells. Native of the ſouth of Europe; and cultivated before 1597 by Gerarde. It flowers in June and July, and the ſeeds ripen in Auguſt.

2. Hypecoum pendulum, or pendulous hypecoum: ſiliques pendent, not jointed, bivalved, incurvated. The ſecond ſort has ſlender ſtalks, which ſtand more erect, and the ſegments of the leaves are longer and much narrower than thoſe of the firſt; the flowers are ſmaller, and come out at the diviſions of the branches. This flowers and ſeeds at the ſame time with the firſt. The flowers are yellow, like thoſe of greater celandine, but leſs. Native of the ſouth of France. Cultivated here in 1640.

3. Hypecoum erectum, or upright hypecoum: ſiliques erect, round, toruloſe. This has much the appearance of the ſecond ſort in leaf and flower, but the pods grow erect, and are writhed and twiſted about. It flowers and ſeeds at the ſame time with the others. Ammann received the ſeeds from Dauria, and Miller from Iſtria. In the Syſtema Vegetabilium it is obſerved, that the ſtamens appear to be tetradynamous. The juice of theſe plants is of a yellow colour, reſembling that of celandine, and is affirmed to have the ſame effect as opium.

*Propagation and Culture.* Theſe plants, being all annual, are propagated by ſeeds, which ſhould be ſown ſoon after they are ripe, on a bed of light freſh earth, where they are to remain; for they ſeldom ſucceed if tranſplanted. When the plants come up, clear them from weeds, and thin them to the diſtance of ſix or eight inches. When the ſeeds are ſown in the ſpring, and the ſeaſon proves dry, they will not grow the firſt year; but if the ground be kept clear from weeds, and not otherwiſe diſturbed, the plants will come up the following ſpring. The ſeeds will ſometimes lie even till the third ſpring. It is therefore beſt to ſow them in autumn in a warm border; for theſe will make ſtronger plants, more likely to perfect ſeeds, than thoſe ſown in ſpring. The ſeeds, when ſown, ſhould be diveſted of their fungous covering, which adheres ſo cloſe that it prevents their growing till it is decayed. If the ſeeds be permitted to ſcatter, they will frequently come up of themſelves, without any care. Theſe plants are ſeldom cultivated but by thoſe who are curious in botany; ſince, however, they require little trouble, they may have a place in large gardens for variety; and, as they take but little room, they may be intermixed with other ſmall annual plants in large borders, where they will make a pretty appearance.

HYPEL'ATE, *ſ.* [ſo named by Browne, from *υπο*, Gr. and *ελατη*, a fir-tree.] In botany, a genus of the claſs polygamia, order monoecia. The generic characters are—I. Hermaphrodite flowers. Calyx: perianthium five-leaved, ſeldom four-leaved; leaflets ovate, concave, ſpreading, deciduous; two leſs than the others. Corolla: petals five, ovate, a little leſs than the calyx, deciduous; with a nectariferous umbilicus about the germ. Stamina: filaments eight, ſpreading, round the baſe of the germ, the length of the corolla; anthers ovate cordate. Piſtillum: germ globular, ſuperior; ſtyle ſhort, upright; ſtigma bent down, three-ſided, three-grooved, acute. Pericarpium: drupe pulpy, roundiſh. Seed: nut oval, very ſmooth, with a ſingle kernel. II. Male flowers, on the ſame tree, but on a diſtinct panicle. Calyx: and corolla: as in the hermaphrodite. Nectary alſo as in that; from the middle of this, the ſtamina: filaments eight, converging at the baſe, from erect reflex and aſcending, broader at the baſe; antheræ ovate cordate. Piſtillum: three-cornered rudiment of a germ, ſtyle awl-ſhaped, very ſmall.—*Eſſential Character.* Calyx five-leaved; corolla five-petalled; ſtigma bent down, three-cornered; drupe one-ſeeded.

Hypelate trifoliata, or three-leaved hypelate: a ſingle ſpecies. It is a ſhrubby tree, with ſeveral trunks, each as big as the human leg, ſtraight, eight or nine feet high, covered with a ſmooth cinnamon-coloured bark. The branches, riſing upright, are all round beſet with leaves, coming out at intervals of an inch, three always together, at the end of a common footſtalk, a little folioſe or flat, with extant narrow *alæ*, each an inch long, half as broad near the farther end, where broadeſt, and round, beginning narrow, and augmenting to the extremity, of a yellowiſh green colour, very ſmooth, having one middle rib, and ſome tranſverſe ones. Browne obſerves, that it is full of ſlender branches, and furniſhed with many leaves of the ſame texture and grain with thoſe of lignum-vitæ, but remarkably different both in form and diſpoſition. He had never ſeen the fruit in a perfect ſtate. Native of Jamaica, where it is very common in the low lands.

HY'PER, a Greek prepoſition frequently uſed in compoſition, where it denotes exceſs; its literal ſignification being above, or beyond.

HY'PER, *ſ.* [A word barbarouſly curtailed by *Prior* from *hypercritic.*] A hypercritic; one more critical than neceſſity requires:

> Critics I read on other men,
> And *hypers* upon them again. *Prior.*

HYPERAN'THERA, *ſ.* Nephritic Wood; in botany, a genus of the claſs decandria, order monogynia. Generic eſſential characters—Calyx five-parted; petals five, unequal, inſerted into protuberances; ſeeds winged.

*Species.* 1. Hyperanthera decandria: flowers ten-male; leaves moſtly doubly pinnate; lower leaflets ternate; legumes about eight-ſided. Inhabits India.

2. Hyperanthera moringa: flowers half ten-male; leaves ſub-bipinnate; lower leaflets ternate; legumes three-ſided. Inhabits Ceylon and America.

3. Hyperanthera ſemidecandra: flowers half ten-male; leaves doubly pinnate, ſimply pinnate at the tip. Inhabits Arabia.

4. Hyperanthera Cochinchinenſis: flowers half ten-male; leaves doubly pinnate, ſimply pinnate at the tip. Inhabits Cochin-china.

HYPER'BATON, *ſ.* [from *υπερ*, Gr. over, and *βαινω*, to paſs.] A figure of ſpeech in which there is a confuſed arrangement of the thoughts, expreſſive of ſome ſtrong or violent paſſion of the ſpeaker.

HYPER'BOLA, *ſ.* [*hyperbole*, Fr. *υπερ*, and *βαλλω*, Gr.] In geometry, a ſection of a cone made by a plane, ſo that the axis of the ſection inclines to the oppoſite leg of the cone, which in the parabola is parallel to it, and in the ellipſis interſects it. See the article Conic Sections, vol. v. p. 85.

HYPER'BOLE, *ſ.* [*hyperbole*, Fr. *υπερβολη*, Gr.] A figure in rhetoric by which any thing is increaſed or diminiſhed beyond the exact truth: as, *He runs faſter than lightning. His poſſeſſions are fallen to duſt. He was ſo gaunt, the caſe of a flagellet was a manſion for him.* Shakeſpeare.

An object uncommon with reſpect to ſize, either very great of its kind or very little, ſtrikes us with ſurpriſe; and this emotion forces upon the mind a momentary conviction that the object is greater or leſs than it is in reality. The ſame effect preciſely attends figurative grandeur or littleneſs; and hence the hyperbole, which expreſſes this momentary conviction. A writer, taking advantage of this natural deluſion, enriches his deſcription greatly by the hyperbole; and the reader, even in his cooleſt moments, reliſhes this figure, being ſenſible that it is the operation of nature upon a warm fancy.

It cannot have eſcaped obſervation, that a writer is generally more ſucceſsful in magnifying by an hyperbole than in diminiſhing. The reaſon is, that a minute object contracts the mind, and fetters its powers of imagination;

but that the mind, dilated and inflamed with a grand object, moulds objects for its gratification with great facility. Longinus, with reſpect to a diminiſhing hyperbole, cites the following ludicrous thought from a comic poet: "He was owner of a bit of ground not larger than a Lacedemonian letter." But, for the reaſon now given, the hyperbole has by far the greater force in magnifying objects; of which take the following examples.—For all the land which thou ſeeſt, to thee will I give it, and to thy ſeed for ever. And I will make thy ſeed as the duſt of the earth: ſo that, if a man can number the duſt of the earth, then ſhall thy ſeed alſo be numbered. *Gen.* xiii. 15, 16.

When he ſpeaks,
The air, a charter'd libertine, is ſtill. *Shakeſpeare.*

Now ſhield with ſhield, with helmet helmet clos'd,
To armour armour, lance to lance oppos'd,
Hoſt againſt hoſt with ſhadowy ſquadrons drew,
The ſounding darts in iron tempeſts flew;
Victors and vanquiſh'd join'd promiſcuous cries,
And ſhrilling ſhouts and dying groans ariſe;
With ſtreaming blood the ſlipp'ry fields are dy'd,
And ſlaughter'd heroes ſwell the dreadful tide.
*Iliad*, iv. 508.

Quintilian is ſenſible that this figure is natural: "For (ſays he), not contented with truth, we naturally incline to augment or diminiſh beyond it; and for that reaſon the hyperbole is familar even among the vulgar and illiterate:" and he adds, very juſtly, "That the hyperbole is then proper, when the object of itſelf exceeds the common meaſure." But, as Dr. Blair obſerves, even in common converſation, hyperbolical expreſſions very frequently occur: as, ſwift as the wind; white as ſnow; and the like: and our common forms of compliment are almoſt all of them extravagant hyperboles. If any thing be remarkably good or great in its kind, we are inſtantly ready to add to it ſome exaggerating epithet, and to make it the greateſt or beſt we ever ſaw. The imagination has always a tendency to gratify itſelf, by magnifying its preſent object, and carrying it to exceſs. More or leſs of this hyperbolical turn will prevail in language, according to the livelineſs of imagination among the people who ſpeak it. Hence young people deal always much in hyperboles. Hence the language of the Orientals was far more hyperbolical than that of the Europeans, who are more phlegmatic, or, if you pleaſe, of more correct imaginations. Hence, among all writers in early times, and in the rude periods of ſociety, we may expect this figure to abound. Greater experience, and more cultivated ſociety, abate the warmth of imagination, and chaſten the manner of expreſſion. The exaggerated expreſſions to which our ears are accuſtomed in converſation ſcarcely ſtrike us as hyperboles; in an inſtant we make the proper abatement, and underſtand them according to their juſt value; but, when there is ſomething ſtriking and unuſual in the form of an hyperbolical expreſſion, it then riſes into a figure of ſpeech which draws our attention; and here it is neceſſary to obſerve, that, unleſs the reader's imagination be in ſuch a ſtate as diſpoſes it to riſe and ſwell along with the hyperbolical expreſſion, he is always hurt and offended by it; for a ſort of diſagreeable force is put upon him; he is required to ſtrain and exert his fancy, when he feels no inclination to make any ſuch effort. Hence the hyperbole is a figure of difficult management; and ought neither to be frequently uſed, nor long dwelt upon. On ſome occaſions, it is undoubtedly proper, being, as was before obſerved, the natural ſtyle of a ſprightly and heated imagination; but when hyperboles are unſeaſonable, or too frequent, they render a compoſition frigid and unaffecting. They are the reſource of an author of feeble imagination; of one, deſcribing objects which either want native dignity in themſelves; or whoſe dignity he cannot ſhow by deſcribing them ſimply, and in their juſt proportions, and is therefore obliged to reſt upon tumid and exaggerated expreſſions.

Hyperboles are of two kinds: either ſuch as are employed in deſcription, or ſuch as are ſuggeſted by the warmth of paſſion. The beſt by far, are thoſe which are the effect of paſſion; for, if the imagination has a tendency to magnify its objects beyond their natural proportion, paſſion poſſeſſes this tendency in a vaſtly ſtronger degree; and therefore not only excuſes the moſt daring figures, but very often renders them natural and juſt. All paſſions, without exception, love, terror, amazement, indignation, anger, and even grief, throw the mind into confuſion, aggravate their objects, and of courſe prompt an hyperbolical ſtyle. Hence the following ſentiments of Satan in Milton, as ſtrongly as they are deſcribed, contain nothing but what is natural and proper; exhibiting the picture of a mind agitated with rage and deſpair:

Me, miſerable! which way ſhall I fly
Infinite wrath, and infinite deſpair?
Which way I fly is hell; *myſelf am hell!*
And in the loweſt depth, a lower deep,
Still threat'ning to devour me, opens wide,
To which the hell I ſuffer ſeems a heaven! *Par. Loſt*, iv. 73.

In ſimple deſcription, though hyperboles are not excluded, yet they muſt be uſed with more caution, and require more preparation, in order to make the mind reliſh them. Either the object deſcribed muſt be of that kind, which of itſelf ſeizes the fancy ſtrongly, and diſpoſes it to run beyond bounds; ſomething vaſt, ſurpriſing, and new; or the writer's art muſt be exerted in heating the fancy gradually, and preparing it to think highly of the object which he intends to exaggerate. When a poet is deſcribing an earthquake or a ſtorm, or when he has brought us into the midſt of a battle, we can bear ſtrong hyperboles without diſpleaſure. But when he is deſcribing only a woman in grief, it is impoſſible not to be diſguſted with ſuch wild exaggeration as the following, in one of our dramatic poets:

I found her on the floor
In all the ſtorm of grief, yet beautiful;
Pouring forth tears at ſuch a laviſh rate,
That, were the world on fire, they might have drown'd
The wrath of Heaven, and quench'd the mighty ruin. *Lee.*

How far an hyperbole, ſuppoſing it properly introduced, may be ſafely carried without overſtretching it, what is the proper meaſure and boundary of this figure, cannot, as far as we know, be aſcertained by any preciſe rule. Good ſenſe and juſt taſte muſt determine the point, beyond which, if we paſs, we become extravagant. Lucan may be pointed out as an author apt to be exceſſive in his hyperboles. Among the compliments paid by the Roman poets to their emperors, it had become faſhionable to aſk them, what part of the heavens they would chooſe for their habitation after they ſhould have become gods. Virgil had already carried this ſufficiently far in his addreſs to Auguſtus:

*Tibi brachia contrahit ingens*
*Scorpius, & Cæli juſta plus parte relinquit.* Geor. I.

The Scorpion, ready to receive thy laws,
Yields half his region, and contracts his paws.

But this did not ſuffice Lucan. Reſolved to outdo all his predeceſſors, in a like addreſs to Nero, he very gravely beſeeches him not to chooſe his place near either of the poles, but to be ſure to occupy juſt the middle of the heavens, leſt, by going either to one ſide or other, his weight ſhould overſet the univerſe:

*Sed neque in Arctoo ſedem tibi legeris orbe*
*Nec polus adverſi calidus qua mergitur auſtri;*
*Ætheris immenſi partem ſi preſſeris unam*
*Sentiet axis onus. Librati pondera Cæli*
*Orbe tene medio.* Pharſ. i. 53.

But, oh! whatever be thy godhead great,
Fix not in regions too remote thy ſeat;
Nor deign thou near the frozen Bear to ſhine,
Nor where the ſultry ſouthern ſtars decline.
Preſs not too much on any part the ſphere,
Hard were the taſk thy weight divine to bear;
Soon would the axis feel the unuſual load,
And, groaning, bend beneath th' incumbent god;
O'er the mid orb more equal ſhalt thou riſe,
And with a juſter balance fix the ſkies. *Rowe.*

Such thoughts as theſe are what the French call *outré*, and always proceed from a falſe fire of genius. The Spaniſh and African writers, as Tertullian, Cyprian, Auguſtin, &c. are remarked for being fond of them. As in that epitaph on Charles V. by a Spaniſh writer:

*Pro tumulo ponas orbem, pro tegmine cœlum,*
*Sidera pro facibus, pro lacrymis maria.*

Sometimes they dazzle and impoſe by their boldneſs; but wherever reaſon and good ſenſe are ſo much violated, there can be no true beauty. Epigrammatic writers are frequently guilty in this reſpect; reſting the whole merit of their epigrams on ſome extravagant hyperbolical turn; ſuch as the following of Dr. Pitcairn's, upon Holland's being gained from the ocean:

*Tellurem fecere Dii; ſua littora Belgæ;*
*Immenſæque molis opus utrumque fuit;*
*Dii vacuo ſparſas glomerârunt æthere terras,*
*Nil ibi quod operi poſſit obeſſe fuit.*
*At Belgis, maria & cœli naturaque rerum*
*Obſtitit; obſtantes hi domuêre Deos.*

We ſhall conclude with a curious ſpecimen of modern Oriental hyperbole. It is a tranſlation of the inſcription on a marble ſlab, in the mauſoleum of Hyder Ali, in the Lall-Bagh, or Ruby Garden, on the iſland of Seringapatam: "In the name of God, the bounteous and merciful God. Mahomed Abu Beker Omai Othman Ali. Wonderous cupola! to whoſe awful ſtructure the firmament ſinks inferior in the high expanſe. Whether thou compareſt it with the diſk of the moon, or with the ſun, they are but blemiſhes in the firmament, which is jealous of its ſuperior luſtre. Its gilded orb is the light of the eyes of the firmament, from whence the moon receives reflected light. The ſea of mercy diſtils through the earth to his remains, which are encompaſſed by a hoſt of cherubims!"

HYPERBOL'IC, or HYPERBOL'ICAL, *adj.* [*hyperbolique*, Fr. from *hyperbola*, Lat.] Belonging to the hyperbola; having the nature of an hyperbola.—The horny or pellucid coat of the eye riſeth up, as a hillock, above the convexity of the white of the eye, and is of an *hyperbolical* or parabolical figure. *Ray.*—[From *hyperbole.*] Exaggerating or extenuating beyond fact.—It is parabolical, and probably *hyperbolical*, and therefore not to be taken in a ſtrict ſenſe. *Boyle.*

HYPERBOL'ICALLY, *adv.* In form of an hyperbola. With exaggeration or extenuation.—Scylla is ſeated upon a narrow mountain, which thruſts into the ſea a ſteep high rock, and *hyperbolically* deſcribed by Homer as inacceſſible. *Broome.*

HYPERBOL'IFORM, *adv.* Having the form, or nearly the form, of the hyperbola.

HYPERBO'LIUM, *ſ.* With civilians, that which is given by the huſband to the wife over and above the dowry.

HYPER'BOLIZE, *v. n.* To uſe hyperboles.

HYPER'BOLIZING, *ſ.* The act of uſing hyperboles.

HYPERBOLOI'DES, *ſ.* in geometry, hyperbolas of the higher kinds.

HYPERBO'REAN, *adj.* [*hyperboréen*, Fr. *hyperboreus*, Lat.] Northern.

HYPERBO'REANS, a name by which the ancients diſtinguiſhed the Cuthites. They are placed, as many of the Cimmerians and Amazonians were, upon the Palus Mæotis and Tanaïs; and in thoſe regions which lay near the Boriſthenes and Iſter. But, from a notion that their name had a relation to the *north*, they have been extended upwards almoſt to the Cronian Sea. They were of the Titanic race, and called *Sindi*; a name common among the Cuthites. Strabo ſpeaks of them as called among other names Sauromatæ, and Arimaſpians. 'By Herodotus they are reckoned among the Amazonians; (l. 4. c. 10.) They worſhipped the ſun, whom they held in high honour; and they were great traders and navigators.' The people of Cyprus were of the ſame race, equally Cutheans. The Hyperboreans upon the Euxine at one time ſeem to have kept up a correſpondence with thoſe of the Titanian race in moſt countries. But of all others, they ſeem to have reſpected moſt the people of Delos. To this iſland they uſed to ſend continually myſtic preſents, which were greatly reverenced. They are ſometimes repreſented as Arimaſpians; and their chief prieſteſſes were named Oupis, Loxo, and Hecaërge; by whom the hyperborean rites are ſaid to have been brought to Delos. They never returned, but took up their reſidence, and officiated in the iſland. Olen the Hyperborean is ſaid to have been the firſt prophet of Delphi. By other writers he is ſaid to have come from Lycia. Olen was properly an Egyptian ſacred term; and expreſſed Olen, Olenus, Ailinus, and Linus; but is of unknown meaning. If then this Olen, ſtyled an Hyperborean, came from Lycia and Egypt, it would ſeem that the term *Hyperborean* is not of that purport which the Greeks have aſſigned to it. There were people of this family in the north; and the name has been diſtorted and adapted *ſolely* to the purpoſe of thoſe parts. But as there were Hyperboreans from the eaſt; as they firſt inſtituted the rites in Delos; as they firſt founded the temple at Delphi; as people of this name and family not only came into Greece, but alſo into Italy, and extended themſelves even to the Alps; as the ancient Latins were deſcended from them; as thoſe who occupied Mons Palatinus are ſuppoſed to have been Atlantians, and alſo Arcadians, i. e. Arkites; it would be unnatural to ſuppoſe, that theſe rites, and theſe colonies, came all from the north; which is contrary to the progreſs of nations, and repugnant to the hiſtory of the firſt ages.

There muſt have been ſomething myſterious in the term Hyperborean; it muſt have had a latent meaning, which related to the ſcience and religion of the people ſo called. Pythagoras, who had been in Egypt and Chaldea, and who afterwards ſettled at Croton, was by the natives ſtyled the Hyperborean Apollo. And, though ſome of this name were of the north, yet there were others in different parts of the world, who had no relation to that clime. Pindar manifeſtly makes them the ſame as the Atlantians and Amazonians of Afric; for he places them near the iſlands of the Bleſt, which were ſuppoſed to have been oppoſite to Mauritania. He ſpeaks of them as a divine race. The northern Hyperboreans, who were the ſame as the Cimmerians, were once held in great repute for their knowledge. A large body came into Italy; ſome of whom occupied the fine region of Campania, and went under the name of Cimmerians. It has been the opinion of learned men, that they were ſo called from כמר, darkneſs. This may be ſo; though moſt nations ſeem to have been denominated from their worſhip and gods. Thus much however is certain, that this people had in many places ſubterranean apartments, where their prieſts and recluſes dwelt; and were ſuppoſed to be conſigned to darkneſs; all which favours the opinion above-mentioned. Several apartments of this kind were about Cuma, and Parthenope, and near the lake Acheruſia in Campania. Strabo ſpeaks of this part of Italy, and ſays, that it was incloſed with vaſt woods, held of old in great veneration; becauſe in thoſe they ſacrificed to the Manes. According to Euphorus, the Cimmerians reſided in ſubterranean apartments called Argilli, (referring to the great object of veneration, the Argo,) which had a communication with one another. Thoſe who applied to the oracle of the cavern, were led by theſe dark paſſages to the place of conſultation. Within the precincts were to be found all the requiſites for an oracle; dark groves, foul ſtreams, and fetid exhalations; and above all a vaſt and dreary cave. It was properly a temple, and formed by the Cimmerians and Herculeans, who ſettled in theſe parts. Places of this nature were generally ſituated near the ſea, that they might more eaſily be conſulted by mariners, whom chance brought upon the coaſt.

One tribe of the Hyperboreans is taken notice of by Pliny under the name of Arimpheans. They ſeem to have been recluſes, who retired to woods and wilds, that they might more ſtrictly devote themſelves to religion. They wore their hair very ſhort, both men and women; and are repreſented as very harmleſs; ſo that they lived unmoleſted in the midſt of many barbarous nations. They were addicted to great abſtinence, feeding upon the fruits of the foreſt. In many of theſe circumſtances they reſembled the people from whence they came. The ſame monaſtic life prevailed in India among the Sarmanes and Allobii.

Thoſe who ſettled in Sicily ſeem to have been a very powerful and knowing people; but thoſe of Hetruria were ſtill far ſuperior. At the time when they flouriſhed, Europe was in great meaſure barbarous; and their government was in a ſtate of ruin, before learning had dawned in Greece; and long before the Romans had diveſted themſelves of their natural ferocity. Hence we can never have a hiſtory of this people, which will be found adequate to their merits. The two moſt diſtant colonies of this family weſtward, were upon the Atlantic ocean: the one in Europe to the north; the other oppoſite at the extreme part of Africa. The country of the latter was Mauritania; whoſe inhabitants were the Atlantic Ethiopians. They looked upon themſelves as of the ſame family as the gods; and they were certainly deſcended from ſome of the firſt deified mortals. Thoſe who occupied the provinces of Iberia and Bœtica, on the other ſide, went under the ſame titles, and preſerved the ſame hiſtories. They were of Erythræan and Ethiopic race.

HYPERCATALEC′TIC, *adj.* In the Greek and Latin poetry, is applied to a verſe that has one or two ſyllables too much or beyond the regular and juſt meaſure; as, *Muſæ ſorores ſunt Minervæ:* alſo, *Muſæ ſorores Palladis lugent.*

HYPERCATHAR′SIS, *ſ.* [from υπερ, Gr. exceſs, and καθαρσις, purgation.] Exceſſive purging from medicine; a variety of the diarrhœa mucoſa of Cullen.

HY′PERCRITIC, *ſ.* [*hypercritique*, Fr. from υπερ, Gr. and κριτικος.] A critic exact or captious beyond uſe or reaſon.—Thoſe *hypercritics* in Engliſh poetry differ from the opinion of the Greek and Latin judges, from the Italians and French, and from the general taſte of all ages. *Dryden.*

HYPERCRIT′ICAL, *adj.* Critical beyond neceſſity or uſe.—Such *hypercritical* readers will conſider my buſineſs was to make a body of refined ſayings, only taking care to produce them in the moſt natural manner. *Swift.*

HYPERCRIT′ICISM, *ſ.* A criticiſm ſevere beyond neceſſity or reaſon.

HYPERDU′LIA, *ſ.* [Greek; compoſed of υπερ, *above*, and δελια, worſhip, ſervice.] In the Romiſh theology, the worſhip rendered to the holy virgin. The worſhip offered to ſaints is called *dulia*; and that to the mother of God, *hyperdulia*, as being ſuperior to the former.

HYPE′RIA, in ancient geography, the ſeat of the Phæacians near the Cyclops. Some commentators take it to be Camarina in Sicily; but, according to others, it is ſuppoſed to be an adjoining iſland, which they take to be Melita, lying in ſight of Sicily. And this ſeems to be confirmed by Apollonius Rhodius. Whence the Phæacians afterwards removed to Corcyra, called Scheria, Phæacia, and Macris; having been expelled by the Phœnicians, who ſettled in Melita for commerce, and for commodious harbours, before the war of Troy.

HYPERICOI′DES. See Ascyrum and Hypericum.

HYPERI′CUM, *ſ.* [from υπερ, above, and εικων, an image or likeneſs, *Linn.* becauſe ſome ſpecies have pellucid dots in the leaves, which dots act as lenſes, through which the *icones*, or images, of objects, may be diſtinguiſhed.] St. John's Wort; in botany, a genus of the claſs polyadelphia, order polyandria, natural order of rotaceæ, (hyperica, *Juſſ.*) The generic characters are—Calyx: perianthium five-parted; ſegments ſubovate, concave, permanent. Corolla: petals five, oblong-ovate, obtuſe, ſpreading, wheel-ſhaped, according to the ſun's apparent motion. Stamina: filaments numerous, capillary, united at the baſe in five or three bodies; antheræ ſmall. Piſtillum: germ roundiſh; ſtyles three, ſometimes one, two, or five, ſimple, diſtant, the length of the ſtamens; ſtigmas ſimple. Pericarpium: capſule roundiſh, with the ſame number of cells as there are ſtyles. Seeds: very many, oblong.—*Eſſential Character.* Calyx five-parted; petals five; filaments many, connected at the baſe in five bundles.

*General Remarks.* If the following remarks be attended to, in conjunction with thoſe to be made in the following deſcriptions, the inveſtigation of the numerous ſpecies of this genus will be greatly facilitated.

1. All the ſpecies are perennial except the 31ſt.

2. The following are herbaceous: 6, 8, 12, 31, 36, 39, 42, 48, 49, 50, 51, 52. Moſt of the reſt are ſhrubby, or at leaſt ſuffruticoſe, or woody at the baſe.

3. The ſtem is cylindrical in 8, 9, 10, 27, 28, 31, 32, 33, 37, 40, 41, 42, 43, 45, 46, 48, 49, 50, 52, 53. Ancipital or two-edged in 13, 24, 25, 29, 39, 47. Quadrangular in 1 to 6, 12, 14, 17, 18, 21, 36, 38, 44, 51, 55, 56.

4. The leaves are alternate only in the 7th and 8th ſpecies: in the reſt they are oppoſite.

5. The flowers are in racemes or panicles in 3, 4, 6, 8, 10, 17, 24, 29, 31, 34, 35, 36, 37, 38, 42, 45, 46, 48, 51. In cymes in 13 and 47. Umbels in 9. Corymbs in 21, 27, 33. Solitary in 1, 2, 5, 7, 11, 18, 19, 36, 56.

6. Some of the ſpecies have bractes, or floral leaves, as 5, 7, 28, 36, 42, 45, 48, 51, 53, and probably ſeveral others: many however have none.

7. Some ſpecies have five or three nectareous glands alternate with the ſtamens, as 3, 4, 9, 10, 20, 25, 32. Probably future obſervation will inform us that others alſo have theſe glands.

8. The fruit in moſt ſpecies is a capſule; in 3, 4, 10, 13, however, it is a berry, or rather a berried capſule, being a berry rather in appearance than ſtructure.

9. Natives of Europe are, 1, 13, 24, 36, 37, 38, 39, 40, 41, 42, 43, 45, 47, 48, 49, 50, 53. Of theſe, 13, 36, 37, 38, 39, 42, 45, 48, 49, are natives of Britain. The reſt are found in the Eaſt Indies, America, Japan, &c.

*Species.* I. With five ſtyles. 1. Hypericum balearicum, or warted St. John's wort: ſtem ſhrubby, leaves and branches warted. Warted St. John's wort riſes with a ſlender ſhrubby ſtalk in this country, about two feet high, but in its native ſoil it acquires the height of ſeven or eight feet, ſending out ſeveral weak branches of a reddiſh colour, and marked with ſcars where the leaves have fallen off. Leaves ſmall, oval, waved on their edges, and having ſeveral ſmall protuberances on their under ſide; they ſit cloſe to the branches, half embracing them at the baſe. Flowers terminating, large, bright yellow. Stamens a little ſhorter than the petals. Capſules pyramidal, having a ſtrong ſmell of turpentine, and filled with ſmall brown ſeeds. Linnæus obſerves that the ſtems are quadrangular, with glandular dots in racemes ſcattered over them; the leaves flexuoſe with warted glands at the edge; the flowers ſolitary. Mr. Curtis however remarks, that the flowers are not always ſolitary, but frequently form a ſort of corymbus. This plant was diſcovered in Majorca by Dr. Thomas Penny, a phyſician of London, who ſent it to Lobel and Cluſius, in the year 1580, under the name Myrto-ciſtus, from the reſemblance of the leaves to myrtle, and the gummy ſubſtance exuding from the plant as in ciſtus. From that time the plant ſeems to have been known only from Cluſius, whoſe figure is very indifferent, till about the year 1714, when Mr. Salvadore, an apothecary of Barcelona, went to Majorca in ſearch of plants, found this in great plenty, and ſent dried ſamples of it to England and Holland, ſome of which having ripe ſeeds on them were ſown; and from theſe one plant was raiſed in the Chelſea garden, and another by Boerhaave at Leyden in 1717. From theſe many plants were raiſed by cuttings, and diſtributed to moſt of the curious gardens in Europe. It has a ſucceſſion of flowers great part of the year, which renders it valuable.

2. Hypericum Kalmianum, or American St. John's wort: ſtem ſhrubby, leaves linear-lanceolate. This riſes with an upright herbaceous ſtalk three feet and a half high, ſending out ſeveral ſmall branches at top, which come out oppoſite. Linnæus deſcribes it as ſhrubby, with quadrangular branches. Leaves ſmooth, like thoſe of roſemary or lavender. Flowers in a dichotomous terminating corymb, compoſed of three or ſeven flowers. Reichard affirms that it has only three ſtyles. Native of North America, where it was found by Bartram, and in Virginia by Kalm.

3. Hypericum Cayanenſe, or Cayenne St. John's wort: corollas bearded, calyxes ſtriated, leaves ovate, ſtem ſhrubby. This is an upright branching tree, eighteen feet in height. Native of Cayenne.

4. Hypericum bacciferum, or berry-bearing St. John's wort: corollas bearded, calyxes even, leaves ovate, ſtem ſhrubby. This is a ſhrub three fathoms in height, upright and brachiate; with quadrangular branches. The whole plant abounds in a viſcid tough ſaffron-coloured juice. It has diſtinct nectaries, like the preceding, alternate with the ſets of ſtamens, from which it is doubtful whether it be diſtinct. Native of Mexico and Braſil.

5. Hypericum calycinum, great-flowered St. John's wort, or tutſan: flowers ſolitary, ſtem ſuffruticoſe, branched; calyxes obovate, very blunt; leaves diſtich, oblong. The ſtalks of the large flowering tutſan are ſlender, and incline downwards. Leaves ſmooth, placed in pairs. Flowers very large, bright yellow. Native of the country near Conſtantinople. Introduced in 1676, by ſir George Wheler, bart. It flowers from June to October.

6. Hypericum pyramidatum, or pyramidal St. John's wort: flowers ſubpanicled, ſtem ſlightly four-cornered, herbaceous, branched; calyxes ovate, acute. The native country of this is not known. It was cultivated in 1764, by Mr. James Gordon; and flowers in July and Auguſt.

7. Hypericum alternifolium, or alternate-leaved St. John's wort: flowers axillary, ſolitary; leaves lanceolate, alternate; ſtem ſhrubby. Found in the Eaſt Indies by Koenig.

8. Hypericum Syriacum, or Syrian St. John's wort: calyxes leafy, ſtem herbaceous, leaves alternate, ovate, acute. Stem a foot high and more, upright, ſingle or branched; branches alternate, flexuoſe, one-flowered. Found by Billardiere in dry ſpots near the deſert of Syria.

9. Hypericum Guineenſe, or Guinea St. John's wort: flowers ſubumbelled, ſtem ſhrubby, branches round, leaves ovate, acute. Found in Guinea by Andr. Berlin.

10. Hypericum petiolatum, or bay-leaved St. John's wort: ſtem arboreous, leaves ovate. This is a tree with the appearance of bay: leaves oppoſite, petioled, acute, quite entire, ſmooth, like thoſe of bay, with tranſverſe veins. The tree abounds with a ſaffron-coloured viſcid juice. Loureiro has deſcribed a plant, which he found near Canton in China, under this name, but differing very much in the deſcription. The ſtem is ſhrubby, manifold, three feet high, angular, diffuſed. Leaves broad-lanceolate; flowers reddiſh yellow, axillary and terminating, on few-flowered peduncles. According to Linnæus, it was found in New Granada by Mutis.

11. Hypericum patulum, or ſpreading St. John's wort: flowers ſolitary, terminating; ſtem fruteſcent, lax; leaves ovate, rolled back at the edge. Native of Japan.

12. Hypericum aſcyron, or large-flowered St. John's wort: ſtem four-cornered, herbaceous, erect, ſimple; leaves even, quite entire. Stem a cubit and half high, round, ſmooth, rufeſcent. Leaves pale green, paler underneath, an inch long and half an inch wide, roundiſh, oppoſite. Flowers terminating; calyx green; corolla pale yellow, five times as large as in common hypericum; petals an inch long. Found in the Pyrenees by Burſer. Native alſo of Siberia and Canada, according to Linnæus, who remarks that the leaves are acute.

II. With three ſtyles. 13. Hypericum androſæmum, or common tutſan: fruits berried, ſtem ſhrubby, ancipital. Root perennial, thick, woody, of a reddiſh colour, ſending out very long fibres. Stems ſuffruticoſe or underſhrubby, ancipital, two-edged, or ſlightly winged on oppoſite ſides; two feet high and more, branched towards the top; of a reddiſh colour, and ſmooth. Branches brachiate or decuſſated, ſpreading. Leaves oppoſite, ſeſſile, ovate, entire, ſmooth, dark green, glaucous on the under ſide, netted with numerous projecting veins and nerves, which become through age ferruginous. On the ſtem they are two inches long, and an inch and half broad at the baſe; thoſe on the branches are ſmaller, of different ſizes, and ſome of them approaching to lanceolate. The juice expreſſed from the leaves is claret-coloured. The leaves were formerly applied to freſh wounds, and hence the French name of *toute ſaine*, and our Engliſh one of *tutſan*; it is alſo called *park-leaves*, from its being frequently found in parks; in Italian, Spaniſh, and Portugueſe, it is *androſemo*. It flowers from July to September. Native of the ſouthern parts of Europe and Britain, in woods and moiſt hedges. With us, near London, it is found about Hampſtead and Highgate; on Bacher-heath and Harefield, Middleſex; in the Oak-of-Honour-wood, near Peckham Rye, and in ſeveral parts of Norwood, but ſparingly. In many parts of England it is more common; as in the duke of Bridgewater's woods at Aſkeridge, and near Berkhampſtead, Herts; in lanes at the foot of Malvern-hill, Worceſterſhire, and between Worceſter and Tewkeſbury; in Shotover plantations, Stokenchurch and Nettlebed woods, Oxfordſhire; near Pengwarry in Cornwall; rocky woods in Weſtmorland; and by King's Cliff in Northamptonſhire. In Scotland alſo; as in the woods at Inverary, and at Loch-Ranſa in the iſle of Arran.

14. Hypericum Olympicum, or Olympian St. John's wort: calyxes acute, ſtamens ſhorter than the corolla; ſtem ſhrubby. This riſes with many upright woody ſtalks about a foot high. It differs from H. calycinum, not only in having three ſtyles, and the ſegments of the calyx acute, but in having higher ſtalks, ſmaller leaves, reſembling thoſe of common hypericum, only ſtill leſs, and the capſule round like that of androſæmum, with three cells, whereas that is oblong with five cells. Native of the Levant, and found by ſir George Wheler on Mount Olympus. Cultivated in 1706 in the botanic garden at Chelſea; flowers from July to September. Loureiro deſcribes it as a tree ten feet high, with ſpreading branches. Native of Cochin-china, and of China about Canton.

15. Hypericum folioſum, or ſhining St. John's wort: ſtamens the length of the petals, calyxes lanceolate, acute; leaves oval-oblong, ſeſſile, ſmooth. Native of the Azores, where it was found by Mr. Francis Maſſon; flowers in Auguſt.

16. Hypericum floribundum, or many-flowered St. John's wort: calyxes ovate, acute, ſubciliate; ſtamens ſhorter than the corolla; leaves lanceolate-elliptic; ſtem ſhrubby. Native of Madeira; introduced in 1779 by Mr. Francis Maſſon; flowers in Auguſt.

17. Hypericum arboreſcens, or tree St. John's-wort: corollas and calyxes even, ſmooth; leaves elliptic, racemes brachiate, ſtem arboreſcent. It has the habit of H. Guineenſe, but differs in the number of piſtils, and in the infloreſcence. Native of the Eaſt Indies.

18. Hypericum gramineum, or graſs-leaved St. John's wort: ſtem herbaceous, four-cornered, dichotomous;

leaves oblong-parabolic, ovate lanceolate. Native of New Caledonia in the South Seas.

19. Hypericum Chinenſe, or Chineſe St. John's wort: peduncles axillary, two-flowered; leaves ovate-lanceolate, quite entire. This is a ſmall tree or ſhrub with alternate branches. Brought from China by Bladh.

20. Hypericum Cochin-chinenſe, or Cochin-chineſe St. John's wort: peduncles axillary, five-flowered, or thereabouts; leaves ſubpetioled, very cloſe together; ſtem arboreous. This is a middle-ſized tree, about ſixteen feet high, with aſcending branches, divided into very many duſky-red branchlets. Native of Cochin-china, in woods. The wood of this tree is red, heavy, hard, and tough; and is uſed for making oars and yards of veſſels. The juice of the flowers dyes of a golden colour.

21. Hypericum petiolatum, or petioled St. John's wort: leaves ovate, petioled, quite entire, tomentoſe underneath; ſtem ſhrubby, four-cornered, compreſſed. Stature and ſtamens of Gordonia laſianthus. Native of Braſil. Here we have inadvertently two different plants under the ſame name; this and N° 10.

22. Hypericum Canarienſe, or Canary St. John's wort: calyxes blunt, ſtamens ſhorter than the corolla; ſtem ſhrubby. Canary St. John's wort riſes with a ſhrubby ſtalk ſix or ſeven feet high, dividing into branches at top. Leaves oblong, ſet by pairs cloſe to the branches, having a ſtrong odour, but leſs than thoſe of H. hircinum. Native of the Canary iſlands. Cultivated in 1699 by the ducheſs of Beaufort; flowers from July to September.

23. Hypericum elatum, or tall St. John's wort: calyxes lanceolate-ovate, acute; ſtamens longer than the corolla, leaves ovate-oblong, ſtem ſhrubby. Native of North America. Cultivated in 1762 by Mr. James Gordon. It flowers in July and Auguſt.

24. Hypericum hircinum, or ſtinking ſhrubby St. John's wort: ſtamens longer than the corolla; ſtem ſhrubby, ancipital. This riſes with ſhrubby ſtalks about three feet high, ſending out ſmall oppoſite branches at each joint. Leaves oblong, ovate, placed by pairs, ſeſſile, and having a rank goatiſh ſmell. Native of the ſouth of Europe; cultivated here in 1640; flowers from July to September. There are two varieties of it in the gardens, one larger, which is the common one; the other ſmaller.

25. Hypericum Ægypticum, or Egyptian St. John's wort: nectaries of the petals lanceolate, ſtems ſuffruticoſe, compreſſed. This is a ſhrub a ſpan high, very much branched, and brachiate; leaves like thoſe of knot-graſs, ovate, very ſmall, acuminate, veinleſs, ſeſſile, longer than the joints of the branches. It has the appearance of a ſand-plant, and is a native of Egypt. Introduced in 1787 by Monſ. Thouin.

26. Hypericum orientale, or oriental St. John's wort: ſtipules reflex, leaves oblong, toothletted, crenate. Roots in old plants hard, woody, and more than half a foot in length; in young plants a tuft of yellowiſh fibres three or four inches long. Stems from ſix inches to a foot in height, ſome upright, others aſcending, pale green, a line in thickneſs, with a ſmall wing deſcending from one leaf to another. The whole plant has a reſinous ſmell. It varies much in ſize, as does alſo the flower, the petals being ſometimes ten lines in length. The leaves are bitter, and a little viſcid. Native of the Levant.

27. Hypericum ſcabrum, or rugged St. John's wort: ſtem round, ſuffruticoſe, muricated; leaves oblong. Native of Arabia and Barbary.

28. Hypericum repens, or creeping St. John's wort: ſtem round, creeping; leaves lanceolate-linear obtuſe. Native of the Levant, where it was found by Tournefort. Haſſelquiſt alſo diſcovered this in Paleſtine, and the preceding in Arabia.

29. Hypericum prolificum, or proliferous St. John's wort: primordial flowers ſeſſile, ſtem ancipital, ſhrubby; leaves lanceolate-linear. Native of North America; flowers from June to Auguſt.

30. Hypericum ericoides, or heath-leaved St. John's wort: leaves linear imbricated. Native of Spain, where it was found by Tournefort, and of Portugal.

31. Hypericum Canadenſe, or Canadian St. John's wort: leaves linear-lanceolate; ſtem herbaceous, quadrangular; pericarps coloured, twice as long as the calyx. This has the appearance of leſſer centaury. Native of North America: Kalm obſerved it in Canada. It flowers from July to September.

32. Hypericum Virginicum, or Virginian St. John's wort: flowers nine-ſtamened, ſtem round, leaves ovate, embracing. Native of North America. It was found by Miſs Colden, daughter of the Hon. Cadwallader Colden, in 1753, and ſhe named it Gardenia; it was alſo found the year following by Dr. Garden, about a mile from New York. It is deſcribed by both, in the firſt article of the ſecond volume of Eſſays and Obſervations Phyſical and Literary, read before a Society in Edinburgh, and publiſhed by them in 1756, 8vo.

33. Hypericum Mexicanum, or Mexican St. John's wort: branches ſimple; leaves imbricate, ovate. Found by Mutis in New Granada.

34. Hypericum lævigatum, or ſmooth St. John's wort: leaves ovate, ſomewhat ſtem-claſping; calycine leaflets ovate acute, panicle trichotomous, middle flower ſeſſile. Native of North America, where it was found by Samuel Martin, M. D. It flowers in July.

35. Hypericum reflexum, or reflex-leaved St. John's wort: leaves ſeſſile, lanceolate, approximating, reflex; branches tomentoſe, panicle terminating. This is a large ſhrub with divaricating branches, the laſt leafy and tomentoſe. Native of the iſland of Teneriffe; introduced in 1788 by Mr. Francis Maſſon. It flowers moſt part of the ſummer.

36. Hypericum quadrangulum, or ſquare-ſtalked St. John's wort, or St. Peter's wort: leaves ovate, with pellucid dots; ſtem quadrangular, herbaceous. Square-ſtalked St. John's wort is ſufficiently diſtinguiſhed from the other ſpecies by that circumſtance which has given occaſion to the trivial name. The root is perennial, ſomewhat creeping, and fibrous. Stems from a foot to eighteen inches in height, upright, branched, ſmooth, reddiſh, ſquare from having four little membranes or wings running down them. Branches decuſſately oppoſite. Leaves blunt, ſmooth, deep green, but paler underneath, ſtrongly marked with ſeven or nine ribs, having a net-work of veins, with tranſparent glands in the interſtices, but not very numerous; diſcernible when viewed with a glaſs in a ſtrong light; the edge, eſpecially on the under ſide, dotted with black glands; the lower ones ſeſſile, oppoſite; the upper growing together. Flowers ſmall, terminating in cloſe panicles; branchlets deep red or blood-colour; peduncles very ſhort; bractes ſubulate, in pairs: petals finely grooved, concave, marked with lines and dots, filled with a purple liquor, which ſtains paper with a muddy purple permanent ſtain. Seeds oblong, ſomewhat ſhining. Native of moſt parts of Europe, in moiſt hedges, ſhady places, wet meadows, by rivulets and in bogs; flowering in July.

37. Hypericum perforatum, common or perforated St. John's wort: ſtem ancipital, leaves blunt with pellucid dots. Root perennial, woody, brown. The whole plant is ſprinkled over with ſmall black glands, and is quite free from hairs. Stems ſeveral, about two feet high, woody, upright, ſmooth, round or nearly ſo, alternately two-edged, much branched. Branches oppoſite, nearly upright, two-edged. Leaves decuſſately oppoſite, ſeſſile, oblong-ovate, yellowiſh green, with ſeven or five ſemitranſparent lines, and ſeveral black dots near the edges on the under ſide; the ſemitranſparent dots numerous. See BOTANY Plate V. fig. 75. Peduncles from the axils of the upper leaves, two-edged, ſupporting many flowers in a buſhy panicle; ſtigmas dark red or crimſon. Common in woods, thickets, hedges, and dry banks; flowering from July to September.

Although in the preſent practice St. John's wort is not much regarded, yet its ſenſible qualities, and the repeated teſtimonies of its virtues, entitle it, as Dr. Cullen obſerves, to farther trials. To the taſte it is aſtringent and bitter, and its effects ſeem to be chiefly diuretic. From poſſeſſing properties which have been generally called balſamic, it has been uſed as a vulnerary in external wounds and internal hæmorrhages: for the former purpoſe the tops of the plant with the flowers are infuſed in oil, and for the latter an infuſion of the plant is made in the manner of tea. It has likewiſe been given in ulcerations of the kidneys, and has even been ſuppoſed to poſſeſs virtues as a febrifuge. The leaves given in ſubſtance are ſaid to deſtroy worms. The ſemitranſparent dots on the leaves are the receptacles of an eſſential oil. The flowers tinge ſpirits and oils of a fine purple colour, which is probably derived from the little glands upon the anthers and edges of the petals. The dried plant boiled with alum dyes wool of a yellow colour. The common people in France and Germany gather it with great ceremony on St. John's day; and hang it in their windows, as a charm againſt ſtorms, thunder, and evil ſpirits; miſtaking the meaning of ſome medical writers, who have fancifully given this plant the name of *Fuga Dæmonum*, from a ſuppoſition that it was good in maniacal and hypochondriacal diſorders. In Scotland alſo it is carried about as a charm againſt witchcraft and enchantment; and they fancy it cures ropy milk, which they ſuppoſe to be under ſome malignant influence, by milking afreſh upon the herb. Kine, goats, and ſheep, eat it, but horſes and ſwine refuſe it.

38. Hypericum dubium, or imperforate St. John's wort: ſtem imperfectly four-edged, leaves blunt without pellucid dots, calycine leaflets elliptical. In habit, ſize, and colour, it nearly agrees with the preceding, but differs eſſentially in having no pellucid dots apparent on the leaves; and in the calycine leaflets being elliptical and obtuſe. The latter indeed, and even the bractes, are ſprinkled with pellucid dots and lines; and the petals, as well as the edges of the leaves, are marked with opaque purple, as in that; but the ſtem of this is in the upper part almoſt quadrangular; and it may be known even before it comes out of the ground, by the much more vivid red of the young ſhoots. It is not, as Leers ſuſpects, the ſame with H. perfoliatum of Linnæus. Native of Germany, Dauphiné, and England; probably of other countries, but unnoticed. Firſt diſcovered in England in July 1794, by Dr. John Seward, of Worceſter, growing plentifully about Sapen in that county, and aſcertained by the Rev. Mr. Douglas to be H. dubium of Leers. Dr. Smith found it in Auguſt 1795, about colonel Johnes's, at Hafod, Cardiganſhire, and in Mr. Knight's woods at Downton Caſtle, near Ludlow. It flowers in July and Auguſt.

39. Hypericum humifuſum, or trailing St. John's wort: flowers axillary, ſolitary; ſtems ancipital, proſtrate, filiform; leaves ſmooth. Root perennial, yellowiſh, fibrous; ſtems numerous, about half a foot in length, procumbent, round or ſomewhat flatted, ſcarce perceptibly two-edged, ſmooth, reddiſh, branched at top. This is the leaſt of our wild hypericums, ſcarcely inferior to any in beauty and delicacy; and is not unfrequent in gravelly paſtures, in fields that have long lain untilled, on heaths, eſpecially where the ſoil is moiſt and clayey, and ſometimes in woods; flowering from June to Auguſt. It varies with leaves growing by threes. Scopoli fancies it, but ſurely without grounds, to be a monſtrous variety of H. perforatum.

40. Hypericum criſpum, or curled-leaved St. John's wort: ſtem round, leaves ſeſſile, lanceolate, waved and toothed at the baſe. Leaves very minute, half ſtem-claſping, curled at the baſe, whence the trivial name. Native of Calabria, Sicily, and Greece.

41. Hypericum linarifolium, or toad-flax St. John's wort: calyxes ſerrate-glandular, ſtem round, upright; leaves linear, blunt, ſmooth. Stem next the root woody, very ſmooth and even, ſlender, quite ſimple, except that it is ſometimes branched at the baſe; the branches a foot long, nearly as high as the ſtem. Found by Vahl on heaths near Bayonne and in Navarre.

42. Hypericum montanum, or mountain St. John's wort: calyxes acute ſerrate-glandular; ſtem round, upright; leaves oblong, ſmooth, embracing, ſharpiſh. Stem upright, round, ſmooth, about eighteen inches high, very little branched, and naked for a conſiderable diſtance under the flowers. Leaves few, in pairs, ſeſſile, ovate, the upper ones ovate-lanceolate, with ſeven ribs, and a net-work of veins, the edges ſet with black dots; the upper leaves have numerous minute circular tranſparent dots, viſible to the naked eye; but the lowermoſt are dotted only towards the baſe. Native of many parts of Europe, in woods and thickets in high ſituations. In Britain, in Charlton-wood, Kent, and near Croydon in Surrey; Bath-hills, near Bungay, Suffolk; Stokenchurch, Henley, and Maple-Durham, Oxfordſhire; Perſhore and Bredon-hill, Worceſterſhire. Frequent in the weſt of England: in Angleſea, Wales; near Ingleton, Cartmelwell, and Furneſs Fells, in the North; and in Scotland, but not common.

43. Hypericum barbatum, or bearded-flowered St. John's wort: calyxes and petals ciliate and dotted, leaves dotted. Root perennial. Stem upright, ſimple, ſmooth, round, about a foot high, tinged with purple. Leaves oblong-lanceolate, ſeſſile, blunt, very ſmooth, entire; theſe, with the calyx and petals, have black dots ſcattered over them on both ſides. Flowers terminating, few, without ſmell. Seeds yellowiſh. Native of Auſtria, where it was found by Mygind and Boujart, in paſtures by woodſides; flowering in June, and perfecting ſeeds in July and Auguſt.

44. Hypericum glanduloſum, or glandulous St. John's wort: calyxes ſerrate-glandular, leaves lanceolate, glandular at the edge; ſtem ſhrubby. Native of Maderia. It flowers from May to Auguſt.

45. Hypericum hirſutum, or hairy St. John's wort: calyxes ſerrate-glandular; ſtem round, upright; leaves ovate, ſubpubeſcent. It differs from common St. John's wort in being taller, having the ſtem perfectly round and hoary, and the edge of the calyx beſet with black glands. It is alſo more apt to grow in woods and coppices, though it is frequently met with in hedges. Linnæus ſays, that the flowers cloſe in the night, which thoſe of H. perforatum do not. It flowers from June to Auguſt.

46. Hypericum tomentoſum, or woolly St. John's wort: calyxes ſerrate-glandular, leaves half-ſtem-claſping, flexuoſe tomentoſe; ſtems proſtrate. Native of the ſouth of Europe. Introduced in 1772 by Monſ. Reichard. It flowers from July to September. Ray obſerved it about Montpellier, and in the iſland of Malta, where water had ſtagnated during winter.

47. Hypericum perfoliatum, or perfoliate St. John's wort: ſtem ſubancipital, leaves ſtem-claſping, ovate, cyme with ſeſſile flowers. This is a native of Italy, and was introduced in 1785 by Mr. John Græfer. It flowers in May and June.

48. Hypericum elodes, marſh St. John's wort, or St. Peter's wort: ſtem round, creeping, villoſe; leaves villoſe, roundiſh. This, as Linnæus obſerves, is very nearly related to his H. tomentoſum; which however differs in having oblong leaves, the veins of which ſpring from the midrib, and not from the baſe, a much larger and more compound panicle, the calyx and ſtamens more deeply divided, the former bearing black or purple glands. Beſides England, this ſpecies has not been obſerved as a native, except in the northern part of France. With us it is not uncommon in bogs; as on Hayes-common in Kent, Derſingham-moor near Lynn, and other bogs in Norfolk; Gamlingay bogs in Cambridgeſhire, Birmingham-heath in Cornwall, &c.

49. Hypericum pulchrum, or elegant St. John's wort: calyxes ſerrate-glandular, ſtem round, leaves ſtem-claſping, cordate, ſmooth. The whole plant is ſmooth. Stems from one to two feet high, upright, round, often red,

HYPERICUM.

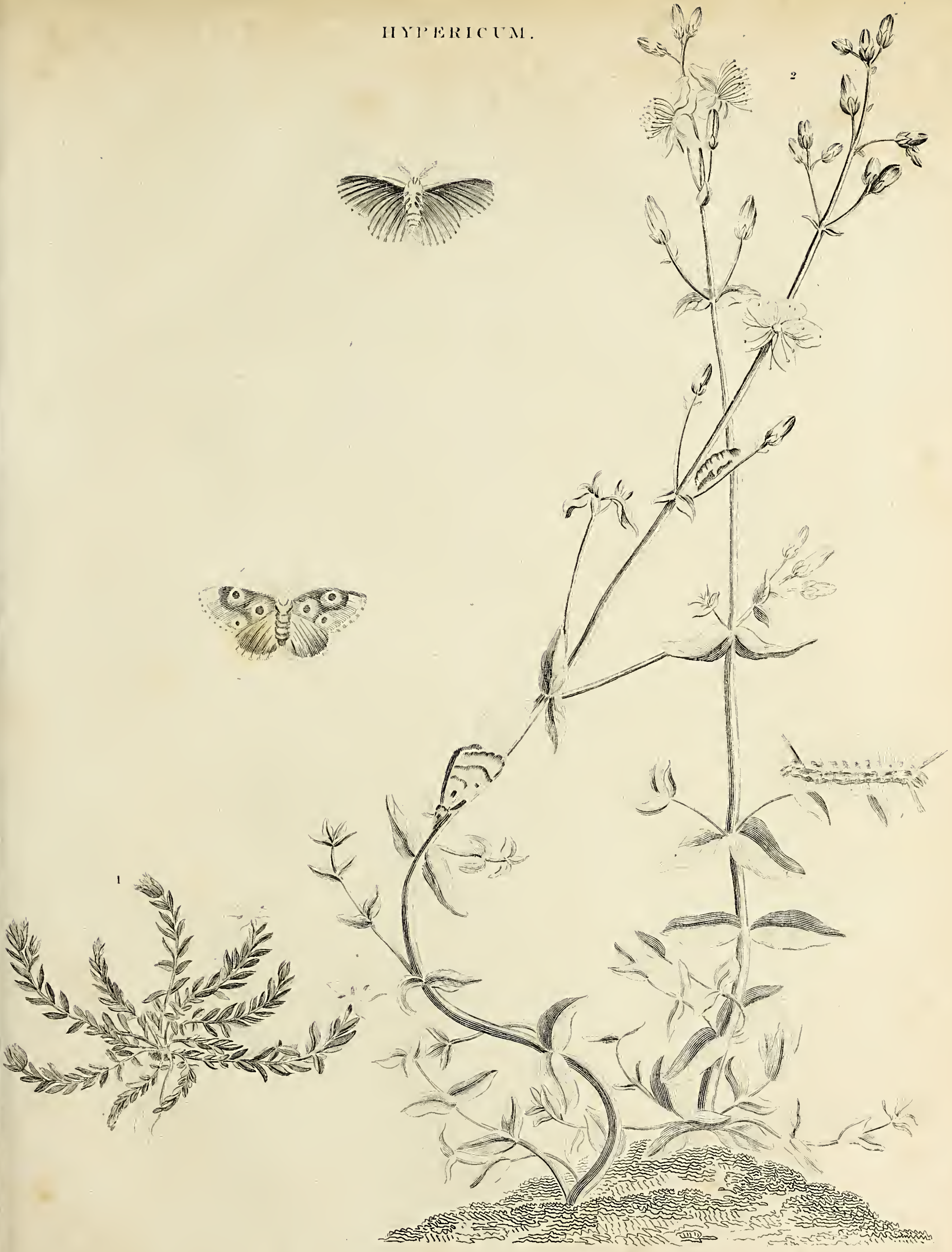


*Fig. 1. Trailing St. John's Wort. 2. Elegant upright St. John's Wort, with the Orange Tussock Moth in its different states feeding thereon.*

thinly branched, the joints remote; branches oppoſite, ſhort, ſlender, and like the ſtem. Leaves in diſtant pairs, triangularly-cordate or obtuſely-ovate, ſhining, embracing, nearly horizontal; deep green above, glaucous beneath, with numerous ſemitranſparent dots, particularly near the edge and top, more ſolid to the touch than in the other ſpecies, and frequently of a bright red colour towards the bottom; thoſe on the branches three times ſmaller than the ſtem-leaves, and thoſe on the peduncles lanceolate. Native of moſt parts of Europe, in woods, on heaths, banks, and in hedges, eſpecially in a clayey ſoil; flowering in June and July.

50. Hypericum nummularium, or money-wort-leaved St. John's wort: calyxes ſerrate-glandular, leaves cordate-orbicular, ſmooth. This is a very ſmall plant. Stems two or three, round, ſimple, five or ſix inches long, proſtrate. The leaves differ from thoſe of all the other ſpecies in being thick and fleſhy, though very hard, and uniform throughout. Native of Dauphiné, near the Grande Chartreuſe.

51. Hypericum Japonicum, or Japaneſe St. John's wort: leaves ſeſſile, ovate, entire; ſtem herbaceous, four-cornered, decumbent at the baſe. Stem ſmooth, ſeldom branched, a foot high. It differs from H. quadrangulum in being many times ſmaller, and in having a weak ſtem decumbent at the baſe: from H. perforatum in the ſame circumſtances, and in having a quadrangular ſtem. Native of Japan; flowering in June.

52. Hypericum erectum, or upright St. John's wort: leaves ſtem-claſping, lanceolate, acute; ſtem round, herbaceous. Native of the mountains of Japan; flowering in Auguſt.

53. Hypericum coris, or heath-leaved St. John's wort: calyxes ſerrate-glandular, leaves ſubverticillate. Stem round, a long ſpan in height. Leaves glaucous, linear, narrow, like thoſe of Linaria, in fours. This is an elegant little evergreen, forming a pretty buſh, and flowering during moſt of the ſummer. Native of the ſouth of Europe, and many parts of the Levant, the Crimea, &c. It was cultivated here in 1640.

III. With two ſtyles. 54. Hypericum mutilum, or imperfect St. John's wort: leaves ovate, ſeſſile. Leaves glaucous, preſſed cloſe to the ſtem, ſcarcely conſpicuous. Native of Virginia, in watery places.

55. Hypericum ſetoſum, or briſtly St. John's wort: leaves linear. Stem ſhrubby, four-cornered, hairy, branching like horſe-tail. Leaves very ſmall, hairy, preſſed ſo cloſe to the ſtem as to be ſcarcely viſible. Flowers golden-coloured. Native of Virginia and Carolina. Introduced in 1787 by Thomas Walter, eſq.

IV. With one ſtyle. 56. Hypericum revolutum, or revolute St. John's wort: leaves linear-lanceolate, rolled back at the baſe; ſtamens ſhorter than the corolla. Native of Arabia.

57. Hypericum monogynum, or monogynous St. John's wort: ſtamens longer than the corolla, calyxes coloured, ſtem ſhrubby. Root compoſed of many woody fibres ſtriking deep into the ground. Stems ſeveral, ſhrubby, near two feet high, covered with a purpliſh bark. Leaves ſtiff, ſmooth, about two inches long, and a quarter of an inch broad, oppoſite, ſeſſile, of a lucid green on their upper ſurface, and grey underneath, having many tranſverſe veins running from the midrib to the border. It continues in flower from March to September. Native of China, whence the ſeeds were brought to Hugh duke of Northumberland; the plants were raiſed at Stanwick in 1753, and thence communicated to the botanic garden at Chelſea.

*Propagation and Culture.* Of the numerous ſpecies above recited that have been introduced into culture in Europe, many are very hardy, and being perennial may eaſily be increaſed by parting the roots, as well as by letting the ſeeds ſcatter. Theſe hardy ſorts are 4, 5, 6, 13, 14, 22, 23, 24, 29, 31, 34, 36, 37, 38, 39, 42, 45, 48, 49, 53, and 55. The reſt require the protection of a green-houſe, but none are ſo tender as to need the aſſiſtance of a bark-ſtove. See Ascyrum, Diosma, and Gordonia.

HYPER'ICUM FRU'TEX. See Spiræa.

HYPER'IDES, an eminent Grecian orator, native of Athens, and ſon of Glaucippus. He ſtudied under Plato and Iſocrates; and, cultivating the art of eloquence, became one of the moſt diſtinguiſhed orators of his time, and acquired that ſway in ſtate-affairs which the talent for public ſpeaking never failed to obtain in the Athenian democracy. He appeared as an accuſer of Phocion, but was unable to ſubſtantiate his charge againſt that virtuous patriot. The approach of Antipater obliged Hyperides, with the leading men of that party, to quit Athens, and he had an interview with Demoſthenes, then a fugitive at Ægina. He was preparing to ſeek a ſafer place of refuge, when he was apprehended by Archias in the temple where he had taken ſanctuary, and carried to Antipater at Cleonæ. It is ſaid that his tongue was cut out, by way of puniſhment, before he was put to death. His body was left unburied till ſome of his relations ſecretly committed it to the funeral pile, and brought his aſhes to Athens. The oratory of Hyperides is characteriſed by Quintilian as being ſingularly ſweet and acute, but fitter for little than great cauſes. He reckons him a truly Attic ſpeaker, but too luxuriant; and mentions an oration of his for the courteſan Phryne, as a model of Grecian ſubtlety or refinement. Photius ſays that in his time there were extant fifty-two orations of Hyperides, judged to be genuine, and twenty-five of dubious authenticity. None of them have reached modern times.

HYPE'RION, a ſon Cœlus and Terra, who married Thea, by whom he had Aurora, the ſun and moon. Hyperion is often taken by the poets for the ſun itſelf; as in the following examples.—Whereon *hyperion's* quick'ning fire doth ſhine. *Shakeſpeare.*

Till down the eaſtern cliffs afar
*Hyperion's* march they ſpy, and glitt'ring ſhafts of war.
*Gray.*

HYPER'METER, *ſ.* [υπερ, and μετρον, Gr.] Any thing greater than the ſtandard requires.—When a man riſes beyond ſix foot, he is an *hypermeter*, and may be admitted into the tall club. *Addiſon.*

HYPERSARCO'SIS, *ſ.* [from υπερ, and σαρκος, Gr.] The growth of fungous or proud fleſh.—Where the *hyperſarcoſis* was great, I ſprinkled it with precipitate, whereby I more ſpeedily freed the ulcer of its putrefaction. *Wiſeman.*

HYPE'RIUS (Gerard-Andrew), a learned Lutheran divine, born at Ypres in Flanders, in 1511. In 1528 he was ſent to Paris, to purſue his academical ſtudies in the univerſity of that city. Accordingly, he proceeded to the place of his deſtination, where he ſtudied philoſophy for three years in the college of Calvi. He then entered on the ſtudy of divinity, which he proſecuted with diligence and reputation. He prepared to viſit the univerſity of Straſburg, particularly for the purpoſe of converſing with Bucer; but, as he paſſed through Marpurg, he met with a profeſſor of divinity named Geldenhaur, who was one of his friends, and who, in order to keep him there, gave him hopes of ſome employment in the univerſity of that city. Having ſettled there in 1542, he was appointed to ſucceed his deceaſed friend in the theological chair. In diſcharging the duties of this appointment, he acquitted himſelf with great diligence and eminent reputation for more than twenty-two years. He died in 1564, about the age of fifty-three. He was the author of numerous works, ſome of which were publiſhed by himſelf, and the reſt after his death. They conſiſt of Commentaries on different parts of ſcripture; theological Diſſertations; controverſial tracts; treatiſes in rhetoric, logic, arithmetic, geometry, aſtronomy, optics, natural philoſophy, &c. which Verheiden ſays would make up ſeven volumes in folio.

HYPERMNES'TRA, in fabulous hiſtory, one of the fifty daughters of Danaus king of Argos. She alone refuſed to obey the cruel order Danaus had given to all his daughters, to murder their huſbands the firſt night of their marriage; and therefore ſaved the life of Lynceus, after ſhe had made him promiſe not to violate her virginity. Danaus, enraged at her diſobedience, confined her cloſely in priſon, whence Lynceus delivered her ſome time after.

HY'PHASIS, in ancient geography, a river in India, the inhabitants on the banks of which were ſaid to be deſcended from Jupiter, becauſe they defended their cities by hurling thunder and lightning upon all their invaders. Hence it is imagined that the fabrication of gunpowder was known to this very ancient people. *Philoſtratus.*

HY'PHEN, *ſ.* [υφεν, Gr.] A note of conjunction: as *vir-tue, ever-living.*

HYPH'YDRA, *ſ.* [of υπο, and υδωρ, Gr. water; from its growing under water.] In botany, a genus of the claſs monoecia, order gynandria. The generic characters are—I. Male flowers. Calyx: perianthium one-leafed, three-parted; lobes obovate, concave, curved in at top, ſmooth. Corolla: none. Stamina: filaments ſix, capillary, long, inſerted above the germ at the corners; antheræ roundiſh. Piſtillum: germ empty, inflated, membranaceous, hexagonal, truncate at top; ſtyle capillary, the length of the ſtamens; ſtigma none. II. Female flowers. Calyx, corolla, and ſtamina: none. Piſtillum: germ roundiſh, with three ſtreaks; ſtyle triangular; ſtigmas three, acute. Pericarpium: capſule membranaceous, one-celled, three-valved. Seed: ſingle, ovate, ſtriated.—*Eſſential Character.* Male. Calyx one-leafed, three-parted; corolla none; ſtamina ſix, inſerted above the germ. Female. Calyx and corolla none; ſtyle triangular, with three ſtigmas; capſule one-celled, three-valved; ſeed ſingle.

Hyphydra fluviatilis, or river-hyphydra: a ſingle ſpecies. Stems and branches ſlender; ſome erect, others decumbent, the latter throw out roots. Flowers in capitate bundles; each compoſed of a male flower, involved in a long ſharp bracte, ciliate at the edge, and a female flower included in three bractes of the ſame form; they are axillary, and on a ſlender peduncle. This little plant is a native of Guiana, and grows three or four feet under water; it flowers in February.

HYPNOLO'GIA, *ſ.* [from υπνος, Gr. ſleep, and λογος, a diſcourſe.] Inſtructions relative to the due regulation of ſleep and waking.

HYPNOT'IC, *ſ.* [ιπνος, Gr.] Any medicine that induces ſleep.

HYP'NUM, *ſ.* [ſaid to be from υπνος, Gr. ſleep.] In botany, a genus of the claſs cryptogamia, order muſci, natural order of muſci, or moſſes. The generic characters are—Capſules oblong: periſtomium double; outer with ſixteen broadiſh teeth; inner membranaceous, equal, laciniated; ſegments broadiſh, with capillary ones interpoſed. Males gemmaceous on different plants. Or thus: Peduncle from a lateral tubercle, fenced with ſcales; capſule outer fringed with ſixteen teeth. Male a bud, generally on a different plant; withering.

Hypnum is a very numerous genus of moſſes. Some of the Linnæan ſpecies have been ſeparated by Hedwig and others, under different genera. There are fifty ſpecies in the 14th edition of the Syſtema Vegetabilum; forty in Hudſon's Flora Anglica; and ſeventy in the Arrangement of Britiſh Plants by Dr. Withering, who, to facilitate the inveſtigation of the ſpecies, has thrown them into ſeven diviſions. Figures of them may be ſeen in Dillenius, Hedwig, Dickſon, Engliſh Botany, Vaillant, Buxbaum, Moriſon, &c. See Bryum, Dicranum, Fontinalis, Leskia, Mnium, Neckera, and Sphagnum.

HY'PO, [υπο, Gr.] A prepoſition ſignifying *under*; but, in compoſition, it imports not only inferiority with reſpect to ſituation, but a remiſſion or diminution; as *hypocatharſis* ſignifies a too faint or feeble purgation.

HYPOCAU'STUM, *ſ.* [from υπο, Gr. under, and καιω, to burn.] Among the Greeks and Romans, a ſubterraneous place, where was a furnace to heat the baths. Another ſort of hypocauſtum was a kind of kiln to heat their winter parlours. The remains of a Roman hypocauſtum, or ſweating-room, were diſcovered under ground at Lincoln in 1739. We have an account of theſe remains in the Philoſophical Tranſactions, Nº 461. § 29. Among the moderns, the hypocauſtum is that place where the fire is kept which warms a ſtove or hot-houſe.

HYPOCHŒ'RIS, *ſ.* [from υπο, Gr. and χοιρος, a hog.] Gosmore; in botany, a genus of the claſs ſyngeneſia, order polygamia æqualis, natural order of compoſitæ ſemifloſculoſi, (cichoraceæ, *Juſſ.*) The generic characters are—Calyx: common roundiſh, imbricated, ventricoſe at the baſe; ſcales lanceolate, acute. Corolla: compound imbricated, uniform; corollets hermaphrodite, equal, numerous. Proper: one-petalled, ligulate, linear, truncate, five-toothed. Stamina: filaments five, capillary, very ſhort; antheræ cylindrical, tubular. Piſtillum: germ ovate; ſtyle filiform, the length of the ſtamens; ſtigmas two, reflex. Pericarpium: none; calyx converging, globular-acuminate. Seeds: ſolitary, oblong; down feathered, ſtipitate. Receptacle: chaffy; chaffs lanceolate-linear, the length of the ſeeds.—*Eſſential Character.* Calyx ſubimbricate; down feathered; receptacle chaffy.

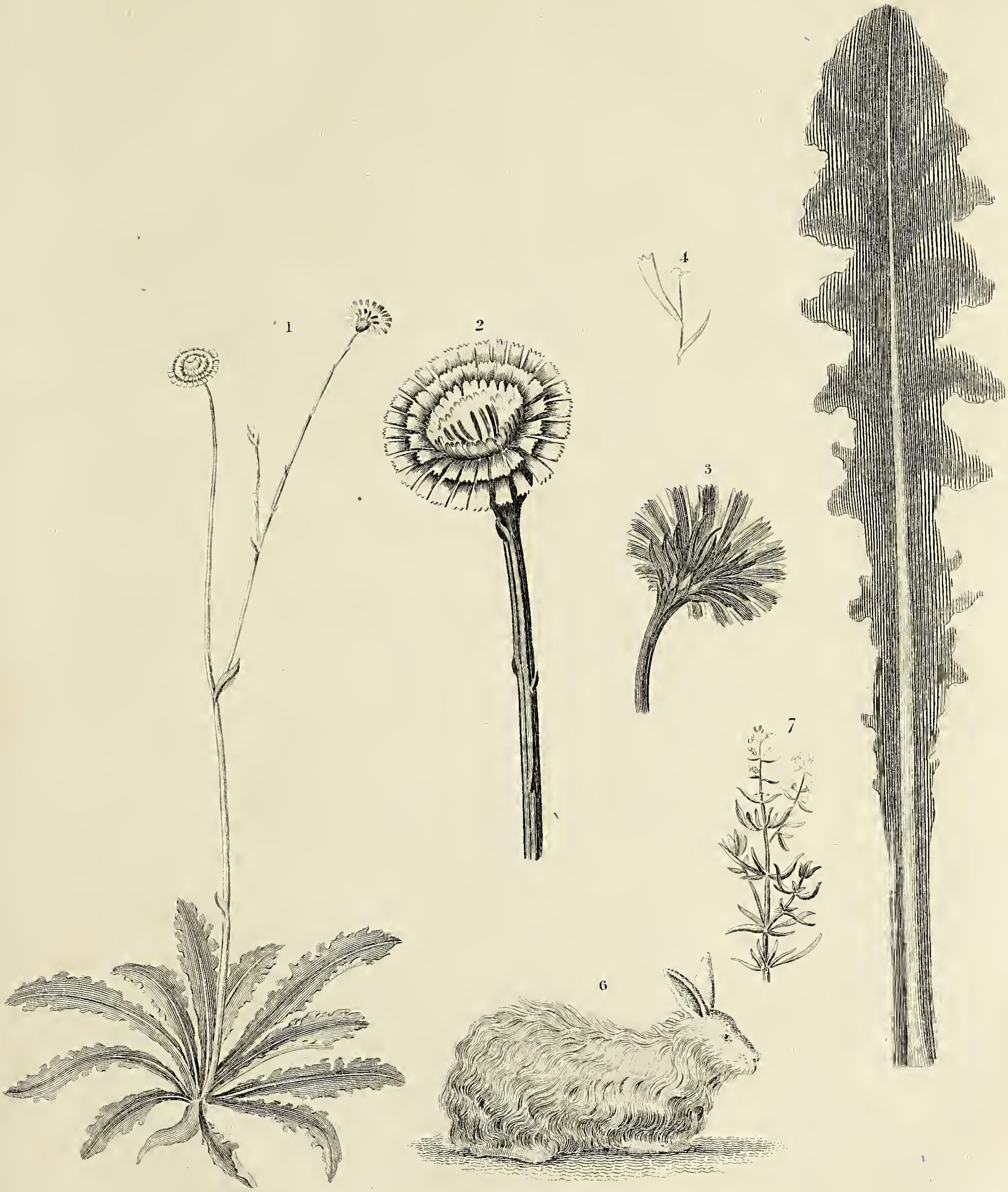
*Species.* 1. Hypochœris Helvetica, or one-flowered hypochœris: ſtem ſimple, leafy, one-flowered; leaves lanceolate, toothed. Root perennial, almoſt fuſiform, thickiſh, ſomewhat woody, ſometimes divided, dark brown on the outſide, white within, milky, putting up one, ſometimes two or three, ſtems, among abundance of radical leaves. Stem about a ſpan high, ſtraight, thickening towards the top, hollow, round, ſtriated, hirſute, quite ſimple, always one-flowered. Flower very large, from erect ſpreading. The plant has no ſmell. According to Monſ. Villars, the ſtem is ſolitary, two feet high, very thick and villoſe, with leaves at the bottom, but naked, or having a ſingle leaf only, from the middle to the top, where it ſpreads out, becoming more villoſe on the outſide, and more hollow within. Leaves oblong, villoſe, pointed and toothed, raiſed up, and not lying on the ground, nor ſpotted. Native of the mountains of Carinthia, Dauphiné, and ſeveral parts of the Alps.

2. Hypochœris maculata, or ſpotted hypochœris: ſtem almoſt naked, branch ſolitary, leaves ovate-oblong, entire, toothed. Root thick and long, abounding with milky juice, as does the reſt of the plant. The flower opens at ſix in the morning, and cloſes at four in the afternoon. Seeds wrinkled; the ſtem, though generally ſimple, has ſometimes a branch or two. The leaves are boiled in Smoland, and eaten like cabbage; though bitter, they are eaten green by animals, particularly thoſe which ruminate, greedily. The country people believe the plant to be a cure for tetters, and other cutaneous eruptions, poſſibly on account of its ſpotted leaves. Native of many parts of Europe. In England not common; on Gogmagog-hills, Newmarket-heath, &c. in Cambridgeſhire; Bernack-heath, in Northamptonſhire; about Malham Cove, Cartmell Wells, and near Settle, in Yorkſhire, &c. flowering in July, and perennial.

3. Hypochœris glabra, or ſmooth hypochœris: leaves ſhining, flowers ſmall. Root annual, the thickneſs of a crow-quill, tapering, furniſhed with few fibres, pale brown. Root-leaves numerous, ſpread on the ground, about the length and breadth of the little finger, ſinuate-toothed, a little broader at top, ſmooth, but not perfectly ſo, the edges particularly being thinly ſet with ſtiffiſh hairs; thoſe on the ſtem few, and very minute. Stems uſually ſeveral, about ſeven inches high, nearly upright, divided into two or three branches, round, almoſt naked, glaucous. The ſtem is ſometimes ſimple, in the autumn it is much branched and reclining. Leaves ſhining, and their teeth triangular, ſometimes edged with white hairs. It may be diſtinguiſhed by the ſmallneſs of the flowers, not exceeding the ſize of a ſilver threepence, while the heads containing the ſeeds are altogether as large in proportion to the ſize of the plant. The flowers are open from about nine in the morning till about one or two in the afternoon. It delights in a gravelly or ſandy ſoil, and expoſed ſituation, and flowers in June.

4. Hypochœris radicata, or long-rooted hypochœris: leaves

# HYPOCHŒRIS, HYRAX, AND HYSSOPUS.



1. 5._ Long-rooted Hypocharis with its fructification. 6. The Cape Hyrax. 7. Common Hyssop.

London. Published April 4th 1811. by Adlard & Jones.

leaves runcinate, obtuſe, rugged; ſtem branched, naked, even; peduncles ſcaly. Root perennial, the thickneſs of the little finger, running deeply into the earth, generally ſimple, of a whitiſh colour, and milky within. Root-leaves ſpread on the ground, oblong-wedgeſhaped, waved or toothed, hairy, the hairs ſimple, upright, and proceeding from little prominent points. Stems often ſeveral, from one to two feet high, nearly upright, naked; inſtead of leaves having only ſhort, ovate, pointed, ciliate, ſcales at the baſe of each branch; they are very ſmooth, glaucous, ſomewhat ſtriated, tough and ſolid; the ſcales are lanceolate, with a few white briſtly teeth at the baſe on each ſide. Flower large, cloſing at three in the afternoon. It is diſtinguiſhed from Leontodon autumnale by the length of the root, whence it derives the trivial name; and is common on dry banks, heaths, and paſtures, flowering from May to September; in the early part of ſummer it is a conſpicuous plant. In barren ſoils it occurs of a much ſmaller ſize, five or ſix inches high, with an unbranched ſtem, or with one flower almoſt ſeſſile on the ſide. Theſe plants are named *hawkweed* in Engliſh, in common with many others: Dr. Withering calls them *cat's-ears*.

5. Hypochœris minima, or leaſt hypochœris: leaves ſinuate-lyrate, ſtem with ſcaly appendixes at top. Root downright, two or three inches long, annual, fibrous. Stem naked, ſimple, a palm in height, ſmooth. Flower ſmall, equal; open from eleven in the morning till two in the afternoon. Native of Italy, near Naples, on volcanic ground, particularly the Solfatara; flowering from May to July. See SERIOLA.

HYPOCHON'DRES, *ſ.* [*hypochondre*, Fr. *υποχονδριν*, Gr.] The two regions lying on each ſide the cartilago enſiformis, and thoſe of the ribs and the tip of the breaſt, which have in one the liver, and in the other the ſpleen.—The blood moving too ſlowly through the celiac and meſenteric arteries, produces various complaints in the lower bowels and *hypochondres*; from whence ſuch perſons are called hypochondriac. *Arbuthnot.*

HYPOCHON'DRIAC, or HYPOCHONDRI'ACAL, *adj.* [*hypochondriaque*, Fr. from *hypochondres*.] Melancholy; diſordered in the imagination.—Socrates laid down his life in atteſtation of that moſt fundamental truth, the belief of one God; and yet he's not recorded either as a fool or *hypochondriac*. *Decay of Piety.*—Producing melancholy; having the nature of melancholy.—Cold ſweats are many times mortal, and always ſuſpected; as in great fears, and *hypochondriacal* paſſions, being a relaxation or forſaking of the ſpirits. *Bacon.*

HYPOCHON'DRIAC, *ſ.* One under the impreſſion of the hypochondriac diſeaſe; a perſon ſubject to fits of morbid melancholy. The ſtate of mind peculiar to hypochondriacs is thus deſcribed by Dr. Cullen. "A languor, liſtleſſneſs, or want of reſolution and activity, with reſpect to all undertakings; a diſpoſition to ſerіouſneſs, ſadneſs, and timidity; as to all future events, an apprehenſion of the worſt or moſt unhappy ſtate of them; and, therefore, often upon ſlight grounds an apprehenſion of great evil. Such perſons are particularly attentive to the ſtate of their own health, to every the ſmalleſt change of feeling in their bodies; and from any unuſual ſenſation, perhaps of the ſlighteſt kind, they apprehend great danger, and even death itſelf. In reſpect to theſe feelings and fears, there is commonly the moſt obſtinate belief and perſuaſion." He adds, that it is only when the ſtate of mind juſt deſcribed is joined with indigeſtion, in either ſex, ſomewhat advanced in years, of a melancholic temperament, and a firm and rigid habit, that the diſeaſe takes the name of *hypochondriac*.

The ſeat of the hypochondriac paſſion is in the ſtomach and bowels; for, firſt, theſe parts are diſordered, then the others ſuffer from the connection. In this Hoffman agrees, by ſaying the periſtaltic motion in the bowels is retarded by ſpaſms. The cauſes are, ſorrow, fear, or exceſs of any of the paſſions; too long continued watching; and irregular diet. Thoſe habitually diſpoſed to it (and theſe cauſes have little effect in other conſtitutions) have generally a ſallow or brown complexion, and a downcaſt look, a rigidity of the ſolids, and torpor of the nervous ſyſtem. Whatever may occaſion nervous diſorders in general may be the cauſe of this in particular.

The hypochondriac diſeaſe is very difficult to cure: it rarely occurs early in life, generally in more advanced years only; and, when once it has taken place, it increaſes as life advances. Indigeſtion, accompanied with vapours, diſtinguiſhes the diſeaſe when the temperament is of this peculiar kind. If the diſeaſe admits of a cure, it is by means ſlow and ſteady in their operation; for the whole conſtitution muſt be corrected before any expectation of relief can be obtained. In theſe caſes the mind muſt be cheered by every pleaſing proſpect; by aſſurances of a cure; by change of place and objects; by engaging it in any employment which will intereſt without fatiguing. For theſe purpoſes the faſhionable mineral waters may be drunk on the ſpot, and they ſhould be of the mildly cathartic kind, as thoſe of Cheltenham, Seltzer, or Tunbridge; but the cathartic waters are, on the whole, preferable to thoſe which contain ſteel among their impregnations, though this medicine is not particularly injurious. If theſe plans cannot be admitted, an active emetic ſhould be given, and repeated every three or four days; a ſmall bliſter applied to the neck; and the bowels kept freely looſe by the pillulæ ex aloe cum myrrhâ, or the tinctura aloes. Dr. Cullen obſerves, that in the hypochondriaſis there is a want of activity, not a loſs of tone, in the fibres, but, on the contrary, a rigidity in them; and he recommends warm bathing; drinking tea and coffee; exerciſe, not merely to excite the activity of the ſtomach, but to divert the mind from its deſpondency.

In managing the minds of hypochondriacs, any intimation that their complaints are imaginary muſt be avoided, and neither raillery nor reaſoning in addreſſing them employed. Their attention ſhould be engaged with any object but their own feelings; diverted with any employment not attended with emotion, anxiety, or fatigue. Diverſion, in which ſome ſkill is required; exerciſe in the air, which requires ſome dexterity; are both to be admitted; riding is better than either walking, ſailing, or travelling in a carriage; and a diſtant journey is the beſt. The ſtudy of botany, which combines exerciſe with employment, has been highly ſalutary. Cheerful company conduces much to relief; but boiſterous mirth, or any exerciſe, carried ſo far as to fatigue, is injurious. A dry warm air is almoſt univerſally proper.

Various ſtories are related of the ſtrange humours of hypochondriacs. The following is extracted from Seward's Anecdotes of Diſtinguiſhed Perſons. "Coſmo II. grand duke of Tuſcany," ſays abbé Arnauld, "was very hypochondriacal, and was under the direction of his brother, cardinal Giovanni, who, for his own particular intereſt, put it into his head that his health would ſuffer extremely if he ever ſlept with his wife, a very beautiful princeſs, and the heireſs of the illuſtrious houſe of Urbino. Coſmo was well acquainted with her merit, and had a great regard for her; yet, apprehenſive of his health, he avoided every opportunity of being left alone with her, exhibiting a great degree of weakneſs both with reſpect to his love and to his health; but he was indeed a ſlave to the laſt. I have ſeen him walk up and down his room, in which there were two immenſe thermometers, on which his eyes were continually fixed, and pull off and put on his night-caps (of which he had always five or ſix in his hand) according to the degree of heat or cold that thoſe inſtruments marked. It was a moſt ridiculous thing to ſee. No juggler was ever more adroit in managing his cups and balls, than this prince was in handling his night-caps."

HY'POCIST, *ſ.* [*υποκιστις*, Gr. *hypociſte*, Fr.] An inſpiſſated juice, conſiderably hard and heavy, and of a fine ſhining black colour.

HYPOC'RISY, *ſ.* [*hypocriſie*, Fr.] Diſſimulation with regard to the moral or religious character:

> Next ſtood *hypocriſy* with holy leer,
> Soft ſmiling and demurely looking down;
> But hid the dagger underneath the gown. *Dryden.*

HYP'OCRITE, *ſ.* A diſſembler in morality or religion.—A wiſe man hateth not the law; but he that is an *hypocrite* therein, is as a ſhip in a ſtorm. *Eccleſ.* xxxiii. 3.

> Fair *hypocrite*, you ſeek to cheat in vain;
> Your ſilence argues, you aſk time to reign. *Dryden.*

A diſſembler:

> Beware, ye honeſt; the third circling glaſs
> Suffices virtue; but may *hypocrites*,
> Who ſlily ſpeak one thing, another think,
> Hateful as hell, ſtill pleas'd unwarn'd drink on,
> And through intemp'rance grow awhile ſincere. *Phillips.*

HYPOCRIT'IC, or Hypocrit'ical, *adj.* Diſſembling; inſincere; appearing differently from the reality.—Let others ſkrew that *hypocritic* face. *Swift.*

HYPOCRIT'ICALLY, *adv.* With diſſimulation; without ſincerity; falſely.—Simeon and Levi ſpake not only falſely, but inſidiouſly, nay *hypocritically*, abuſing at once their proſelytes and their religion. *Gov. of the Tongue.*

HYPOGA'LA, *ſ.* [Gr. from υπο, under, and γαλα, milk.] A collection of white fluid in the eye, ſuppoſed to be ſometimes a lacteal depoſition in women who give ſuck; ſometimes owing to the wounding a milky cataract in the operation of couching.

HYPOGAS'TRIC, *adj.* [*hypogaſtrique*, Fr. of υπο, and γαςηρ, Gr.] Seated in the lower part of the belly.—The ſwelling we ſuppoſed to riſe from an effuſion of ſerum through all the *hypogpaſtric* arteries. *Wiſeman.*

HYPOGAS'TRIUM, *ſ.* in anatomy, the middle part of the lower region of the belly.

HYPOGE'UM, *ſ.* [υπο and γη, Gr.] A name which the ancient architects gave to all the parts of a building that were under ground, as cellars and vaults. In aſtrology, the fourth houſe of the heavens.

HYPOGLOS'SIS, *ſ.* [from υπο, Gr. under, and γλωσσα, the tongue.] A tumour under the tongue.

HYPOGLOT'TIAN, *adj.* Lying under the tongue.

HYPOGLOT'TIDES, *ſ.* The two large glands ſituate under the tongue.

HYPOMOCH'LION, *ſ.* [Greek.] In mechanics, the fixed point, or centre of motion, of a body or engine, by which it is ſuſpended, and on which it reſts in its motion. Thus in a balance, the point on which the beam moves is the hypomochlion.

HYPOPH'ORA, *ſ.* [from υποφερομαι, Gr. to be carried or conveyed underneath.] A deep fiſtulous ulcer.

HYPOPHTHAL'MION, *ſ.* [from υπο, Gr. and οφθαλμος, the eye.] The part under the eye ſubject to ſwell in a cachexy or dropſy.

HYPOPHYLLOSPER'MI, *ſ.* [from υπο, Gr. under, Φυλλον, a leaf, and σπερμα, ſeed.] Such plants as bear their ſeed on the back part of their leaves.

HYPOSCE'NIUM, *ſ.* in antiquity, a partition under the pulpit or logeum of the Greek theatre, appointed for the muſic.

HYPOS'TASIS, *ſ.* [Greek.] Diſtinct ſubſtance. Perſonality; a term uſed in the doctrine of the Holy Trinity. The ſediment of the urine.—Here's an *hypoſtaſis* argues a very bad ſtomach. *Nabbes's Microcoſmus.*

HYPOSTAT'ICAL, *adj.* Conſtitutive; conſtituent as diſtinct ingredients.—Let our Carneads warn men not to ſubſcribe to the grand doctrine of the chemiſts, touching their three *hypoſtatical* principles, till they have a little examined it. *Boyle.*—Perſonal; diſtinctly perſonal.

HYPOT'ENUSE, or Hypothenuse, *ſ.* [*hypotenuſe*, Fr. of υποτενȣσα, Gr.] The line that ſubtends the right angle of a right-angled triangle; the ſubtenſe.—The ſquare of the *hypotenuſe* in a right-angled triangle, is equal to the ſquares of the two other ſides. *Locke.*

HYPOSTAT'ICALLY, *adv.* In an hypoſtatical manner.

HYPOTHE'CA, [Latin.] In the civil law, an obligation, whereby the effects of a debtor are made over to his creditor, to ſecure his debt. As the hypotheca is an engagement procured on purpoſe for the ſecurity of the creditor, various means have been made uſe of to ſecure to him the benefit of the convention. The uſe of the pawn or pledge is the moſt ancient, which is almoſt the ſame thing with the hypotheca; all the difference conſiſting in this, that the pledge is put into the creditor's hands; whereas, in a ſimple hypotheca, the thing remained in the poſſeſſion of the debtor. It was found more eaſy and commodious to engage an eſtate by a civil covenant than by an actual delivery; accordingly the expedient was firſt practiſed among the Greeks; and from them the Romans borrowed both the name and the thing; only the Greeks, the better to prevent frauds, uſed to fix ſome viſible mark on the thing, that the public might know it was hypothecate or mortgaged by the proprietor; but the Romans, looking on ſuch advertiſements as injurious to the debtor, forbade the uſe of them. The Roman lawyers diſtinguiſhed four kinds of hypothecas; the conventional, which was with the will and conſent of both parties; the legal, which was appointed by law, and for that reaſon called *tacit*; the prætor's pledge, when by the flight or non-appearing of the debtor the creditor was put in poſſeſſion of his effects; and the judiciary, when the creditor was put in poſſeſſion by virtue of a ſentence of the court. The conventional hypotheca is ſubdivided into general and ſpecial. The hypotheca is general, when all the debtor's effects, both preſent and future, are engaged to the creditor; it is ſpecial, when limited to one or more particular things.

*To* HYPOTH'ECATE, *v. a.* [*hypotheca*, Lat. a pawn or pledge.] This term is now chiefly applied to the pawning a ſhip for neceſſaries. A maſter may hypothecate either ſhip or goods for relief when in diſtreſs at ſea; for he repreſents the traders as well as owners; and in whoſe hands ſoever a ſhip or goods hypothecated come, they are liable. 1 *Salk.* 34.

HYPOTH'ESIS, *ſ.* [*hypotheſe*, Fr. υποτεσις, Gr.] A ſuppoſition; a ſyſtem formed upon ſome principle not proved.—The mind caſts and turns itſelf reſtleſsly from one thing to another, till at length it brings all the ends of a long and various *hypotheſis* together; ſees how one part coheres with another, and ſo clears off all the appearing contrarieties that ſeemed to lie croſs, and make the whole unintelligible. *South.*

> With imagin'd ſovereignty
> Lord of his new *hypotheſis* he reigns:
> He reigns: how long? till ſome uſurper riſe:
> And he too, mighty thoughtful, mighty wiſe,
> Studies new lines, and other circles feigns. *Prior.*

HYPOTHET'IC, or Hypothetical, *adj.* Including ſuppoſition; conditional.—Conditional or *hypothetical* propoſitions are thoſe whoſe parts are united by the conditional particle *if*; as, *If* the ſun be fixed, the earth muſt move. *Watts.*

HYPOTHET'ICALLY, *adv.* Upon ſuppoſition; conditionally.—The only part liable to imputation is calling her a goddeſs; yet this is propoſed with modeſty and doubt, and *hypothetically*. *Broome.*

HYPOTRACHE'LION, *ſ.* in architecture, is uſed for a little frize in the Tuſcan and Doric capital, between the aſtragal and annulets; called alſo the colerin and gorgerin. The word is applied by ſome authors, in a more general ſenſe, to the neck of any column, or that part of its capital below the aſtragal.

HYPOTYP'OSIS, *ſ.* [from υπο, Gr. under, and τυπος, a type.] A figure in rhetoric, a ſtriking and lively deſcription.

HYPOX'IS, *ſ.* [υποξυς, Gr. ſharpiſh.] BASE STAR-FLOWER; in botany, a genus of the claſs hexandria, order monogynia, natural order of coronariæ, (narciſſi, *Juſſ.*) The generic characters are—Calyx: glume two-valved. Corolla: one-petalled, ſuperior; limb ſix-parted; ſegments ovate-oblong, ſpreading; permanent. Stamina: filaments ſix, very ſhort, capillary; anthers oblong, ſhorter than the petals. Piſtillum: germ inferior, turbinate; ſtyle filiform, the length of the ſtamens; ſtigma bluntiſh. Pericarpium: capſule ſomewhat oblong, narrower at the baſe, crowned with the permanent corolla, three-celled, three-valved, (valveleſs, *Gærtner.*) Seeds: very many, roundiſh.—*Eſſential Character.* Calyx: a two-valved glume; corolla ſix-parted, permanent, ſuperior; capſule narrower at the baſe.

*Species.* 1. Hypoxis erecta, or upright hypoxis: hairy, with ovate capſules. Leaves like thoſe of carex or juncus piloſus. Hypoxis juncea, or ruſhy hypoxis, of Dr. Smith, found by Mr. John Fraſer in boggy ground in Carolina, does not ſeem to be a different ſpecies, although the ſcapes are ſingle flowered, as in Smith's and Cateſby's figures; whereas in thoſe of Petiver and Plukenet, referred to by Linnæus, two flowers are repreſented together. Native of North America. Introduced in 1784 by Mr. William Young. It flowers in June.

2. Hypoxis decumbens, or trailing hypoxis: hairy, with club-ſhaped capſules. Native of Jamaica, in ſandy fields among the mountains. The roots came accidentally to Mr. Miller among ſome plants of allſpice; and he cultivated them in 1755. It flowers moſt part of the year.

3. Hypoxis ſpicata, or ſpiked hypoxis: upright; leaves enſiform, falcate, ſmooth; flowers in ſpikes. Native of Japan; flowering in May and June.

4. Hypoxis plicata, or plaited-leaved hypoxis: ſcape one-flowered, three-ſided, leaves lanceolate, plaited, villoſe. Native of the Cape of Good Hope, on ſandy hills; found there by Thunberg. Introduced in 1788 by Mr. Francis Maſſon.

5. Hypoxis ſtellata, or ſpotted-flowered hypoxis: ſcape one-flowered, leaves linear, ſtriated, petals ſpotted. This is a beautiful little bulbous plant, with a dark ſpot at the claws of the petals. It was firſt named Amaryllis capenſis by Linnæus, and is thus deſcribed in the Amœnitates Academicæ: Leaves like thoſe of narciſſus, the length of the ſcape, which is ſheathed below the middle; the ſpathe permanent, acuminate, flat; petals lanceolate, black at the baſe within; filaments very ſhort; anthers erect, ſhorter by half than the petals; ſtyle three-cornered, the length of the anthers, with three ſtigmas. Amaryllis capenſis of Miller is different. Reichard refers to A. vernalis of Miller as the ſame with this; but Miller makes that to be a native of Spain and Portugal. Native of the Cape of Good Hope, where it was obſerved by Thunberg.

6. Hypoxis aquatica, or aquatic hypoxis: leaves linear, ſcapes umbelled, or one-flowered. Leaves radical, looſe, bending at the end. Scapes filiform, the height of the water. Flowers in ſome ſolitary, hermaphrodite; in others umbelled, male. Native of the Cape of Good Hope in watery ditches.

7. Hypoxis ſerrata, or channel-leaved hypoxis: leaves channelled, ſmooth, ciliate-ſerrate; ſcapes one-flowered. This alſo was found at the Cape of Good Hope by Thunberg; and was introduced by Maſſon in 1788. It flowers in July.

8. Hypoxis villoſa, or hairy hypoxis: leaves linear-enſiform, villoſe, ſtigma ſimple, three-cornered, acute. It varies in ſize, and is a native of the Cape of Good Hope. It was found there by Mr. Francis Maſſon; was introduced in 1774, and flowers moſt part of the ſummer.

9. Hypoxis faſcicularis, or Aleppo baſe ſtar-flower: tube of the flowers very long. Native of the country about Aleppo.

10. Hypoxis ſeſſilis, or Carolina baſe ſtar-flower: hairy, ſtemleſs, fructifications ſubradical, leaves linear, ſtraight. Leaves ſeveral, a long ſpan in length, keeled, like thoſe of Juncus piloſus, hairy all over, but moſt conſpicuouſly round the edge, pale green on both ſides. Native of Carolina, whence it came in the earth with other plants, and was cultivated in the Eltham garden before 1732. Flowers in June and July.

11. Hypoxis minuta, or ſmall baſe ſtar-flower: leaves three-ſided, fleſhy, ſmooth; ſcapes bifid. Native of the Cape of Good Hope, where it was found by Koenig.

12. Hypoxis ovata, or ovate-leaved baſe ſtar-flower: leaves ovate-lanceolate, entire, ſmooth; ſcapes one-flowered. Flower white and pretty. Found at the Cape of Good Hope by Thunberg.

13. Hypoxis alba, or white baſe ſtar-flower: leaves cylindric, ſmooth, ſcapes ſubbifid, petals unſpotted. This is a little plant, found alſo at the Cape by Thunberg.

14. Hypoxis aurea, or golden baſe ſtar-flower: ſtemleſs, hairy, ſcape one-flowered, capſule oblong. This is an annual plant. Leaves awl-ſhaped, channelled, reflex, half a foot long, cluſtered. Corolla bell-ſhaped, equal, golden-coloured within, greeniſh on the outſide, hairy. Native of Cochin-china, on a ſandy hill called Son Koung.

*Propagation and Culture.* For the Cape ſorts, 4 to 8, 11, 12, 13, ſee ALBUCA, vol. i. p. 242. Trailing hypoxis will not thrive well in England, unleſs the pots be plunged into a hot-bed of tanner's bark, and the hair kept up to the heat aſſigned for Ananas. In this ſituation the plants will thrive, produce plenty of flowers, and perfect their ſeeds, which, if ſuffered to ſcatter on the pots, will produce plenty of young plants; or, if they be ſown in pots ſoon after they are ripe, and planted into the tan-bed, they will come up in about ſix weeks, and when they are fit to tranſplant may be treated in the ſame manner as the old plants. See ORNITHOGALUM.

HYPOX'YLON, *ſ.* in botany. See CLAVARIA.

HYP'SICLES, an ancient mathematician who flouriſhed in the ſecond century, under the reigns of Marcus Aurelius and Lucius Verus, was a native of Alexandria, and a diſciple of Iſidorus. He was the author of a work entitled Αναφορικος, *ſive de Aſcenſionibus*, which was publiſhed at Paris, in Greek and Latin, by James Mentelius, together with the Optics of Heliodorus, 1657, 4to. He is alſo ſuppoſed to have been the author of the XIVth and XVth books of the Elements of Geometry, which are commonly attributed to Euclid.

HYPSIC'RATES, a Phœnician, who wrote a hiſtory of his country in the Phœnician language. This hiſtory was ſaved from the flames of Carthage, when that city was taken by Scipio, and tranſlated into Greek.

HYPSIP'YLE, in ancient hiſtory, a queen of Lemnos, daughter of Thoas. During her reign, Venus, whoſe altars had been univerſally ſlighted, puniſhed the Lemnian women, and rendered their mouths and breath ſo extremely offenſive to the ſmell, that their huſbands abandoned them, and gave themſelves up to ſome female ſlaves whom they had taken in a war againſt Thrace. This contempt was highly reſented by the women of Lemnos; they reſolved on revenge, and all unanimouſly put to death their male relations, Hypſipyle alone excepted, who ſpared the life of her father Thoas. Soon after this cruel murder, the Argonauts landed at Lemnos, in their expedition to Colchis, and remained for ſome time in the iſland. During their ſtay, the Argonauts rendered the Lemnian women mothers, and Jaſon, the chief of the Argonautic expedition, left Hypſipyle pregnant at his departure, and promiſed her eternal fidelity. Hypſipyle brought twins, Euneus and Nebrophonus, whom ſome have called Deiphilus or Thoas. Jaſon forgot his vows and promiſes to Hypſipyle, and the unfortunate queen was ſoon after forced to leave her kingdom by the Lemnian women, who conſpired againſt her life, ſtill mindful that Thoas had been preſerved by means of his daughter. Hypſipyle in her flight was ſeized by pirates, and ſold to Lycurgus king of Nemæa. She was entruſted with the care of Archemorus, the ſon of Lycurgus; and, when the Argives marched againſt Thebes, they met Hypſipyle, and obliged her to ſhow them a fountain, where they might quench their thirſt. To do this more expeditiouſly, ſhe laid down her child on the graſs, and, in her abſence, he was killed by a ſerpent. Lycurgus attempted to revenge the death of his ſon, but Hypſipyle was ſcreened from his reſentment by Adraſtus, the leader of the Argives. *Ovid.*

HYPSISTA'RII, *ſ.* [from υψιστος, Gr. higheſt.] A ſect of heretics in the fourth century; thus called from the profeſſion they made of worſhipping the moſt high God. The doctrine of the Hypſiſtarians was an aſſemblage of Paganiſm, Judaiſm, and Chriſtianity. They adored the moſt high God with the Chriſtians; but they alſo revered fire and lamps with the heathens; and obſerved the ſabbath, and the diſtinction of clean and unclean things, with the Jews. The Hypſiſtarii bore a near reſemblance to the Euchites, or Maſſalians.

HYP'TIS, *ſ.* [ſo named by Jacquin, from the reſupinate (υπτιω, Gr.) limb of the corolla.] In botany, a genus of the claſs didynamia, order gymnoſpermia, natural order of verticillatæ, (labiatæ, *Juſſ.*) The generic characters are—Calyx: perianthium turbinate, half-five-cleft, permanent; ſegments lanceolate, acute, almoſt equal, upright. Corolla: one-petalled, ringent; tube funnel-form; throat widened; limb ſpreading very much, reſupinate; upper lip (in ſituation the lower) trifid; lateral ſegments ovate, acute, the middle one roundiſh, concave, obtuſe: lower lip (in ſituation the upper) ſemibifid; ſegments ſemiovate, flat, acute. Stamina: filaments four, awl-ſhaped, erect, of which two are ſhorter; anthers twin, hanging down. Piſtillum: germ four-cleft; ſtyle filiform; ſtigma bifid or ſimple. Pericarpium: none; calyx foſtering the ſeeds. Seeds: four.—*Eſſential Character.* Calyx, turbinate; corolla, with a very ſpreading border; lower lip ſemibifid; anthers hanging down.

*Species.* 1. Hyptis verticillata, or whorled hyptis: leaves lanceolate, flowers in whorls. This is a ſhrub ten feet in height, with one or two upright ſtems, near an inch in diameter, ſmooth, browniſh aſh-coloured, round and woody; but the younger branches are four-cornered and herbaceous. Leaves oppoſite, petioled, long-lanceolate, acute, unequally ſerrate, ſmoothiſh, from three to ſix inches in length. Whorls on the younger branches at the leaves, ſeſſile, ſix-flowered. Corolla white, with the ſegments of the upper lip purple in the diſk; calyx a little hiſpid on the back, and at the edges of the ſegments; anthers pale yellow. Native of St. Domingo.

2. Hyptis capitata, or headed hyptis: leaves ovate, flowers in heads. Stems ſuffruticoſe, two or three feet high or more, becoming woody, commonly four-cornered, brown. Branches annual, herbaceous, ſubdivided, four-cornered, roughiſh, two feet long. Leaves oppoſite, petioled, ovate, but with a ſharp baſe, veined, unequally ſerrate, acute, a little hairy on both ſides when viewed with a glaſs, dark green; the lower ones wrinkled, the largeſt ſeven inches long. The whole plant is inodorous Native of St. Domingo, flowering there in December and January.

HY'RAX, *ſ.* A genus of quadrupeds of the claſs mammalia, order glires. The generic characters are—Fore-teeth, upper two, broad, diſtant; lower four, contiguous, broad, flat, notched; grinders large, four on each ſide each jaw; fore-feet four-toed, hind-feet three-toed; tail none.

1. Hyrax Capenſis, the Cape hyrax: nails of the fore-feet flat; of the hind-feet one, ſubulate. Head ſhort, ſnout very ſhort, blunt; ears oval, open, brown, woolly; limbs very ſhort, the ſhoulders and thighs being hid in the fur; body ſhort, thick, belly prominent; hair woolly, under hoary, above grey, on the ſides dirty grey-white; along the back browniſh, mixed with longer black hairs and a few briſtles; fore-feet four-lobed, each lobe with a flat round nail; hind-feet two-lobed, and a toe furniſhed with a long ſharp claw. Inhabits the Cape of Good Hope, fifteen inches long; voice ſharp; hearing acute, gait unſteady; feeds on vegetables; active, cleanly, drinks little, very fond of warmth, burrows in the ground; is troubled with lice and worms.

2. Hyrax Syriacus, the Syrian hyrax, or Syrian hare: toes furniſhed with ſoft nails. This ſpecies, as well as the preceding, was formerly included in the genus Cavia, or cavy. The preſent has been called the Syrian cavy, the briſtly cavy, the Syrian hare, and the aſhkoko, which laſt is the name given it by Mr. Bruce, and to that gentleman we are indebted for a full and accurate deſcription of this ſpecies. He obſerved it in ſeveral parts of Abyſſinia, and gives us the following account of it in the Appendix to his Travels. "This curious animal is found in Ethiopia, in the caverns of the rocks, or under the great ſtones in the Mountain of the Sun, behind the queen's palace at Koſcam; it is alſo frequent in the deep caverns in the rocks in many other parts of Abyſſinia. It does not burrow or make holes as the rat or rabbit; nature having interdicted him this practice by furniſhing him with feet, the toes of which are perfectly round, and of a ſoft, pulpy, tender, ſubſtance; the fleſhy parts of the toes project beyond the nails, which are rather broad than ſharp, much ſimilar to a man's nail ill-grown, and theſe appear rather given him for the defence of his ſoft toes than for any active uſe in digging, to which they are by no means adapted. His hind foot is long and narrow, divided with two deep wrinkles or clefts in the middle drawn acroſs the centre, on each ſide of which the fleſh riſes with conſiderable protuberancy, and it is terminated by three claws; the middle one is the longeſt. The fore-foot has four toes; three diſpoſed in the ſame proportion as the hind foot; the fourth, the largeſt of the whole, is placed lower on the ſide of the foot, ſo that the top of it arrives no farther than the bottom of the top of the toe next to it. The ſole of the foot is divided in the centre by deep clefts like the other, and this cleft reaches down to the heel, which it nearly divides. The whole of the fore-foot is very thick, fleſhy, and ſoft, and of a deep black colour, altogether void of hair, though the back or upper part of it is thick-covered, like the reſt of the body, down to where the toes divide; there the hair ends, ſo that theſe long toes very much reſemble the fingers of a man.

"In the place of holes, it ſeems to delight in leſs cloſe or more airy places, in the mouths of caves, or clefts in the rock, or where one projecting, and being open before, affords a long retreat under it, without fear that this can ever be removed by the ſtrength or operations of man. They are gregarious, and frequently ſeveral dozens of them ſit upon the great ſtones at the mouths of caves, and warm themſelves in the ſun, or even come out and enjoy the freſhneſs of the ſummer evening. They do not ſtand upright upon their feet, but ſeem to ſteal along as in fear, their belly being nearly cloſe to the ground, advancing a few ſteps at a time, and then pauſing. They have ſomething very mild, feeble, and timid in their deportment, are gentle, and eaſily tamed; though, when roughly handled at firſt, they bite very ſeverely. This animal is found plentifully on mount Libanus; I have ſeen them alſo among the rocks at the Pharan Promontorium, or Cape Mahomet, which divides the Elanitic from the Heroopolitic Gulf, or Gulf of Suez. In all places they ſeem to be the ſame; if there is any difference, it is in favour of the ſize and fatneſs which thoſe in the Mountain of the Sun ſeem to enjoy above the others. What is his food I cannot determine with any degree of certainty; when in my poſſeſſion he ate bread and milk, and ſeemed to be rather a moderate than a voracious feeder. I ſuppoſe he lives on grain, fruit, and roots. He ſeemed too timid and backward in his own nature to feed upon living food, or catch it by hunting.

"The total length of this animal, as he ſits, from the point of his noſe to the extremity of his body, is ſeventeen inches and a quarter; the length of his ſnout, from the extremity of the noſe to the occiput, is three inches and three eighths; his upper jaw is longer than his under; his noſe ſtretches half an inch beyond his chin. The aperture of the mouth, when he keeps it cloſe, in profile, is little more than an inch. The circumference of his ſnout around both his jaws is three inches and three eighths; and round his head, juſt above his ears, eight inches and five eighths: the circumference of his neck is eight inches and a half, and its length one inch and a half. He ſeems more willing to turn his body all together, than his neck alone. The circumference of his body, meaſured behind his fore-legs, is nine inches and three quarters; and that of his body, where greateſt, eleven inches and three eighths; the length of his fore-leg and toe is three inches and a half; the length of the hind thigh is three inches and one eighth; and the length of the hind-leg to the toe, taken together, is two feet two inches; the length of the fore-foot is one inch and three eighths; the length of the middle toe ſix lines, and its breadth ſix lines alſo. The diſtance between the point of the noſe and the firſt corner of the eye is one inch and five eighths; and the length of his eye from one angle to the other, four lines. The difference from the fore-angle of his eye to the root of his ear is one inch and three lines; and the opening of his eye two lines and a half. His upper lip is covered with a pencil of ſtrong hairs for muſtachoes; the length of which is three inches and five eighths, and thoſe of his eye-brows are two inches and two eighths. *He has no tail,* yet gives at firſt ſight the idea of a rat rather than of any other creature. His colour is a grey mixed with a reddiſh-brown, perfectly like the wild or warren rabbit. His belly is white from the point of the lower jaw to where his tail would begin if he had one. All over his body he has ſcattered hairs, ſtrong, and poliſhed like his muſtachoes; theſe are for the moſt part two inches and a quarter in length; his ears are round, not pointed; he makes no noiſe that ever I heard; but certainly chews the cud." [Dr. Shaw obſerves, that this particular of the aſhkoko ſeems very doubtful, and may probably be owing to the peculiar motions of the mouth reſembling thoſe of the hare, which has alſo been ſuppoſed by ſome to ruminate. *Gen. Zool.*] "To diſcover this was the principal reaſon of my keeping him alive; thoſe with whom he is acquainted he follows with great aſſiduity. The arrival of any living creature, even of a bird, makes him ſeek for a hiding-place; and I ſhut him up in a cage with a ſmall chicken, after omitting to feed him a whole day; the next morning the chicken was unhurt, though the aſhkoko came to me with great ſigns of having ſuffered with hunger. I likewiſe made a ſecond experiment, by incloſing two ſmaller birds with him for the ſpace of ſeveral weeks; neither were theſe hurt, though both of them fed without impediment of the meat that was thrown into his cage; and the ſmalleſt of theſe, a titmouſe, ſeemed to be advancing in a ſort of familiarity with him: though I never ſaw it venture to perch upon him, yet it would eat frequently, and at the ſame time, of the food upon which the aſhkoko was feeding; and in this conſiſted chiefly the familiarity I ſpeak of, for the aſhkoko himſelf never ſhowed any alteration of behaviour upon the preſence of the bird, but treated it with a kind of abſolute indifference. The cage indeed was large, and, the birds having a perch to ſit upon in the upper part of it, they did not annoy one another.

"In Amhara, this animal is called *aſhkoko*, which, I apprehended, is derived from the ſingularity of thoſe long erinaceous hairs, which, like ſmall thorns, grow about his back, and which, in Amhara, are called *aſhok.* In Arabia and Syria, he is called *Iſrael's ſheep*, or *Gannim Iſrael*, for what reaſon I know not, unleſs it is chiefly from his frequenting the rocks of Horeb and Sinai, where the children of Iſrael made their forty years peregrination; perhaps this name obtains only among the Arabians. I apprehend he is known by that of *ſaphan* in the Hebrew, and is the animal erroneouſly called by our tranſlators *cuniculus*, the rabbit or coney."

HYRCA'NI. There were many people ſo called; and cities and regions named Hyrcania; in the hiſtory of which there will be uniformly found ſome reference to fire. The name is a compound of *Ur-chane*, the god of fire. He was particularly worſhipped at Ur, in Chaldea; and one tribe of that nation were called *Urchani.* Here was the ſource of fire-worſhip; all the country was replete with bitumen and fire. There was a region called Hyrcania inhabited by the Medes, which ſeems to have been of the ſame inflammable nature. The people were called Hyrcani and Aſtabeni; which latter ſignifies the ſons of fire. In Lydia there were Hyrcani, a city Hyrcania, and a Campus Hyrcinius; it was near Hierapolis, Caroura, and Foſſa Charonea, all famed for fire. Perhaps the Hyrcinian Foreſt was no other than the Hurcanian, ſo called from the god Urcan, who was worſhipped here as well as in the eaſt. Among the Alpes Tridentini was a Regio Hercynia; and here the Hercynian Foreſt commenced, and from which it receives its name.

HYRCA'NIAN, *adj.* [from *Hyrcania.*] Belonging to Hyrcania; produced in Hyrcania.

HYRCA'NIAN, *ſ.* A native of Hyrcania; an inhabitant of Hyrcania.

HYRCA'NUS, a name common to ſome of the high prieſts of Judæa. *Joſephus.*

HY'RIA, in ancient geography, a county of Bœotia, near Aulis, with a lake, river, and town, of the ſame name. It received its name from Hyrie, a woman who wept ſo much for the loſs of her ſon, that ſhe was changed into a fountain. *Ovid.*—A town of Iſauria, on the Calycadnus.

HYRST, HURST, HERST, are all from the Saxon hẏꞃꞅꞇ, a wood or grove. *Gibſon.*

HYS, a town of Aſiatic Turkey, in the Arabian Irak, on the Euphrates: 120 miles ſouth of Bagdad.

HY'SON, *ſ.* A kind of fine tea.

HY'SON, *adj.* Belonging to a fine kind of tea.

HYS'SOP, *ſ.* in botany. See Hyssopus.

HYS'SOP, HEDGE. See Gratiola.

HYSSOP'IC, *adj.* Belonging to hyſſop; belonging to the art of chemiſtry, chemical. *Scott.*

HYSSOPIFO'LIA. See Lythrum.

HYSSO'PIUM. See Teucrium.

HYSSO'PUS, *ſ.* Hyssop; in botany, a genus of the claſs didynamia, order gymnoſpermia, natural order of verticillatæ, (labiatæ, *Juſſ.*) The generic characters are—Calyx: perianthium one-leafed, cylindrical, oblong, ſtriated, acutely five-toothed, permanent. Corolla: one-petalled, ringent; tube cylindrical, ſlender, the length of the calyx; throat inclined; upper lip ſtraight, flat, ſhort, roundiſh, emarginate; lower lip trifid; lateral ſegments ſhorter, blunt, the middle one crenate, obcordate, acute, with diſtant lobes. Stamina: filaments four, upright, longer than the corolla, diſtant; the two upper ones ſhorter, but the two longer nearer to the lower lip; antheræ ſimple. Piſtillum: germ four-parted; ſtyle filiform, under the upper lip, and of the ſame length; ſtigma bifid. Pericarpium: none; the calyx foſtering the ſeeds. Seeds: four, ſubovate.—*Eſſential Character.* Corolla: lower lip with a ſmall middle crenate ſegment. Stamina: ſtraight, diſtant.

*Species.* 1. Hyſſopus officinalis, or common hyſſop: ſpikes directed one way, leaves lanceolate. Height a foot and a half; ſtems firſt ſquare, afterwards round, with ſmall ſeſſile leaves in pairs on their lower part, and ſeven or eight very narrow erect leaves or bractes, ſpringing from the ſame joint; on the upper part flowers in whorls, the lower ones half an inch apart, the upper almoſt joined. Seeds black. The whole plant has a ſtrong aromatic ſcent. It flowers in July and Auguſt, and the ſeeds ripen in September. The roots will abide many years. Native of the ſouth of Europe, and Siberia; Miller ſays the Levant. Cultivated in 1596 by Gerarde.

There are many varieties of hyſſop; Ray enumerates nine from Parkinſon and others. Mr. Miller makes that with *red flowers*, *β*, to be a diſtinct ſpecies, not growing ſo tall as the common ſort with blue flowers, branching more, the ſpikes of flowers much ſhorter, the whorls cloſer, having long narrow leaves under each, the corolla of a fine red colour. It is more tender, all the plants having been deſtroyed in the ſevere winter of 1739. That with *white flowers*, γ, does not differ from the *blue*, α, in any other particular. *Hairy hyſſop*, δ, which Parkinſon calls ruſſet hyſſope, differs no otherwiſe than in the woolineſs of the ſtem and leaves, giving them an aſh or ruſſet colour. The leaves vary in colour as well as the flowers, ſome being white, ſtriped with white, or half green, half white, H. fol. niveis of Parkinſon. Others with the leaves wholly yellow, or but a little green in them; H. aureus, yellow or golden hyſſop of Parkinſon, which he ſays is "of ſo pleaſant a colour, that it provokes many gentlewomen to wear them in their heads and on their arms, with as much delight as many fine flowers can give."

2. Hyſſopus lophanthus, or mint-leaved hyſſop: corollas reſupinate, lower ſtamen ſhorter than the corolla, leaves cordate. Root ſtrong, fibrous, perennial, ſending out many ſquare ſtalks, which divide into ſmaller branches. Leaves oblong, crenate. Flowers produced at each joint in ſmall cluſters; the colour is blue; they appear in June and July, and the ſeeds ripen in September. It grows naturally in Siberia. The ſeeds were ſent to Mr. Miller from the imperial garden at Peterſburgh, and afterwards from Holland.

3. Hyſſopus nepetoides, or ſquare-ſtalked hyſſop: ſtem ſharp, quadrangular. Root perennial. Stem upright, near four feet high. Flowers yellow; ſeeds brown. Native of Virginia and Canada; cultivated in 1692 in the botanic garden at Oxford. Gouan remarks that it has the appearance of galeopſis; that the ſtem is either green and very even, with ſmooth leaves; or hairy, tinged with purple, and hairy leaves; that the ſpikes are cylindrical, nearly as thick as the little finger, three inches long, very ſmooth and cloſe; that the bractes are large and cordate-ovate; and that there are from four to eight flowers to each bracte. There is a variety with purple ſtalks and flowers, the leaves on longer foot-ſtalks, and the ſpikes of flowers thicker.

*Propagation and Culture.* Common hyſſop, with all its varieties, may be propagated either by ſeeds or cuttings; if by ſeeds, they muſt be ſown in March, upon a bed of light ſandy ſoil; and, when the plants come up, they ſhould be tranſplanted out to the places where they are to remain, placing them at leaſt a foot aſunder each way; but, if they are deſigned to abide in thoſe places for a long time, two feet diſtance will be ſmall enough, for they grow pretty large, eſpecially if they are not frequently cut to keep them within compaſs. If you would propagate them by cuttings, they ſhould be planted in April or May, in a border where they may be defended from the violent heat of the ſun; and being frequently watered, they will take root in about two months; after which, they may be tranſplanted where they are to continue, managing them as was before directed for the ſeedling plants. They are very hardy plants, which will endure the cold of our winters in the open air, provided they are planted in a dry undunged ſoil; for, when they are planted in a rich ſoil, they grow very luxuriant in ſummer, and are leſs able to reſiſt the cold in winter; ſo that when any of theſe plants grow out of the joints of old walls, as they frequently do, they will reſiſt the moſt ſevere froſt, and will be much more aromatic than thoſe which grow in a rich ſoil. The other two ſorts are alſo very hardy, and may be eaſily propagated by ſeeds ſown in autumn, for thoſe ſown in the ſpring often lie a year in the ground before they vegetate; when the plants come up, keep them clean from weeds, and thin them where they are too cloſe. The following autumn tranſplant them where they are to remain, and the roots will abide ſeveral years. See Dracocephalum, Rinanthus, Sideritis, and Thymbra.

HYSTAS'PES, a noble Perſian, of the family of the Achæmenides. His father's name was Arſames. His ſon Darius reigned in Perſia after the murder of the uſurper Smerdis. It is ſaid, by Cteſias, that he wiſhed to be carried to ſee the royal monument which his ſon had built between two mountains. The prieſts who carried him, as reported, ſlipped the cord with which he was ſuſpended in aſcending the mountain, and he died of the fall. Hyſtaſpes was the firſt who introduced the learning and myſteries of the Indian brachmans into Perſia, and to his reſearches in India the ſciences were greatly indebted, particularly in Perſia. Darius is called *Hyſtaſpes*, or ſon of Hyſtaſpis, to diſtinguiſh him from his royal ſucceſſors of the ſame name. *Herodotus.*

HYSTER'IC, or Hysterical, *adj.* [*hyſterique*, Fr. from υστερικος, Gr.] Troubled with fits; diſordered in the regions of the womb.—In *hyſteric* women the rarity of ſymptoms doth oft ſtrike an aſtoniſhment into ſpectators. *Harvey.*—Proceeding from diſorders in the womb:

Parent of vapours, and of female wit,
Who gave th' *hyſteric* or poetic fit. *Pope.*

HYSTER'ICS, *ſ.* Fits of women, ſuppoſed to proceed from diſorders in the womb.

HYSTE'RIUM, *ſ.* in botany, a genus of the claſs cryptogamia, order fungi. Generic eſſential characters—Fungus ſeſſile, hollow, with a tranverſe cleft at top; ſeeds globular, tailleſs, covering the diſk.

Gmelin's Linnæus has two ſpecies: H. candidum and H. cæruleum; for which Tode 8. 60, 62. is quoted. The genus is omitted in Martyn's edition of Miller. But Albertini and Schweiniz, in their Conſpectus Fungorum, publiſhed in 1805, enlarge much upon this genus, of which they have ſeventeen ſpecies, viz. H. mytilinum, globoſum, pulicare, anguſtatum, longum, cinereum, fraxini, rubi, quercinum, abietinum, criſpum, conigenum, ſphærioides, pinaſtri, arundinaceum, viride, and petiolare. To exemplify the genus, it will be ſufficient to deſcribe one ſpecies at length:

Hyſterium ſphærioides, or ſpherical hyſterium: diſperſed, naked, hemiſpherical, bright and black, the hiatus double, and at laſt broadly elliptical. Size ſmall; form ſpherical in general, ſometimes a little ſemi-elliptical. In its infancy, the young fungus, being entirely ſhut and bright, offers nothing to the view but a roundiſh and uniform ſpot: the adult preſents a longitudinal chink, which, at the approach of fructification, opens in a two-fold elliptical and nearly orbicular mouth. A particularity which was never obſerved hitherto (by us however) in any other ſpecies, is, that this fungus poſſeſſes a double covering or bark; the exterior pellicle being of a ſhining black; the interior dirty, fainter, and of a blackiſh brown. The exterior covering ſpreading itſelf more than the interior, the double lips of the orifice come eaſily into ſight. We have ſeen ſpecimens half full of their well-known ſoft and whitiſh ſubſtance; others, after fructification time, entirely empty. Specimens of all ages are frequently found, and were collected once among the decayed old fallen and putrid leaves of the Ledus paluſtris; ſeaſon, the end of May. On the annexed Engraving this fungus is ſhown, at fig. 3, of the natural ſize; at fig. 4, it is magnified, and appears on a leaf in its three ſtates: *a*, the longitudinal chink; *b*, the elliptical opening; *c*, the orbicular mouth.

HYSTEROPH'ORUS, *ſ.* in botany. See Parthenium.

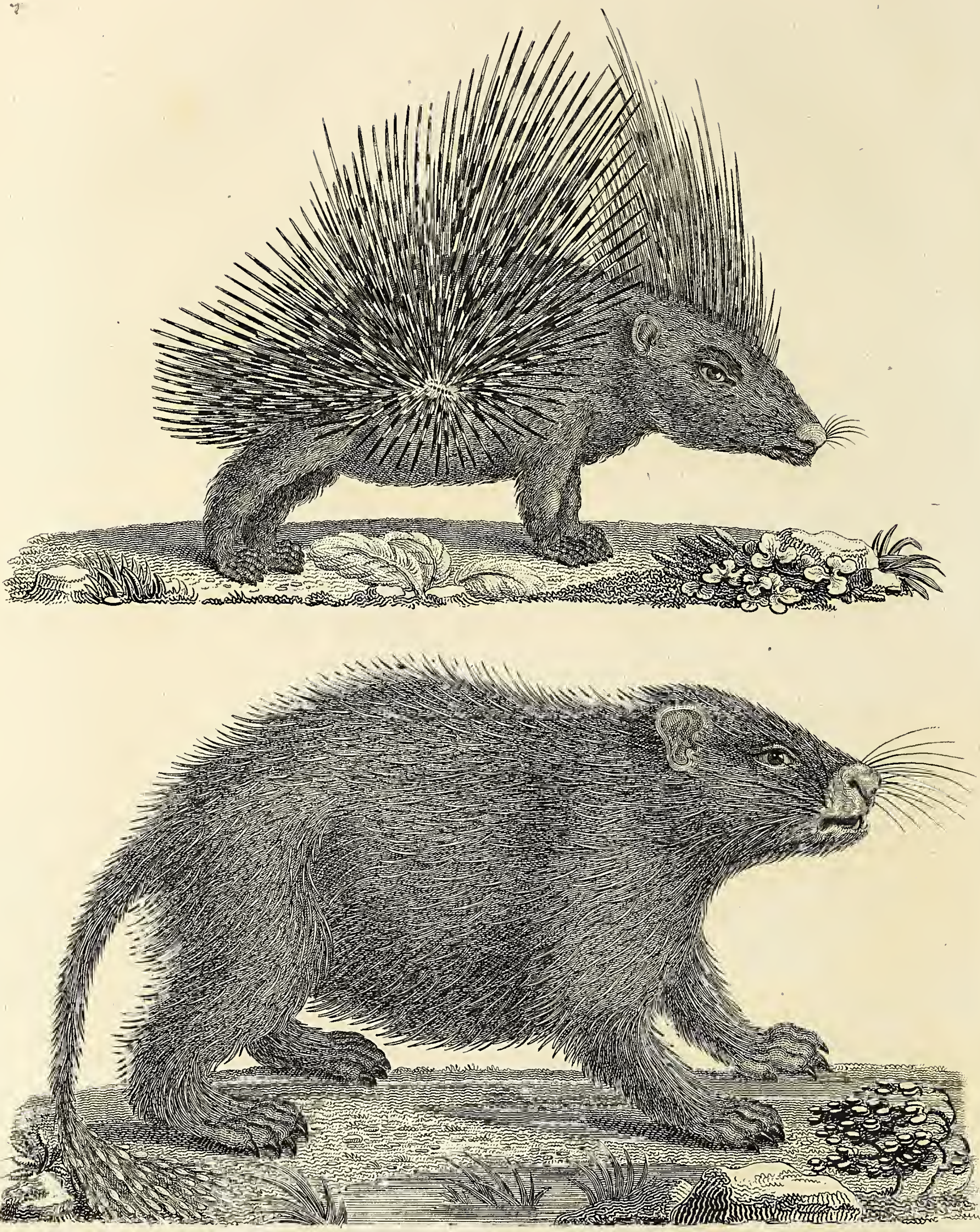
HYSTEROPOT'MOI, *ſ.* [Greek.] Such as had been thought dead, and after a long abſence in foreign countries returned ſafe home; or ſuch as had been thought dead in battle, and afterwards unexpectedly eſcaped from their enemies, and returned home. Theſe (among the Romans) were not permitted to enter their own houſes at the door, but were received at a paſſage opened in the roof.

HYSTEROT'OMY, *ſ.* [from υστερα, Gr. the womb, and τομος, a ſection.] The Cæſarian operation, the cutting a child out of the womb.

HYSTRICIA'SIS, [from *hyſtrix*, Lat. a hedgehog.] A diſeaſe in which the hair is ſaid to ſtand erect like the prickles of a hedgehog. See Phil. Tranſ. No. 424.

HYST'RIX, *ſ.* in botany. See Barleria and Elymus.

# HYSTRIX.



J. Chapman sc.

*The Crested Porcupine, and the Long-tailed Porcupine.*

London, Published as the Act directs, March 5th 1808, by J. Wilkes.

HYSTRIX, *ſ.* [from υς, Gr. a hog, and θριξ, hair.] The Porcupine; a genus of quadrupeds of the claſs mammalia, order glires; diſtinguiſhed by the following characters: Two cutting teeth, obliquely divided, both in the upper and under jaw, beſides eight grinders; toes four or five on each foot; body covered with long, hard, ſharp quills, or ſpines and hair. There are five ſpecies:

1. Hyſtrix criſtata, the creſted porcupine: fore feet four-toed, hind feet five-toed; head creſted, tail ſhort. This ſpecies, which is ſhown at the upper part of the annexed Plate, derives its name from a long creſt of ſtiff briſtles on the top of its head, reclining backwards. The quills on the hind part of the body are nine inches in length, very ſharp at the ends, and varied with black, brown, and white. Between the quills there are a few hairs. Its head, belly, and legs, are covered with ſtrong briſtles, terminated with ſtrong hair of a duſky colour. It has long whiſkers, and ears like thoſe of the human body; its length is about two feet; its tail, which alſo is covered with quills, meaſures four inches only. It inhabits India, the ſand-hills to the ſouth-weſt of the Caſpian ſea, Southern Tartary, Perſia, Paleſtine, and all parts of Africa. It is found wild in Italy; but at the ſame time it is thought not to have been originally a native of Europe; it is ſold in the markets of Rome for the table; but the Italian porcupines have ſhorter quills, and a leſs creſt, than thoſe of Aſia and Africa. It is harmleſs; lives on fruits, roots, and vegetables; ſleeps by day, and feeds by night. The ſtory of its darting its quills when irritated, is fabulous; when attacked, it retires and runs its noſe into a corner; erects its ſpines, and oppoſes them to an aſſailant; its makes a kind of ſnorting noiſe. Some of theſe animals produce a ſort of bezoar, which is extracted from the gall-bladder. Beſides the Italian variety, with ſhort ſpines and creſt, there is another with longer ſpines and a very ample creſt.

2. Hyſtrix prehenſilis, the Braſilian porcupine: feet four-toed; tail long, prehenſile, naked beneath at the end. The Braſilian porcupine has a ſhort blunt noſe, long white whiſkers, and a bed of ſmall ſpines beneath the noſe; the top of the head, its back, its ſides, and the baſe of its tail, are alſo covered with ſpines; the longeſt of theſe on the lower part of the back and tail are about three inches long, very ſharp, and white, barred near the points with black; they adhere cloſe to the ſkin, which is quite naked between them; and are ſhorter and weaker as they approach the belly; on the breaſt, belly, and lower parts of the legs, they are converted into dark brown briſtles. Its feet are divided into four toes each, with very long claws, and a great protuberance on the place of the thumb; its tail is ſeven inches long, ſlender and taper towards the end; for the laſt three or four inches it is almoſt naked, having only a few hairs upon it; but, for that ſpace, it has a ſtrong prehenſile quality. It inhabits Braſil, Guinea, and New Spain; lives in the woods, and feeds not only on fruits, but on poultry; it ſleeps by day, and preys by night; and generally makes a noiſe with its noſtrils, as if out of breath; it grunts alſo like a ſow. It climbs trees, but very ſlowly; in deſcending, for fear of falling, it twiſts its tail round the branches; it grows very fat, and its fleſh is ſaid to be very white and good. They may be tamed.

3. Hyſtrix Mexicana, the Mexican porcupine. This, which is noted only as a variety by Gmelin, is by Turton made a diſtinct ſpecies, the tail being longer, and the ſpines ſhorter; he gives the ſpecific characters as follows: tail long, prehenſile; hind feet four-toed; ſpines mixed, and almoſt hidden in downy hair and long briſtles. The Mexican porcupine is of a duſky colour; its ſpines are ſlender, and varied with white and yellow; but they are ſcarcely apparent, except on the tail, which is nine inches long; from the middle to the end it is free from ſpines. It grows to the bulk of a middle-ſized dog. It inhabits the mountains of Mexico, lives on ſummer-fruits, and may eaſily be made tame. The Indians pulverize the quills, and ſay they are very efficacious as a remedy for the gravel; and that, applied whole to the forehead, they will relieve the moſt violent head-ach. They adhere till filled with blood, and then drop off.

4. Hyſtrix dorſata, the Canadian porcupine: tail not prehenſile; hind feet five-toed; ſpines on the upper part of the head, back, and tail, only. The porcupine met with in Canada, and the other parts of North America, as high as Hudſon's Bay, has ſhort ears hid in its fur. Its head, body, legs, and the upper part of its tail, are covered with ſoft, long, dark-brown, hair; on the upper part of the head, back, body, and tail, there are numbers of ſharp ſtrong quills; the longeſt, meaſuring about three inches, are on the back, the leaſt towards the head and ſides; but they are all hid in the hair. There are ſome ſtiff ſtraggling hairs intermixed, three inches longer than the reſt, and tipt with a dirty white; the under ſide of its tail is white. It has four toes on the fore feet, five behind, each armed with long claws, hollowed on their under ſide. The form of the body is exactly that of a beaver; but it is not half the ſize. One brought from Newfoundland was about the ſize of a hare, but more compactly made. Its tail was about ſix inches long. They make their neſts under the roots of great trees, and will alſo climb among the boughs. The Indians kill them by ſtriking them over the noſe. They are very plentiful near Hudſon's Bay, and many of the trading Indians depend on them for food, eſteeming them both wholeſome and pleaſant; they feed on wild fruits and the bark of trees, eſpecially the juniper; they eat ſnow in winter, and drink water in ſummer; but avoid going into it. When they cannot ſhun their purſuer, they will ſidle towards him, in order to touch him with their quills, which ſeem but weak weapons of defence; for, on ſtroking the hair, they will come out of the ſkin, ſticking to the hand. The Indians apply them to various purpoſes; for piercing their noſes and ears, to make holes for their ear-rings and other finery; they alſo trim their deer-ſkin habits with fringes made of the quills, or cover with them their bark boxes. They vary occaſionally in colour: there was one in the Leverian Muſeum entirely white.

5. Hyſtrix macroura, the long-tailed porcupine: feet five-toed; tail very long, prickles clubbed, or jointed. This ſpecies is ſhown at the lower part of the annexed Plate. It has long whiſkers, large bright eyes, and ſhort naked ears. The body is ſhort and thick, and covered with long ſtiff hairs, as ſharp as needles, of different colours as the rays of light fall on them. The feet are divided into five toes; that which ſerves as a thumb turns backwards. The tail is as long as the body, very ſlender at the end, which conſiſts of a thick tuft. The briſtles are thick in the middle, appear as if jointed, and riſe one out of the other like grains of rice. They are tranſparent, and of a ſilvery appearance. It inhabits the iſles of the Indian Archipelago, and lives in the foreſts.

HYTHE. See Hithe.

# I and J.

I IS in Engliſh conſidered both as a vowel and conſonant; though, ſince the vowel and conſonant differ in their form as well as ſound, they might perhaps more properly be accounted two letters.

The vowel I has a long ſound, as *fine*, *thine*, which is uſually marked with an *e* final; and a ſhort ſound, as *fin*, *thin*. Prefixed to *e*, it makes a diphthong of the ſame ſound with the ſoft *i*, or double *e*, *ee*: thus, *field*, *yield*, are ſpoken as *feeld*, *yeeld*; except *friend*, which is ſpoken *frend*. Subjoined to *a* or *e*, it makes them long, as *fail*, *neigh*; and to *o*, makes a mingled ſound, which approaches more nearly to the true notion of a diphthong, or ſound compoſed of the ſounds of two vowels, than any other combination of vowels in the Engliſh language; as *oil coin*. The ſound of *i* before another *i*, and at the end of a word, is always expreſſed by *y*. In numerals, this, as being the ſmalleſt letter, is put for the ſmalleſt number, I. one; II. two, &c. Set before the mark of a larger number, it ſubtracts itſelf; as IV. four; though we ſtill uſe IIII. to expreſs four upon the dial-plates of clocks and watches; IX. nine, &c. but, when ſet after it, ſo many are added to the larger number as there are ones added; thus, VI. is 5 + 1, or ſix; VII. 5 + 2, or ſeven; VIII. 5 + 3, or eight. The ancient Romans, we are told, uſed IↃ for 500, CIↃ for 1000, &c. but this ſeems to have been only a clumſy way of forming a D or an M, which are the proper marks for thoſe numbers.

I, *pronoun perſonal.* [*ik*, Gothic; ic, Sax. *ich*, Dut.] The pronoun of the firſt perſon; myſelf.—I do not like theſe ſeveral councils, *I. Shakeſpeare.*—There is none greater in this houſe than *I. Gen.* xxxix. 9.—Be of good cheer, it is *I*: be not afraid. *Mat.* xiv. 27.

What ſhall *I* do to be for ever known,
And make thy age to come my own;
*I* ſhall like beaſts or common people dye,
Unleſs you write my elegy. *Cowley.*

*Me* is in the following paſſage written for *I*.—There is put one man whom ſhe can have; and that is *me. Clariſſa.*

I, *adv.* [in Shakeſpeare and other old and careleſs writers, written *ay*.] Yes, ay, verily:

Hath Romeo ſlain himſelf? Say thou but *I*,
And that bare vowel, *I*, ſhall poiſon more
Than the death-darting eye of cockatrice. *Shakeſpeare.*

J, or Ja, or Jod; the I conſonant, ſo called by ſome grammarians to diſtinguiſh it from the vowel. It has invariably in Engliſh the ſound of our ſoft *g* in *giant*; as, *jade*, *jet*, *jilt*, *jolt*, *juſt*. But in German it is ſounded like the vowel *i*, or rather like *y*; for Jahr is pronounced nearly like the Engliſh word *year*, which it alſo denotes. And Ainſworth obſerves, that, if we would follow analogy, we ſhould call this letter *ye*; as we ſay *be*, *ce*, &c.

I'A, the daughter of Midas, who married Atys.

JAA'COB, a learned Jewiſh rabbi, who flouriſhed in the early part of the ſixteenth century. He reſided at Jeruſalem in the year 1517, where he compiled a learned work, entitled, the Eye of Iſrael, which was a collection of the various expoſitions of the law which are found in the Talmud. Several doctors had before compiled all that concerns the queſtions of Jewiſh rights, and religious ceremonies; but Jaacob collected thoſe that relate to the *law*, and are ſcattered throughout that large work. He did not live to finiſh his deſign, but left it to his ſon Levi, who was no leſs learned than his father; and who completed and publiſhed it in 1538, with a preface containing lively expreſſions of ſorrow on account of his father's untimely death.

JAA'KAN, [Hebrew.] A man's name.

JAA'KOBAH, [Hebrew.] A man's name.

JAA'LA, [Hebrew.] A man's name.

JAA'LAM, [Heb. a young man.] The ſon of Eſau; a man's name.

JAA'LONS, a town of France, in the department of the Marne, and chief place of a canton, in the diſtrict of Chaalons: three leagues weſt of Chaalons.

JAANA'I, [Hebrew.] A man's name.

JAA'PHAR EBN THOPHAIL, a learned Arabian philoſopher and phyſician in the twelfth century, was a native of Seville, in Spain, and preceptor to Maimonides and Averroës. He was famous for his medical ſkill, and for his knowledge of the peripatetic philoſophy. He wrote an elegant philoſophical romance, entitled the Hiſtory of Hai Ebn Yokdhan, &c. This tale deſcribes the life of a man, who, having been expoſed when an infant, was nouriſhed by a hind in an uninhabited iſland, and grew up in the woods, without any intercourſe with human beings; and who, by the unaided exertion of his powers, attained to the knowledge of things natural and ſupernatural, and arrived at the felicity of an intuitive intercourſe with the Divine Mind. The piece is written with ſuch elegance of language, and vigour of imagination, that, notwithſtanding the improbability of the ſtory, it has been univerſally admired. It was tranſlated into Hebrew in the ſixteenth century, by Rabbi Moſes of Narbonne, and illuſtrated with a large commentary. In 1671 it was publiſhed at Oxford, by Mr. Edward Pococke, ſon of the celebrated Dr. Pococke, profeſſor of the Oriental languages, with an accurate Latin verſion, in 8vo. In 1686 an indifferent Engliſh tranſlation of it was publiſhed from this verſion at London, in 8vo. and in 1708, Simon Ockley, afterwards profeſſor of Arabic at Cambridge, gave to the public a tranſlation of it from the Arabic, entitled, The Improvement of Human Reaſon, exhibited in the Life of Hai Ebn Yokdhan, &c. 8vo. with notes and an appendix.

JAAREBOR'EGIM, [Hebrew.] A man's name.

JAA'SAN, [Hebrew.] A man's name.

JAASI'EL, [Hebrew.] A man's name.

JAA'ZAH, [Hebrew.] The name of a city.

JAA'ZANIAH, [Heb. one who is attentive to the Lord.] A man's name.

JAA'ZER, [Hebrew.] The name of a place.

JAB, a town of Africa, ſituated on the river Gambia, in the kingdom of Ouly, or Wooly.

JABA'JAHITES, a ſect of the Mahometans who deny the preſcience of the Divine Being.

JA'BAL, [Heb. that which glides away.] A man's name.

JABA'RII, a ſect among the Muſſelmen, who hold that God may deal with good and bad in the day of judgment without any regard to their moral character.

JA'BAZ, a town of Aſiatic Turkey, in the province of Natolia: twenty miles north-weſt of Angura.

*To* JAB'BER, *v. n.* [*gabberen*, Dut.] To talk idly; to prate without thinking; to chatter:

We ſcorn, for want of talk, to *jabber*
Of parties. *Swift.*

JAB'BER, *ſ.* Prate, idle talk.

JAB'BERER, *ſ.* One who talks inarticulately or unintelligibly:

Out-cant the Babylonian labourers
At all their dialects of *jabberers*. *Hudibras.*

JAB'BERING, *ſ.* The act of talking unintelligibly.

JAB'BOK, [Heb. diſſipation.] A brook on the other ſide of the Jordan, the ſpring whereof is in the mountains of Gilead. It falls into Jordan pretty near the ſea of Tiberias, to the ſouth of this ſea. Near this brook the patriarch Jacob wreſtled with the angel. (Gen. xxxii. 22.) The Jabbok ſeparated the land of the Ammonites from the Gaulanitis, and the territories of Og king of Baſhan.

JA'BESH, [Heb. dryneſs.] The name of a man; the name of a place.

JA'BESH GIL'EAD, [Heb.] A city in the land of Iſrael.

JA'BEZ, [Heb. ſorrow.] A man's name.

JA'BIN, [Heb. a builder.] A man's name.

JA'BINEEL, [Heb. the building of God.] The name of a city. *Joſhua.*

JABLONOW', a town of Poland, in the palatinate of Braclaw: ſixty-four miles north-weſt of Braclaw.

JABLUNKAW', a town of Sileſia, in the principality of Teſchen, on the river Elſa, with a fort not far from it, called Jablunka Fort, to guard the paſs into Hungary: eleven miles ſouth-ſouth-eaſt of Teſchen, and ſixteen and a half eaſt-ſouth-eaſt of Friedek.

JABLONOW'SKY (Joſeph-Alexander), prince of Jablonow, &c. member of the Academy of Sciences at Paris, and of other learned ſocieties, was born in the year 1712. As his aunt by the father's ſide was mother of Staniſlaus Leſcinſki, king of Poland, and his uncle's wife ſiſter to queen Maria Caſimira, theſe families endeavoured to promote the intereſt of Staniſlaus, and on that account were ennobled in the year 1744 by the emperor Charles VII. Joſeph-Alexander, who at that time was ſtaroſt of Buſk, but who afterwards became wayvode of Novogorod, devoted himſelf chiefly to the ſciences, and for the ſake of improvement made ſeveral tours through Germany and France. When the troubles broke out in Poland, he left that country entirely, and in 1773 reſigned the ſenatorial dignity. He then fixed his reſidence at Leipſic, where he diſtinguiſhed himſelf, not only as the friend and protector of ſcience, but as a man of talents and conſiderable literary acquirements. He took pleaſure in the company of learned men, and gave a proof of his attachment to the cauſe of philoſophy and ſcience, by founding the Jablonowſky Society, to which he aſſigned a liberal ſum for the purpoſe of diſtributing premiums to the authors of the beſt anſwers to queſtions propoſed on hiſtorical and other ſubjects. Since the eſtabliſhment of this ſociety, it has publiſhed ſeveral volumes of papers, under the title of Tranſactions. This ſociety meets once a-year, and holds its ſittings at Leipſic. This excellent prince died in March, 1777 His works are, The Lives of twelve Generals, in the Poliſh language; a Treatiſe on the Sclavonic Poetry, and ſeveral others of a ſimilar nature; alſo Vindiciæ Lechi & Czechi, Lipſ. 1770, 4to. another enlarged edition of which was publiſhed at the ſame place in 1775.

JABLON'SKI (Daniel-Erneſt), a learned Poliſh divine of the reformed church, born at Dantzic in the year 1660. He received part of his education in the college of Liſſa; whence, in 1677, he went to the univerſity of Frankfort on the Oder. After continuing there till the year 1680, he went for further improvement to Holland and to England; and in the latter country proſecuted his ſtudies for a year in the univerſity of Oxford. Upon his return to his native country in 1683, he was admitted to the miniſtry, and appointed paſtor of the reformed church at Magdeburg. In 1686 he was promoted to the rectorſhip of the college of Liſſa, with which was connected the office of Poliſh miniſter. In 1690 he accepted of an invitation to be miniſter at Konigſburg; and three years afterwards was called to Berlin, to be miniſter to the court. He engaged in an attempt to promote an union between the Lutherans and Calviniſts, and to introduce into Pruſſia a conſtitution of church-government reſembling that of the Engliſh eſtabliſhment; but his efforts, as might be expected, proved ineffectual. In 1706, M. Jablonſki received the diploma of doctor of divinity from the univerſity of Oxford. In 1718, the king of Pruſſia nominated him counſellor of the conſiſtory; in 1729, member of the directory of the reformed churches; and, in 1733, preſident of the Academy of Sciences at Berlin. He died in 1741, after he had completed his eightieth year. He was the author of, 1. Biblia Hebraica, cum Notis Hebraicis & Lemmatibus Latinis, &c. 1699. 2. Jura & Libertates Diſſidentium in Religione Chriſtiana in Regno Poloniæ & Magno Ducatu Lithuaniæ, ex Legibus Regni & aliis Monumentis authenticis excerpta, 1708; to which was added a continuation, in 1718. 3. Oppreſſorum in Polaniâ Evangelicorum Deſideria, Fundamenta Deſideriorum, Media quibus Juvari poſſunt, 1723. 4. Meditationes de divina Origine Scripturæ Sacræ, 1742. 5. Latin tranſlations of Dr. Bentley's Sermons at Boyle's Lectures, and of that part of Biſhop Burnet's Expoſition of the thirty-nine Articles of the Church of England, which relates to the doctrines of predeſtination. 6. A Catechiſm, in German and Rabbinical characters, 1708, 4to. 7. Hiſtoria Conſenſus Sendomirenſis, 1731, 4to. 8. Homilies; and an account, in German, of the Tumult at Thorn in 1724, and the cruelties practiſed on the Proteſtants; of which M. Beauſobre the younger, publiſhed a French tranſlation, entitled *Thorn affligée*, &c. 1726, 8vo.

JABLON'SKY (Charles-Guſtavus), a diligent naturaliſt, and private ſecretary to the queen of Pruſſia, died at Berlin, in the month of May, 1787, at the early age of thirty-one. The premature death of this laborious young man, who had he lived longer might have been of great ſervice to natural hiſtory, and particularly to entomology, was much regretted. He began his entomological career with, A Syſtem of all the known indigenous and foreign Inſects, arranged according to the Linnæan ſyſtem, and intended as a continuation of Buffon's Natural Hiſtory. The ſhare which Jablonſky had in this work extends no further than the ſeventh ſheet of the third volume. His tedious illneſs rendered it impoſſible for him to continue further an undertaking which required ſo much labour and attention. After his death, a continuation of it was begun by Mr. Herbſt, a clergyman at Berlin, who increaſed it to ſeven parts. Jablonſky was employed alſo on a continuation of Martini's General Hiſtory of Nature; and, to render the German ſcientific terms which entomologiſts have adopted more uſeful and better known, he had promiſed an entomological dictionary, containing all the ſynonymes and appellations.

JABLON'SKY (John-Theodore), brother of Daniel-Erneſt, was born at Dantzic in 1654. Having repaired at a very early age to Amſterdam, he was educated there by his grandfather Comenius till the year 1670, when he was placed at the Joachims-thal ſchool at Berlin. Two years after he was ſent to the Gymnaſium of Konigſberg, and then to Frankfort on the Oder. From 1680 to 1682 he made a tour through Germany, Holland, and England; and, in 1687, accompanied the princeſs of Deſſau, conſort of prince Radzivil, to Poland, where he remained till the prince's death. He was then ſecretary at the court of the duke of Saxe-Barby; and in 1700 was appointed ſecretary to the Academy of Sciences at Berlin, then newly eſtabliſhed. From 1715 to 1717 he accompanied on his travels, in the capacity of tutor, to Geneva and Italy, Frederic-William, hereditary prince of Pruſſia; and on his return was appointed a counſellor of ſtate. He died in the month of March, 1731. The moſt of Jablonſky's works were publiſhed under borrowed names. He was many years employed in making collections for a German Dictionary, but it was never completed. He compoſed a work on ethics for the uſe of the hereditary prince, which is now exceedingly ſcarce. Of his works, the following deſerve to be mentioned: 1. Nouveau Dictionnaire, François-Allemand & Allemand-François, Leip. 1711. 1 vol. 1731, 2 vols. 4to. Jablonſky publiſhed this under the name of Pierre Rondeau. He publiſhed alſo, under the ſame name, 2. A French Grammar for the Germans, Leip. 1716, 8vo; and, 3. An Explanation of Galliciſms, 1704, 12mo. 4. A general Dictionary of Arts and Sciences, Leip. 1721, 4to.

JABLON'SKY (Paul-Erneſt), doctor of theology, public profeſſor of theology at Frankfort on the Oder, and ſon of Daniel-Erneſt, was born at Berlin in 1693. His great talents were diſplayed at ſo early a period, that having ſtudied at Frankfort, and acquired under La Croze a knowledge of theology and of the Coptic language, he was admitted among the royal candidates; and at the king's expence made a literary tour through Germany, Holland, England, and France. During this tour he had an opportunity of improving himſelf in the Coptic, and particularly at Leyden, Oxford, and Paris, where he examined the different Coptic works preſerved in the public libraries. In the year 1720 he was appointed profeſſor of philoſophy, and preacher to the reformed congregation of Frankfort on the Oder; in 1722, public profeſſor of theology; and afterwards member of the Academy of Sciences at Berlin. He died in the month of September, 1757. Jablonſky was a man of a very amiable character, and poſſeſſed an extenſive knowledge of theology and of the Coptic language, as evidently appears by his *Pantheon Ægyptiacum.* He was much eſteemed for his friendly diſpoſition, love of truth, ſincere piety, attention to his duties, mildneſs, and other virtues. His greateſt fault was, that he had an almoſt inſuperable averſion to the publication of his works; and even his Pantheon might never perhaps have appeared, had he not in a manner been compelled to commit it to the preſs. Had not this unwillingneſs to publiſh been ſo ſtrong a feature in his character, the Coptic and biblical literature might have been conſiderably benefited. He left, however, a great many theological and other works, the principal of which are the following: 1. Exercitationes in Hiſtoriam Theologiam de Neſtorianiſmo, Berol. 1724, 8vo 2. Rhempha Ægyptiorum Deus ab Iſraelitis in Deſerto cultus, Frank. 1731, 4to. 3. Diſſertationes octo de Terra Goſen, 1736, 4to. 4. Pantheon Ægyptiorum, ſive de Diis eorum Commentarius, 1752, 8vo. 5. De Memnone Græcorum & Ægyptiorum, hujuſque celeberrima in Thebaide Statua, Syntagmata 3. 1753, 4to. cum fig. 6. Inſtitutiones Hiſtoriæ Chriſtianæ Antiquoris & Recentioris, 1756, tom. 3. 8vo. Jablonſky was alſo the author of ſeveral treatiſes in Michaelis's Obſervationes Sacræ, the Miſcell. Berolin. in Schmidt's Biblical Geography, and the New Leipſic Miſcellanies.

JAB'NAH, [Hebrew.] The name of a city.

IABORAN'DI, *ſ.* in botany. See PIPER.

IABORO'SA, *ſ.* in botany, a genus of the claſs pentandria, order monogynia. Generic eſſential characters—Corolla tubular; calyx five-cleft, ſhort; ſtamina inſerted into the throat; ſtigma capitate: berry; three-celled?

*Species.* 1. Iaboroſa integrifolia: leaves oblong, toothed. 2. Iaboroſa runcinata: leaves ſinuate, toothed. In both ſpecies the ſcape is one-flowered. Both inhabit Monte Video and Buenos Ayres.

IABOTAPI'TA, *ſ.* in botany. See GOMPHIA and OCHNA.

JABS, or YAB'BAH, a diſtrict of country of Africa, on the Gold-Coaſt, ſituated to the eaſt of Anta; the chief is ſo poor that no one will truſt him; yet the ſoil is rich and fertile: the gold found there is adulterated.

JA'CA TREE. See ARTOCARPUS.

JACAPUCA'YA, *ſ.* in botany. See LECYTHIS.

JACATRA', a county of the iſland of Java, of which Batavia is the capital, and was formerly called Jacatra.

JAC'CA, a city of Spain in Arragon, ſituated at the foot of the Pyrennées, on the river Arragon, with a citadel, built in the year 1592; the ſee of a biſhop, ſuffragan of Saragoſſa. The town is very ancient, and preſerves its original name. It was at one time the capital of Arragon, and at preſent is ſo of a diſtrict which includes near 200 towns and villages: forty-five miles north of Saragoſſa, and thirty-five eaſt of Sangueſa. Lat. 42. 29. N. lon. 16. 5. E. Peak of Teneriffe.

JACCE'TIUS (Francis-Cataneus), a philoſophical writer who flouriſhed towards the cloſe of the fifteenth and in the early part of the ſixteenth century. His true Italian name was *Diaceto*; and he was born at Florence in the year 1466. He was the diſciple of Marſilius Ficinus, and improved ſo happily under the inſtructions of that great maſter, that he became one of the ableſt Platoniſts of his time, and an excellent orator. He ſucceeded Ficinus in the chair of philoſophy at Florence, for which the latter conſidered him to be admirably well qualified; and he retained that poſt till his death in 1522, when he was about fifty-ſix years of age. He was the author of the following treatiſes: 1. De Pulcro, Lib. 3. 2. De Amore. 3. Paraphraſis in Politicum & Theaginem Platonis, & in Ariſtotelem de Cœlo & Meteoris. 4. Enarratio in Platonis Sympoſium. 5. Oratio in Funere Laurentii Medices. 6. Epiſtolæ Variæ, &c. A collection all his pieces was printed at Baſil in 1563, in folio.

There was another *Francis-Cataneus Jaccetius*, whom Michael Pocciantius calls Franciſcus Cathareus Diacethius, and ſays, that he was a canon in the cathedral of Florence, apoſtolical prothonotary, doctor of the civil law, and biſhop of Fieſoli; and that he wrote in Italian, the Lives of Chriſt, of the bleſſed Virgin, of St. Dominic, and of ſome biſhops of Fieſoli. Ughelli ſays that he was made biſhop of Fieſoli in 1570; had a ſeat among the fathers of the council of Trent; wrote ſome treatiſes *De Authoritate Papæ & Concilii*, and *De Superſtitione Artis Magicæ*, &c. that he diſcharged all the duties of a worthy prelate, and died in the year 1595.

IAC'CHUS, a ſurname of Bacchus, from ιαχειν, on account of the noiſe and ſhouts which the Bacchanals raiſed at the feſtivals of this deity. *Virgil.*—Some ſuppoſe him to be a ſon of Ceres; becauſe in the celebration of the Eleuſinian myſteries, the word Iachus was frequently repeated. *Herodotus.*

JACE'A, *ſ.* in botany. See CARDUUS, CENTAUREA, GORTERIA, SERRATULA, STÆHELINA, VIOLA, XERANTHEMUM.

JA'CENT, *adj.* [*jacens*, Lat.] Lying at length.—So laid, they are more apt in ſwagging down to pierce than in the *jacent* poſture. *Wotton.*

JA'CHAN, [Hebrew.] A man's name.

JA'CHIN, [Heb. one that ſtrengthens.] A man's name.

JA'CHINITE, *ſ.* A deſcendant of Jachin.

JA'CI, or JACI DI AQUILA, a town of Sicily, in the vally of Demona: nine miles north-north-eaſt of Catanea, and fifteen ſouth-ſouth-weſt of Taormina.

JA'CINTH, *ſ.* [for *hyacinth*, as *Jeruſalem* for *Hieruſalem.*] The ſame with hyacinth.—A gem of a deep reddiſh yellow approaching to a flame colour, or the deepeſt amber. *Woodward.*—See *Gemma*, under the article MINERALOGY.

JACK, *ſ.* [probably by miſtake from *Jacques*, which in French is *James.*] The diminutive of *John*. Uſed as a general term of contempt for ſaucy or paltry fellows.—Every *Jack*-ſlave has his belly-full of fighting; and I muſt go up and down like a cock that nobody can match. *Shakeſpeare.*

I have in my mind
A thouſand raw tricks of theſe bragging *Jacks*,
Which I will practice. *Shakeſpeare.*

The name of inſtruments which ſupply the place of a boy, as an inſtrument to pull off boots.—Foot-boys, who had frequently the common name of *Jack* given them, were kept to turn the ſpit, or to pull off their maſter's boots; but when inſtruments were invented for both theſe ſervices, they were both called *jacks. Watts.*—An engine which turns the ſpit.—The excellencies of a good *jack* are, that the *jack* frame be forged and filed ſquare; that the wheels be perpendicularly and ſtrongly fixed on the ſquares of the ſpindles; that the teeth be evenly cut, and well ſmoothed; and that the teeth of the worm-wheel fall evenly into the groove of the worm. *Moxon.*

Some ſtrain in rhyme; the muſes on their racks
Scream, like the winding of ten thouſand *jacks.* *Pope.*

A young pike.—No fiſh will thrive in a pond where roach or gudgeons are, except *jacks. Mortimer.*—[*Jacque*, Fr.] A coat of mail.—The reſidue were on foot, well furniſhed with *jack* and ſkull, pike, dagger, bucklers made of board, and ſlicing ſwords, broad, thin, and of an excellent temper. *Hayward*.—A cup of waxed leather:

Dead wine, that ſtinks of the borrachio, ſup
From a foul *jack*, or greaſy maple cup. *Dryden.*

A ſmall bowl thrown out for a mark to the bowlers.—'Tis as if one ſhould ſay, that a bowl equally poiſed, and thrown upon a plain bowling-green, will run neceſſarily in a direct motion; but if it be made with a byaſs, that may decline it a little from a ſtraight line, it may acquire a liberty of will, and ſo run ſpontaneouſly to the *jack*. *Bentley*.—A part of the muſical inſtrument called a virginal.—In a virginal, as ſoon as ever the *jack* falleth, and toucheth the ſtring, the ſound ceaſeth. *Bacon*.—The male of animals.—A *jack* aſs, for a ſtallion, was bought for 3229l. 3s. 4d. *Arbuthnot*.—A ſupport to ſaw wood on. *Ainſworth*.—The colours or enſign of a ſhip. *Ainſworth*.—A cunning fellow who can turn to any thing, in the following phraſe:

*Jack* of all trades, ſhow and ſound;
An inverſe burſe, an exchange under ground. *Cleveland*.

JACK, *ſ.* in mechanics, is an inſtrument in common uſe for raiſing heavy timber, or very great weights of any kind; being a certain very powerful combination of teeth and pinions, and the whole incloſed in a ſtrong wooden ſtock or frame, and moved by a winch or handle.

*Smoke*-JACK, *ſ.* An engine uſed for the ſame purpoſe with the common jack, and ſo called from its being moved by means of the ſmoke, or rarefied air, aſcending the chimney, and ſtriking againſt the ſails of a horizontal wheel. This wheel ſhould be placed in the narrow part of the chimney, where the motion of the ſmoke is ſwifteſt, and where alſo the greateſt part of it muſt ſtrike upon the ſails. The force of this machine depends upon the draught of the chimney, and the ſtrength of the fire.

JACK-BOOTS, *ſ.* [from *jack*, a coat of mail.] Boots which ſerve as armour to the legs.—A man on horſeback, in his breeches and *jack-boots*, dreſſed up in a commode and a night-rail. *Spectator*.

JACK-IN-A-BOX. See HERNANDIA.

JACK-O'TH' CLOCK, *ſ.* An image that ſtrikes the hour, like thoſe at St. Dunſtan's Church in Fleet Street:

My time runs on in Bolingbroke's proud joy;
While I ſtand fooling here, his *jack-o'th' clock*. *Shakeſpeare*.

JACK-DAW, *ſ.* the Engliſh name of a ſpecies of corvus. See CORVUS.—To impoſe on a child to get by heart a long ſcroll of phraſes, without any ideas, is a practice fitter for a *jack-daw* than for any thing that wears the ſhape of man. *Watts*.

JACK-FLAG, *ſ.* in a ſhip, that hoiſted up at the ſprit-ſail top-maſt head.

JACK BY THE HEDGE, *ſ.* The herb ERYSIUM.—*Jack by the hedge* is an herb that grows wild under hedges, is eaten as other ſalads are, and much uſed in broth. *Mortimer*.

JACK-KETCH, *ſ.* [ſuppoſed to be from *John Ketch*, a noted hangman.] The common hangman in the city of London.

JACK-A-LAN'TERN. An *ignis fatuus*.

JACK-A-LENT, *ſ.* [*Jack in Lent*, a poor ſtarved fellow.] A ſimple ſheepiſh fellow.—You little *jack-a-lent*, have you been true to us? *Shakeſpeare*.

JACK's MOUN'TAINS, mountains of United America, in the ſtate of Pennſylvania, ſouth of Louiſtown.

JACK-PUD'DING, *ſ.* A zani; a merry Andrew.—A buffoon is called by every nation by the name of the diſh they like beſt: in French *jean pottage*, and in Engliſh *jack-pudding*. *Guardian*.

*Jack-pudding*, in his party-coloured jacket,
Toſſes the glove, and jokes at every packet. *Gray*.

JACK'AL, *ſ.* [*chacal*, Fr.] A ſmall animal, ſuppoſed to ſtart prey for the lion. See CANIS, vol. iii. p. 724.—The mighty lion, before whom ſtood the little *jackal*, the faithful ſpy of the king of beaſts. *Arbuthnot and Pope*.—Improperly ſometimes accented on the laſt ſyllable:

The Belgians tack upon our rear,
And raking chaſe-guns through our ſterns they ſend:
Cloſe by their fireſhips, like *jackáls* appear,
Who on their lions for the prey attend. *Dryden*.

JACK'ANAPES, *ſ.* A monkey; an ape; a coxcomb; an impertinent.—People wonder'd how ſuch a young upſtart *jackanapes* ſhould grow ſo pert and ſaucy, and take ſo much upon him. *Arbuthnot*.

JAC'KET, *ſ.* [*jacquet*, Fr.] A ſhort coat; a cloſe waiſtcoat.—In a blue *jacket*, with a croſs of red. *Hubb. Tale*.

And hens, and dogs, and hogs, are feeding by;
And here a ſailor's *jacket* hangs to dry. *Pope*.

*To beat one's* JACKET, is to beat the man.—She fell upon the *jacket* of the parſon, who ſtood gaping at her. *L'Eſtrange*.

JACK'SON (John), a learned Engliſh divine, philoſophical writer, and chronologiſt, who flouriſhed in the eighteenth century, was the ſon of a clergyman of the ſame name, at Senſey, near Thirſk, in Yorkſhire, where he was born in the year 1686. His father afterwards becoming rector of Roſſington, and vicar of Doncaſter, in the ſame county, he was ſent for education in grammar-learning to Doncaſter ſchool, where he had for his maſter the celebrated Dr. Henry Bland, afterwards head maſter of Eton ſchool. Under his inſtructions he made ſuch proficiency in claſſical learning, that Dr. Bland was frequently accuſtomed to devolve his office of teacher on our young ſcholar. Thus accompliſhed, he entered of Jeſus college, Cambridge, in 1702; and, after proſecuting his academical ſtudies with becoming diligence, and learning Hebrew under the famous Simon Ockley, he proceeded B. A. at the ſtatutable period. In the year 1707 he quitted the univerſity, and, as he was not of age to enter into orders, he engaged for ſome months in the capacity of private tutor to the children of a gentleman in Derbyſhire. During the following year, he was admitted to deacon's orders; and two years afterwards was ordained prieſt, when he entered into poſſeſſion of the rectory of Roſſington, which had been reſerved for him by the corporation of Doncaſter after the death of his father. Soon after this he married, and went to reſide on his benfiece. In the year 1714, Mr. Jackſon commenced his career as an author, by publiſhing three letters in defence of Dr. Samuel Clarke's Scripture Doctrine of the Trinity, under the name of a country clergyman. The labours of this hardy volunteer in his unpopular cauſe proved ſo acceptable to the doctor, that a correſpondence immediately took place between him and the author, which led to their perſonal acquaintance, and moſt cordial and affectionate friendſhip. In the year 1714, likewiſe, Mr. Jackſon entered the liſts in the Bangorian controverſy, and proved an able defender of biſhop Hoadly in the cauſe of liberty. The piece which he publiſhed on this occaſion met with a very favourable reception, and was entitled, "The Grounds of Civil and Eccleſiaſtical Government briefly conſidered; to which is added, a Defence of the Biſhop of Bangor againſt the Objections of Mr. Law," with the author's name and place of reſidence affixed.

In the year 1716 Mr. Jackſon took up the gauntlet of a new antagoniſt, the celebrated Dr. Waterland, againſt whom he maintained the ſentiments of Dr. Clarke with indefatigable diligence and ſpirit for many years; purſuing him through the winding labyrinths and intricate mazes of the obſcure diſpute; ſtrictly examining and canvaſſing the text both of the Old and New Teſtament; and collecting the ſenſe of the fathers, councils, hiſtorians, and writers, of different ages. After the appearance of Dr. Waterland's Caſe of Arian Subſcription conſidered, &c. in 1721, Mr. Jackſon engaged in a correſpondence with Mr. Whiſton on that ſubject, which led him finally to determine that he would never ſubſcribe the thirty-nine articles any more. In conſequence of this determination, he he loſt, about the year 1724, the hopes which he had been led to entertain of a prebend of Saliſbury, which biſhop Hoadly refuſed to give him without ſubſcription. In 1728 Mr. Jackſon publiſhed "Novatiani Preſbyteri Romani Opera quæ ſuperſunt, omnia. Poſt Jacobi Pamelii Brugenſis recerſionem, ad Antiquiores Editiones caſtigata, &c. Premittitur Diſſertatio de Filii Dei Homouſio, &c." 8vo. and alſo, "The Duty of a Chriſtian ſet forth and explained, in ſeveral practical Diſcourſes; being an Expoſition of the Lord's Prayer. To which is added a Diſcourſe on the Sacrament of the Lord's Supper," 12mo.

Upon the death of Dr. Clarke, in 1729, Mr. Jackſon was preſented to the maſterſhip of Wigſton's hoſpital by the duke of Rutland, who was then chancellor of the duchy of Lancaſter; which place he filled till his death, with great reputation and credit, candidly admitting into that houſe perſons of different religious perſuaſions, and, with a truly Chriſtian temper, even ſome of thoſe who had been moſt violent partiſans againſt him, when they were reduced to indigent circumſtances. In this or the following year he received a groſs affront from the vicar of St. Martin's, when intending to preach at the deſire of his confrater; for, without ſending Mr. Jackſon notice, the vicar ordered his ſexton to ſtand at the bottom of the pulpit ſtairs, and to refuſe him admittance into the pulpit, which he choſe to fill himſelf. Some time before this, our author had embarked in the controverſy concerning liberty and neceſſity, and publiſhed a piece, of which an enlarged edition appeared in 1730, entitled, "A Defence of Human Liberty, in Anſwer to the principal Arguments which have been alleged againſt it, and particularly to Cato's Letters on that ſubject. In which Defence, the Opinion of the Ancients concerning Taſte is alſo diſtinctly and largely conſidered. To which is added a Vindication of Human Liberty, in Anſwer to a Diſſertation on Liberty and Neceſſity, written by A. C. (Anthony Collins) Eſquire," 8vo. In the ſame year he commenced a ſeries of Treatiſes in defence of human reaſon, occaſioned by the doctrine advanced in the biſhop of London's ſecond Paſtoral Letter. In 1731 Mr. Jackſon entered the liſts againſt the famous Tindal, by publiſhing "Remarks on a Book entitled, 'Chriſtianity as old as the Creation;' wherein the principal Objections of this Book againſt Religion are conſidered," 8vo.; and in 1773 he publiſhed, "An Anſwer to a book entitled, 'Things divine and ſupernatural, conceived by Analogy with Things natural and human;' in which it is proved, that the Author's notion of divine Analogy is immediately deſtructive of all Religion, both natural and revealed," 8vo. The piece againſt which this treatiſe was written, is ſuppoſed to have been the production of Dr. Browne, biſhop of Cork. Our author's next publication appeared in 1734, and was entitled, "The Exiſtence and Unity of God, proved from his Nature and Attributes: being a Vindication of Dr. Clarke's Demonſtration of the Being and Attributes of God. To which is added an Appendix, wherein is conſidered the Ground and Obligation of Morality," 8vo. In 1735 he publiſhed, "A Diſſertation on Matter and Spirit; with ſome Remarks on a book entitled, An Enquiry into the Nature of the human Soul, written by Mr. Baxter," 8vo. and in the following year he printed, "A Narrative of the Caſe of the Reverend Mr. Jackſon being refuſed the Sacrament of the Lord's Supper at Bath, by Dr. Coney; with ſome Obſervations upon it, worthy the Conſideration of all Friends to Religion and Liberty of Conſcience," 8vo. This affront was offered Mr. Jackſon in a very public manner; and his obſervations ably expoſe that fiery zeal for orthodoxy, which leads its votaries to diveſt themſelves of the fundamental and brighteſt ornaments of the Chriſtian ſyſtem, charity and mutual forbearance.

In the year 1742, Mr. Jackſon maintained an epiſtolary debate with his friend Mr. Whiſton concerning the order and times of the Jewiſh high-prieſts. In 1744 he publiſhed, "An Addreſs to Deiſts, being a Proof of revealed Religion from Miracles and Prophecies; in anſwer to a book entitled, The Reſurrection of Jeſus conſidered, by a moral Philoſopher," 12mo. In 1745 he took the field in oppoſition to the redoubted Warburton, whoſe leading opinions, on which he endeavoured to eſtabliſh 'The Divine Legation of Moſes,' our author attacked in his "Belief of a future State proved to be a fundamental Article of the Religion of the Hebrews. And the Doctrine of the ancient Philoſophers concerning a future State ſhown to be conſiſtent with Reaſon," &c. 8vo. This publication gave riſe to a controverſy, which was carried on with warmth and no little degree of acrimony, eſpecially on the ſide of Warburton, till the year 1749, when our author publiſhed, "Remarks on Dr. Middleton's 'Free Enquiry into the Miraculous Powers, ſuppoſed to have ſubſiſted in the Chriſtian Church from the earlieſt Ages.' In which is ſhown, that there is ſufficient Reaſon to believe, that miraculous Powers continued in the Church after the Days of the Apoſtles," 8vo. From this time Mr. Jackſon did not publiſh any thing before the year 1752, when he ſent into the world his capital work, the reſult of much ſtudious application, extenſive reading, and critical ſkill. It was entitled, "Chronological Antiquities; or the Antiquities and Chronology of the moſt ancient Kingdoms from the Creation of the World, for the Space of five thouſand Years, &c." in 3 vols. 4to. The firſt volume preſents us with the chronology of the Hebrews, Babylonians or Chaldeans, Medes, Perſians, the æra of Nabonaſſer, the aſtronomical canon of Ptolemy, a diſſertation on the Septuagint, and the antiquities of Tyre. The ſecond commences with a large diſſertation concerning the ancient years, æras, and computations of time; which is followed by the antiquities and chronology of the Egyptians and Chineſe. The third volume treats of the antiquities of the Phœnicians, Italy, Greece, and the Pelaſgi; of Linus and Orpheus, and their times; of the antiquity of letters, &c. This valuable work was favourably received by the learned, both at home and abroad, and ſoon after its appearance was tranſlated into the German language. Dr. Jackſon died in the year 1763, ſoon after he had entered on the ſeventy-eighth year of his age. He was a man of conſiderable learning, particularly in Greek and Roman literature, metaphyſics, and theology; and his indefatigable induſtry is ſufficiently apparent from the particulars above recited. To the intereſts of civil and religious liberty he was zealouſly attached, and boldly avowed himſelf the advocate of what he conceived to be truth; although fully ſenſible of the obloquy and temporal loſſes to which ſuch conduct would expoſe him. Though perpetually engaged in polemical conteſts, they had not the effect of ſpoiling his temper, which was uniformly obliging and cheerful, nor of ſeducing him to trangreſs againſt the dictates of benevolence, candour, and Chriſtian charity.

JACKSON (Thomas), a learned Engliſh divine, was born at Witton, in the county of Durham, in the year 1579. His parents originally deſigned him for the mercantile life at Newcaſtle, where he had many opulent friends and relations; but his own inclination led him to prefer learning to buſineſs; and he was ſent to the univerſity of Oxford, where he was entered of Queen's college, in the year 1595. In the following year he was elected a ſcholar of Corpus-Chriſti college; and, though he was not informed of the vacancy for that place till the day before the election, yet he acquitted himſelf ſo well in the cuſtomary examination, that he gained the admiration and unanimous ſuffrages of the electors, notwithſtanding the great intereſt which was made for another candidate. He was admitted to the degree of B. A. in 1599; and to that of M. A. in 1603. In the year 1606 he was choſen probationer-fellow of his college; at which time he was well grounded in arithmetic, grammar, philology, geometry, rhetoric, logic, philoſophy, the oriental languages, hiſtory, &c. While, however, he carefully ſtudied theſe branches of learning, his principal attention was paid to divinity, which he cultivated with the greateſt vigour and ſucceſs. His proficiency in this ſcience occaſioned his being ſelected to read a divinity-lecture in his college every Sunday morning; and induced the maſter and fellows of Pembroke college, ſoon after its foundation, to appoint him reader of a ſimilar lecture on a week-day in that houſe. He was choſen vice-preſident of his college ſeveral years ſucceſſively; in the diſcharge of which office he moderated at the divinity-diſputations, in a manner equally creditable to his profound learning and to his courteſy, candour, and modeſty. In the year 1610 he took the degree of bachelor of divinity; and in 1622, that of doctor in the ſame faculty. Two years afterwards he quitted the college, having obtained a benefice in his native country; which he relinquiſhed in a ſhort time, for the vicarage of St. Nicholas in Newcaſtle-upon-Tyne. In this large cure of ſouls, while he purſued his former ſtudious courſe of life, he faithfully diſcharged his paſtoral duties, and ſecured the affections of his flock by his obliging humble manners, and liberal beneficence. He was alſo much followed and admired as a preacher. At this time he was rigidly Calviniſtic in his ſentiments. Being afterwards, however, appointed chaplain to Dr. Neile, biſhop of Durham, that prelate ſucceeded in making him a convert to Arminianiſm, at leaſt with reſpect to the doctrine of abſolute predeſtination. Through the joint intereſts of Dr. Neile and Dr. Laud, in the year 1630, he was elected preſident of Corpus-Chriſti college; in which ſituation he conducted himſelf with great prudence, candour, integrity, and fidelity. Upon his obtaining this promotion, he reſigned his vicarage in Newcaſtle, and ſoon afterwards was nominated chaplain-in-ordinary to his majeſty, and collated to the vicarage of Witney in Oxfordſhire. In the year 1635, he was made a prebend of Wincheſter; and in the ſummer of 1638 he was promoted to the deanery of Peterborough. The laſt-mentioned dignity he did not enjoy quite two years, as he died in 1640, when he was in the ſixty-firſt year of his age. Dr. Jackſon poſſeſſed a ſolid and penetrating judgment, and his learning was very various and extenſive. His works are exceedingly numerous, and entirely theological. The principal of them conſiſt of Commentaries on the Apoſtle's Creed, in twelve books, which were publiſhed at different periods from 1613 to 1627. The reſt of his compoſitions are chiefly ſermons. A complete collection of the whole was printed in 1672 and in 1673, in 3 vols. folio, with the life of the author prefixed.

JACK'SON (William), an eminent muſical compoſer and a man of letters, was born in 1730 at Exeter. His father, a ſhop-keeper in that city, gave him a liberal education, with a view to a learned profeſſion; but he diſplayed ſo decided a taſte for muſic, that he was placed as a pupil to Mr. Travers, organiſt to the cathedral of Exeter. In 1748 he removed to London, and paſſed two years under the tuition of Mr. Travers, organiſt to the king's chapel, and an eminent ſong-compoſer. He then returned to his native place, where he ſettled for life as a teacher, performer, and compoſer, of muſic. He ſoon attained reputation and employment; but it was not till 1777 that he ſucceeded to the place of ſub-chanter, organiſt, lay-vicar, and maſter of the choriſters, in the cathedral. His talents in muſical compoſition were firſt made known in 1755, when he printed a collection of twelve ſongs, ſet in a manner ſo ſimple, elegant, and original, as preſently to become favourites with the public. As he joined to muſical ſcience a taſte for poetry, he made choice of ſome of the moſt pleaſing lyric pieces in the language as the vehicles for his notes; by which he is advantageouſly diſtinguiſhed from the generality of compoſers. Mr. Jackſon publiſhed a ſecond and a third collection of ſongs; and it is by his vocal compoſitions that he has acquired the greateſt reputation. Among his muſical works are alſo anthems, hymns, odes, elegies, and canzonets, ſome of them of great merit and originality. Chaſteneſs of conception, ingenuity of conſtruction, and truth of expreſſion, are their general characteriſtics. In inſtrumental muſic ſome of his ſonatas for the harpſichord are much applauded. His manuſcript anthems and ſervices for Exeter cathedral were much admired by all who heard them, as producing all the devotional effects which could reſult from an union of the poetical with the muſical taſte.

He firſt appeared to the world in a literary capacity by a publication, in 1782, of Thirty Letters on various Subjects, 2 vols. ſmall 8vo. This miſcellany contains many ſtriking reflections upon men, manners, and opinions, ſometimes ſingular and paradoxical, but generally lively and inſtructive. An attempt to revive the exploded doctrine of equivocal generation, and another to retrieve the poetical reputation of Quarles, are thoſe in which the ingenious writer fartheſt deviates from the common judgment. Theſe letters were well received, and were republiſhed in a third edition with additions and corrections in 1795. A pamphlet, entitled, Obſervations on the preſent State of Muſic in London, which he publiſhed in 1791, was thought to betray ſome prejudice againſt the modern maſters, and undue preference of thoſe under whom the writer's muſical taſte was formed, intermixed, however, with valuable and judicious obſervations. In 1798 Mr. Jackſon again appeared as a miſcellaneous writer, in a volume entitled, The Four Ages; together with Eſſays on various Subjects, 8vo. The firſt of theſe pieces, which compoſes the greater part of the volume, is an attempt to ſhow that the ancient ſymbolical repreſentation of periods of the world by different metals, in reality takes place in the reverſe order from the common ſtatement. He is therefore a ſtrenuous advocate for the opinion of the progreſſional ſtate of mankind, and the proſpects of futute amelioration. His other eſſays are ingenious, ſprightly, but ſomewhat paradoxical. They ſhow a man who had thought for himſelf, but was ſometimes influenced by a fondneſs for ſingularity. To his other taſtes, he added that for painting, in which art he was no mean proficient. He employed his pencil chiefly in landſcape, and by his ſtudy of ſtrong and partial lights produced ſtriking effects. Mr. Jackſon was a member of a very reſpectable literary ſociety inſtituted at Exeter in 1792, which publiſhed an octavo volume of their joint contributions in 1796. He was extremely well qualified for converſation, by extenſive information, a turn for pleaſantry, and a communicative and ſocial diſpoſition. He enjoyed a very ſelect acquaintance, and was greatly reſpected by the principal perſons in his neighbourhood. He died of an aſthmatic complaint in 1803, aged 73.

JACK'SON, a new county of Georgia, in North America.

JACK'SON's RIV'ER, a head water of James's River in Virginia, riſes in the Warm Spring Mountains, about twenty miles ſouth-weſt of the Warm Spring Mountains, and runs ſouth-weſt through the valley until Carpenter's creek joins it from that quarter, when the river aſſumes the name of Fluvanna, and flows ſouth-eaſt. About three quarters of a mile from its ſource it falls over a rock two hundred feet into the valley below. The ſheet of water is broken in its breadth by the rock in two or three places, but not in its height. Between the ſheet and the rock at the bottom you may walk acroſs dry. It is near half as high again as Niagara, but is only twelve or fifteen feet wide.

JACK'SONSBOROUGH, a ſmall poſt-town of South-Carolina, on the eaſt ſide of Ediſto river, about thirty-five miles weſt of Charleſtown.

JAC'MEL, a juriſdiction and ſea-port town on the ſouth ſide of the iſland of St. Domingo. This juriſdiction in the French part of the iſland, contains three pariſhes, is remarkable for the goodneſs of its ſoil, and the abundant crops of coffee, and is ſuſceptible of a great augmentation. Its exports, from January 1, 1789, to Dec. 31 of the ſame year, were 27,350lb. white ſugar; 55,624lb. brown ſugar; 4,072,702lb. of coffee; 406,832lb. cotton; and 10,046lb. indigo. The duties on exportation of the above amounted to 15,619 dollars, 26 cents. The town is ſituated on the ſouth ſide of the neck of the ſouth peninſula; ſix leagues weſtward of Cayes de Jacmel, ſeven leagues and a half eaſt of the bay and town of Baynet, as far ſouth of Leogane on the north ſide of the peninſula, thirteen ſouth-weſt of Port au Prince, and fifty-three eaſt of Cape Tiburon. Lat. 18.21. N. lon. 75. 2. W. from Paris.

JAC'MEL, Cayes de, a town and pariſh on the eaſt ſide of the ſtream of its name, ſix leagues eaſt of the above town of Jacmel. This pariſh is bounded eaſt by the plain on the Spaniſh part, at the foot of the mountains of Bahoruco, eighty leagues ſquare, fit for any kind of cultivation. On the neighbouring mountains coffee would ſucceed well.

JAC'OB, [Heb. a ſupplanter.] A man's name.

JA'COB, the Hebrew patriarch, was the ſon of Iſaac and Rebecca, and twin brother of Eſau, and born in the year 1836 B. C. He was the ſecond in the order of birth, and came into the world holding his brother's heel; on which account he was called *Jacob,* from a Hebrew word which ſignifies *the heel,* as well as the verb *to ſupplant.* His inclination led him to the paſtoral life, for which he appears to have been beſt qualified by his gentle eaſy temper. Hence alſo he was his mother's favourite, while his brother Eſau recommended himſelf to the firſt place in the affections of their father, by his more maſculine and active ſpirit. In our life of Esau, vol. vii. p. 7, we were neceſſarily led to anticipate the early part of the hiſtory of Jacob, and to relate the particulars of his obtaining from Eſau the renunciation of the privileges of his birthright, and of the manner in which he afterwards ſupplanted him in receiving their father's laſt prophetic bleſſing. After Rebecca had prevailed upon Iſaac to ſend Jacob to her brother Laban, where he would be ſafe from the reach of Eſau's threatened vengeance, ſhe introduced her favourite to take his leave of his father, who confirmed in a ſolemn manner the bleſſing which had been obtained by ſtratagem, and gave him his parting commands. Jacob was ſent away alone, with only his ſtaff in his hand, probably for the purpoſe of concealing his departure from his brother; and, after completing his journey to his uncle Laban's at Padan-aram, was received by him with all the marks of friendſhip and affection. Jacob, when he had ſtaid with his uncle a month, found himſelf captivated by the charms of his youngeſt daughter Rachael, whom he was deſirous of marrying. As, however, he had no preſent to make her father, according to the cuſtom of thoſe days, and Laban was of too covetous a diſpoſition to part with his daughter without ſome equivalent, an agreement was made between them, that the latter ſhould have the ſervice of Jacob for ſeven years; at the end of which Rachael ſhould become his wife. When the term of the agreement was about to expire, Laban projected a diſhonourable trick, by which Jacob was cheated into an additional ſeven years ſervice; for, upon the arrival of the time at which he was to be put in poſſeſſion of the wife whom he had ſo dearly earned, Laban, taking advantage of the eaſtern cuſtom of veiling the bride, ſubſtituted his eldeſt daughter Leah in the room of Rachael, and Jacob did not diſcover the deceit till the next morning. Fired with reſentment at having been betrayed into marriage with the homely ſiſter of the object of his affections, he warmly remonſtrated with Laban, who excuſed himſelf by pretending, that the uſage of the country would not permit the younger daughter to be married before the elder; and added, that if Jacob would fulfil the nuptial week with his wife, and conſent to ſerve him ſeven years more, as ſoon as the week was ended he would alſo beſtow upon him Rachael. Notwithſtanding the unfairneſs of this procedure, Jacob loved Rachael too well not to obtain her at any price; he therefore acceded to the hard terms, and at the expiration of the ſeven days enjoyed the fruits of his ſervitude and conſtancy. Jacob's behaviour to his two wives, as might be expected, was very different; ſince Rachael poſſeſſed his affections, and Leah was forced to content herſelf with cold civility, and a leſs frequent admiſſion than her ſiſter to her huſband's bed. It pleaſed God, however, that Leah ſhould ſucceſſively prove the mother of four ſons, while Rachael continued barren. At length Rachael, who had almoſt deſpaired of having iſſue, proved with child, and to her great joy was delivered of her ſon Joſeph. By this time Jacob, having completed his fourteen years ſervitude, was deſirous of returning to his aged parents, and requeſted that his uncle would diſmiſs him and his family. But Laban, who had ſufficiently experienced the value of his faithful ſervices, entreated him to continue with him a little longer, agreeing that he ſhould have by way of wages all the future produce of the flocks diſtinguiſhed by particular marks. This bargain proved in time ſo advantageous to Jacob, that Laban's avarice led him to put in practice many ſtratagems to defraud his nephew of his juſt right, which Jacob counteracted by other ſtratagems in his own defence. No leſs than ten times, as Jacob afterwards complained, were the conditions of the agreement arbitrarily altered by Laban: but, notwithſtanding all, Jacob grew exceeding rich, "and had much cattle, and maid-ſervants, and men-ſervants, and camels, and aſſes." His proſperity, however, excited the jealouſy of Laban and his ſons againſt him; and, being divinely admoniſhed in a dream, he determined to embrace the firſt favourable opportunity of departing with all that he had to his own country. Having imparted his deſign to his wives, who were ſatisfied of the prudence of that meaſure, while Laban was at a conſiderable diſtance ſhearing his ſheep, he collected together his property, and ſet forwards with as much expedition as poſſible towards the land of Canaan. It was not before the third day afterwards that Laban received information of Jacob's departure; when he immediately collected a band of his kindred and dependants, and after a purſuit of ſeven days came up with his ſon-in-law in that part of the hilly country connected with mount Libanus, which was afterwards known by the name of mount Gilead. The deſign with which he had followed him was undoubtedly hoſtile; but, being threatened in a dream with the effects of the Divine diſpleaſure if he ſhould attempt to carry it into execution, Laban at firſt confined himſelf to expoſtulation with Jacob for ſtealing away without giving him the opportunity of taking an affectionate leave of his children and grandchildren, and of honourably diſmiſſing them with the uſual ceremonies of muſic and dancing. Jacob, on the other hand, enumerated the many grounds which he had of complaint and diſtruſt, which abundantly juſtified the ſtep that he had taken; and expoſtulated in ſuch moving language, on account of the injuries which he had received, that Laban appears to have been awakened to ſome ſenſe of ſhame for his conduct; and, after expreſſions of a tender regard towards his daughters and their offspring, he propoſed to Jacob that they ſhould enter into an alliance, and erect a monument which ſhould be a witneſs of it to future ages. To this propoſal Jacob acceded, and a pile of ſtones was reared by the joint labours of both parties, which Laban called in the Syrian tongue *Jegar-ſahadutha,* and Jacob in Hebrew *Gilead*; both which ſignify "the heap of witneſs." Here they mutually ſwore to articles of indiſſoluble peace and union, a ſacrifice being offered on the occaſion; and, after the ceremony was ended, Jacob made a feaſt for the whole company. On the following day, Laban, after embracing and bleſſing Jacob and his family, ſet out on his return to Padan-aram.

No ſooner was Jacob thus happily delivered from the intended enmity of his father-in-law, than his mind became diſtreſſed with apprehenſions of his brother Eſau, whoſe reſentment he ſtill dreaded. A viſion which he had on his way to Canaan, of a hoſt of protecting angels, contributed in ſome degree to allay his anxiety; but, that he might be fully aſſured of his brother's diſpoſition towards him, he thought it proper to ſend meſſengers to acquaint Eſau with the circumſtances in which he was returning to his native country, and to conciliate his goodwill by ſubmiſſive compliments. When the meſſengers returned with the information that Eſau was coming to meet him, accompanied with four hundred of his men, Jacob began to conclude that his brother intended to deſtroy him, and he endeavoured to provide for the ſafety of a part of his family and property, by dividing the whole into two bands, in hopes that, if the one periſhed, the other might eſcape. Having afterwards recommended himſelf in an humble prayer to the Divine protection, he reſolved to try how far preſents would work upon Eſau's temper in his favour; and ſelected numerous choice ſpecimens from his flocks and herds, and cattle of different kinds, which he ſent forwards in ſeparate droves, under the care of perſons who were inſtructed when they met his brother to tell him, that they were preſents from Jacob to his lord Eſau, in order to propitiate his good-will. On the morning after he diſpatched theſe droves, long before day-break, he made all his family and flocks croſs over a brook which lay in his way, while he remained alone on the other ſide. Here he met with an occurrence, which appears to have been a prophetic viſion, calculated to allay his fears. He was encountered by a perſon, with whom he grappled till the break of day, who, after giving him proof of his ſupernatural power, by touching the hollow of his thigh and putting it for a ſhort ſpace of time out of joint, encouraged him with aſſurances that the Divine Being who had taken him under his protection, would deliver him from every threatening harm, and fulfil the great promiſes which he had made to him. At the ſame time this heavenly meſſenger gave him the name of *Iſrael*, which ſignifies "a man who has prevailed with God." Animated by the aſſurances now given him, Jacob went on cheerfully after his family, which he joined juſt as Eſau had come in ſight. In the life of the latter we have already ſeen that, contrary to Jacob's expectations, his brother behaved towards him on their meeting in the moſt kind and affectionate manner, and invited him to ſettle in his neighbourhood. Jacob, however, was afraid of fixing too near the brother whom he had ſupplanted; but it is probable that he paid him a viſit, according to his promiſe to come to Eſau to Mount Seir. The place which he choſe for his reſidence was in the vicinity of Shechem, where he purchaſed ſome ground, on which he built an altar to the Lord. In this ſituation Jacob continued for ſome time highly reſpected and flouriſhing, till a freſh trouble in his eventful life obliged him to remove to another ſcene. During a viſit which his daughter Dinah paid to ſome of the females of that country, ſhe was ſeen by Shechem the ſon of Hamor, the Hivite prince, who found means to triumph over her honour, either through the arts of ſeduction or by violence. It is true that he offered what reparation was in his power for the injury, by engaging his father to aſk her of Jacob for him in marriage, at the expence of any dowry and gift which he choſe to demand. At the ſame time Hamor propoſed that a cloſe alliance and intermarriages ſhould take place between the family of Jacob and the Shechemites. On this occaſion, the ſons of Jacob, who privately meditated deep revenge for the diſgrace brought on their ſiſter, "anſwered Shechem and Hamor his father deceitfully." After ſtating that their religion would not permit them to beſtow their ſiſter on one who was uncircumciſed, they declared their readineſs to conſent to the marriage as well as to the propoſed alliance, provided that the Shechemites would ſubmit to the rite of circumciſion. So powerful were the influence and perſuaſion of Hamor and his ſon, that the people conſented, and every male underwent the painful ceremony. Before they had recovered from the effects of this operation, Simeon and Levi, two of Jacob's ſons, armed themſelves and their ſervants, and treacherouſly attacked and carried the city, inhumanly putting every male to the ſword, plundering the whole property of the Shechemites, and ſeizing their wives and children for ſlaves.

This barbarous action of his ſons drew from Jacob the ſevereſt reproaches; and alſo made it neceſſary for him to conſult his ſafety, by withdrawing to a diſtance from the neighbours of the Shechemites, who might be diſpoſed to revenge their maſſacre. While he was anxiouſly conſidering which way he ſhould direct his courſe, he was divinely inſtructed in a dream to go to Bethel, and to erect there an altar to God. Before he ſet out for that place, where he had received the earlieſt aſſurances of the protection and favour of God, that he might carry nothing with him that would be diſpleaſing to the Divine Being, he ordered his family to bring the idols which they had either taken from the Shechemites or brought from Padan-aram, and the ear-rings which they wore as taliſmans or charms, and having, as is moſt probable, broken them in pieces, buried them in a deep hole which he cauſed to be dug near Shechem. Jacob arrived at Bethel without moleſtation; and, after having built and conſecrated there an altar to God, ſet out on a viſit to his father. While he was on his journey, he had the unhappineſs to loſe his beloved wife Rachael, who died in child-birth of her ſon Benjamin; and his heart was alſo deeply affected by a diſcovery which he made, that his ſon Reuben had ſo far yielded to his criminal paſſions, as to be guilty of an inceſtuous commerce with Bilhah, Rachael's maid, and his father's concubine. Soon after this, Jacob arrived at Mamre, where he continued during the remainder of Iſaac's life, and after his death appears to have entered on the undiſturbed poſſeſſion of thoſe privileges of birthright which Eſau had bartered away. But in this ſituation his happineſs was cruelly interrupted by the wicked and inhuman conduct of his ſons. Joſeph, who was now about ſeventeen years of age, was become his father's darling, on account of the perſonal and mental endowments by which he was diſtinguiſhed; but for this reaſon he had alſo become an object of no little jealouſy to his brethren. This jealouſy was turned to hatred in the ſons of Bilhah and Zilpah, who had been guilty of ſome wicked actions which Joſeph had diſcovered to his father. His other brethren alſo conceived a ſimilar hatred to him, upon Joſeph's innocently relating ſome of his dreams, which ſeemed to foreſhow that he ſhould one day riſe to power and authority over them. They therefore wickedly combined to ſeize the firſt opportunity of making away with him. It was not long before the victim of their hatred fell into their power; for, having gone to Shechem with their flocks, and Jacob becoming uneaſy that he had not heard from them, Joſeph was ſent to make enquiry after them. No ſooner did they ſee him approaching than they agreed immediately to get rid of *the dreamer*, as they called him, and to perſuade their father that he had been devoured by a wild beaſt. Without any feelings of pity they would have imbrued their hands in his blood, had not Reuben diſſuaded them from that procedure, and adviſed them to throw him alive into a pit, where he might periſh by hunger and grief. In the mean time a troop of Iſhmaelites paſſing by, on a mercantile journey to Egypt, Judah, in the abſence of Reuben, perſuaded his other brethren to ſell Joſeph to them, as his death would be of no more ſervice than his being carried into ſlavery. This they did accordingly; but when Reuben afterwards went privately to the pit with the deſign of drawing him out of it, and ſending him back to his father, he uttered ſuch complaints upon finding him miſſing, that they took care not to let him know how they had diſpoſed of Joſeph, and he probably ſuſpected that they had put him to death. Be that as it may, he concurred with them in their ſcheme of impoſing upon their father, by dipping Joſeph's veſt in the blood of a kid, and ſending it to the old man with a tale which might lead him to believe that his beloved ſon had been torn in pieces by a wild beaſt. When the veſt was brought to

Jacob, which he knew to be his ſon Joſeph's, and he was informed of the particulars which his ſons had invented to deceive him, he was filled with the moſt pungent grief for his ſuppoſed loſs, and did not ceaſe mourning on account of Joſeph, till he afterwards heard of his ſurpriſing advancement in Egypt.

Several years elapſed, however, before the patriarch was conſoled with the tidings that Joſeph was yet alive. At length a dreadful ſcarcity prevailing in Canaan, and all the ſurrounding nations, Jacob, who was not exempt from the common calamity, hearing that corn was to be purchaſed in Egypt, ſent ten of his ſons thither to buy ſome, and kept only Benjamin with him. The particular occurrences which happened to them in this expedition, will be more properly related under the hiſtory of Joseph. We ſhall only mention in this place, that when the corn which they brought from Egypt was almoſt conſumed, as the ſcarcity ſtill prevailed and was increaſing, Jacob was forced again to ſend his ſons into that country; where Joſeph, before whom they had trembled without knowing him in his exalted character of ſuperintendant of the kingdom under Pharaoh, diſcovered himſelf to his brethren; and, after giving them proofs of his tender affection, went and acquainted the king with their arrival, and the circumſtances of his father's family. Upon this, Pharaoh told Joſeph, that he might ſend for his father and his whole family, and place them in what part of Egypt he thought fit, where they ſhould never want any favours which he could ſhow them. Joſeph diſmiſſed his brethren to return to their father, with rich preſents of the choiceſt commodities of Egypt. Upon their arrival at their father's reſidence, the good old man, overpowered by ſuch tranſporting news, fainted away in their arms, and when come to himſelf doubted whether what he had heard were not a dream. At length, when they ſhowed him Joſeph's preſents, and the Egyptian chariots, his doubts all vaniſhed, and he cried out in an exceſs of joy, "It is enough; Joſeph my ſon is yet alive; I will go and ſee him before I die."

His great deſire once more to embrace his favourite animated him to haſten his departure; however, in his way to Egypt, he ſtopped at Beerſheba, to offer ſacrifices to God, both in acknowledgment of the mercies which he had received, and by way of ſtill further entreating the Divine protection and bleſſing in the new ſcene on which he was entering. Here God appeared to him in the viſions of the night, and aſſured him of his guardianſhip and favour in Egypt, where his poſterity ſhould become a great nation, which in due time he would lead out of it to the poſſeſſion of the promiſed land; and adding, that as for himſelf, he ſhould have the comfort to live near his ſon Joſeph, and at length die in his arms. Thus encouraged, Jacob haſtened towards Egypt; and when he came near that country, he ſent his ſon Judah before to acquaint Joſeph with his approach, and to deſire him to come to him in the land of Goſhen, ſituated between the Red Sea and the Nile, which, as it was a fruitful territory and well adapted to the paſtoral life, was fixed upon for his place of reſidence. No ſooner had Joſeph received his father's meſſage, than he ſet out to meet him; and their mutual joy, when they once more embraced each other, may be better imagined than deſcribed.

After ſome time had paſſed between the patriarch and his beloved ſon in endearing intercourſe, Joſeph preſented his father to the king, who returned that prince his acknowledgments for the favours which he had beſtowed upon him, and offered up his prayers for his continued proſperity and happineſs. After this, Joſeph conducted his father and his family to the land of Goſhen; and here the family of the patriarch increaſed wonderfully in children and in wealth. At length Jacob, after he had lived ſeventeen years in Egypt, finding from his feebleneſs that his end was not far off, ſent for his ſon Joſeph, to deliver him his laſt requeſt. This was, that his remains ſhould not be buried in Egypt, but carried to Canaan, the inheritance which God had promiſed to Abraham and his poſterity, and there depoſited with thoſe of his anceſtors Abraham and Iſaac, in the cave of the field of Machpelah, which Abraham had purchaſed. To this requeſt Joſeph readily aſſented, and confirmed his promiſe by an oath. Not long afterwards word was brought to Joſeph that his father was dying; upon which he took his two ſons Manaſſeh and Ephraim, and went to preſent them to him, begging him to give them his bleſſing before he died. At the ſight of his beloved ſon, the old patriarch was invigorated with new ſtrength, ſo that he was able to ſit up in his bed; and after adverting to the promiſes which God had given him of a numerous poſterity, which ſhould inherit the land of Canaan, and to the death of his dear Rachael, he added, that for her ſake he would now give a freſh proof of his affection for Joſeph, by adopting his two ſons as his own. In conſequence of this meaſure he declared, that in the diviſion of the promiſed land they were to receive a double lot, and to be conſidered as the heads of two diſtinct tribes. Afterwards he pronounced his bleſſing on the two lads, but propheſied that the younger ſhould have precedence over the elder, by proving the father of a much more numerous poſterity. Finding himſelf grow faint, he deſired that all his ſons might be collected around him, to hear his dying predictions of what ſhould happen to their ſeveral deſcendants in the latter days. The particulars of theſe predictions belong to the lives of the reſpective ſubjects of them; and the ſubſequent hiſtory of the Iſraelites will ſhow how exactly the events correſponded with the patriarch's laſt words. Having made an end of pronouncing his prophetical bleſſing, Jacob reminded his ſons of their obligation to bury him with his anceſtors in the cave of Machpelah, and ſoon afterwards expired, at the age of one hundred and forty-ſeven, in the year 1689 B.C. Joſeph now gave directions that his body ſhould be embalmed, and that the neceſſary preparations ſhould be made for his funeral. While theſe proceedings were carrying on, the Egyptians mourned for the father of their viceroy during ſeventy days. At the expiration of this time, Joſeph, whoſe deep mourning prevented his attendance at court, acquainted Pharaoh, through ſome of his officers, with the engagement which he was under to bury his father in the ſepulchre of his anceſtors, and entreated the king's permiſſion to fulfil it. This requeſt Pharoah not only readily granted to his favourite, but alſo ordered the chief officers of his houſehold, and the grandees of the kingdom, to accompany the funeral pomp. All Jacob's family likewiſe attended it, none ſtaying behind but their wives and their little ones. As ſoon as the cavalcade, which conſiſted of a great number of chariots, and a vaſt multitude of men on horſeback, had croſſed the river Jordan, and were entered into the land of Canaan, they halted for ſeven days at the threſhing-floor of Atad, and there performed a funeral ceremony, which made the Canaanites call the place Abel Mizraim, or the mourning of the Egyptians. Afterwards they continued their march to Machpelah, where Jacob's ſons depoſited his remains in the cave, and then returned to Egypt with the reſt of their company.

JA'COB (ſurnamed Al Bardi, or in Latin *Baradæus*), a celebrated champion of the Eutychian doctrine in the ſixth century, after whom the Monophyſites of the eaſt are to this day called *Jacobites*, was a Syrian by nation, who became the diſciple of Severus, the Monophyſite patriarch of Antioch, and embraced the monaſtic life. When, after the depoſition of Severus, the affairs of the Monophyſites were, by perſecution and oppreſſion, brought to a very low ebb, and their biſhops were reduced, by death and impriſonment, to a very ſmall number, this monk reſtored the expiring ſect to its former proſperity and luſtre. He was ordained to the epiſcopal office by ſome biſhops of his ſect, who were in priſon on account of their principles; and with the approbation of theſe prelates, he travelled on foot through the whole eaſt; eſtabliſhed biſhops and preſbyters every where; revived the drooping ſpirits of the Monophyſites; and produced ſuch an aſtoniſhing change in their affairs by the power of his eloquence, and by his incredible activity and diligence, that at the time of his death in 588, when according to Moſheim he was biſhop of Edeſſa, he left the ſect in a moſt flouriſhing ſtate in Syria, Meſopotamia, Armenia, Egypt, Nubia, Abyſſinia, and other countries. By his laborious efforts Jacob became ſo famous, that all the Monophyſites of the eaſt conſidered him as their ſecond parent and founder, and, as we have already ſeen, called themſelves after his name in honour of him. He was the author of a Catechiſm, which is the grand rule of the Monophyſite faith.

JA'COB (Henry), the founder of the firſt independent or congregational church in England, was a native of Kent, and received his academical education at St. Mary's-hall, in the univerſity of Oxford; where he was admitted to the degree of B. A. in 1583, and to that of M. A. in 1586. Having entered into holy orders, he was made precentor of Corpus-Chriſti college, and afterwards obtained the benefice of Cheriton in Kent. He was well read in theological authors, and in his ſentiments zealouſly attached to the puritanical party. Of his learning and controverſial abilities he afforded favourable ſpecimens, in A Treatiſe of the Sufferings and Victory of Chriſt in the Work of our Redemption, &c. 1598, 8vo. written in oppoſition to ſome notions advanced by Bilſon, biſhop of Wincheſter; and in Two Treatiſes of the Church and Miniſtry of England, againſt the Reaſons and Objections of Mr. Francis Johnſon, the Browniſt, 1599, 4to. printed at Middleburgh. In the year 1604, he publiſhed Reaſons taken out of God's Word, and the beſt human Teſtimonies, proving a Neceſſity of reforming our Churches of England, &c. 4to. and another piece, Againſt vain-glorious, and that which is falſely called learned, Preaching, 4to. The publication of theſe pieces drew down on his head the perſecution of the intolerant biſhop Bancroft, which obliged him to withdraw for ſafety into Holland. At Leyden, he had repeated conferences with Mr. Robinſon; in conſequence of which, from an opponent he became a convert to the Browniſt principles relative to church-diſcipline, ſince known by the name of independency. In the year 1610, he publiſhed at Leyden a treatiſe, entitled, The Divine Beginning and Inſtitution of Chriſt's true viſible and material Church; which was followed in the next year, by An Explication and Confirmation of the former piece. Some time afterwards he returned to England; and having imparted his deſign of ſetting up a ſeparate congregation, upon the model of thoſe in Holland, to the moſt learned puritans of thoſe times, it was not condemned by them as unlawful, conſidering that there was no proſpect of what they conceived to be a neceſſary national reformation. Mr. Jacob, therefore, in the year 1616, having ſummoned ſeveral of his friends together, and having obtained their conſent to unite in church-fellowſhip, for obſerving the ordinances of Chriſt in what they judged to be the pureſt manner, they laid the foundation of the firſt independent or congregational church in England. The following was the mode which they purſued. Having obſerved a day of ſolemn faſting and prayer for a bleſſing upon their undertaking, towards the cloſe of the ſolemnity each of them made open confeſſion of his faith in our Lord Jeſus Chriſt; and then ſtanding together, they joined hands, and ſolemnly covenanted with each other in the preſence of Almighty God, to walk together in all God's ways and ordinances, according as he had already revealed, or ſhould further make them known to them. Mr. Jacob was then choſen paſtor by the ſuffrage of the brotherhood, and others were appointed to the office of deacons, with faſting and prayer and impoſition of hands. In the ſame year he publiſhed a defence of this new ſyſtem of church diſcipline, entitled, "A Proteſtation or Confeſſion in the Name of certain Chriſtians, ſhowing how far they agreed with the Church of England, and wherein they differed, with the Reaſons of their Diſſent, drawn from Scripture;" to which was added a Petition to the King for the toleration of ſuch Chriſtians. Afterwards he publiſhed a further defence of independency, entitled, "A Collection of ſound Reaſons, ſhowing how neceſſary it is for all Chriſtians to walk in the Ways and Ordinances of God, in Purity, and in a right Church-way." Mr. Jacob continued with his people about eight years; but in 1624, being deſirous of entering on a more enlarged ſphere of uſefulneſs, he went with their conſent to Virginia, where he died ſoon afterwards.

JA'COB (Henry), ſon of the preceding, was born in the dioceſe of London about the year 1609. Being in his younger years ſent by his relations to be educated abroad, he ſtudied at Leyden under the celebrated Erpenius, and made a prodigious progreſs in philological and oriental learning. When he was about twenty-two years of age he returned to England, where his literary attainments occaſioned his being ſo ſtrongly recommended to the earl of Pembroke, chancellor of the univerſity of Oxford, that he ſent letters to the univerſity, in conſequence of which Jacob was created B. A. in 1628-9. In the following year, through the intereſt of Mr. Selden, and others, he was elected probationer-fellow of Merton college. Not long afterwards he met with a loſs in the death of his patron the earl of Pembroke; which, however, was ſupplied upon the ſucceſſion of biſhop Laud to the chancellorſhip. That prelate, upon the application of Mr. Selden, found means to revive in his favour a poſt at Merton college, which had not been occupied for about a century. It was that of *ſocius grammaticalis*, or reader of philology to the juniors; by which appointment he became a complete fellow of his college. In 1636 he was admitted to the degree of M. A. and in 1641 was elected eſquire-beadle of divinity. During the following year he was created bachelor of phyſic. "But his head," ſays Mr. Wood, "being always over buſy about critical notions (which made him ſometimes a little better than crazed), he neglected his duty ſo much, that he was ſuſpended once, if not twice, from his place, and had his beadle's ſtaff taken from him." At length, when the parliamentary viſitation took place in 1648, he was formally expelled from it, and alſo ejected from his fellowſhip; ſo that, being deſtitute of the means of living, he retired to London, where Mr. Selden contributed to his ſupport; and he was reduced to ſell a little patrimony which he poſſeſſed in Kent. Before the money ariſing from this ſale was ſpent, having ruined his health by his intenſe application to his ſtudies, he died at Canterbury, whither he had removed for a change of air, in the year 1652, when he was about the age of forty-four. He wrote many things, but publiſhed nothing himſelf. A little before his death, his friend Mr. Henry Birkhead publiſhed, in a quarto volume, his inaugural oration upon taking his degree, his Greek, Latin, and Engliſh, poems, &c.

JA'COB-BEN-HA'JIM, a learned rabbi in the ſixteenth century, was a native of Tunis, who, being obliged to fly from that place, retired to Venice. Here he aſſiduouſly applied himſelf to collect the Maſſora from the different manuſcripts in which it is diſperſed, and to give it for the firſt time in an entire form. This he did in an edition of the Hebrew Bible, accompanied with the Chaldee paraphraſe, and the commentaries of certain rabbis, publiſhed at Venice in the year 1525, in 4 vols. folio. This edition of the Hebrew Bible, and thoſe which follow it, are in high eſtimation among the Jews.

JA'COB JEHU'DAH-LE'ON, a learned Jew who flouriſhed in the ſeventeenth century, was born in Spain, whence he removed into Holland, in order to enjoy greater advantages for purſuing a deſign which he formed of drawing up a deſcription of Solomon's temple. That he might acquire a more perfect idea of that noble edifice, he applied himſelf to the conſtruction of a wooden model of it, upon the plans which he had met with among the different authors of his own nation. From this model he afterwards formed his deſcription of that building, and publiſhed it in French, under the title of "Deſcription du Temple de Solomon, par Jacob Juda Leon, Habitant de Middleburgh, dans la Zelande, l'An du Monde 5403," i. e. A. D. 1643. This work he afterwards enlarged and improved, and tranſlated it into Hebrew, and gave it the title of *Tabnith Hekal*, or the Figure of the Temple. It was much admired by the learned world; and the duke of Brunſwick ordered a Latin verſion of it to be made, accompanied with engravings. Jacob added to it, a deſcription of the tabernacle; a treatiſe concerning the ark and the cherubim; and an expoſition of the Pſalms, in which he undertook to explain the metaphorical expreſſions of the Talmud, and which, he ſaid, coſt him no little labour and ſtudy.

JA'COB-JOHN, an ingenious Armenian mechanic in the ſeventeenth century, who deſerves to have his name recorded with honour for the attempt which he made to introduce the art of printing into Perſia. He was a native of Zulpha; and in the year 1641 filled the poſt of principal of the joiners to the king of Perſia. He was the author of numerous uſeful mechanical inventions. Having occaſion to viſit Europe, he formed ſo complete an idea of the art of printing, that upon his return to Iſpahan he ſucceeded in erecting a preſs, and cut himſelf the matrices for the neceſſary types. With that preſs he printed, in Armenian, the Epiſtles of St. Paul, and the Seven Penitentiary Pſalms. He alſo formed the deſign of printing the whole Bible; but his progreſs alarmed the tribe of copyiſts, who, by their complaints that his art would prove ruinous to a numerous and induſtrious claſs of men, found means to excite thoſe prejudices againſt it, which obliged him to lay aſide his laudable undertaking. It is ſaid that he had not found out the art of making good printing ink; but, had he met with no more ſerious obſtacle, his ingenuity would doubtleſs have enabled him to ſurmount this difficulty. The poſt which he held had always been filled by a Mahometan; and he only enjoyed it by ſpecial privilege, granted to him on account of his extraordinary talents. He was frequently ſolicited by the king to embrace the Mahometan faith; but the moſt tempting offers of preferment could not prevail upon him to renounce his Chriſtian principles.

JA'COB's CREEK, an eaſtern water of Youghiogany river, in Weſtmoreland county, Pennſylvania. There is a carrying-place ſix miles weſt to Monongahela river, from the Yonghiogany, oppoſite the mouth of this creek.

JA'COB's LAD'DER, *ſ.* The ſame with Greek valerian. See POLEMONIUM.

JA'COB's STAFF, *ſ.* A pilgrim's ſtaff. A ſtaff concealing a dagger. A croſs-ſtaff; a kind of aſtrolabe; which ſee deſcribed and figured under FORESTAFF, vol. vii. p. 568.

JACOBÆ'A, *ſ.* in botany. See ARCTOTIS, ATHANASIA, CINERARIA, CONYZA, COTULA, CREPIS, ERIGERON, EUPATORIUM, INULA, OTHONNA, PECTIS, and SENECIO.

JACOBÆAS'TRUM and JACOBÆOI'DES. See CINERARIA.

JACOBÆ'US (Oliger), a celebrated profeſſor of phyſic and philoſophy at Copenhagen, was born in 1651 at Arhuſen in the peninſula of Jutland, where his father was biſhop. Chriſtian V. entruſted him with the management of his grand cabinet of curioſities; and Frederic IV. in 1698, made him counſellor of his court of juſtice. He wrote many medical works, and ſome excellent poems.

JACOBAZ'ZI (Dominic), a learned Italian cardinal in the ſixteenth century, was a native of Rome, where he was born about the year 1443. Having embraced the eccleſiaſtical life, he particularly applied himſelf to the ſtudy of canon-law and theology, and became ſo eminent for his proficiency, as well as the talents for buſineſs which he diſcovered, that he was employed by pope Sixtus IV. and five of his ſucceſſors, in the management of ſeveral important affairs. He was appointed auditor conſiſtorial, and afterwards one of the twelve auditors of the rota, and biſhop of Lucera. Pope Julius II. made him vicar of Rome, and preſident of the univerſity in that city. He was alſo inſtituted to the ſees of Maſſano and Groſſeto. The laſt promotion which he received was that to the rank of cardinal, to which he was elevated by pope Leo X. in the year 1517. He died in 1527, or early in 1528, when he was about eighty-four years of age. The moſt important of his works was a Treatiſe concerning the Councils, in Latin, which was originally publiſhed at Rome in 1538, in a folio volume. This edition is become exceedingly ſcarce, and, though far from correct, is eagerly ſought after by collectors. It forms the eighteenth volume of father Labbé's Collectio Maxima Conciliorum; the ſets of which that want this volume, may be obtained for almoſt half the price of ſuch as are complete.

JAC'OBIN, *ſ.* A pigeon with a high tuft. See COLUMBA, vol. iv.

JAC'OBIN, *ſ.* A monk of a particular order; a Dominican.—He employed in it father Andrew, a *Jacobin. Robertſon.*

JAC'OBIN, *ſ.* in the language of the preſent day, is the name aſſumed at the beginning of the French revolution, by a party in Paris, which was outrageouſly democratical, and fanatically impious. This party, which conſiſted of members of the National Aſſembly, and of others maintaining the ſame opinions and purſuing the ſame objects, formed itſelf into a club, and held its meetings in the hall belonging to the Jacobin friars, where meaſures were ſecretly concerted for exciting inſurrections, and over-awing at once the legiſlature and the king. The name of *Jacobin*, though it was derived from the hall where the club firſt met, has ſince been extended to all who are enemies to monarchy, ariſtocracy, and the Chriſtian religion; and who would have every man to be his own prieſt and his own lawgiver.—They have, it ſeems, found out in the academies of the Palais Royal and the *Jacobins*, that certain men have no right to the poſſeſſions which they hold under law. *Burke.*

JAC'OBINISM, the principles of a Jacobin.—May the more recent ſpirit of *jacobiniſm* have a ſtill quicker termination. *Maſon.*

*To* JAC'OBINIZE, *v. a.* To taint with Jacobiniſm.—France was not then *jacobinized. Burke.*

JAC'OBITE, *ſ.* A term of reproach beſtowed on the perſons who, vindicating the doctrines of paſſive obebience and non-reſiſtance with reſpect to the arbitrary proceedings of princes, diſavow the revolution in 1688, and aſſert the ſuppoſed rights and adhere to the intereſts of the abdicated king James and his family.—The ſum of all his policy had been to amuſe the whigs, the tories, and the *jacobites. Bolingbroke.*—No *jacobite* was ever a philoſopher. *Shipley.*

JAC'OBITE, *adj.* Of the principles of Jacobites.—The whole tory party was become avowedly *jacobite. Bolingbroke.*

JAC'OBITES, in church hiſtory, a ſect of Chriſtians in Syria and Meſopotamia, ſo called, either from Jacob, a Syrian who lived in the reign of the emperor Mauritius, or from one Jacob, a monk who flouriſhed in the year 550. The Jacobites are of two ſects, ſome following the rites of the Latin church, and others continuing ſeparated from the church of Rome. There is alſo a diviſion among the latter, who have two rival patriarchs. As to their belief, they hold but one nature in Jeſus Chriſt; with reſpect to purgatory and prayers for the dead, they are of the ſame opinion with the Greeks and other eaſtern Chriſtians; they conſecrate unleavened bread at the euchariſt; and are againſt confeſſion, believing that it is not of divine inſtitution.

JACOBIT'ICAL, *adj.* Belonging to the Jacobites.

JACOBIT'ICALLY, *adv.* After the manner of the Jacobites.

JACOBI'TISH, *adj.* Attached to the principles of the Jacobites, leaning to the intereſt of James II.

JAC'OBITISM, *ſ.* The principles of a Jacobite.—The ſpirit of *jacobitiſm*, which had obtained in both our Univerſities before the year 1745, was far from being quite extinguiſhed in 1748. *Maſon.*

JACO'BO DE PALU'DO, a ſmall iſland in the Adriatic, ſo named from its church. It contains but few inhabitants; there is an hoſpital for the accommodation of pilgrims.

JA'COBSDORF, a town of Germany, in Upper Saxony: three miles ſouth-eaſt of Jacobſhagen, and eight eaſt of Zachan.

JA'COBSHAGEN, a town of Germany, in Upper Saxony: twenty miles eaſt of Stargard, and fourteen ſouth of Daber. Lat. 53.21.N. lon. 33.13.E. Ferro.

JA'COBSON (John Charles Gottfried), an able technologiſt, the ſon of a ſhopkeeper at Elbingen, was born at that place in 1726. He ſtudied at Leipſic; but in conſequence of an unfortunate duel was obliged to abſcond, and to enter into the ſervice of the elector of Saxony. He afterwards obtained a ſubaltern's place in the Pruſſian ſervice; but as the ſeverity of his duty prevented him from devoting any part of his time to ſtudy, to which he had been always attached, he reſigned his office and enliſted in a regiment of infantry at Berlin. During a reſidence of two years in that city, he diligently frequented the different manufactories and work-ſhops, and between the years 1773 and 1776 publiſhed his Deſcription of all the Cloth Manufactories in Germany, 4 vols. 8vo. and at the ſame time aſſiſted Sprengel in his Collection of the Arts and Handicrafts, and Nicolai in his Deſcription of Berlin. After the campaign of 1778, in which he was actively employed, he at length obtained a diſcharge, and began his "Technological Dictionary of all the uſeful Trades, Arts, and Manufactures, with an Account of the different Proceſſes, Tools, Inſtruments, &c. and an Explanation of the technical Terms," in 4 Parts, 4to. On account of his extenſive technological knowledge and indefatigable zeal, he was appointed, in 1784, inſpector of all the royal manufactories in the kingdom of Pruſſia, and died in the month of September, 1789. Jacobſon had promiſed a ſupplementary volume of his Dictionary, but was prevented by death from fulfilling his intention. This taſk, however, was undertaken by Mr. Roſenthal, a baker of Nordhauſen, and member of ſeveral academies; and, when completed, was publiſhed in four volumes, the laſt of which appeared in 1795.

JA'COBSTADT, a ſea-port town of Sweden, in the province of Eaſt Bothnia, with a convenient port. Lat. 64. 5. N.

JACO'BUS, *ſ.* A gold coin, worth twenty-five ſhillings; ſo called from king James I. of England, in whoſe reign it was ſtruck. We uſually diſtinguiſh two kinds of Jacobus, the old and the new; the former valued at twenty-five ſhillings, weighing ſix pennyweights ten grains; the latter, called alſo *Carolus*, valued at twenty-three ſhillings, in weight five pennyweights twenty grains.

JACOPO'NE DA TO'DI, an ancient Italian poet, celebrated for his piety, was born in the thirteenth century at Todi, of the noble family of Benedetti. He was brought up to the ſtudy of the law, of which he became a doctor and an eminent practitioner at Rome. He married, ſought to enrich himſelf by profeſſional arts, and lived like a man of the world; when the death of his wife, in conſequence of the fall of a ſcaffold at a public ſpectacle, awakened him to ſerious reflection, and induced him to quit all ſecular concerns, and devote himſelf to religion. He entered into the third order of Franciſcans, of which he became a clauſtral in 1278. He counterfeited folly in order to receive the humiliation of contempt, in which he ſucceeded ſo well, that his baptiſmal name of Jacopo was changed for the nick-name of Jacopone. The rigour of his ſuperiors aided his voluntary mortifications, and for a ſlight fault he was thruſt into a noiſome dungeon, where he is ſaid to have compoſed one of his moſt rapturous canticles of divine love. He underwent greater ſufferings from the reſentment of pope Boniface VIII. for when that violent pontiff, exaſperated againſt the Colonna, laid ſiege to Paleſtrina, Jacopone, who was there at the time, lamented the evils brought upon the church by its head, in two canticles. As a puniſhment for this freedom, Boniface, when maſter of the town, threw the poor monk into fetters, and kept him on bread and water, till he himſelf was impriſoned by the Colonna. This laſt event is ſaid to have been predicted by Jacopone, who, when the pope inſultingly aſked him when he ſhould come out of priſon, replied, "When you ſhall enter it." He ſurvived his liberation about three years, and died in 1306. His Spiritual Canticles, of which many editions were publiſhed, have given him a place among the Italian poets. With reſpect to language, they are rude and barbarous, being a medley of various dialects; but there is much ſublimity in the ſentiments, and a fervour of expreſſion reſulting from the ſacred paſſion with which he was inſpired. He alſo wrote ſome religious pieces in Latin, and is ſaid to have been the author of the well-known liturgic anthem beginning *Stabat Mater.* The beſt edition of his Canticles is that of Venice, 4to. 1617, with notes.

JACQUELO'T (Iſaac), a learned French Proteſtant divine, was the ſon of a miniſter at Vaſſy in Champagne, where he was born in the year 1647. Having been educated to the miniſtry, he was appointed his father's colleague when he had arrived at the age of twenty-one. After the revocation of the edict of Nantz, he retired to Heidelburg; whence he afterwards removed to the Hague. Here he officiated in his miniſterial capacity with great approbation, engaging the attention of his hearers by the ſolidity of his matter, and the force of his reaſoning. When the king of Pruſſia came to this place, he heard our author preach, and was ſo much pleaſed with his performances, that he perſuaded him to become his miniſter at Berlin, and ſettled on him a conſiderable penſion, which he enjoyed till his death in 1708, when he was about ſixty-one years of age. He was a man who was highly reſpected for his literature, his virtuous exemplary conduct, and his amiable manners. He was the author of ſeveral works, which diſplay genius, penetration, and extenſive knowledge, though they are deficient in method and preciſion. Among others he publiſhed, 1. Diſſertations on the Exiſtence of God, 1697, 4to. written in oppoſition to Epicurus and Spinoſa. 2. Diſſertations on the Meſſiah, 1699, 8vo. 3. A Treatiſe on the Inſpiration of the ſacred Books. This he left unfiniſhed at his death; it was publiſhed in 1715, 8vo. 4. A Criticiſm on the Picture of Socinianiſm, written by Jurieu; which expoſed our author to a bitter perſecution. 5. Sermons, in 2 vols. 6. Controverſial tracts againſt Mr. Bayle, occaſioned by opinions advanced in his Dictionary. 7. Letters addreſſed to the Biſhops of France, written with great temper and moderation, urging them to diſplay towards the Proteſtants that candour and urbanity which became them as men and as Chriſtians, and particularly as miniſters of the God of peace.

JACQUES (Frere), or Friar James, whoſe ſurname was Baulot, or Baulieu, a celebrated lithotomiſt, and a man of a ſingular character, was born in 1651 at a village in Franche-Comté, where his father was a poor labourer. At the age of ſixteen he was ſeized with an inclination to travel, having received no other education than that of mere writing and reading. A propenſity which he felt for the practice of ſurgery was put in the way of gratification by his becoming a patient in a hoſpital, where, after his recovery, he applied himſelf with great aſſiduity to aſſiſting the ſick, and learned to bleed. He afterwards entered into a regiment of cavalry, in which he ſerved ſome years; and formed acquaintance with one Pauloni, an Italian empirical ſurgeon, who had become famous for cutting for the ſtone and curing ruptures. With him he travelled five or ſix years into various countries as an aſſiſtant; till having, as he thought, obtained a ſufficient inſight into his practice, he began in Provence to act by himſelf. He wore a kind of monaſtic habit, but not of any particular order, and took the name of Frere Jacques, by which he was ever afterwards diſtinguiſhed. He operated firſt in the villages and country towns of Provence, taking no more recompence for his ſervices than juſt ſufficed for his humble maintenance. He then viſited other provinces; and, at length, ventured to practiſe in great towns, having, by his natural ſagacity, without any knowledge of anatomy, improved upon his maſter's method of lithotomy, which was that of the greater apparatus. His name, at length, ſpread throughout the kingdom as the moſt ſucceſsful lithotomiſt of his time, and the capital only remained as a new theatre of his glory. In ſeveral viſits to it he met with the ſevere criticiſm of ſcience, as well as the ill offices of envy; and the death of the marſhal de Lorges, the day after he had operated upon him, cauſed him to quit Paris in ſome diſgrace. He went from France to Aix-la-Chapelle, Geneva, and Amſterdam, frequented by numerous patients at thoſe and the intermediate places, and increaſing his reputation by his ſucceſs. At Amſterdam the celebrated anatomiſt and ſurgeon Rau oppoſed him with acrimony; but did not refuſe to borrow from him his method, which, with ſome improvements, conſtituted the lateral operation, afterwards brought to perfection by Cheſelden. The magiſtrates were ſenſible of his merit, and cauſed his portrait to be engraved, and a medal to be ſtruck to his honour. He thence went to Straſburg, and was called to Vienna to be conſulted for the emperor Joſeph. Thence he paſſed into Italy, where a vaſt number of patients waited for him in the different cities. At Rome he was received with great honour by the pope; but, being now deſirous of finiſhing his days in retirement, he returned to his native country, and choſe a retreat near Beſançon, where he died at the age of ſixty-nine.

JACQUIN'IA, *ſ.* [So named by Linnæus, in honour of Nic. Joſ. de Jacquin, profeſſor of botany at Vienna, born at Leyden in 1727, and author of many ſplendid works.] In botany, a genus of the claſs pentandria, order monogynia, natural order of dumoſæ? (ſapotæ, *Juſſ.*) The generic characters are—Calyx; perianthium five-leaved; leaflets roundiſh, concave, permanent. Corolla: one-petalled; tube bell-ſhaped, ventricoſe, longer than the calyx; border ten-cleft; diviſions roundiſh, of which the five interior ones are ſhorter. Stamina: filaments five, awl-ſhaped, ariſing from the receptacle; antheræ ſpear-ſhaped. Piſtillum: germ ovate; ſtyle the length of the ſtamens; ſtigma headed. Pericarpium: berry roundiſh, acuminate, one-celled. Seed: ſingle, roundiſh, cartilaginous.—*Eſſential Character.* Corolla ten-cleft; ſtamina inſerted into the receptacle; berry one-ſeeded.

*Species.* 1. Jacquinia armillaris, or obtuſe-leaved jacquinia: leaves obtuſe, coriaceous, flowers in racemes, berries four-ſeeded or thereabouts. This is a very elegant upright ſhrub, ſeldom more than four or five feet high. Trunk round, thicker and knobbed where the branches come out, covered with an aſh-coloured bark. Branches four or five from each joint towards the top, in whorls, ſpreading, ſtiff, round, grooved, brittle, hoary, ſubdivided, and forming all together a neat globular head. Leaves ſcattered, alternate, petioled, cluſtered towards the ends of the twigs, wedge-ſhaped, ovate, obtuſely margined, quite entire, veinleſs, ſmooth underneath, with very minute black dots: according to Jacquin, they are of different ſhapes between oblong and roundiſh, ſometimes blunt, ſometimes emarginate, but always with a little rigid point, rigid, narrowing into a very ſhort petiole, and ſometimes rolled back at the ſides. Flowers ſmall, ſtiffiſh, white, ſmelling like jaſmine, and retaining their ſweet ſcent ſeveral days. Berry roundiſh, ſmooth, the ſize of a large pea, of a reddiſh orange-colour, and containing an orange-coloured pulp. Seeds four, (ſometimes, but ſeldom, three or five,) ovate, ſmooth, ſhining, cartilaginous, browniſh yellow. The berries are eaten by ſmall birds, and the ſeeds are ſtrung for bracelets by the Caribees, whence the French in the iſlands call this ſhrub *bois bracelets*, and Linnæus gave it the trivial name of *armillaris.* The Spaniards call it *barbaſco*, or verbaſcum. Native of South America and the Weſt-India iſlands; on the calcareous rocks of Jamaica, on the coaſt; flowering in February and March; in Curaçoa, Martinico, Carthagena, &c.

2. Jacquinia venoſa, or vein-leaved jacquinia: leaves ovate, lanceolate, veined, ſubmembranaceous. Native of the Weſt Indies.

3. Jacquinia ruſcifolia, or prickly jacquinia: leaves lanceolate, acuminate. This is a ſhrub three feet in height, with all the habit of the preceding. It differs in having the leaves lanceolate, acuminate, pungent, extremely ſtiff, and ſhorter. The peduncles are pendulous as in that, and one-flowered. Native of South America. Jacquin obſerved it at the Havannah in mountain-woods, flowering in January and February. It was cultivated in 1729 by James Sherard, M.D.

4. Jacquinia linearis, or linear-leaved jacquinia: leaves linear, acuminate. A ſhrub two feet in height, very much branched, of the ſame habit with the two preceding, but not ſo neat. Leaves extremely rigid, pungent like thorns, often twiſted, ſubſeſſile, an inch long, moſt frequently four together in whorls at each joint. Peduncles one-flowered, ſolitary, terminating, pendulous, ſhorter than the leaves. Flowers ſtiffiſh, and without any ſmell; petals white, with all the ſegments convex, the outer ones ſpreading, the inner almoſt erect. Berries yellow. Native of the iſland of St. Domingo, about Port au Prince, on the coaſt; flowering and fruiting in January.

*Propagation and Culture.* Theſe plants muſt be kept in the bark-ſtove, giving them little water in winter, and in warm weather plenty of freſh air. They are raiſed from ſeeds procured from the countries where they grow naturally, and afterwards from cuttings; but it is with difficulty that theſe take root. See TRILIX.

JACTA'TION, *ſ.* [from *jacto*, Lat. to throw.] A vain boaſt. *Bailey.*

JACTA'TOR, *ſ.* A vain boaſter. *Bailey.*

JACTITA'TION, *ſ.* [*jactito*, Lat.] Toſſing; motion; reſtleſſneſs; heaving.—If the patient be ſurpriſed with *jactitation*, or great oppreſſion about the ſtomach, expect no relief from cordials. *Harvey.*—A term in the canon law for a falſe pretenſion to marriage.

JAC'ULABLE, *adj.* [from *jaculabilis*, Lat.] Capable of being darted. *Bailey. Not uſed.*

JACULA'TION, *ſ.* [*jaculatio, jaculor*, Lat.] The act of throwing miſſive weapons:

So hills amid the air encounter'd hills,
Hurl'd to and fro with *jaculation* dire. *Milton.*

JAC'ULATORY, *adj.* [from *jaculor*, Lat. to dart.] Thrown ſuddenly; thrown like a dart.

JACUR'SO, a town of Italy, in the kingdom of Naples, and province of Calabria Ultra: eight miles weſt of Squillace.

JAC'ZINOW, a town of Poland, in the palatinate of Red Ruſſia: fifty-two miles ſouth of Halicz.

JA'DA, [Hebrew.] A man's name.

JA'DAN, [Hebrew.] A man's name.

JAD'DUA, [Hebrew.] A man's name.

JAD'DUA, or JADDUS, high-prieſt of the Jews, ſucceeded his father Johanan in that office in the year 342 B.C. During his pontificate, Alexander the Great laid ſiege to Tyre; and, being informed that the Tyrians were chiefly ſupplied with proviſions from Judea, Samaria, and Galilee, ſent his commiſſaries to Jaddua, requiring him to furniſh thoſe neceſſaries for the ſubſiſtence of his army which he had been accuſtomed to ſend to the Perſians. Jaddua modeſtly excuſed himſelf from complying with this command, alleging, that his oath of fidelity to Darius did not permit him to transfer that tribute to an enemy. Alexander, provoked at this refuſal, had no ſooner ſucceeded in the reduction of Tyre, than he marched towards Jeruſalem, reſolving to puniſh the Jews with as great ſeverity as he had done the Tyrians. When the high-prieſt and the reſt of the people were informed of his approach, ſenſible of their imminent danger, they had recourſe to prayers, ſacrifices, and other acts of humiliation, in order to engage the protection of God for their deliverance. It is ſaid, that in this emergency Jaddua was divinely inſtructed in a dream, to go and meet the conqueror, arrayed in his pontifical robes, accompanied by all the prieſts in their proper habits, and followed by the reſt of the people dreſſed in white garments. Accordingly, the next morning Jaddua ordered the gates of the city to be opened, and marched in ſolemn proceſſion at the head of his attendants to an eminence at a ſmall diſtance from the city, whence, as ſoon as they ſaw the king approach, they advanced to meet him. When they were come near the king, Alexander, as if ſtruck with profound awe at the ſpectacle, haſtened forwards, and bowed to the high-prieſt, ſaluting him with religious veneration. His attendants were aſtoniſhed at the extraordinary ſcene, and Parmenio took the liberty of aſking him why he adored the Jewiſh high-prieſt. Alexander anſwered, that he did not adore the high-prieſt, but God, whoſe miniſter he was; and added, that when he was at Dium in Macedonia, and much troubled in mind about the preparations neceſſary for his expedition into Aſia, he ſaw in a dream this very perſon, in his pontifical dreſs, who encouraged him to lay aſide anxiety, and to enter boldly on his projected undertaking, aſſuring him that God would be his guide, and give him the empire of the Perſians. He then gave orders to march on to Jeruſalem, and was attended thither by the high-prieſt and his retinue, who conducted him to the temple, where he cauſed a great number of victims to be offered to the God of the Jews. Afterwards Jaddua ſhowed him the prophecies of Daniel, which predicted the overthrow of the Perſian empire by a Grecian king. Fully ſatisfied that he was the perſon deſignated in thoſe prophecies, Alexander proceeded on his expedition, with an aſſurance of complete ſucceſs in the Perſian war; but, before his departure, he aſked the high-prieſt if there was nothing in which he might gratify him, or his people. Upon this Jaddua told him, that, according to the Moſaic law, they neither plowed nor ſowed during every ſeventh year; and that therefore they ſhould eſteem it as a high favour if the king would be pleaſed to remit their tribute in that year. To this requeſt the king readily yielded; and, having confirmed them in the enjoyment of all their privileges, particularly that of living under their own laws, he then departed from Jeruſalem. Such is the account which Joſephus gives; but ſince he is the only hiſtorian in whoſe writings there are any memorials of ſuch extraordinary circumſtances, and ſince they cannot be reconciled with the narratives of all other writers, ſome of the moſt judicious modern critics reject the relation of the Jewiſh hiſtorian as a fabulous tradition. It is certain however, that, if Jaddua did preſerve his fidelity to Darius while Alexander was proſecuting the ſiege of Tyre, and by ſo doing excited hoſtile intentions in the conqueror's mind againſt the Jews, the high-prieſt found means to appeaſe his reſentment; and alſo that Alexander conferred many diſtinguiſhed favours on the Jewiſh nation, both in and out of Paleſtine. Jaddua died in the year 323 B.C.

JADE, *ſ.* [Etymology doubtful: Skinner derives it from *gaad*, a goad or ſpur.] A horſe of no ſpirit; a hired horſe; a worthleſs nag.—The plain nag came upon the trial to prove thoſe to be *jades* that made ſport with him. *L'Eſtrange.*

Falſe ſteps but help them to renew their race,
As, after ſtumbling, *jades* will mend their pace. *Pope.*

A ſorry woman. A word of contempt noting ſometimes age, but generally vice.—Get in, huſſy: now I will perſonate this young *jade*, and diſcover the intrigue. *Southern.*

In di'monds, pearl, and rich brocades,
She ſhines the firſt of batter'd *jades*,
And flutters in her pride. *Swift.*

A young woman: in irony and ſlight contempt.—You ſee now and then ſome handſome young *jades* among them: the ſluts have very often white teeth and black eyes. *Addiſon.*

*To* JADE, *v. a.* To tire; to haraſs; to diſpirit; to weary; applied originally to horſes.—It is good in diſcourſe to vary and intermingle ſpeech of the preſent occaſion with arguments; for it is a dull thing to tire and *jade* any thing too far. *Bacon.*

If fleet Dragon's progeny at laſt
Proves *jaded*, and in frequent matches caſt
No favour for the ſtallion we retain,
And no reſpect for the degen'rate ſtrain. *Dryden.*

To overbear; to cruſh; to degrade; to haraſs, as a horſe that is ridden too hard:

If we live thus tamely,
To be thus *jaded* by a piece of ſcarlet,
Farewell nobility. *Shakeſpeare.*

To employ in vile offices:

The honourable blood
Muſt not be ſhed by ſuch a *jaded* groom. *Shakeſpeare.*

To ride; to rule with tyranny.—I do not now fool myſelf, to let imagination *jade* me: for every reaſon excites to this. *Shakeſpeare.*

*To* JADE, *v. n.* To loſe ſpirit; to ſink.—Many offer at the effects of friendſhip, but they do not laſt: they are promiſing in the beginning, but they fail and *jade* and tire in the proſecution. *South.*

JA'DE-STONE, *ſ.* in mineralogy. See MINERALOGY and SERPENTINUS.

JA'DEL, a town of Aſiatic Turkey, in the province of Diarbekir: twenty miles north-weſt of Rabba.

JA'DERY, *ſ.* Jadiſh tricks:

Seeks all foul means
Of boiſt'rous and rough *jad'ry*, to diſſeat
His lord, that kept it bravely. *Two noble Kinſmen.*

JAD'GERON, a town of Perſia, in the province of Choraſan: thirty leagues ſouth-weſt of Meſchid.

JAD'IDA, a town of Aſiatic Turkey, ſituated on the Euphrates: 124 miles weſt of Bagdad. Lat. 33. 42. N. lon. 60. E. Ferro.

JA'DING, *ſ.* The act of tiring.

JA'DISH, *adj.* Vicious; bad, as a horſe:

That hors'd us on their backs, to ſhow us
A *jadiſh* trick at laſt, and throw us. *Hudibras.*

Unchaſte; incontinent.—'Tis to no boot to be jealous of a woman; for, if the humour takes her to be *jadiſh*, not all the locks and ſpies in nature can keep her honeſt. *L'Eſtrange.*

JA'DON, [Hebrew.] A man's name.

JAE'GER (John-Wolfgang), a learned German Lutheran divine, was born at Stutgard in the year 1647. His father, who was counſellor of the diſpatches to the duke of Wirtemberg, gave him the advantage of an excellent education, by ſending him to purſue his ſtudies ſucceſſively at the college in his native city, the convents of Hirſchau and Bebenhauſen, and the univerſity of Tubingen. He took his degrees in arts at the ſeminary laſt-mentioned, and was admitted to the miniſtry in the year 1671. But, before he entered on any particular charge in that profeſſion, he was appointed tutor to the children of Eberhard III. duke of Wirtemberg. In the year 1676, he accompanied the hereditary prince on his travels in the capacity of tutor and chaplain; and, after viſiting Swiſſerland, Geneva, and Italy as far as Rome and Naples, returned with him in the following year to Stutgard. In 1680, he was made profeſſor-extraordinary of geography and the Latin claſſics; in 1681, Greek profeſſor-in-ordinary; in 1684, profeſſor of moral philoſophy, and *ephorus* of the *ſtipendium* at Tubingen; in 1688, profeſſor of logic and metaphyſics, and viſitor of the ſchools of

Wirtemberg above the Steig; in 1689, licentiate in divinity; in 1692, doctor and profeſſor-extraordinary of that faculty; in 1698, counſellor to the duke of Wirtemberg, ſuperintendant-general and abbot of the convent of Maulbrunn; in 1699, conſiſtorial counſellor and preacher to the cathedral at Stutgard; ſuperintendant-general and abbot of the convent of Adelberg; and laſtly, in 1702, firſt profeſſor of divinity, chancellor of the univerſity, and provoſt of the church, at Tubingen. He was the author of a multitude of works, which reflect great credit on his talents and erudition. The principal of them are, 1. Hiſtoria Eccleſiaſtica, cum Paralleliſmo Profanæ, 1709, 2 vol. folio. 2. Compendium Theologiæ per Fœdera. 3. Jus Dei fœderale delineatum a J. W. J. ubi ad Examen vocatur Puffendorfii Jus feciale divinum, &c. 1698, 8vo. 3. Tractatus de Fœdere Gratiæ ejuſque Œconomia ſub Periodis 7 Vet. & Nov. Teſt. 1701, 4to. 4. Examen Theologiæ novæ & maxime Petri Poireti, & Antoniæ Burignoniæ, &c. 1708, 8vo. 5. Examen Theologiæ Myſticæ veteris & novæ, &c. 1709, 8vo. intended to refute Fenelon, Poiret, Molinos, &c. 6. Tractatus de Eccleſia, &c. 7. Theologia Moralis. 8. Theologia Naturalis. 9. Obſervationes Theologicæ & Morales in Grotium de Jure Belli & Pacis, 1710, 8vo. 10. Tractatus Morales de Juramentis, de Conſcientia, de Legibus, &c. 11. Defenſio Joſephi Imperatoris contra Bullam Clementis. 12. Roma cum Regno Italiæ Carolo VI. vindicata. 13. Diſſertatio de Spinoſiſmo, Spinoſæ Vitam & Doctrinam ad Examen revocans. 14. Tractatus de Legibus, tum in Genere, tum in Specie, 1688, 8vo. Together with Theſes, &c.

JAE'GERSPREIS, a town of Denmark, in the Iſland of Zealand: twenty-two miles north-weſt of Copenhagen.

JA'EL, [Heb. a kid.] The name of a woman.

JA'EN, a province of Spain, bounded on the north by la Mancha, on the eaſt by the provinces of Murcia and Grenada, on the ſouth by Grenada, and on the weſt by Cordova; about ſixty miles from north to ſouth, and nearly as much from eaſt to weſt, almoſt wholly ſurrounded with mountains, which afford mines of lead, copper, and ſilver. It was a kingdom in the time of the Moors, till annexed to the crown of Caſtile; and the king of Spain takes the title of King of Jaen, although it is now included in the government of Andaluſia. The principal towns are Jaen, Baeça, Ubeda, Caçorla, and Caſtona.

JA'EN, a city of Spain, and capital of the province of the ſame name, ſituated on a ſmall river, which ſoon after runs into the Guadalquivir. It is ſurrounded with walls, and defended by ſome ramparts, towers, and a caſtle. It is tolerably large, and contains ſome beautiful churches and convents, and is well ſupplied with water by numerous fountains, one of which, in particular, iſſues out of a rock in a ſtream, ſufficient to form a brook. This town was taken from the Moors by Ferdinand III. king of Caſtile, in the year 1246, and the biſhopric of Baeça removed to it two years after, by Innocent IV. The country about is exceedingly fertile in corn, wine, and oil, with abundance of ſilk, and the moſt excellent fruit: thirty-ſix miles north of Grenada, and forty-five eaſt of Cordova. Lat. 37. 53. N. lon. 12. 54. E. Peak of Teneriffe.

JA'EN, or Bracamoros, a government of South America, in the audience of Quito, conquered from the Indians in the year 1538. The climate is mild, and all the neceſſaries of life are produced in abundance. The culture of tobacco forms the principal buſineſs of the inhabitants, the gold mines being abandoned. Rain is frequent.

JA'EN de Bracamoros, a town of South America, in the audience of Quito, capital of a government of the ſame name; founded in the year 1549. It is the reſidence of a governor, and contains about 4000 inhabitants, among which are but few Spaniards: 330 miles north-north-eaſt of Lima. Lat. 6. 50. S. lon. 55. 30. W. Ferro.

JA'ERSBORG, a town of Denmark, in the iſland of Zealand: five miles north-north-weſt of Copenhagen.

JA'FA, a lake of Perſia, in the province of Segeſtan: thirty-ſeven leagues ſouth of Kin.

JA'FA, a country of Arabia, ſituated to the north of Aden, and weſt of Hadramaut; it is fertile, and abounds particularly in coffee. Jafa was formerly under the dominion of the imam; but in the end of the 17th century the inhabitants revolted, and made themſelves independent. They are governed at preſent by three ſovereign princes, who have conquered alſo a part of the province of Hadramaut.

JAF'FA, a town of Aſia, in Paleſtine, ſituated near the coaſt of the Mediterranean, formerly a celebrated city, and called *Jóppa*, frequently mentioned in the ſcriptures, being the port where Jonah embarked on his miſſion to Nineveh, and the place where Peter raiſed Tabitha from the dead. It is now inhabited by Turks or Arabs, with a mixture of Greeks, Maronites, and Armenians. The houſes are ſmall, and ſurrounded with the ruins of the ancient walls and towers; upon the coaſt are ſome houſes of ſtone and magazines. The road is protected by a caſtle built on a rock; the harbour is deſtroyed, and the water is ſo ſhallow that large veſſels cannot come cloſe enough to the land to unload. The Franks, Greeks, and Armenians, have each of them ſmall houſes for the reception of pilgrims of different nations. The principal commerce is in grain; particularly rice from Egypt. The money paid by the pilgrims, for permiſſion to viſit the Holy Land, is part of it ſent to Mecca, and part to the kiſlar-aga of Conſtantinople; but the cuſtoms belong to the pacha of Gaza, in whoſe juriſdiction it is ſituated. Jaffa was laid waſte in the cruſades, and afterwards deſtroyed by an earthquake. In the year 1799, Jaffa was taken by Bonaparte, as related in our article Egypt, vol. vi. p. 331; but is now again in poſſeſſion of the Turks. In profane hiſtory, it is ſaid to be the place from whence Perſeus delivered Andromeda. Seven leagues north-weſt of Gaza, and eleven weſt of Jeruſalem. Lat. 31. 45. N. lon. 53. E. Greenwich.

JAFFATEE'N ISLANDS, the name of four iſlands in the Red Sea, viſited by Mr. Bruce in his late travels. They are joined together by ſhoals or ſunk rocks; are crooked or bent like half a bow; and are dangerous for ſhips in the night-time, becauſe there ſeems to be a paſſage between them, to which while the pilots are paying attention, they neglect two ſmall ſunk rocks which lie almoſt in the middle of the entrance in deep water.

JAF'FERY, a townſhip of the American States, in Cheſhire county, New Hampſhire, on the ſouth ſide of the Great Monadnock, ſix miles north of the Maſſachuſetts line, nineteen eaſt of Connecticut river, and about fifty-ſix weſt-ſouth-weſt of Portſmouth.

JAFFIERABAD', a town of Hindooſtan, in the country of Berar: forty miles north-north-eaſt of Arungabad, and ſixty ſouth of Burhanpour. Lat. 20. 22. N. lon. 76. 25. E. Greenwich.

JAFFNAPATAM', a town of the iſland of Ceylon, ſituated on a peninſula, and ſurrounded with high walls, flanked with four baſtions, a fort, and other out-works. It was anciently the capital of an independent kingdom, which was divided into four provinces. The ſoil is low, fertile, and planted with beautiful trees; and the country is ſo populous, that they reckon 160 towns in a diſtrict of twelve leagues in length and eight in breadth. The firſt European ſettlement was made by the Portugueſe, who were driven out by the Dutch. Lat. 9. 45. N. lon. 80. 12. E. Greenwich.

JA'GELITZ, a river of Germany, in Upper Saxony, which runs into the Doſſe ſix miles ſouth of Kyritz.

JAG'ERNDORF, a principality of Sileſia: it was originally a part of the country of Troppau, and was firſt erected into a diſtinct principality in favour of duke Nicolas V. grandſon to John I. duke of Troppau and Ratibor, who took up his reſidence at Jagerndorf. Frederic William, elector of Brandenburg, in 1686, received ſome equivalent or ſatisfaction for his pretenſions to Jagerndorf; but, notwithſtanding this, in 1740 Frederic II. king of Pruſſia, thought proper to revive his claim; and at the peace of Berlin, in 1742, Maria Thereſa, queen of Hungary

gary and Bohemia, made a perpetual ceſſion to king Frederic II. of the part of the principalities of Troppau and Jagerndorf lying on this ſide of the Oppa, together with the diſtrict of Katſcher formerly belonging to Moravia.

JAG'ERNDORF, or Karnowitz, a town of Sileſia, and capital of a principality of the ſame name, ſituated on the Oppa, containing two churches and a convent: twelve miles north-weſt of Troppau, and twenty weſt of Ratibor.

JA'GERSBURG, a town of Germany, in the Upper Rhine, and principality of Heſſe Darmſtadt: thirteen miles ſouth-ſouth-weſt of Darmſtadt.

*To* JAGG, *v. a.* [*gagaw*, ſlits or holes, Welſh.] To cut into indentures; to cut into teeth like thoſe of a ſaw.—Some leaves are round, ſome long, ſome ſquare, and many *jagged* on the ſides. *Bacon.*

JAGG, *ſ.* A protuberance or denticulation.—The figure of the leaves is divided into ſo many *jaggs* or eſcallops, and curiouſly indented round the edges. *Ray.*

JAG'GEDNESS, *ſ.* The ſtate of being denticulated; unevenneſs.—Firſt draw rudely your leaves, making them plain, before you give them their veins or *jaggedneſs.* *Peacham on Drawing.*

JAG'GERNAUTPORUM, or Cuckanara, a town of Hindooſtan, in the circar of Rajamundry, celebrated for a grand pagoda, one of the principal objects of Hindoo veneration, and forming an excellent ſea-mark for veſſels ſailing in the Bay of Bengal; it is ſituated a few miles to the eaſt of Chilka lake: twenty-ſeven miles eaſt of Rajamundry. For the hiſtory of the idol called Jaggernaut, ſee the article Hindoostan, in this volume.

JAG'GING, *ſ.* The act of cutting with inequalities; the inequality of the edge; a denticulation. *Bacon.*

JAG'GING-IRON, *ſ.* An inſtrument uſed by paſtry-cooks.

JAG'GY, *adj.* Uneven; denticulated:

His tow'ring creſt was glorious to behold;
His ſhoulders and his ſides were ſcal'd with gold;
Three tongues he brandiſh'd when he charg'd his foes;
His teeth ſtood *jaggy* in three dreadful rows. *Addiſon.*

JAG'HAUS, a town of Germany, in the Tyroleſe: fourteen miles north-weſt of Schwas.

JAG'HIRE, *ſ.* [from the Perſian *jaa*, a place, and *gheriftun*, to take.] An aſſignment of the revenues of a diſtrict to a ſervant or dependant of government, who is hence called a jaghiredar. Jaghires are either *muſhroot*, conditional, or *belaſhurt*, unconditional; they are frequently allotted to perſons for their military ſervices.

JAGHIREDAR', *ſ.* The holder of a jaghire.

JAGNE'VO, a town of European Turkey, in the province of Servia: eight miles ſouth of Priſtina.

JA'GO (Richard), an ingenious poet, was vicar of Snitterfield in Warwickſhire, and rector of Kimcote in Leiceſterſhire. He was the intimate friend and correſpondent of Shenſtone, contemporary with him at Oxford, and, it is believed, his ſchool-fellow; was of Univerſity College; took the degree of M.A. July 9, 1739; was author of ſeveral poems in the 4th and 5th volumes of Dodſley's Poems; publiſhed a ſermon, in 1755, on the Cauſes of Impenitence conſidered, preached May 4, 1755, at Harbury in Warwickſhire, where he was vicar, on occaſion of a converſation ſaid to have paſſed between one of the inhabitants and an apparition in the church-yard there; wrote Edge-hill, a poem, for which he obtained a large ſubſcription in 1767; and was alſo author of Labour and Genius, 1768, 4to. of The Blackbirds, a beautiful elegy in the Adventurer; and of many other ingenious performances. He died May 28, 1781.

JA'GO (St.) a river in the province of Chiametlan, in New Spain, which it is ſaid riſes in the lake Guadalajara, and empties into the North Pacific Ocean, by a mouth half a mile broad, and ten feet deep at low water.

JA'GO, a large river of South America, which riſes in the audience of Quito, in Peru. It is navigable, waters a fertile country, and falls into the South Sea.

JA'GO, a handſome and conſiderable town of South America, capital of Chili, with a good harbour, and a biſhop's ſee, and a royal audience. It is ſeated on a large beautiful plain, abounding in all the neceſſaries of life, at the foot of the Cordillera de los Andes, on the river Mapocho, which runs acroſs it from eaſt to weſt. It is ſubject to earthquakes. The inhabitants are native Americans and Spaniards. It contains forty thouſand inhabitants according to Raynal, and carries on a conſiderable trade with Buenos Ayres by land, 354 leagues diſtant. Although above forty leagues of the way are amidſt the ſnows and precipices of the Cordilleras, yet it is found ſafer and cheaper to ſend goods by this road than by ſea. Lat. 33. 40. S. lon. 69. 35. W.

JA'GO, the largeſt, moſt populous and fertile, of the Cape Verde iſlands, on the coaſt of Africa, and the reſidence of the Portugueſe viceroy. It lies about thirteen miles eaſtward from the iſland of Mayo, and abounds with high barren mountains. Its produce is ſugar, cotton, wine, and ſome excellent fruits. The animals are black cattle, horſes, aſſes, deer, goats, hogs, civet-cats, and ſome very pretty green monkeys with black faces. This place is repreſented by ſir George Staunton as liable to long and exceſſive droughts, for which no philoſophical cauſe can be aſſigned. When the embaſſy to China touched at it in the latter end of 1792, it was in a ſtate of abſolute famine. Little or no rain had fallen for about three years before. The rivers were almoſt all entirely dry. The ſurface of the earth was, in general, naked of any herbage. The greateſt part of the cattle had periſhed, not leſs through drought than want of food. Of the inhabitants many had migrated, and many were famiſhed to death. Nor was this calamity peculiar to St. Jago. All the iſlands of Cape de Verde were ſaid to have experienced the ſame long drought, and to be conſequently in a ſtate of ſimilar deſolation. Yet the frequent ſhowers which were obſerved by the firſt navigators who touched at St. Jago, induced them to give to the iſland the name of *Pluvialis*; and no change had been obſerved in the ſteady current of wind, blowing from the eaſt, which is common to tropical climates. "What were the uncommon circumſtances (ſays ſir George) that took place in the atmoſphere of that part of Africa to which the Cape de Verde iſlands lie contiguous, or in the vaſt expanſe of continent extending to the eaſt behind it, and from which this direful effect muſt have proceeded, as they happened where no man of ſcience exiſted to obſerve or to record them, will therefore remain unknown; nor is theory bold enough to ſupply the place of obſervation. Whatever was the cauſe which thus arreſted the bountiful hand of Nature, by drawing away the ſources of fertility, it was obſervable, that ſome few trees and plants perſevered to flouriſh with a luxuriance, indicating that they ſtill could extract from the arid earth whatever portion of humidity it was neceſſary to derive from thence for the purpoſe of vegetable life, though it was denied to others."

Beſides the trees of the palm kind, which are often found verdant amidſt burning ſands, nothing, for example, could be more rich in flavour, or abound more with milky though corroſive juice, than the Aſclepias gigantea, (ſee Asclepias,) growing plentifully, about ſeven feet high, without culture, indeed, but undiſturbed, it being of no avail to cut it down in favour of plants that would be uſeful, but required the aid of more moiſture from the atmoſphere. The Iatropha curcas, or phyſic-nut tree, which the French Weſt Indians, with ſome propriety, call *bois immortel*, and plant, on that account, in the boundaries of their eſtates, appeared as if its perpetuity was not to be affected by any drought. Some indigo-plants were ſtill cultivated with ſucceſs in ſhaded vales, together with a few cotton-ſhrubs. Throughout the country ſome of thoſe ſpecies of the Mimoſa, or ſenſitive plant, which grow into the ſize of trees, were moſt common, and did not appear to languiſh. In particular ſpots, the Annona, or ſugar-apple tree, was in perfect verdure. The Boraſſus, or great fan-palm, lifted, in a few places, its lofty head and ſpreading leaves with undiminiſhed beauty. In a bottom, about a mile and a half behind the town of Praya, was ſtill growing, in a healthy ſtate, what may be called for ſize a phenomenon in vegetation, a tree known to botaniſts by the name of Adanſonia, and in Engliſh called *monkey-bread tree.* The natives of St. Jago call it *kabiſera*; others, *baobab.* Its trunk meaſured at the baſe no leſs than fifty-ſix feet in girth; but it ſoon divided into two great branches, one riſing perpendicularly, and meaſuring forty-two feet in circumference: that of the other was about twenty-ſix. By it ſtood another of the ſame ſpecies, whoſe ſingle trunk, of thirty-eight feet girth, attracted little notice from the vicinity of its huge companion. But the annual produce of agriculture was ſcarcely to be found. The plains and fields, formerly productive of corn, ſugar-canes, or plantains, nouriſhed by regular falls of rain, now bore little ſemblance of vegetation. Yet in the ſmall number of plants which ſurvived the drought, were ſome which, from the ſpecimens ſent to Europe, were found to have been hitherto unknown. Vegetation quickly, indeed, revived wherever through the ſoil any moiſture could be conveyed.

Sir George repreſents Praya, the reſidence of the Portugueſe viceroy, as a hamlet rather than a town. It conſiſts of about a hundred very ſmall dwellings, one ſtory high, ſcattered on each ſide of the plain, which extended near a mile in length, and about the third of a mile in breadth; and fell off all around to the neighbouring valleys and to the ſea. Not being commanded by any neighbouring eminence, it was a ſituation capable of defence; the fort, however, or battery, was almoſt in ruins; and the few guns on it were moſtly honey-combed, and placed on carriages which ſcarcely held together.

A party belonging to the embaſſy croſſed the country to the ruins of St. Jago, the former capital of the iſland, ſituated in the bottom of a vale, through which ran a ſtream, then both ſmall and ſluggiſh. On each ſide of that ſtream are the remains of dwellings of conſiderable ſolidity and ſize; and the fragments of glaſs luſtres, ſtill hanging from the ceilings of ſome of the principal apartments, denote the elegance or riches that were once diſplayed in this now deſerted place. Not above half a dozen families remain in it at preſent; the reſt abandoned it, or periſhed. Here was ſtill, however, an attempt at a ſlight manufactory of ſtriped cotton ſlips, the ſame as are made in the other parts of the iſland, for the uſe of the Africans on the main, who pay for them in ſlaves, elephants' teeth, and that gum which is generally called arabic. Amidſt the ruins of St. Jago, the party found a Portugueſe, to whom one of them was recommended, and who received them with the moſt cordial hoſpitality in his houſe, and treated them with every ſpecies of tropical fruits from his garden, lying on each ſide the river. He had been a navigator; and informed them that the Iſle of Brava, one of the Cape de Verdes, was a fitter and ſafer place for ſhips to call at for water and proviſions than the iſland of St. Jago: that it had three harbours; one called Puerto Furno on the eaſt ſide of the iſland, from which veſſels muſt warp, or be towed out by boats; the Puerto Fajendago to the weſt; and the Puerto Ferreo to the ſouth, which was the beſt for large ſhips, and into which runs a ſmall river. In another of the Cape de Verde iſlands, called San Vicenté, he obſerved that there was alſo a large harbour on the north end, but that freſh water was at ſome diſtance from it; and there was likewiſe a good port at Bonaviſta. This information of the harbours in the Iſle of Brava was confirmed by accounts given by others to ſir Eraſinus Gower, who recommends to make a trial of them.

JA'GO, a town of Africa, in the country of Guinea, on the river Formoſa: ſeventy miles from the ſea.

JA'GO DE LOS CAVALLE'ROS, a town of America, and one of the principal of the iſland of Hiſpaniola. It is ſeated on the river Yague, in a fertile ſoil, but bad air. Lat. 19. 40. N. lon. 70. 5. W.

JA'GO DE CU'BA, a town on the ſouthern coaſt of the iſland of Cuba, with a good harbour, ſeated at the bottom of a bay, and on the river of the ſame name. It was formerly the capital of the iſland, and was built in 1514, is well fortified, and commands the windward paſſage. This place has a declining aſpect, and preſents only the ruins of its former greatneſs. Yet it has a noble, ſafe, and commodious, port, inferior to the Havannah only in its ſituation. Within three leagues of it, at Covery, is a rich copper-mine. In the road from St. Jago to St. Salvadore are a great quantity of flint-ſtones of various ſizes, ſo round that they might ſerve for cannon-bullets. St. Jago has a cathedral with canons reſidentiary, and had once a good trade, but it is removed to the Havannah, where its biſhop alſo reſides. Sir Francis Drake took and burnt this city in 1585. Lat. 20. 15. N. lon. 76. 40. W.

JA'GO DEL ES'TERO, a town of South America, one of the moſt conſiderable of Tucuman, and the reſidence of the inquiſitor of the province, and is a biſhop's ſee. It is ſituated on the banks of the Dolee, which is here pretty large, and navigable for veſſels of burden. It is 160 leagues eaſt of Potoſi. Lat. 24. 40. S. lon. 64. 55. W.

JA'GO DE GUATIMA'LA. See GUATIMALA, vol. ix. p. 75.

JA'GO DE LE'ON, a town of Venezuela, a province of Terra Firma, in South America, eighteen miles from the ſea-coaſt, and ſituated on a plain, amongſt high mountains extremely difficult of acceſs It was taken by the Engliſh in 1599; but afterwards reſtored to Spain.

JA'GO DE NEXA'PHA, a town of Guaxaca, in the audience of Mexico, ſituated in the valley of Nexapha, on a river which falls into the river Alvarado. It has a rich convent of Dominicans.

JA'GO DE LAS VAL'LES, a town of North America, in the audience of Mexico, ſeated on a plain on the river Panuco. Lat. 23. N. lon. 71. 10. W.

JA'GO DE LA VE'GA, or *Spaniſh Town,* is the capital of the iſland of Jamaica; ſituated in Middleſex county, on the banks of the river Cobre, about ſix miles from the ſea, and contains between five and ſix hundred houſes, and about five thouſand inhabitants, including people of colour. It is the reſidence of the governor or commander-in-chief, who is accommodated with a ſuperb palace. Here the legiſlature is convened, and the court of chancery, and the ſupreme court of judicature, are held. It was greatly damaged by a ſtorm in 1772. It lies in the ſouth-eaſt part of the iſland, about ſeven miles north-weſt of Port-Paſſage, on the bay of Port-Royal. Lat. 18. 6. N. lon. 76. 49. W.

JAGODI'NA, a town of European Turkey, in the province of Servia, on a ſmall river which runs into the Morava: fifty miles north-north-weſt of Niſſa, and ſixty ſouth-ſouth-eaſt of Belgrade. Lat. 44. 15. N. lon. 38. 40. E. Ferro.

JA'GRA, or GIAR'RA, a country of Africa, rich in rice, cotton, and corn; a little to the ſouth of the river Gambia: about fifty miles from the ſea.

JAG'UA, a town of the iſland of Cuba: eighty-five miles weſt-ſouth-weſt of Havannah.

JA'GUR, [Hebrew.] The name of a city.

JAH, [Heb. everlaſting.] One of the names of the true God.

JAHAL'ALEEL, [Hebrew.] A man's name.

JA'HATH, [Hebrew.] A man's name.

JA'HAZ, or JAHA'RAH, [Heb. a diſpute.] The name of a place in the land of Canaan.

JAHAZI'AH, [Hebrew.] A man's name.

JAHAZI'EL, [Hebrew.] A man's name.

JAHDA'I, [Hebrew.] A man's name.

JAH'DIEL, [Hebrew.] A man's name.

JAH'DO, [Hebrew.] A man's name.

JA'HI, a town of Aſiatic Turkey, in the province of Natolia: ſixteen miles north-north-eaſt of Angura.

JAHU'PICE, a town of Poland, in the palatinate of Braclaw: forty-eight miles ſouth-eaſt of Braclaw.

JAH'LEEL, [Hebrew.] A man's name.

JAH'LEELITE, *ſ.* A deſcendant of Jahleel.

JA'HMAI, [Hebrew.] A man's name.

JAH'ZAH, [Hebrew.] A man's name.

JAH'ZEEL, [Hebrew.] A man's name.

JAH'ZEELITE, *ſ.* A deſcendant of Jahzeel.

JAH'ZERAH, [Hebrew.] A man's name.

JAHZI'EL, [Hebrew.] A man's name.

JAIC ZA, a town of European Turkey, in Boſnia, with a caſtle near the river Pliva: twenty-ſix miles ſouth of Banjaluka, and twenty-five weſt-north-weſt of Serajo.

JAIK. See URAL.

JAIL, *ſ.* [*geol*, Fr.] A gaol; a priſon; a place where criminals are confined. See GAOL. It is written either way; but commonly by latter writers *jail.*—A dependant upon him paid ſix thouſand pounds ready money, which, poor man, he lived to repent in a *jail. Clarendon.*

He ſigh'd and turn'd his eyes, becauſe he knew
'Twas but a larger *jail* he had in view. *Dryden.*

JAIL-BIRD, *ſ.* One who has been in a jail.

JAIL'ER, *ſ.* A gaoler; the keeper of a priſon.—Seeking many means to ſpeak with her, and ever kept from it, as well becauſe ſhe ſhunneth it, ſeeing and diſdaining his mind, as becauſe of her jealous *jailors. Sidney.*

Now Palamon, the pris'ner knight,
Reſtleſs for woe, aroſe before the light;
And, with his *jailor's* leave, deſired to breathe
An air more welcome than the damp beneath. *Dryden.*

JAIR, [Heb. my light.] A man's name.

JAIR'ITE, *ſ.* A deſcendant of Jair.

JAI'RUS, [Hebrew.] A man's name.

JAK. IN JAK'KO, a town of Africa, on the Ivory Coaſt.

JA'KA, a kingdom of Africa, 500 miles from the ſea, with a capital of the ſame name, on the ſouth ſide of the Senegal.

JA'KA, a town and diſtrict of Africa, on the Ivory Coaſt.

JA'KAN, [Hebrew.] A man's name.

JA'KEH, [Hebrew.] A man's name.

JAKES, *ſ.* [Of uncertain etymology.] A houſe of office.—I will tread this inbolted villain into mortar, and daub the walls of *jakes* with him. *Shakeſpeare.*

Their ſordid avarice rakes
In excrements, and hires the very *jakes.* *Dryden.*

JA'KIM, [Hebrew.] A man's name.

JA'KIN, a river of Africa, which ſeparates the country of Ardra from Benin.

JA'KIN, a town of Africa, in the kingdom of Ardra, on the Slave Coaſt, where the Engliſh and Dutch had factories, till they were driven away by the king of Dahomy.

JA'KOBSHAVN, a Daniſh ſettlement in Greenland.

JAKOWI'ZINA, a town of Poland, in the palatinate of Braclaw: thirty-ſix miles north-north-weſt of Braclaw.

JA'LAC. See ILAK.

JALALABAD', a town of Aſia, in the country of Cabul, on the river Kameh: ſixty miles eaſt-ſouth-eaſt of Cabul.

JAL'AP, *ſ.* in botany and the materia medica, the root of a ſpecies of Convolvulus, or bind-weed. See CONVOLVULUS, vol. v. p. 156.

JAL'BACH, a town of Germany in the arch-duchy of Auſtria: eight miles eaſt-ſouth-eaſt of Laab.

JA'LEA, a town of Aſiatic Turkey, in the province of Natolia: twelve miles ſouth-weſt of Adramiti.

JALE'MUS, *ſ.* in antiquity, a kind of mournful ſong, uſed upon occaſion of death, or any other affecting accident.

JA'LI, a town of the iſland of Borneo: ſeventy miles north of Negara.

JALLAI'S, a town of France, in the department of the Mayne and Loire, and chief place of a canton, in the diſtrict of Chollet: two leagues and a half north of Chollet, and four and a half weſt of Vihiers.

JALLIGNY', a town of France, in the department of the Allier, and chief place of a canton, in the diſtrict Le Donjon: five league ſouth-eaſt of Moulins, and three weſt of Donjon.

JALLINDAR', a town of Hindooſtan, and capital of a diſtrict of the ſame name, in the country of Lahore: thirty miles eaſt of Lahore, and 224 north-weſt of Delhi. Lat. 30. 50. N. lon. 74. 10. E. Greenwich.

IAL'MENUS, a ſon of Mars and Aſtyoche, who went to the Trojan war, with thirty ſhips, with his brother Aſcalaphus. *Homer.*

JALOFF'S, a tribe of genuine negroes who inhabit the ſouthern banks of the Senegal, as well as the country comprehended between this river and the Gambia. They are very black, handſome, of a fine ſtature, and their features are not ſo diſagreeable as thoſe of other negroes. Some of them, particularly the women, have very regular features. They have the ſame ideas of beauty with the Europeans; for they are fond of fine eyes, a ſmall mouth, thin lips, and a well-proportioned noſe; they differ only with regard to the baſis of the picture, a very black ſhining colour being abſolutely neceſſary to form a beauty; their ſkin is very fine and ſoft, and, abſtracting from colour, they have as beautiful women as are to be met with in any country in the world. Their females are lively, and extremely amorous; they are peculiarly fond of white men, whom they careſs with ardour, both to ſatisfy themſelves, and in hopes of obtaining preſents. In their attachments, they meet with no reſtraint from their huſbands. But, though they offer their wives, daughters, and ſiſters, to ſtrangers, and conceive their honour to be injured by a refuſal, their jealouſy riſes to a high pitch when their wives tranſgreſs with men of their own nation. Theſe women, notwithſtanding, have the tobacco-pipe perpetually in their mouths, and their ſkin, when they are heated, has a diſagreeable ſmell, though it is not ſo ſtrong as that of other negroes. They love dancing to the ſound of the drum and calabaſh. All their movements in theſe dances conſiſt of laſcivious and indecent poſtures. They bathe often; and file their teeth in order to render them more even. Moſt of the young girls engrave figures of animals, flowers, &c. on their ſkins.

Mr. Park relates the event of a religious war, which, as it diſplays a generoſity of character very uncommon among ſavages, will afford pleaſure to the minds of many of our readers. Almami Abdulkader, ſovereign of a Mahomedan kingdom called Foota Torra, ſent to Damel, a king of the Jaloffs, an imperious meſſage, commanding him and his ſubjects to embrace inſtantly the faith of the prophet. The ambaſſador, having got admiſſion to the preſence of Damel, ordered ſome Buſhreens (*i. e.* Mahomedan negroes) who accompanied him to preſent the emblems of his miſſion. Two knives were accordingly laid before the Jaloff prince, and the ambaſſador explained himſelf as follows:

"With this knife (ſaid he) Abdulkader will condeſcend to ſhave the head of Damel, if Damel will embrace the Mahomedan faith; and with this other knife Abdulkader will cut the throat of Damel, if Damel refuſes to embrace it. Take your choice."—Damel coolly told the ambaſſador that he had no choice to make: he neither choſe to have his head ſhaved, nor his throat cut. And with this anſwer the ambaſſador was civilly diſmiſſed.

Abdulkader took his meaſures accordingly; and with a powerful army invaded Damel's country. The inhabitants of the towns and villages filled up their wells, deſtroyed their proviſions, carried off their effects, and abandoned their dwellings, as he approached. By this means he was led on from place to place, until he had advanced three days journey into the country of the Jaloffs. He had, indeed, met with no oppoſition; but his army had ſuffered ſo much from the ſcarcity of water, that ſeveral of his men died by the way. This induced him to direct his march towards a watering place in the woods, where his men having quenched their thirſt, and being overcome with fatigue, lay down careleſsly to ſleep among the buſhes. In this ſituation they were attacked by Damel before day-break, and completely routed. Many of them were trampled to death, as they lay aſleep, by the Jaloffs' horſes; others were killed in attempting to make their eſcape; and a ſtill greater number were taken priſoners. Among the latter was Abdulkader himſelf. This ambitious, or rather frantic, prince, who, but a month before, had ſent the threatening meſſage to Damel, was now himſelf led into his preſence as a miſerable captive. The behaviour of Damel, on this occaſion, is never mentioned by the *ſinging-men*, the hiſtorians of the country, but in terms of the higheſt approbation; and it was, indeed, ſo extraordinary in an African prince, that the reader may find it difficult to give credit to the recital. When his royal priſoner was brought before him in irons, and thrown upon the ground, the magnanimous Damel, inſtead of ſetting his foot upon his neck, and ſtabbing him with his ſpear, according to the cuſtom in ſuch caſes, addreſſed him as follows: "Abdulkader, anſwer me this queſtion. If the chance of war had placed me in your ſituation, and you in mine, how would you have treated me?" "I would have thruſt my ſpear into your heart (returned Abdulkader with great firmneſs); and I know that a ſimilar fate awaits me." "Not ſo (ſaid Damel); my ſpear is indeed red with the blood of your ſubjects killed in battle, and I could now give it a deeper ſtain, by dipping it in your own; but this would not build up my towns, nor bring to life the thouſands who fell in the woods. I will not therefore kill you in cold blood, but I will retain you as my ſlave, until I perceive that your preſence in your own kingdom will be no longer dangerous to your neighbours; and then I will conſider of the proper way of diſpoſing of you." Abdulkader was accordingly retained, and worked as a ſlave for three months; at the end of which period, Damel liſtened to the ſolicitations of the inhabitants of Foota Torra, and reſtored to them their king. Strange as this ſtory may appear, Mr. Park has no doubt of the truth of it. It was told to him at Malacotta by the negroes; it was afterwards related to him by the Europeans on the Gambia; by ſome of the French at Goree; and confirmed by nine ſlaves, who were taken priſoners along with Abdulkader by the watering-place in the woods, and carried in the ſame ſhip with him to the Weſt Indies.—Such generoſity as this reflects honour on human nature.

JA'LON, [Hebrew.] A man's name.

JALONIT'ZA, a town of European Turkey, in Walachia, on a river of the ſame name: ninety-five miles ſouth-weſt of Iſmail, and 240 north of Conſtantinople.

JALOU'R, a town of Hindooſtan, in the country of Agimere: ſixty-five miles weſt-north-weſt of Oudipour. Lat. 25. 15. N. lon. 73. 40. E. Greenwich.

JALOW'KA, a town of Lithuania, in the palatinate of Troki: twenty-four miles ſouth of Grodno.

IAL'YSUS, a town of Rhodes, built by Ialyſus, of whom Protogenes was making a beautiful painting when Demetrius Poliorcetes took Rhodes. The Telchines were born there. *Ovid.*

JAM, *ſ.* [*jammah*, Indian.] A long muſlin dreſs for children.—The long muſlin dreſs is in India uſually worn both by Hindoos and Mahometans, and is called *jammah*; whence the dreſs well known in England, and worn by children, is uſually called a *jam. Hodges's Travels in India.*

JAM, *ſ.* [of uncertain derivation.] A conſerve of fruits boiled with ſugar and water.

*To* JAM, *v.a.* A ſea term; to incloſe any thing between two bodies ſo as to render it immoveable. *Falkner.*

JAMA'ICA, an iſland ſituated in the Atlantic Ocean, about 4000 miles ſouth-weſt of Great Britain, and forming one of the moſt valuable appendages to that crown. It is thirty leagues eaſt of the iſland of St. Domingo; about the ſame diſtance north of the iſland of Cuba; having the gulf of Honduras on the weſt and Carthagena on the continent of South America to the ſouth, diſtant 145 leagues. The centre of Jamaica lies in about lat. 18. 12. N. and about 76. 45. W. lon. from London. It is 150 miles in length, and on a medium about forty miles in breadth, containing 4,080,000 acres; of which 900,000 acres were planted in 1675; and in November 1789, there were no more than 1,907,589 acres located or taken up by grants from the crown. This iſland is interſected with a ridge of ſteep rocks, from which iſſue a vaſt number of ſmall rivers of pure wholeſome water, which fall down in cataracts, and together with the ſtupendous height of the mountains, and the bright verdure of the trees, through which they flow with rapidity to the ſea on both ſides of the iſland, form a moſt delightful landſcape; but none are navigable by marine veſſels. Black River is the deepeſt, and is navigable for flat-bottomed boats and canoes thirty miles.

Sugar is the greateſt and moſt valuable production of this iſland. Of this article was exported to Great Britain in 1787, 824,706 cwt. in 1790, 1,185,519 cwt. It produces alſo cocoa, ginger, pimento, or, as it is called, Jamaica pepper, and vulgarly *allſpice*; the wild cinnamon; the machineel, whoſe fruit, though uncommonly delightful to the eye, contains one of the worſt poiſons in nature; the cabbage-tree, remarkable for its height, and for the hardneſs of its wood, which, when dry, is incorruptible, and hardly yields to any kind of tool; the palma, affording oil, much eſteemed by the negroes, both as food and medicine; the ſoap-tree, whoſe berries anſwer all the purpoſes of waſhing; the mangrove and olive bark, uſeful to tanners; the fuſtic and redwood, to the dyers; and lately the logwood. The indigo-plant was formerly much cultivated, and the cotton-tree is ſtill ſo. Here they have maize, or Indian corn, Guinea corn, peaſe of various kinds, with a variety of roots. Fruits grow in great plenty, as citrons, Sevilie and China oranges, common and ſweet lemons, limes, ſhaddocks, pomegranates, mamees, papas, pine-apples, prickly pears, allicada pears, melons, guavas, ſeveral kinds of berries, and kitchen vegetables in great variety. Admiral Rodney enriched this beautiful iſland with many of the rare productions of the Eaſt, which fell into his hands by the fortune of war; particularly the bread-fruit tree, the true Ceylon cinnamon-tree, and the mango-tree. Jamaica can boaſt of a botanical garden containing the rareſt collection of curious trees and plants perhaps in the world; of which a catalogue has been publiſhed. The botanical garden contains, among other valuable productions, the Chineſe hemp, palm, Otaheite plum, tallow-tree, gum-arabic, paper-mulberry, from which paper and cloth are made, tea-plant, and Chineſe olive. The other productions, both animal and vegetable, are ſuch as are common to the other iſlands in the Weſt Indies; but mahogany is now become ſcarce. In many parts of Jamaica there is a great appearance of metals; and it is believed that the Spaniards had mines both of ſilver and copper. A lead-mine was indeed opened ſome years ago, near to the Hope eſtate, in St. Andrew's pariſh; but the poſſeſſors find more profit in cultivating the ſurface of the earth than digging into its bowels.

Jamaica is divided into three counties, Middleſex, Surrey, and Cornwall; ſubdivided into twenty pariſhes, with eighteen churches and chapels; each pariſh has a rector and other church-officers. Preſentations to livings are made by the commander in chief. The number of white inhabitants, in 1787, was 30,000; freed negroes 10,000; maroons 1400; and ſlaves 250,000; in all, 304,000. The value of this iſland, as Britiſh property, is eſtimated as follows: 250,000 negroes at 50l. ſterling each, 12½ millions; the landed and perſonal property and buildings to which they are appurtenant, 25 millions more; the houſes and property in the towns, and the veſſels employed in trade, 1½ millions; in all 39 millions. The exports of Jamaica for one year, ending the 5th of January, 1788, amounted in ſterling money to 2,136,442l. 17s. 3d. In 1787, the exports to the United States amounted to 60,095l. 18s. and importations from the United States to the value of 90,000l.

This iſland was originally a part of the Spaniſh empire in America. It was reduced under the Britiſh dominion by Penn and Venables in 1656, and ever ſince has been ſubject to Great Britain. The government of it is one of the richeſt places, next to that of Ireland, in the diſpoſal of the crown, the ſtanding ſalary being 3500l. per annum, and the aſſembly commonly vote as much more to the governor; which, with other perquiſites, make it on the whole little leſs than 10,000l. a year. This fine iſland is ſubject to earthquakes and hurricanes, which have done it incredible damage.

JAMA'ICA, a townſhip of the American States, in Windham county, Vermont, watered by ſeveral branches of Weſt River.

JAMA'ICA, a poſt and chief town of Queen's county, New York, in the weſt part of Long Iſland; and contains a Preſbyterian, an Epiſcopalian, and a Dutch, church, an academy, &c. It is twelve miles eaſt of New York city.

JAMA'ICA, a town of Africa, in the iſland of York, built by a Mulatto, the ſon of an Engliſhman, where the Engliſh have a factory.

JAMA'MA, or I'MAM, a town of Arabia, in the province of Nedsjed, famous, before the days of Mahomet, for being the native place of a prophet of the name of Moſeilama; ſituated on a river, which runs into the Perſian Gulf: 330 miles ſouth-ſouth-weſt of Baſſora, and 420 eaſt-north-eaſt of Mecca. Lat. 25. 5. N. lon. 63. 54. E. Ferro.

JAMASI'JRO, or SANSJU, a province of Japan.

JAMAT'TO, or WOSJU, a province of Japan.

JAMB, *ſ.* [*jambe*, Fr. a leg.] Any ſupporter on either ſide, as the poſts of a door.—No timber is to be laid within twelve inches of the fore ſide of the chimney *jambs. Moxon.*

IAM'BE, the daughter of Pan and Echo, who was ſuppoſed to have been the inventreſs of iambic verſe.

JAM'BI, the capital of a kingdom, of the ſame name, in the iſland of Sumatra, much frequented by the Engliſh and Dutch, on account of its excellent pepper. It is ſituated on a large river navigable for boats; the town is large, but the air unwholeſome. Lat. 1. 14. S. lon. 102. 45. E. Greenwich.

IAM'BIC, *adj.* Belonging to a peculiar kind of verſe.

IAM'BIC, *ſ.* [*iambique*, Fr. *iambicus*, Lat.] A verſe compoſed of iambic feet, or a ſhort and long ſyllable alternately; uſed originally in ſatire, therefore taken for ſatire:

In thy felonious heart though venom lies,
It does but touch thy Iriſh pen, and dies:
Thy genius calls thee not to purchaſe fame
In keen *iambics*, but mild anagram.    *Dryden.*

An iambic verſe admits in the firſt, third, and fifth, place, an iambus and a ſpondee. In the ſecond, fourth, and ſixth, an iambus only. The iambus in the odd places may be reſolved into a tribrach. The ſpondee into a dactyl or anapæſt. The iambus in the even places (except the laſt) may be reſolved into a tribrach. An anapæſt is ſubſtituted for it in the caſe of a proper name only.

JAMBI'ER, *ſ.* [from *jambe*, Fr. a leg.] A greave, a piece of armour for the leg.

JAM'BLICUS, the name of three ancient philoſophers who lived at different periods. The firſt in order of time was a Syrian by nation, and educated at Babylon. When the emperor Trajan conquered Aſſyria, he was reduced to ſlavery; but afterwards recovered his liberty, and flouriſhed under the reign of the emperor Antoninus. He was the author of a treatiſe, in the Greek language, entitled, *Babylonica de Sinonidis & Rhodanis Amoribus*, in ſixteen books, the heads of which may be ſeen by the curious reader in the ninety-fourth chapter of Photius's Codex. A manuſcript of the entire work was ſaid to be lodged in the library of the Eſcurial; but it was deſtroyed by the fire which conſumed a conſiderable part of that collection, in the year 1671. Leo Allatius has preſerved a fragment of it, accompanied with his own Latin verſion, in his Selections from the Manuſcripts of Greek Rhetoricians and Sophiſts, printed at Rome in 1641, 8vo.

The ſecond JAMBLICUS, a platonic philoſopher of the eclectic ſchool, who flouriſhed towards the beginning of the fourth century, was probably a deſcendant from the preceding, and born at Chalcis, a city of Cœlo-Syria. He firſt ſtudied under Anatolius, who preſided in a peripatetic ſchool in Alexandria; but he ſoon left that ſchool, and became a diſciple of Porphyry. He made himſelf a perfect maſter of all the myſteries of the Plotinian ſyſtem, and taught it with ſuch reputation and ſucceſs, that he was attended by crowds of diſciples, who flocked to him from all parts. They were attracted not ſo much by his eloquence, in which he was greatly inferior to Porphyry, as they were by the fame of his probity, and the freedom with which he converſed with them on philoſophical ſubjects; while, at the ſame time, he was careful to excite their admiration, and command their reverence, by making high pretenſions to theurgical powers. He aſtoniſhed them with wonders, which he profeſſed to perform by means of an intercourſe with inviſible beings. Hence he was called, "the moſt divine and wonderful teacher." His writings diſcover extenſive reading; but the ſtyle in which thay are drawn up is greatly deficient in accuracy and elegance. His philoſophical works are alſo exceedingly obſcure; nevertheleſs they are valuable as furniſhing us with authentic documents reſpecting the Alexandrian ſchool. The Life of Pythagoras; An Exhortation to the Study of Philoſophy; three Books on Mathematical Learning; A Commentary upon Nicomachus's Inſtitutes of Arithmetic; and A Treatiſe on the Myſteries of the Egyptians, Chaldeans, and Aſſyrians; are all the writings of Jamblicus now extant. St. Jerome tells us, that he alſo wrote copious comments on the precepts of Pythagoras, commonly called the Golden Verſes; and the emperor Julian, who equals him to Plato himſelf, quotes a treatiſe of his on the Sun, from which he has borrowed largely in his own treatiſe on the ſame ſubject. It is not certain where or when he died; but from a paſſage of Eunapius, in which he ſays, that his diſciple Sopater went, after his maſter's death, to the court of Conſtantine, we may conclude that he died before that emperor, and probably about the year 333.

The third JAMBLICUS, who was alſo a platonic philoſopher, was a native of Apamea in Syria, and flouriſhed under the reign of the emperor Julian. He appears to have been a great favourite with that prince, who wrote many letters to him; and was, probably, the perſon to whom Symmachus wrote, expreſſing a deſire of cultivating his friendſhip, as that of one of the moſt illuſtrious votaries of wiſdom. This philoſopher is ſaid to have been poiſoned under the reign of the emperor Valens. From the circumſtances of his having been of the ſame name and country with the preceding, and alſo of his having had, like him, a diſciple named Sopater, it is not to be wondered at that the two philoſophers have been confounded together by many writers, and that the productions of Jamblicus of Chalcis have been improperly attributed to Jamblicus of Apamea.

JAM'BO, or JANBO, a ſea-port town of Arabia Felix, in the province of Hedjas, on the coaſt of the Red Sea, with a good harbour: ſeventy-two miles ſouth-weſt of Medina. Lat. 24. 5. N.

JAMBOLA'NA and JAMBOLIF'ERA. See CALYPTRANTHES.

JAM'BON, a river of the iſland of St. Vincent, which runs into the ſea five miles and a half ſouth of Young Point.

JAM'BOS and JAMBO'SA. See Eugenia.

JAM'BRES, [Hebrew.] A man's name.

JAM'BRI, a man's name. 1 *Mac.*

IAM'BUS, *ſ.* in the Greek and Latin proſody, a poetical foot, conſiſting of a ſhort ſyllable followed by a long one. See Iambic.

JAMBU'SA. See Gmelina.

JAM'DRO, or Palta, a lake of Aſia, in Thibet. It is of ſo great extent, that, according to the report of the natives, it requires eighteen days to walk round it. In the Lama's map, however, the circumference is only 150 Britiſh miles. In the middle of it, there is, according to Giorgi, a continued range of hillocks and iſlands; or according to the Lama's map, one large iſland, encircled by a lake from three to eight miles wide. On the weſtern ſhore of this iſland, or congeries of iſlands, is a monaſtery, and the ſeat of the *Lamiſſa Tarcepamo*, or Great Regenerate; in whom the Thibetians think that a divine ſpirit is regenerated, as in the Great Lama: 150 miles north-north-eaſt of Taſſaſudon, and twenty-four ſouth of Laſſa.

JAMENGIAN', a town of Perſia, in the province of Farſiſtan: fourteen leagues ſouth-ſouth-weſt of Schiras.

JAMES, [Heb. a ſupplanter.] The name of a man; the title of one of the books of the New Teſtament.

JAMES the Greater, the ſon of Zebedee, and the brother of John the Evangeliſt, was born at Bethſaida in Galilee. He was called to be an apoſtle, together with St. John, as they were mending their nets with their father Zebedee, who was a fiſherman; when Chriſt gave them the name of *Boanerges*, or Sons of Thunder. They then followed Chriſt, were witneſſes with St. Peter of the transfiguration on mount Tabor, and accompanied our Lord in the garden of olives. It is believed that St. James firſt preached the goſpel to the diſperſed Jews; and afterwards returned to Judea, where he preached at Jeruſalem, when the Jews raiſed up Herod Agrippa againſt him, who put him to a cruel death about the year 44. Thus St. James was the firſt of the apoſtles who ſuffered martyrdom. St. Clement of Alexandria relates, that his accuſer was ſo ſtruck with his conſtancy, that he became converted, and ſuffered with him. There is a magnificent church at Jeruſalem which bears the name of St. James, and belongs to the Armenians. The Spaniards pretend, that they had St. James for their apoſtle, and boaſt of poſſeſſing his body; but Baronius, in his Annals, refutes their pretenſions.

St. James's *Day*, a feſtival of the Chriſtian church, obſerved on the 25th of July, in honour of St. James the Greater.

JAMES the Less, an apoſtle, the brother of Jude, and the ſon of Cleophas and Mary the ſiſter of the mother of our Lord, is called in Scripture the *Juſt*, and the brother of Jeſus, who appeared to him in particular after his reſurrection. He was the firſt biſhop of Jeruſalem, when Ananias II. high-prieſt of the Jews, cauſed him to be condemned, and delivered him into the hands of the people and the Phariſees; who threw him down from the ſteps of the temple, when a fuller daſhed out his brains with a club, about the year 62. His life was ſo holy, that Joſephus conſiders the ruin of Jeruſalem as a puniſhment inflicted on that city for his death. He is ſaid to be the author of the Epiſtle which bears his name.

*Epiſtle of* St. James, a canonical book of the New Teſtament, being the firſt of the *catholic*, or *general*, epiſtles; which are ſo called, as not being written to one but to ſeveral Chriſtian churches. This General Epiſtle is addreſſed partly to the believing and partly to the infidel Jews; and is deſigned to correct the errors, ſoften the ungoverned zeal, and reform the indecent behaviour, of the latter; and to comfort the former under the great hardſhips they then did, or ſhortly were to, ſuffer, for the ſake of Chriſtianity.

JAMES, a ſaint in the Roman calendar, and a celebrated eaſtern prelate in the fourth century, was a native of Niſibis, a city of Meſopotamia, which was anciently the boundary between the Perſian and Roman dominions. He devoted himſelf early to the aſcetic life, and by his great proficiency in divine and human learning acquired the ſurname of *the Wiſe*. He was a diſtinguiſhed confeſſor in the perſecution under the emperor Maximinus; and, on account of his eminent ſanctity and virtues, was at length elected biſhop of his native city. In the year 325 he was preſent at the council of Nice, where he rendered himſelf conſpicuous by the part which he took in defence of the orthodox faith. When at the commencement of the reign of the emperor Conſtantius, about the year 338, Sapor king of Perſia laid ſiege to Niſibis, our prelate performed the functions both of governor and biſhop, and ſo effectually animated the citizens, by his example and by his prayers, that they repulſed all the attacks of the aſſailants, and obliged Sapor to retire from before their walls with diſgrace. James died at Niſibis during the reign of the emperor Conſtantius; and ſo highly was his memory venerated by the inhabitants of that city, that when the greater part of them quitted it, upon its being delivered up to the Perſians by the emperor Jovian, they carried the biſhop's remains with them, as ſacred relics. James was the author of ſeveral works, an edition of which was publiſhed at Rome, in 1756, folio, in Syriac and Armenian.

JAMES de VORAGI'NE, a pious Italian prelate, who derived his ſurname from Voraggio in the territory of Genoa, where he was born about the year 1230. In the year 1244 he entered into the Dominican order at Genoa, and roſe to be prior of his houſe. In the year 1267 he was appointed provincial in Lombardy, and preſided over that province till 1286. Afterwards he was created general of his order; and in the year 1292 was nominated archbiſhop of Genoa, by pope Nicholas IV. He died in the year 1298, highly reſpected for his piety and virtues; particularly for the prudence with which he conducted himſelf towards the contending factions of the Guelphs and Ghibbelines, and his extenſive charities, to which he devoted almoſt all the revenues of his archbiſhopric. He was the author of a voluminous collection of the lives of the ſaints, known by the name of the "Golden Legend," in which, according to the judgment of his catholic critics, he has introduced an infinite number of the moſt abſurd and romantic fables which the greateſt poſſible credulity could ſwallow, and the moſt viſionary imagination invent. But, notwithſtanding the abſurdities with which it abounds, it met with a moſt favourable reception in the world; and after the firſt printed edition of it in Latin, in the year 1470, folio, it was tranſlated into Engliſh, French, and Italian, and underwent more numerous impreſſions than any other work from the firſt invention of the art of printing till towards the cloſe of the 16th century. The author alſo publiſhed numerous Sermons, adapted to Lent, the different Sundays in the year, the ſaints' days, &c. and a work entitled, *Mariale Aureum*, containing 160 diſcourſes in praiſe of the bleſſed Virgin, which, ſays Dupin, "are worth juſt as much as his Legend, both on account of their ſtyle, which is mean and trivial, and the matter which they contain." Our prelate was likewiſe the author of a *Chronicon Januenſis Civitatis*, the moſt credible part of which has been given to the public by Muratori in the twenty-ſixth volume of his Collection of Italian Writers; and he is ſaid to have been the firſt perſon who cauſed an Italian verſion of the Bible to be publiſhed, which was in the year 1270.

JAMES de VI'TRY, a noted French cardinal and hiſtorical writer, was born at the little town near Paris whence he took his ſurname, in the latter part of the twelfth century. He received his education at the univerſity of Paris; and, having afterwards entered into orders, he after ſome time became a regular canon in the monaſtery of Oignies, in the dioceſe of Namur. Hence he went to the Thoulouſain, where he preached up the cruſade againſt the Albigenſes. Afterwards his zeal led him to preach up the cruſade againſt the Saracens, to aſſume the croſs, and to follow the cruſaders into the eaſt. In that part of the world he continued many years, and was made biſhop of Ptolemais, or Acre. At length pope Gregory IX. in the year 1228, that he might recompenſe him for the ſervices which he had rendered to the catholic cauſe, invited him to Rome, raiſed him to the purple, and beſtowed on him the biſhopric of Freſcati. Soon after this, he was ſent into France in the capacity of papal legate, to preach up a new cruſade againſt the Albigenſes; and he was afterwards ſent in the ſame character into Brabant, and the Holy Land. He returned, and died at Rome in the year 1244. He was the author of ſeveral works, the moſt curious and valuable of which was entitled, *Hiſtoriæ Orientalis & Occidentalis Libri III.* In the firſt book the author gives an account of the ſtate of affairs in the eaſt, civil and eccleſiaſtical, the manners of the inhabitants, &c. and the hiſtory of the country from the time of Mahomet to the year 1210. In the ſecond he gives a view of the ſtate of eccleſiaſtical affairs in the weſt, during his own time. In the third book he returns to the eaſt, the hiſtory of which he brings down to the year 1218. The firſt and ſecond books were publiſhed at Douay, in 1597, 8vo. and the third was given by father Martenne, in the third volume of his Theſaurus Anecdotum.

JAMES I. and II. kings of Arragon. See the article SPAIN.

St. JAMES of the SWORD (*San Jago del Eſpada*), a military order in Spain, inſtituted in 1170, under the reign of Ferdinand II. king of Leon and Gallicia. Its end was to put a ſtop to the incurſions of the Moors; the knights obliging themſelves by a vow to ſecure the roads. An union was propoſed and agreed to in 1170 between theſe and the canons of St. Eloy; and the order was confirmed by the pope in 1175. The higheſt dignity in that order is that of grand maſter, which has been united to the crown of Spain. The knights are obliged to make proof of their deſcent from families that have been noble for four generations on both ſides; they muſt alſo make it appear, that their ſaid anceſtors have neither been Jews, Saracens, nor heretics; nor even to have been called in queſtion by the inquiſition. The novices are obliged to ſerve ſix months in the galleys, and to live a month in a monaſtery. Heretofore they were truly religious, and took a vow of celibacy; but Alexander III. gave them permiſſion to marry. They now make no vows but of poverty, obedience, and conjugal fidelity; to which, ſince the year 1652, they have added that of defending the immaculate conception of the holy Virgin. Their habit is a white cloak, with a red croſs on the breaſt. This is eſteemed the moſt conſiderable of all the military orders in Spain; the king carefully preſerves the office of grand maſter in his own family, on account of the rich revenues and offices whereof it gives him the diſpoſal. The number of knights is much greater now than formerly, all the grandees chooſing rather to be received into this than into the order of the Golden Fleece; inaſmuch as this puts them in a fair way of attaining to commands, and gives them many conſiderable privileges in all the provinces of Spain, but eſpecially in Catalonia.

JAMES, the name of ſeveral kings of Scotland and of Great Britain. See the articles ENGLAND and SCOTLAND.

JAMES (Thomas), a learned Engliſh divine and critic who flouriſhed in the ſeventeenth century, was born at Newport in the Iſle of Wight, about the year 1571. He was educated in grammar-learning at Wincheſter ſchool, where he became a ſcholar upon the foundation, and was from thence ſent to New College, in the univerſity of Oxford, of which houſe he was made fellow in 1593. He took his degree of B. A. in 1595, and that of M. A. in 1598. During the following year, after having collated ſeveral manuſcripts, he publiſhed *Philobiblion Richardi Dunelmenſis*, with an Appendix *de Manuſcriptis Oxonienſibus*, 4to. This work he dedicated to ſir Thomas Bodley, to whom he had been ſtrongly recommended for his learning and extenſive acquaintance with books, and who deſigned him for the office of keeper of that noble library which he was then building. In the mean time Mr. James proceeded in the ſame ſpirit to publiſh, *Ecloga Oxonio-Cantabrigienſis*, 1600, 4to: containing a catalogue of all the manuſcripts in each college library at Oxford, but not thoſe in the public library, and in each college library as well as the public one at Cambridge. Anthony Wood ſays, that, while he was making this catalogue, having liberty given him by each college in Oxford to peruſe their manuſcripts, when he found that any ſociety was careleſs about them he borrowed and took away what he pleaſed, and placed them in the public library. In the year 1602 he was confirmed by the univerſity in the office of keeper of the Bodleian library, to which he had been appointed by the founder; and in 1605 he printed, *Catalogus Librorum in Bibliotheca Bodleiana*, on which Joſeph Scaliger beſtowed high commendation. Not long after this he applied himſelf to examine the ſtate of all the public libraries in England; which circumſtance was noticed at the time by Camden in his Britannia, who calls him "a learned man, and a true lover of books, wholly dedicated to learning, who is now laboriouſly ſearching the libraries of England, and purpoſeth *that* for the public good which will be of great benefit to ſtudents." In the year 1614 Mr. James accumulated his degrees in divinity, and had the ſubdeanery of Wells beſtowed upon him by the biſhop of that ſee, without any ſolicitation on his own part. About the ſame time the archbiſhop of Canterbury, unaſked, preſented him to the rectory of Mongeham in Kent, and to ſome other preferments. Theſe promotions, eſpecially when the manner in which they were conferred upon him is conſidered, were ſtrong teſtimonials to his diſtinguiſhed merit. In the year 1620 he was appointed a juſtice of the peace; and in the ſame year he reſigned his place of library-keeper, in order that he might purſue his intenſe ſtudies with leſs interruption. He died in 1622, when only about fifty-one years of age. Wood informs us, that he left behind him the character of being the moſt induſtrious and indefatigable writer againſt the papiſts who had been educated at Oxford ſince the reformation. The principal of his productions, excluſive of thoſe already mentioned, were, 4. Bellum Papale, ſeu Concordia Diſcors Sixti V. & Clementis VIII. circa Hieronymianam Editionem, 1600, 4to. 5. Concordantiæ Sanctorum Patrum, i. e. vera & pia Libri Canticorum per Patres univerſos, tam Græcos quam Latinos, Expoſitio, &c. 1607, 4to. 6. Apology for John Wickliff, ſhowing his Conformity with the now Church of England, &c. 1608, 4to. to which is added the Life of Wickliff. 7. A Treatiſe of the Corruption of Scripture, Councils, and Fathers, by the Prelates, Paſtors, and Pillars, of the Church of Rome, &c. 1611, 4to. and 1688, 8vo. 8. Index generalis Sanctorum Patrum, ad ſingulos Verſus Cap. v. ſecundum Matthæum, &c. 1624, 8vo. 9. Notæ ad Georgium Wicelium de Methodo Concordiæ Eccleſiaſticæ, &c. 1625, 8vo. 19. Vindiciæ Gregorianæ, ſeu Reſtitutus innumeris pene locis Gregorius Magnus, ex variis Manuſcriptis, ut magno Labore, ita ſingulari Fide, collatis, 1625. 11. Specimen Corruptelarum Pontificiorum in Cypriano, Ambroſio, Gregorio Magno, & Authore Operis imperfecti, & in Jure Canonico, 1626, 4to.

JAMES (Richard), nephew of the preceding, and like him a learned divine and critic, was born at Newport in the Iſle of Wight, about the year 1592. After paſſing through the grammar-ſchool, he was ſent to Exeter college, in the univerſity of Oxford; whence he was admitted a ſcholar of Corpus-Chriſti college, in the year 1608. He proceeded B. A. in 1611, M. A. in 1614, and became probationer fellow of his college in the following year. About this time he entered into holy orders, and was a frequent preacher; but Wood ſays that his ſermons were not approved of by any in the univerſity, excepting by the graver members. About the year 1619, he travelled for improvement through Wales and Scotland; whence he proceeded to Shetland, Greenland, and Ruſſia; on which latter country he wrote obſervations, as well as on the cuſtoms and manners of the inhabitants, which were found after his death among his manuſcripts. Returning to his native country, he reſumed his literary ſtudies with increaſed ardour; and in the year 1624 was admitted to the degree of bachelor of divinity. Not long afterwards he was engaged to aſſiſt the celebrated Mr. Selden in compoſing his *Marmora Arundeliana*, publiſhed in 1628. He alſo was very ſerviceable to ſir Robert Cotton and his ſon ſir Thomas, in diſpoſing and ſettling their noble library; and with the former of theſe gentlemen, who boldly declared his opinions againſt the illegal extenſion of the royal prerogative, he was committed cloſe priſoner by order of the houſe of lords in 1629. During his confinement he wrote a copy of verſes in Engliſh, which he prefixed to a collection of his printed pieces, bound in one volume, and preſented it to the Bodleian library ſome time before his death. That event took place in 1638, when he was about forty-ſix years of age, at ſir Thomas Cotton's houſe in Weſtminſter, and was occaſioned by the attack of a quartan ague, brought upon him by a too intenſe application to his ſtudies. Wood ſays, "he was noted by all that knew him to be a very good Grecian, poet, an excellent critic, antiquary, divine, and admirably well ſkilled in the Saxon and Gothic languages. Nothing was wanting to our author, and his ſtudies, but a ſinecure or a prebendſhip; either of which, if conferred upon him, Hercules' labour would have ſeemed a trifle." His publiſhed pieces conſiſted only of two Latin Sermons, and five Engliſh ones; *Poemata quædam in Mort. clariſſ. Vir. Roberti Cotton, & Thomæ Allen*, 1633, 4to. and an Engliſh tranſlation of Minutius Felix's Octavius, 1636, 12mo. But he left behind him forty-five manuſcripts of his own hand-writing, which were placed by his friend Dr. Thomas Greaves in the Bodleian library. His collections amount to twenty-four volumes in quarto, and ſeven in folio; and chiefly conſiſt of ſelections from ancient manuſcripts, and ſometimes from printed authors, relating to hiſtory and antiquities.

JAMES (Dr. Robert), an Engliſh phyſician of great eminence, and particularly diſtinguiſhed by the preparation of a moſt excellent fever-powder, was born at Kinverſton in Staffordſhire, A. D. 1703; his father a major in the army, his mother a ſiſter of ſir Robert Clarke. He was of St. John's college in Oxford, where he took the degree of A. B. and afterwards practiſed phyſic at Sheffield, Lichfield, and Birmingham, ſucceſſively. Then he removed to London, and became a licentiate in the college of phyſicians; and in 1743 publiſhed a Medicinal Dictionary, 3 vols. folio. Soon after he publiſhed an Engliſh tranſlation, with a Supplement by himſelf, of *Ramazzini de Morbus artificum*; to which he alſo prefixed a piece of Frederic Hoffman upon Endemial Diſtempers, 8vo. In 1746, The Practice of Phyſic, 2 vols. 8vo. In 1760, On Canine Madneſs, 8vo. In 1764, A Diſpenſatory, 8vo. June 25, 1755, when the king was at Cambridge, James was admitted by mandamus to the doctorſhip of phyſic. In 1778 were publiſhed, A Diſſertation upon Fevers, and A Vindication of the Fever-Powder, 8vo. with A ſhort Treatiſe on the Diſorders of Children, and a very good print of Dr. James. This was the 8th edition of the Diſſertation, of which the firſt was printed in 1751; and the purpoſe of it was, to ſet forth the ſucceſs of this powder, as well as to deſcribe more particularly the manner of adminiſtering it. The Vindication was poſthumous and unfiniſhed; for he died March 23, 1776, while he was employed upon it.

JAMES's *Powder*, a medicine prepared by Dr. Robert James, of which the baſis has been long known to chemiſts, though the particular receipt for making it lay concealed in Chancery till made public by Dr. Monro in his Medical and Pharmaceutical Chemiſtry. The following (Dr. Monro informs us) is a copy of the receipt, extracted from the records of Chancery; the inventor, when he took out a patent for ſelling his powder, having ſworn, in the moſt ſolemn manner, that it was the true and genuine receipt for preparing it: "Take antimony, calcine it with a continued protracted heat, in a flat unglazed earthen veſſel, adding to it from time to time a ſufficient quantity of any animal oil and ſalt, well dephlegmated; then boil it in melted nitre for a conſiderable time, and ſeparate the powder from the nitre by diſſolving it in water." When the doctor firſt adminiſtered his powder, he uſed to join one grain of the following mercurial preparation to thirty grains of his antimonial powder; but in the latter part of his life he often declared that he had long laid aſide the addition of the mercurial. His mercurial, which he called a pill, appears by the records of Chancery to have been made in the following manner: "Purify quickſilver, by diſtilling it nine times from an amalgam, made with martial regulus of antimony, and a proportional quantity of ſal ammoniac; diſſolve this purified quickſilver in ſpirit of nitre, evaporate to dryneſs, calcine the powder till it becomes of a gold colour; burn ſpirits of wine upon it, and keep it for uſe." Dr. James, at the end of the receipt given into Chancery, ſays, "The doſe of theſe medicines is uncertain; but in general thirty grains of the antimonial and one grain of the mercurial is a moderate doſe."

JAMES (ſir William), a diſtinguiſhed Britiſh officer, was born in 1721. He embarked in a ſea-life at twelve years of age; and was more than twenty years at ſea before he got the command of a ſhip. He was with ſir Edward Hawke in the Weſt Indies, in 1738, as a junior officer. Some years after, he commanded a ſhip in the Virginia trade; in her he was taken by the Spaniards, in the Gulf of Florida, and carried a priſoner to the Havannah. After he and his crew were releaſed from a Spaniſh priſon, they embarked in a ſmall brig for Carolina. The crew of the brig, and ſir William and his people, amounted to fifteen. The ſecond day after putting to ſea, a very hard gale of wind came on; the veſſel ſtrained, and ſoon became ſo leaky, that the pumps and the people bailing could not keep her free; and at length, being worn out with labour, ſeven of them, with ſir William, got into the only boat they had, with a ſmall bag of biſcuit and a keg of water; the veſſel ſoon after went down, and diſappeared. They were twenty days in this boat without a compaſs; their biſcuit ſoon got wet with the ſea, which for two days made a breach over the boat; a ſnuff-box ſir William had with him ſerved to diſtribute their daily allowance of water; and after encountering every difficulty of famine and labour, on the twentieth day they found themſelves on the iſland of Cuba, not ten miles from whence they had been embarked out of a Spaniſh priſon; but a priſon had no horrors to them. The Spaniards received them once more into captivity; and it is remarkable, that only one out of the ſeven periſhed, though, after they got on ſhore, but few of them had the uſe of their limbs for many days.

Being once more releaſed, ſir William, in the beginning of 1747, went to the Eaſt Indies as chief officer of one of the Eaſt-India Company's ſhips, and performed two voyages in that ſtation. In 1749, the Eaſt-India Company appointed him to the command of a new ſhip called the Guardian, equipped as a ſhip of war; in her he ſailed to Bombay, to protect the trade on the Malabar coaſt, which was much annoyed by the depredations of Angria, and other pirates, with which thoſe ſeas ſwarmed. During two years he was conſtantly employed in convoying the merchant-ſhips from Bombay and Surat to the Red Sea, the Gulf of Perſia, and up and down the Malabar coaſt, from the Gulf of Cambay to Cape Comorin. He was frequently attacked on this ſervice by the different piratical ſtates. At one time, when he had near ſeventy ſail of ſhips and veſſels under his charge, he was aſſailed by a large fleet of Angria's frigates and gallivats, full of men. With the Guardian, Bombay grab, and Drake bomb-ketch, he engaged the enemy, and kept them in cloſe action, whilſt his fleet got ſafe into Tellicherry. In this conflict he ſunk one of the enemy's largeſt gallivats, and obliged the reſt to ſeek for ſafety in Gheriah and Severndroog.

About the beginning of the year 1751, ſir William was appointed commander-in-chief of the Eaſt-India Company's marine forces, and hoiſted his broad pendant onboard the Protector, a fine ſhip of forty-four guns. On April 2d, 1755, he was ſent with the Protector, Guardian, Bombay grab, and Drake bomb, with ſome gallivats, to attempt ſuch of the ports belonging to Angria as lie to the northward of Gheriah, his principal fortreſs, and capital. The chief of theſe fortreſſes was Severndroog, where Angria's veſſels refitted and took ſhelter when they could not reach Gheriah. It was well defended by batteries along the ſhore, and the entrance of the harbour was ſecured by a ſtrong caſtle, on which were mounted ſeventy pieces of cannon. Angria's people conſidered Severndroog as their ſtrongeſt hold next to Gheriah. Sir William, having reconnoitred the place, and informed himſelf of its ſtrength, brought his ſhips with a leading wind cloſe to the caſtle-walls, and by a ſteady well-directed fire (whilſt the Drake threw in her bombs) ſoon brought on a parley, and in leſs than three hours the governor ſurrendered the caſtle, and the veſſels in the harbour; from hence ſir William went to Fort Victoria, which quickly followed the fate of Severndroog; and the next day four other forts were numbered in his conqueſts.

Sir William was next ſent with his little ſquadron to attack Gheriah, a place repreſented to be almoſt impregnable from the ſea. The ſquadron formed off Gheriah the 10th February, 1756. Sir William, in the Protector, led to the attack in one diviſion, whilſt another diviſion of frigates led the bomb-ketches in another line; a heavy and tremendous fire began on our part from the ſhips of the line, whilſt the ſhells were thrown with great ſucceſs from the bombs into the harbour, where all Angria's ſhips were hawled for ſafety; theſe were ſoon ſet on fire by the bombs; the fire from the caſtle and batteries ſoon ſlackened, and before the evening ſet in the caſtle ſurrendered, and Gheriah, and all its dependencies, fell into our hands. Thus ſhortly ended an enterpriſe, which, for many years, had been in contemplation by the European governments in India, but which was never before attempted, from an idea that no force ſufficient could be brought againſt the walls of this caſtle. Lord Clive, at this time a lieutenant-colonel, commanded the land-forces.

Sir William James, in an eminent manner, diſplayed his nautical abilities, by ſhowing that, in deſpite of a contrary monſoon, a communication between Bombay and the Coromandel coaſt may be effected in caſes of exigency. This paſſage was attempted by ſir William in the firſt inſtance, and he accompliſhed it in nearly as ſhort a time as it uſually was done in the favourable monſoon. It was of the utmoſt moment that he ſucceeded at the time he did, for by it, he confirmed to admiral Watſon (then in the Ganges) the intelligence of the war with France, and brought to his aſſiſtance five-hundred troops, by which the admiral and colonel Clive were enabled, in March 1757, to take Chandernagore, the chief of the French ſettlements in Bengal. In effecting this paſſage, the commodore croſſed the equator in the meridian of Bombay, and continued his courſe to the ſouthward as far as the tenth degree, and then was enabled to go as far to the eaſtward as the meridian of Atcheen-head, the north-weſt extremity of Sumatra, from whence, with the north-eaſt monſoon, which then prevailed in the bay of Bengal, he could with eaſe gain the entrance of the Ganges, or any port on the Coromandel coaſt.

In the year 1759, ſir William returned to his native country. The Eaſt-India Company preſented him with an elegant gold-hilted ſword, with a complimentary motto, expreſſive of their ſenſe of his gallant ſervices. Soon afterwards he was choſen a director, and continued a member of that reſpectable body more than twenty years; in which time he had filled both the chairs. He was fifteen years deputy-maſter of the corporation of the Trinity-houſe; a governor of Greenwich-hoſpital; ſerved two ſeſſions in parliament for Weſt Looe; and on the 25th of July, 1778, was created a baronet. He planned the reduction of Pondicherry during the American war, and received a rich ſervice of plate from the India company, as a teſtimony of their ſenſe of his ſkill and judgment in that affair. He died on the 16th December, 1783, aged 62. It is ſaid by a perſon who knew him intimately near thirty years, and was well acquainted with his profeſſional abilities, that as a thorough practical ſeaman, he was almoſt without an equal; as an officer, he was brave, vigilant, prompt, and reſolute; patient in difficulty, with a preſence of mind that ſeemed to grow from danger. *Pennant's View of Hindooſtan*, vol. i.

JAMES's, (St.) a town of Maryland, ſituated in Kent county, four miles ſouth-weſterly of the town of Cheſter.

JAMES, (Great and Little, St.) two of the ſmaller Virgin Iſles, ſituated in the King's Channel, eaſt of Tortula, and weſt of St. Thomas, between which and them is St. James's Paſſage.

JAMES's BAY lies at the bottom or moſt ſouthern part of Hudſon's Bay, with which it communicates, and divides New Britain from South Wales. It contains ſeveral iſlands, among which are Bear, Viners, Charleton, and Agomiſca, iſlands. Michipicaton river, which falls into Lake Superior, has its ſource towards this bay, from whence there is ſaid to be but a ſhort portage to Mooſe river, which falls into James's Bay.

JAMES, (CAPE St.) is the ſouthernmoſt extremity of Waſhington iſles, on the north-weſt coaſt of North America.

JAMES CITY, a county of Virginia, ten miles long and twelve broad, lying between Chickahominy and James's rivers. It contains 4070 inhabitants, including 2405 ſlaves.

JAMES CREEK, in Delaware, which empties into Delaware Bay, eleven miles below Hook Iſland. Dover, the ſeat of government, ſtands on this creek, five miles from its mouth.

JAMES FORT, on the north ſide of Loblollo Bay, in the iſland of Antigua, in the head of which is St. John's harbour.

JAMES DARTMOUTH FORT, a fortreſs at the confluence of Broad with Savannah river. It was erected under the Britiſh government, and deſigned as a defence of a commercial and political intercourſe with the Indians.

JAMES ISLAND, lies on the ſouth ſide of Charleſtown harbour, in South Carolina, oppoſite to Charleſtown, and contains about fifty families. It is ſeparated from John's Iſland on the weſtward by Stono river.

JAMES ISLAND, an iſland of Africa, about thirty miles up the river Gambia, where the Engliſh have a fort and factory.

JAMES RIVER, a navigable river of Virginia, called anciently *Powhatan* by the Indians, affords harbour for veſſels of any ſize in Hampton Road, but not in ſafety through the whole winter; and there is navigable water for them as far as Mulberry Iſland. A forty-gun ſhip goes to Jameſtown, and, lightening herſelf, may paſs to Harriſon's Bar, on which there is only fifteen feet water. Veſſels of 250 tons may go to Warwick; thoſe of 125 go to Rocket's, a mile below Richmond; from thence is about ſeven feet water to Richmond; and about the centre of the town 4½ feet, where the navigation is interrupted by falls, which, in a courſe of ſix miles, deſcend about eighty feet perpendicular. A canal is nearly or quite completed for the paſſing of boats by theſe falls. Above theſe the river is navigable for batteaux and canoes to within ten miles of the Blue Ridge, and even through the Blue Ridge a ton weight has been brought; and the expence would not be great, when compared with its objects, to open a tolerable navigation up Jackſon's River and Carpenter's Creek, to within twenty-five miles of Howard's Creek of Green Briar, both of which have then water enough to float veſſels into the Great Kanhaway. In ſome future ſtate of population, it is poſſible that its navigation may alſo be made to interlock with that of the Patowmac; and through that to communicate by a ſhort portage with the Ohio.

JAMES TOWN, formerly the metropolis of Virginia, and county-town of James City county. In 1777 it had but one family. The church and other buildings are mouldering to ruins. It is the oldeſt town in the ſettlements formed by the Engliſh in North America. It is ſituated on a peninſula, on the north ſide of James's river, thirty-two miles from Point Comfort, at the mouth of the river in Cheſapeak Bay. It is eight miles ſouth-ſouth-weſt of Williamſburgh, and ſixty-eight ſouth-eaſt by eaſt of Richmond. Lat. 37. 9. N.

JAMES's TOWN, in the iſland of Barbadoes, in the Weſt Indies, is ſituated in St. James's pariſh, on the weſt ſide of the iſland.

JAMES-TOWN, a borough and fair-town of Ireland, in the county of Leitrim, and province of Connaught; ſituated five miles north-weſt of Carrick on Shannon, and ſeventy-three north-weſt of Dublin. Lat. 53. 44. N. lon. 8. 15. W.

JAM'ESONE (George), an excellent painter, juſtly termed the Vandyke of Scotland, was the ſon of Andrew Jameſone, an architect; and was born at Aberdeen in 1586. He ſtudied under Rubens at Antwerp; and, after his return, applied with indefatigable induſtry to portraits in oil, though he ſometimes practiſed in miniature, and alſo in hiſtory and landſcape. His largeſt portraits were ſomewhat leſs than life. His excellence is ſaid to conſiſt in delicacy and ſoftneſs, with a clear and beautiful colouring; his ſhades not charged, but helped by varniſh, with little appearance of the pencil. When king Charles I. viſited Scotland in 1633, the magiſtrates of Edinburgh, knowing his majeſty's taſte, employed this artiſt to make drawings of the Scottiſh monarchs; with which the king was ſo pleaſed, that, inquiring for the painter, he ſat to him, and rewarded him with a diamond-ring from his own finger. It is obſervable, that Jameſone always drew himſelf with his hat on, either in imitation of his maſter Rubens, or on having been indulged in that liberty by the king when he ſat to him. Many of Jameſone's works are in both the colleges of Aberdeen; and the Sybils there, he is ſaid to have drawn from living beauties in that city. His beſt works are from the year 1630 to his death, which happened at Edinburgh in 1644.

JAM'ETZ, a town of France, in the department of the Meuſe, and chief place of a canton, in the diſtrict of Stenay: two leagues and half ſouth-eaſt of Stenay, and one and three quarters ſouth of Montmedy.

JA'MEZ, or YAM, a town of Africa, in the kingdom of Fonia.

JAM'JA, a town of Sweden, in the province of Blekingen: nine miles eaſt Carlſcrona.

IAM'IDÆ, certain prophets among the Greeks, deſcended from Iamus, a ſon of Apollo, who received the gift of prophecy from his father, which remained among his poſterity. *Pauſanias.*

JA'MIN, [Hebrew.] A man's name.

JAM'INITE, *ſ.* A deſcendant of Jamin.

JAM'LECH, [Hebrew.] A man's name.

JAM'MA GO'BA. See PHYTOLACCA.

JAM'MING, *ſ.* The act of incloſing any thing between two bodies ſo as to render it immoveable.

JAM'NEY, a town of Bohemia, in Chrudim: ſeventeen miles north-eaſt of Leutmiſchl.

JAM'NIA, the name of a place. 1 *Mac.*

JAM'NING, a mountain of Germany, in Upper Carniola: three miles ſouth of Retmanſdorf.

JAM'NITE, *ſ.* A native of Jamnia, an inhabitant of Jamnia. 2 *Mac.*

JAM'NITZ, a town of Moravia, in Znaym: nine miles weſt of Budwiz.

JAMOUR', a river of Africa, in the country of Benin, otherwiſe called CAMARONES.

JAM'SIO, a town of Sweden, in the province of Blekingen: thirty-two miles weſt of Carlſcrona.

JAMT'LAND, a province of Sweden, bordering on Norway, nearly of a circular form, about ſeventy miles in length, and ſixty in breadth, annexed to the crown of Sweden by the treaty of Roſchild, in the year 1658. It is in general a mountainous country, but the hills differ extremely from each other in appearance. The weſtern part of this province is over-run with vaſt craggy rocks and high mountains, which lie on the frontiers of Norway; and between theſe are deep valleys and rapid torrents. However, in ſome ſpots among the mountains, which are frequently covered with ſnow, one meets with fine verdure, and plenty of nutritive paſtures. In theſe parts the inhabitants houſe their cattle, even in ſummer time; and thus never fail of breeding fine cows, whoſe milk yields excellent butter; and yet they purchaſe beef and tallow from Norway. The eaſtern part of Jamtland is a champaign country, watered with ſeveral lakes and rivers, which abound with fiſh. And ſuch is the fertility of ſome ſpots of land in theſe parts, that in a good year, when the corn has not been nipt by the froſt, the neighbouring provinces are ſupplied with grain from hence. Barley is the grain that is moſtly ſown here: they alſo ſow a conſiderable quantity of rye, and ſome wheat. This country produces oats of an extraordinary goodneſs, and abounds in excellent turnips. Sometimes, indeed, the ſeverity of the froſt cauſes a ſcarcity of corn, and then the Jamtlanders are obliged to make bread of the pounded bark of trees; the rye-bread being reſerved for feſtivals. In this province many hands are employed in extracting iron from a kind of iron-ore, reſembling ſmall ſtones, which are collected in fenny places. Here are alſo alum-quarries, a white and porous calx, or chalky earth, ſandſtone, ſlate, the lapis ollarius, fine rock-cryſtals, lead-ore, two new-built copper-works, and a place where ſaltpetre is refined. That this country is very thinly inhabited, is evident from hence: that there are only ſix places where divine ſervice is performed every Sunday; that in ſome churches it is celebrated every other Sunday, and in others only every third Sunday; and that in all the reſt the congregations aſſemble but three or four times in a year. There is not ſo much as one town in Jamtland, and only eleven pariſhes, in which forty-ſix churches are erected. In all theſe pariſhes there are but ſeven hundred and ſeventeen chimneys. The inhabitants, for the moſt part, ſubſiſt by agriculture, grazing, hunting, and fiſhing. They alſo carry on a conſiderable trade with the Norwegians, whom they ſupply with ſalt-pans, ſteel, and iron-ware, and a kind of leather, dreſſed in a particular manner, ſo as entirely to keep out the water; of which they make ſhoes, boots, and even jackets, that are proof againſt wet. Every peaſant is obliged to contribute towards the ſubſiſtence of the ſoldiery; ſo that this country maintains a regiment of foot, or, according to others, of dragoons, at the expence of 31,609 dollars, and a troop of horſe, the charge of which is 6210 dollars.

JAMULMURAG', a town of Hindooſtan, in the circar of Cuddapa: five miles north-eaſt of Gandicotta.

JA'MYN (Amadis), a celebrated French poet in the 16th century. He is eſteemed the rival of Ronſard, who was his cotemporary and friend. He was ſecretary and chamber-reader in ordinary to Charles IX. and died about 1585. He wrote, 1. Poetical Works, 2 vols. 2. Philoſophical Diſcourſes to Paſicharis and Rodanthe, with ſeven academical diſcourſes. 3. A tranſlation of the Iliad of Homer, begun by Hugh Sabel, and finiſhed by Jamyn; with a tranſlation into French verſe of the three firſt books of the Odyſſey.

JA'NA, one of the names of Diana.

JANAGUR', a town of Hindooſtan, in the country of Guzerat: 100 miles weſt of Amedabad. Lat. 23. 30. N. lon. 70. 56. E. Greenwich.

JAN'DLSPRUNN, a town of Germany, in the archduchy of Auſtria: eight miles north-weſt of Aigen.

JAN'DUN, a town of France, in the department of the Ardennes, and chief place of a canton, in the diſtrict of Charleville: three leagues ſouth of Mezieres.

JANE, [from *John*.] The name of a woman.

JANE, *ſ.* A ſmall coin of Genoa:

The firſt which then refuſed me (ſaid he)
Certes was but a common courtiſane;
Yet ſhe refus'd to have adoe with me,
Becauſe I could not give her many a *Jane*. *Spencer.*

JANEI'RO, RIO DE. See Rio de Janeira.

*To* JAN'GLE, *v. n.* [*jangler*, Fr. *Skinner*.] To altercate; to quarrel; to bicker in words. *Now a low word.*—There is no error which hath not ſome appearance of probability reſembling truth, which when men, who ſtudy to be ſingular, find out, ſtraining reaſon, they then publiſh to the world matter of contention and *jangling*. *Raleigh.*

Good wits will be *jangling*; but, gentles agree,
This civil war of wits were much better us'd
On Navarre and his book-men. *Shakeſpeare.*

*To* JAN'GLE, *v. a.* To make to ſound untuneably:

Now ſee that noble and that ſovereign reaſon,
Like ſweet bells *jangled* out of tune and harſh. *Shakeſp.*

JAN'GLER, *ſ.* A wrangling, chattering, noiſy, fellow.—News-carriers, *janglers*, and ſuch-like idle companions. *Brewer's Lingua.*

JANIC'ULUM, or Janicularius Mons, one of the ſeven hills at Rome, joined to the city by Ancus Martius, and made a kind of citadel, to protect the place againſt an invaſion. This hill, which was on the oppoſite ſhore of the Tiber, was joined to the city by the bridge Sublicius, the firſt ever built acroſs that river, and perhaps in Italy. It was leſs inhabited than the other parts of the city, on account of the groſſneſs of the air, though from its top the eye could have a commanding view of the whole city. It is famous for the burial of king Numa and the poet Italicus. Porſenna, king of Etruria, pitched his camp on mount Janiculum, and the ſenators took refuge there in the civil wars, to avoid the reſentment of Octavius. *Livy.*

JANIDU'NI, a town of European Turkey, in Beſſarabia, ſituated on the Black Sea: forty miles weſt-ſouth-weſt of Otchakov.

JANI'PHA. See Gardenia and Iatropha.

JANISZ'KI, a town of Samogitia: thirty-ſix miles north-north-eaſt of Medniki.

JANIVEE'R, the old name for January:

I will ſing what I did leere
Long ago in *Janiveere*. *Browne.*

JAN'IZARIES, *ſ.* An order of infantry in the Turkiſh armies; reputed the grand ſignior's foot-guards. Voſſius derives the word from *genizers*, which, in the Turkiſh language, ſignifies *novi homines* or *milites*. D'Herbelot tells us, that *jenitcheri* ſignifies a new band, or troop; and that the name was firſt given by Amurath I. called the Conqueror, who chooſing out one-fifth part of the Chriſtian priſoners whom he had taken from the Greeks, and inſtructing them in the diſcipline of war and the doctrines of their religion, ſent them to Hagi Bektaſche (a perſon whoſe pretended piety rendered him extremely revered among the Turks), to the end that he might confer his bleſſing on them, and at the ſame time give them ſome mark to diſtinguiſh them from the reſt of the troops. Bektaſche, after bleſſing them in his manner, cut off one of the ſleeves of the fur-gown which he had on, and put it on the head of the leader of this new militia; from which time, viz. the year of Chriſt 1361, they have ſtill retained the name *jenitcheri*, and the fur cap.

As, in the Turkiſh army, the European troops are diſtinguiſhed from thoſe of Aſia, the janizaries are alſo diſtinguiſhed into janizaries of Conſtantinople, and of Damaſcus. Their pay is from two aſpers to twelve per diem; for, when they have a child, or do any ſignal piece of ſervice, their pay is augmented. Their dreſs conſiſts of a dolyman, or long gown, with ſhort ſleeves, which is given them annually by the grand ſignior on the firſt day of Ramazan. They wear no turban; but, in lieu of that, a kind of cap, which they call *zarcola*, and a long hood of the ſame ſtuff hanging on their ſhoulders. On ſolemn days they are adorned with feathers, which are ſtuck in a little caſe on the fore part of the bonnet. Their arms, in Europe in time of war, are a ſabre, a carabine or muſket, and a cartouch-box hanging on the left ſide. At Conſtantinople, in time of peace, they wear only a long ſtaff in their hand. In Aſia, where powder and fire-arms are more uncommon, they wear a bow and arrows, with a poignard, which they call *haniare*.

Though the janizaries are not prohibited marriage, yet they rarely marry, nor then but with the conſent of their officers; as imagining a married man to make a worſe ſoldier than a bachelor. It was Oſman or Ottoman, or, as others will have it, Amurath, who firſt inſtituted the order of janizaries. They were at firſt called *jaja*, that is, footmen, to diſtinguiſh them from the other Turks, the troops whereof conſiſted moſtly of cavalry. The number of janizaries is generally above 40,000; divided into 162 companies or chambers, called *odas*, in which they live together at Conſtantinople as in a convent. They are of a ſuperior rank to all other ſoldiers, and are alſo more arrogant and factious, and it is by them that the public tranquillity is moſtly diſturbed. The government may therefore be ſaid to be in the hands of the janizaries. They have, however, ſome good qualities; they are employed to eſcort travellers, and eſpecially ambaſſadors and perſons of high rank, on the road; in which caſe, they behave with the utmoſt zeal and fidelity.

JAN'NA, or Jan'nina, a town of European Turkey, in the province of Theſſaly. It is a conſiderable town, and the ſee of a Greek biſhop; ſituated on a lake, which communicates with the river Peneus. The province, by the Turks, is called *Janna*, from this town: forty miles weſt of Lariſſa, and 340 eaſt of Conſtantinople.

JAN'NA. See Thessaly.

JAN'NAH, [Heb. one who anſwers.] A man's name.

JAN'NES, [Hebrew.] A man's name.

JAN'NOCK, *ſ.* [probably a corruption of *bannock*.] Oat-bread. *A northern word.*

JAN'OAH, [Hebrew.] The name of a city.

JAN'OHAH, [Hebrew.] The name of a place.

JANOVIT'ZA, a town of Croatia: five miles eaſt of Ivannitz.

JANOW', a town of Poland, in the palatinate of Kaminiec: forty-four miles north-north-weſt of Kaminiec.

JANOW', a town of Poland, in the palatinate of Lublin: thirty-ſix miles ſouth of Lublin.

JANOW', a town of Lithuania, in the palatinate of Brzeſk: twenty-four miles ſouth-weſt of Pinſk.

JANOW', a town of Lithuania, in the palatinate of Brzeſk: ſixteen miles weſt-ſouth-weſt of Brzeſk.

JANOWIEC'Z, a town of Poland, in the palatinate of Sandomirz: ſixteen miles eaſt of Radom.

JANOW'KA, a town of Poland, in the palatinate of Volhynia: forty miles north-eaſt of Zytomiers.

JANOWOW', a town of Poland, in the palatinate of Lemberg: ſixteen miles weſt-ſouth-weſt of Lemberg.

JANOZ'KI (John Daniel), canon of Kiow and Scarbinur, librarian of the Zaluſki library at Warſaw, was born at Wieborg in 1720. He diſtinguiſhed himſelf by his literary talents; and by ſeveral uſeful works, which he publiſhed, rendered great ſervice to the literary hiſtory of Poland. He died in 1786. His principal works are: 1. Letters on Criticiſm, 1745-1746, 2 vols. 8vo. 2. Account of rare Poliſh Books in the Zaluſki Library, Breſlaw, 1747-1753, 8vo. Janozki conceived the idea of a work of this kind at a very early age; but was deterred from the undertaking by the great ſcarcity of Poliſh books in Germany. Being appointed librarian of the Zaluſki library at Warſaw, a magnificent collection, which contains the rareſt Poliſh works, he reſolved to carry his former plan into execution, and while engaged in this labour met with every encouragement from the royal poſſeſſor. In this work he gives the titles of the books at full length, together with their contents; relates the hiſtory of them; makes known his opinion of their merits; and interſperſes the whole with intereſting anecdotes, reſpecting the lives, ſervices, and characters, of the authors. 3. A Dictionary of living Authors in Poland, two parts, Breſlaw, 1755, 8vo. 4. Polonia Literata noſtri Temporis; Vratis, 1750-1756, 8vo. 5. Excerptum Polonicæ Literaturæ hujus atque ſuperioris Ætatis, 1764-1766. 6. Muſarum Sarmaticarum Specimina nova, 1771, 8vo. 7. Sarmatica Literatura noſtri Temporis Fragmenta, Warſoviæ, 1773, 8vo. 8. *Janociana*, ſive clarorum atque illuſtrium Virorum Poloniæ Auctorum, Mecenatumque Memoriæ miſcellæ, tom. ii. 1776-1779, 8vo. In this work Janozki gives a further account of the Poliſh writers and of their productions. His information, beſides authors, comprehends alſo the friends and promoters of the ſciences, whether Poles or foreigners, ſettled in that country; and therefore it includes an account of learned men of various nations. The names are arranged alphabetically.

JANRA'JA, *ſ.* in botany. See RAJANIA.

JAN'SALOOM. See JUNKSEILON.

JANS'DORF, a town of Bohemia, in Chrudim: three miles ſouth-eaſt of Leutmiſchl.

JAN'SEN (Cornelius), a learned Flemiſh prelate in the ſixteenth century, was born at Hulſt in the year 1510. After purſuing the firſt part of his academical ſtudies at Ghent, and finiſhing his philoſophy at Louvain, he applied himſelf to the ſtudy of theology, and particularly of the Scriptures. He officiated as profeſſor of theology for twelve years in the abbey of Tongerloo, belonging to the Prémontré order; during which time he wrote his *Concordia Evangelica*, accompanied with a commentary, containing the ſubſtance of the lectures which he had read to the canons regular of that abbey. He was ſent by Philip II. to the famous council of Trent, where he made himſelf reſpected by his learning and modeſty; and upon his return to Flanders in 1568, he was nominated the firſt biſhop of Ghent. After he had worthily filled that poſt for eight years, he died at Ghent in 1576, when about ſixty-ſix years of age. Dupin pronounces him one of the moſt uſeful commentators upon the Scriptures who lived in the ſixteenth century. He wrote, in the Latin language; A Paraphraſe on the Pſalms, with numerous extenſive notes, printed at Louvain in 1569; Notes on the Books of Proverbs, Eccleſiaſticus, the Canticles and the Book of Wiſdom, printed after the author's death, in 1586; Commentaries upon ſome Paſſages in the Old Teſtament, &c.

JAN'SENISM, *ſ.* [In church hiſtory.] The tenets or principles of the Janſeniſts.

JAN'SENIST, *ſ.* A follower of Janſenius. See JANSENIUS (Cornelius).

JANSE'NIUS (James), a learned profeſſor of divinity at Louvain, was born at Amſterdam in the year 1547. His parents, who were catholics, deſigned him for the eccleſiaſtical profeſſion. Accordingly, after he had been inſtructed in grammar-learning, he was ſent to the univerſity of Louvain in 1564, to ſtudy philoſophy and theology. In the year 1575, he was admitted a licentiate in divinity; and in 1614, appointed firſt preſident of the new Auguſtine college. He was made dean of the collegiate church of St. Peter's at Louvain. He died in 1625, when about ſeventy-eight years of age. His works, particularly ſuch as are exegetical, are held in much eſteem. The principal of them are, 1. Expoſitio in Prophetam Job, folio. 2. Commentarius & Expoſitio in Pſalmos Davidicos, 4to. 3. Commentarius in Canticum Canticorum, 8vo. 4. Expoſitio in Evangel. Joann. 8vo.

JANSE'NIUS (Cornelius), the celebrated biſhop of Ypres, and leader of the ſect called after his name, was deſcended from Catholic parents, and born at the village of Acoy, near Leerdam, in Holland, in the year 1585. He commenced his ſtudies at Utrecht; whence he removed to Louvain in the year 1602. In the year 1617 he took his degree of doctor of divinity with great reputation, and was admitted one of the profeſſors in ordinary of that faculty. In this department he exhibited evidence of ſuch learning and abilities, and conducted himſelf with ſo much propriety, that he acquired the reſpect and eſteem of all the members of the univerſity, and his advice and talents were employed in the management of their concerns of moment and delicacy. The Jeſuits having embarked in ſome undertakings which interfered with the privileges of the univerſity of Louvain, no perſon was thought ſo well qualified as Janſenius to be ſent their ambaſſador to the king, to defend their rights againſt the encroachments of thoſe fathers. This appointment occaſioned him to take two journeys into Spain, one in 1624, and the other 1625; and the ſucceſs of both is a proof of the dexterity and prudence of his negociations. In the year 1630 he engaged in controverſy with the Proteſtants. What gave riſe to this, was an edict of the States-general in the year 1629, prohibiting the public exerciſe of the Romiſh religion in Bois-le-duc, and appropriating the eccleſiaſtical revenues of the mayoralty of that city to the ſervice of the proteſtant religion, which four miniſters were appointed to preach there. The latter, finding that numerous calumnies were ſecretly propagated reſpecting their principles, publiſhed a manifeſto, in which they maintained that they taught nothing but the pure doctrine of the goſpel, and challenged their adverſaries to publiſh their objections to their ſentiments, in an open and manly manner. In anſwer to this manifeſto, Janſenius publiſhed a piece entitled, *Alexipharmacum*, &c. in the year 1630; on which Giſbert Voetus, one of the four miniſters who preached in Bois-le-duc, wrote remarks, which he publiſhed under the title of *Philonius Romanus correctus*. To theſe remarks Janſenius replied in a new work, entitled, *Notarum Spongia*, &c. printed in the year 1631. Four years afterwards Voetus publiſhed a large work, in anſwer to this piece, entitled, *Deſperata Cauſa Papatus*; but Janſenius thought proper to withdraw from the field. The controverſy, however, was prolonged by other combatants, as the reader may learn from Bayle.

About the year 1634, Janſenius was engaged in another controverſy, which may be called a proteſtant one. He was waited upon by Theodore Simonis, a wavering Roman-catholic, who entreated him to ſolve ſome doubts which he entertained reſpecting the pope's infallibility, the worſhip of the euchariſt, and ſome other points. As Janſenius was often puzzled with his objections, he told him one day, that he would not diſpute with him any longer by word of mouth, but in writing; and that he plainly ſaw that he had to do with a Roman-catholic who intended to join the proteſtants, and make it the ſubject of his boaſts that he had overcome him. Simonis was at firſt averſe to engage in a written diſputation, but at length conſented, and different communications paſſed between them on the ſubjects in queſtion. Their correſpondence terminated in a manner not very honourable to Janſenius; for the lodgings of Simonis were ſurrounded with ſoldiers, and himſelf threatened with the puniſhment due to heretics. The duke d'Arſchot's ſecretary was loud in his exclamations againſt him, and ſaid that there was wood enough in his maſter's foreſts to burn that heretic. It appears from the reſult, that Janſenius had inſtigated this arreſt of his opponent, in order to ſilence him by a more ſummary method than that of argumentation. As, however, the perſon who examined Simonis, in the name of the archbiſhop of Mechlin, declared that he found him to be a good catholic, and fully reſolved to perſevere in the Romiſh communion, the priſoner was ſet at liberty, and Janſenius was forced to pay the expences of the ſoldiers, &c.

At this time the Spaniards and the Dutch were at war;

and in the year 1634 a treaty was concluded between Louis XIII. king of France, and the States-general, according to the terms of which Louis engaged to join his forces with thoſe of the Dutch republic. This treaty exaſperated the paſſions of the king of Spain againſt the French court; and nothing could prove more acceptable to him than the ſevereſt philippics againſt the new confederacy. On this occaſion Janſenius took up the pen, and publiſhed, in 1635, a work entitled, *Mars Gallicus, ſeu de Juſtitia Armorum & Fœderum Regis Galliæ*; containing the moſt malignant and invidious exclamations againſt the ſervices which France continually rendered to the Proteſtants of Holland and Germany, to the great prejudice of the Romiſh religion. And it ſpeaks of the Dutch as rebels, who owed the republican liberty which they enjoyed to an infamous uſurpation. The ſpirit and language of this piece perfectly correſponded with the deep reſentment of the king of Spain; and in the ſame year in which it was publiſhed he rewarded the author for the zeal which he had diſplayed in his cauſe, by promoting him to the biſhopric of Ypres. It is ſaid, that the publication of this book was the firſt cauſe of the hatred which cardinal Richlieu entertained againſt Janſenius and his followers, and of the conſequent partiality which was ſhown by the court towards their enemies the Jeſuits. No ſooner had our new prelate taken poſſeſſion of his ſee, than he commenced the reform of the dioceſe; but he was prevented from finiſhing that good work by his death, in 1638, when he was only about fifty-three years of age. This event was occaſioned by the plague, to which he fell a ſacrifice, while with paternal ſolicitude he was adminiſtering ſpiritual and temporal ſuccour to thoſe of his dioceſans who were infected by that diſorder. He died highly reſpected, not only for his learning and other eminent qualifications, but alſo for his piety and virtues.

His moſt celebrated work, on which he employed the labour of more than twenty years, was entitled, *Auguſtinus, ſeu Doctrina Sancti Auguſtini de Humanæ Naturæ Sanctitate, Ægritudine Medicina, adverſus Pelagianos & Maſſilienſes*; folio. This work, which gave ſuch a wound to the Romiſh church as neither the power nor wiſdom of its pontiffs will ever be able to heal, is divided into three parts. The firſt is hiſtorical, and contains a relation of the Pelagian controverſy, which aroſe in the fifth century. In the ſecond, we find an accurate account and illuſtration of the doctrine of Auguſtine relating to the conſtitution and powers of the human nature, in its original, fallen, and renewed, ſtate. The third contains the doctrine of the ſame father relating to the aids of ſanctifying grace procured by Chriſt, and to the eternal predeſtination of men and angels. This treatiſe was attacked by the Jeſuits, who accuſed Janſenius of maintaining dangerous and heretical opinions; and afterwards, in 1642, obtained of pope Urban VIII. a formal condemnation of the treatiſe written by Janſenius; when the partiſans of Janſenius gave out that this bull was ſpurious, and compoſed by a perſon entirely devoted to the Jeſuits. After the death of Urban VIII. the affair of Janſeniſm began to be more warmly controverted, and gave birth to an infinite number of polemical writings concerning grace. And what occaſioned ſome mirth, was the titles which each party gave to their writings: one writer publiſhed *The Torch of St. Auguſtine*, another found *Snuffers for St. Auguſtine's Torch*, and father Veron formed *A Gag for the Janſeniſts*, &c. In the year 1650, ſixty-eight biſhops of France ſubſcribed a letter to pope Innocent X. to obtain an enquiry into, and condemnation of, the five following propoſitions, extracted from Janſenius's Auguſtinus: 1. Some of God's commandments are impoſſible to be obſerved by the righteous, even though they endeavour with all their power to accompliſh them. 2. In the ſtate of corrupted nature, we are incapable of reſiſting inward grace. 3. Merit and demerit, in a ſtate of corrupted nature, does not depend on a liberty which excludes neceſſity, but on a liberty which excludes conſtraint. 4. The Semipelagians admitted the neceſſity of an inward preventing grace for the performance of each particular act, even for the beginning of faith; but they were heretics in maintaining that this grace was of ſuch a nature, that the will of man was able either to reſiſt or obey it. It is Semipelagianiſm to ſay, that Jeſus Chriſt died, or ſhed his blood, for all mankind in general.

In the year 1652, the pope appointed a congregation for examining into the diſpute in relation to grace. In this congregation Janſenius was condemned; and the bull of condemnation publiſhed in May 1653, filled all the pulpits in Paris with violent outcries and alarms againſt the hereſy of the Janſeniſts. In the year 1656, pope Alexander VII. iſſued out another bull, in which he condemned the five propoſitions of Janſenius. However, the Janſeniſts affirm, that theſe propoſitions are not to be found in this book; but that ſome of his enemies, having cauſed them to be printed on a ſheet, inſerted them in the book, and thereby deceived the pope. At laſt Clement XI. put an end to the diſpute by his conſtitution of July 17, 1705; in which, after having recited the conſtitutions of his predeceſſors in relation to this affair, he declares, "That, in order to pay a proper obedience to the papal conſtitutions concerning the preſent queſtion, it is neceſſary to receive them with a reſpectful ſilence." The clergy of Paris, the ſame year, approved and accepted this bull, and none dared to oppoſe it. This is the famous bull *Unigenitus*, ſo called from its beginning with the words *Unigenitus Dei Filius*, &c. which occaſioned ſo much confuſion in France.

JAN'SI, a town of Hindooſtan, in the circar of Gohud: 110 miles ſouth of Agra, and thirty-eight eaſt of Narwa.

JANS'SEN (Abraham), hiſtory-painter, was born at Antwerp in 1569. He was cotemporary with Rubens, and alſo his competitor, and in many of the fineſt parts of the art was accounted not inferior to that celebrated maſter. It is reported, that having waſted his time and his ſubſtance by a life of diſſipation and pleaſure, and falling into neceſſitous circumſtances, which he imputed more to ill-fortune than to his own neglect of his buſineſs, he grew envious at the grandeur in which Rubens appeared, and impatient at his merit and ſucceſs; and with peeviſh inſolence challenged him to paint a picture with him only for fame, which he was willing to ſubmit to impartial judges. But Rubens rejected the propoſal, anſwering with modeſty, that he freely ſubmitted to him, and the world would certainly do juſtice to them both.

Sandrat, who had ſeen ſeveral of his works, aſſures us, that he not only gave a fine roundneſs and relief to his figures, but alſo ſuch a warmth and clearneſs to the carnations, that they had all the look of real fleſh; and his colouring was as durable as it was beautiful, retaining its original luſtre for a number of years. His moſt capital performance is ſaid to be a Reſurrection of Lazarus, which is in the cabinet of the elector palatine, and is an object of admiration to all who behold it.

JANS'SEN (Victor Honorius), hiſtory-painter, was born at Bruſſels in 1664, and was a diſciple of one Volders, under whoſe direction he continued for ſeven years; in which time he gave many proofs of a genius far ſuperior to thoſe who were inſtructed in the ſame ſchool. He afterwards went to Rome, where he attended particularly to the works of Raphael; he deſigned after the antique, and ſketched the beautiful ſcenes around that city; and in a ſhort time his paintings roſe in eſteem, and the principal nobility of Rome were deſirous to employ him. He aſſociated with Tempeſta, the celebrated landſcape-painter, for ſeveral years, and painted the figures in the works of that great maſter as long as they reſided together.

Janſſen compoſed hiſtorical ſubjects, both in a ſmall and a large ſize; but he found the demand for his ſmall pictures ſo conſiderable, that he was induced to paint moſt frequently in that ſize. During eleven years he continued at Rome, which barely ſufficed for his finiſhing thoſe pictures for which he was engaged; nor could he have been even then at his liberty, had he not limited himſelf to a number, and determined not to undertake more. Returning to Bruſſels, his performances were as much admired there as they had before been in Italy; but having married, and gradually become the father of eleven children, he was compelled to change his manner of painting in ſmall, and to undertake only thoſe of the large kind, as being more lucrative, more expeditious, and alſo more agreeable to his genius and inclination. He adorned moſt of the churches and palaces of his own country with his compoſitions. The invention of this artiſt was fruitful; he deſigned correctly, his colouring is natural and pleaſing, his pencil free, and the airs of his heads have beauty and elegance. As to the difference between his large and ſmall paintings, it is obſerved, that in correctneſs and taſte they had an equal degree of merit; but the colouring of the former appears more raw and cold than the colouring of the latter; and it is agreed, that for ſmall hiſtorical pictures he was preferable to all the painters of his time.

JANS'SEN (Cornelius), called *Johnſon*, an eminent painter of portraits, was born at Amſterdam (though in the Chronological Tables, and in Sandrat, it is improperly aſſerted, that he was born in London), and he reſided in England for ſeveral years; where he was engaged in the ſervice of king James I. and painted ſeveral excellent portraits of that monarch, as alſo of his children, and of the principal nobility of his court. He had not the freedom of hand nor the grace of Vandyck; but in other reſpects he was accounted his equal, and in the finiſhing his pictures ſuperior. His paintings are eaſily diſtinguiſhed by their ſmooth, clear, and delicate, tints, and by that character of truth and nature with which they are ſtrongly marked. He generally painted on board; and, for the moſt part, his draperies are black; probably becauſe the oppoſition of that tint made his fleſh colours appear more beautifully bright, eſpecially in his female figures. It is ſaid that he uſed a quantity of ultramarine in the black colours, as well as in his carnations; which may be one great cauſe of their preſerving their original luſtre even to this day. Frequently he painted in a ſmall ſize in oil, and often copied his own works in that manner. His fame began to be ſomewhat obſcured on the arrival of Vandyck in England; and the civil war breaking out ſome time after, induced him to return to his own country, where his paintings were in the higheſt eſteem. He died in 1625.

JANS'SEN (William). See Blaeu, vol. iii. p. 84.

IAN'THE, a girl of Crete, who married Iphis. See Iphis.

JANTONG', a town of Aſia, in the kingdom of Corea: ten miles ſouth of Long Kouang.

JAN'TRA, a river of European Turkey, which riſes near Kabrua, and runs into the Danube near Ruſeek in Bulgaria.

JAN'TY, *adj.* [corrupted from *gentil*, Fr.] Showy; fluttering.—This ſort of woman is a *janty* ſlattern: ſhe hangs on her clothes, plays her head, and varies her poſture. *Spectator.*

JANUA'RIUS, St. the patron-ſaint of Naples, where his head is occaſionally carried in proceſſion, in order to ſtay the eruption of Veſuvius. The liquefaction of his blood is a famous miracle at Naples. The ſaint ſuffered martyrdom about the end of the third century. When he was beheaded, a pious lady of Naples caught about an ounce of his blood, which has been carefully preſerved in a bottle ever ſince, without having loſt a ſingle grain of its weight. This of itſelf, were it equally demonſtrable, might be conſidered as a greater miracle than the circumſtance on which the Neapolitans lay the whole ſtreſs, viz. that the blood, which has congealed and acquired a ſolid form by age, is no ſooner brought near the head of the ſaint, than, as a mark of veneration, it immediately liquefies. This experiment is made three different times every year, and is conſidered by the Neapolitans as a miracle of the firſt magnitude. The ſubſtance in the bottle, which is exhibited for the blood of the ſaint, has been ſuppoſed to be ſomething naturally ſolid, but which melts with a ſmall degree of heat. When it is firſt brought out of the cold chapel, it is in its natural ſolid ſtate; but when brought before the ſaint by the prieſt, and rubbed between his warm hands, and breathed upon for ſome time, it melts; and this is the whole myſtery.

The head and blood of the ſaint are kept in a kind of preſs, with folding doors of ſilver, in the chapel of St. Januarius belonging to the cathedral church. The real head is probably not ſo freſh, and well preſerved, as the blood. On that account, it is not expoſed to the eyes of the public; but is incloſed in a large ſilver buſt, gilt and enriched with jewels of high value. This being what appears to the people, their idea of the ſaint's features and complexion are taken entirely from the buſt. The blood is kept in a ſmall repoſitory by itſelf.

JAN'UARY, the name of the firſt month of the year, according to the computation now uſed in the weſt. The word is derived from the Latin *Januarius*, a name given it by the Romans from Janus, one of their divinities, to whom they attributed two faces, becauſe on the one ſide the firſt day of January looked towards the new year, and on the other towards the old one. The word *Januarius* may alſo be derived from *Janua* "gate;" in regard this month being the firſt, is, as it were, the gate of the year.

January and February were introduced into the year by Numa Pompilius; Romulus's year beginning in the month of March. The kalends, or firſt day of this month, was under the protection of Juno, and in a peculiar manner conſecrated to Janus by an offering of a cake made of new meal and new ſalt, with new frankincenſe and new wine. On the firſt day of January a beginning was made of every intended work; the conſuls elect took poſſeſſion of their office, who, with the flamens, offered ſacrifices and prayers for the proſperity of the empire. On this day all animoſities were ſuſpended, and friends gave and received new-year's gifts, called *Stenæ*. On this day too, the Romans above all things took care to be merry and divert themſelves, and oftentimes ſuch a ſcene of drunkenneſs was exhibited, that they might with propriety enough have diſtinguiſhed it with the name of *All-fools' day*. The Chriſtians heretofore faſted on the firſt day of January, by way of oppoſition to the ſuperſtitions and debaucheries of the heathens.

JANVI'ER (Peter), a learned French monk, was born at St. Suſanne, in the dioceſe of Mans, in the year 1614. He entered into the Benedictine order in the year 1636, and diſtinguiſhed himſelf by his proficiency in literature, and particularly by the intimate knowledge which he acquired of the Hebrew language. After teaching it for ſeveral years, with great ſucceſs and reputation, he employed himſelf in collecting and reviſing the works of Peter de Celles, who died biſhop of Chartres in 1187. Of theſe he publiſhed an edition in 1671, in one volume quarto, with a preface written by father Mabillon. Five years before this, he had publiſhed at Paris, a Latin verſion of Rabbi David Kimchi's Hebrew Commentary on the Pſalms, 4to. He died at the abbey of St. Germain des Prés, at Paris, in 1682, when he was about ſixty-eight years of age. In the collection of Eulogies, &c. publiſhed on the death of the celebrated Jerome Bignon, the curious reader may find a tribute to his memory from the pen of father Janvier, written in the Hebrew tongue.

JAN'VILLE, a town of France, and principal place of a diſtrict, in the department of the Eure and Loire: ſeven leagues ſouth-eaſt of Chartres, and ſix ſouth-ſouth-weſt of Eſtampes. Lat. 48. 12. N. lon. 19. 33. E. Ferro.

JA'NUM, [Hebrew.] The name of a city.

JA'NUS, the moſt ancient king who reigned in Italy. He was a native of Theſſaly, and ſon of Apollo, according to ſome. He came to Italy, where he planted a colony, and built a ſmall town on the river Tiber, which he called *Janiculum.* Some authors make him ſon of Cœlus and Hecate; and others make him a native of Athens. During his reign, Saturn, driven from heaven by his ſon Jupiter, came to Italy, where Janus received him with much hoſpitality, and made him his colleague on the throne. Janus is repreſented with two faces, becauſe he was acquainted with the paſt and the future; or, according to others, becauſe he was taken for the ſun, who opens the day at his riſing, and ſhuts it at his ſetting. Some ſtatues repreſented Janus with four heads. He ſometimes appeared with a beard, and ſometimes without. In religious ceremonies, his name was always invoked the firſt, becauſe he preſides over all gates and avenues, and it is through him only that prayers can reach the immortal gods. From that circumſtance, he often appears with a key in his right hand, and a rod in his left. Sometimes he holds the number three hundred in one hand, and in the other ſixty-five, to ſhow that he preſides over the year, of which the firſt month bears his name. Some ſuppoſe that he is the ſame as the world, or Cœlus; and, from that circumſtance, they call him Eanus *ab eundo,* becauſe of the revolution of the heavens. He was called *Patulcius et Clauſius,* becauſe the gates of his temples were opened during the time of war, and ſhut in time of peace. He was chiefly worſhipped among the Romans, where he had many temples, ſome erected to Janus Bifrons, others to Janus Quadrifrons. The temples of Quadrifons were built with four equal ſides, with a door and three windows on each ſide. The four doors were the emblems of the four ſeaſons of the year, and the three windows in each of the ſides the three months of each ſeaſon, and, all together, the twelve months of the year. Janus was generally repreſented in ſtatues as a young man. After death, Janus was ranked among the gods for his popularity, and the civilization which he had introduced among the wild inhabitants of Italy. His temple, which was always open in times of war, was ſhut only three times during above ſeven hundred years, under Numa, 234 B.C. and under Auguſtus; and, during that long period of time, the Romans were continually employed in war.

Dr. Bryant obſerves, that all the chief circumſtances in the life of Noah correſpond with the hiſtory of Janus. By Plutarch (in Numa. Quæſt. Rom.) he is called Ιαννος, and repreſented as an ancient prince, who reigned in the infancy of the world; and who brought men from a rude and ſavage way of life to a mild and rational ſyſtem: who was alſo the firſt former of civil communities, and introducer of national polity. He had generally near him ſome reſemblance of a ſhip; particularly upon money, which in after-times was coined to his honour. Ovid ſeems to have been puzzled to find out the hiſtory and purport of this deity:

> Quem tamen eſſe deum dicam te, Jane biformis?
> Nam tibi par nullum Græcia numen habet. *Faſti,* lib. i.

The Romans indeed had in a manner appropriated him to themſelves. There were however many divinities ſimilar to him both in Greece and Egypt. To him was attributed the invention of a ſhip; and he is ſaid to have firſt compoſed a chaplet. Upon the Sicilian coins of Eryx his figure often occurs with a two-fold countenance; and on the reverſe is a dove encircled with a crown, which ſeems to be of olive. He was repreſented as a juſt man, and a prophet; and the remarkable characteriſtic of being in a manner the author of time, and god of the year. He was ſtiled *Matutinus*; as if to him was owing the renewal of light and day. There was a tradition that he raiſed the firſt temple to heaven; though they looked upon him as a deity, and one of the eight original divinities. In the hymns of the Salii he was ſtiled the god of gods. In this and many other reſpects he was ſimilar to the Cronos of the Greeks. He had the title of Junonius, from the Arkite dove Iönah, which the Latins expreſſed Juno. He is ſtiled *templorum poſitor, templorum ſanctè refector*: by which is meant, that he was a renewer of religious rites, and the worſhip of the deity. He was reputed the ſame as Apollo; and had the title of Θυραιος, or the deity of the door, or paſſage; and his altars were placed immediately before the door of the houſe, or temple, where his rites were celebrated. In memorial of his hiſtory, every door among the Latins had the name of Janua; and the firſt month of the year was named Januarius, as being an opening to a new æra, and in ſome degree a renewal of time.

JA'NUSPOL, a town of Poland, in the palatinate of Volhynia: twenty-four miles weſt of Berdiczow.

JANZE', a town of France, in the department of the Ille and Villaine, and chief place of a canton, in the diſtrict of La Guerche: three leagues and a half weſt of La Guerche, and one and three quarters ſouth of Chateau Giron.

JAO-PIN', a town of China, of the third rank, in the province of Quang-tong: twenty-two miles north-eaſt of Tchao.

JAPAN'. The kingdom, or rather empire, of Japan, has by moſt geographers been claſſed among the Aſiatic iſles, and has in conſequence been treated with more brevity than its importance demands; for, excepting China, no exiſting Aſiatic monarchy can aſpire to a ſuperior rank, or is more calculated to excite rational curioſity, from the ſingularity of its government, abundant population, progreſs in the arts of life, and peculiar manners of the people. The Japaneſe iſlands may, in ſome meaſure, be compared with Great Britain and Ireland, forming a grand inſular power near the eaſtern extremity of Aſia, like that of the Britiſh iſles near the weſtern extremity of Europe.

Marco Polo, the father of modern Aſiatic geography, mentions Japan by the name of *Zipangri* or *Zipangu.* The inhabitants themſelves call it *Nipon* or *Niſon,* and the Chineſe *Sippon* and *Jepuen*; both names ſignifying the Baſis of the Sun. This empire extends from the 30th to the 41ſt degree of north latitude; and, according to the moſt recent maps, from the 131ſt to the 142d degree of eaſt longitude from Greenwich. Beſides many ſmaller iſles, it preſents two conſiderable ones in the ſouth-weſt, that of Kiuſiu, and that of Sikokf. But by far the moſt important iſland is that of Nipon, to the north-eaſt of the two former. The geography of Kæmpfer has been corrected by recent voyages, according to which the length of Kiuſiu from north to ſouth is about two degrees, or 140 Britiſh miles; the greateſt breadth about 90. Sikokf is about 90 Britiſh miles in length by half the breadth. The grand iſle of Nipon is in length from ſouth to north-eaſt not leſs than 750 Britiſh miles; but is ſo narrow in proportion, that the medial breadth cannot be aſſumed above 80, though in two projecting parts it may double that number. To the north of Nipon is another large iſle, that of Jeſſo or Chicha, which, having received ſome Japaneſe colonies, is generally regarded as ſubject to Japan; but, being inhabited by a ſavage people, is rather conſidered as a foreign conqueſt than as a part of this civilized empire.

The original population of Japan has been little illuſtrated; but the Japaneſe ſeem to be a kindred race with the Chineſe, though, according to Kæmpfer, the languages are radically diſtinct. The Japaneſe, however, acknowledge their government and civilization to have been derived from China. Sin Noo, one of theſe Chineſe monarchs admitted by the Japaneſe into their annals, is repreſented with the head of a bull, or with two horns, as having taught the uſe of agriculture and herds; perhaps the ſimple and natural origin of the Jupiter Ammon, and ſimilar images of claſſical antiquity.

According to Dr. Thunberg's reſearches, the Japaneſe have never been ſubdued by any foreign power, not even in the moſt remote periods; their chronicles contain ſuch accounts of their valour, as one would rather incline to conſider as fabulous inventions than actual occurrences, if later ages had not furniſhed equally ſtriking proofs of it.

When the Tartars, for the firſt time, in 799, had over-run part of Japan, and when, after a conſiderable time had elapſed, their fleet was deſtroyed by a violent ſtorm in the courſe of a ſingle night, the Japaneſe general attacked and ſo totally defeated his numerous and brave enemies, that not a ſingle perſon ſurvived to return and carry the tidings of ſuch an unparalleled defeat. In like manner when the Japaneſe were again, in 1281, invaded by the warlike Tartars, to the number of 240,000 fighting men, they gained a victory equally complete. The extirpation of the Portugueſe, and with them of the Chriſtian religion, towards the beginning of the 17th century, was ſo complete, that ſcarcely a veſtige can now be diſcerned of its ever having exiſted there.

With reſpect to the government of theſe iſlands, it is, and has been for a long time, monarchical; though formerly it ſeems to have been ſplit into a great number of petty kingdoms, which were at length all ſwallowed by one. Anciently, the emperors were likewiſe ſovereign pontiffs, under the title of *dairos*, (a name ſuppoſed to have been derived from Dairo, the head of that family;) at which time, their perſons and dignity were held ſo ſacred, that not only every rebellion againſt them, but even every contravention to their decrees, whether in civil or religious matters, was deteſted as a crime againſt heaven itſelf. They were, in ſome meaſure, worſhipped by all their ſubjects, and aſſumed ſuch ſtate as if they had been partakers of a divine nature. They never ſet their feet upon the ground, nor ſuffered the ſun to ſhine or wind to blow upon them. They never wore their clothes above one day, and never ate twice out of the ſame diſhes. In a word, all their furniture, veſſels, and utenſils, belonging to bed or board, were renewed every day. They never cut their hair or beard, nor pared their nails. They kept themſelves as much as poſſible from being publicly ſeen, and were chiefly waited on by twelve wives, whom they married with great ſolemnity. The titles they aſſumed, and by which they were addreſſed, came little ſhort of blaſphemy, and the manner of approaching them ſavoured ſtrongly of idolatry. Whoſoever appeared in their preſence were obliged to proſtrate themſelves flat upon the ground, and in that humble ſituation preſent their petition, anſwer their queſtions, and receive their commands. And as the emperor lived thus in ſplendour, luxury, and effeminacy, he committed the chief care of the civil, and all the military, affairs to his prime miniſter, who was ſtyled *cubo*, or generaliſſimo of all the forces; which dignity was commonly beſtowed on one of his youngeſt ſons, for the eldeſt always inherited his father's throne. About the beginning of the ſixteenth century, ſuch a dreadful civil war broke out, and laſted ſo many years, that the empire was quite ruined. During theſe diſtractions and confuſions, a common ſoldier, by name Tayckoy, a perſon of obſcure birth, but of an enterpriſing genius, found means to raiſe himſelf to the imperial dignity; having, in little more than three years time, by an uncommon ſhare of good fortune, ſubdued all his competitors and opponents, and reduced all their cities and caſtles. The dairo, not being in a condition to obſtruct or put a ſtop to his progreſs, was forced to ſubmit to his terms; and might perhaps have been condemned to much harder, had not Tayckoy been apprehenſive leſt his ſoldiers, who ſtill revered their ancient natural monarch, ſhould have revolted in his favour. To prevent this, he granted him the ſupreme power in all religious matters, with great privileges, honours, and revenues, annexed to it; whilſt himſelf remained inveſted with the whole civil and military power, and was acknowledged and proclaimed king of Japan. This great revolution happened in 1517, and Tayckoy reigned ſeveral years with great wiſdom and tranquillity; during which he made many wholeſome laws and regulations, which ſtill ſubſiſt, and are much admired to this day. At his death, he left the crown to his ſon Tayckoſſama, then a minor; but the treacherous prince, under whoſe guardianſhip he was left, deprived him of his life before he came of age. By this murder, the crown paſſed to the family of Jejaſſama, in which it ſtill continues. Tayckoy and his ſucceſſors have contented themſelves with the title of *cubo*, which, under the dairos, was that of prime miniſter, whoſe office is now ſuppreſſed; ſo that the *cubo*, in all ſecular concerns, is quite as abſolute and deſpotic, and has as extenſive a power over the lives and fortunes of all his ſubjects, from the petty kings down to the loweſt perſons, as ever the dairos had. The *dairo* reſides conſtantly at Meaco, and the *cubo* at Jeddo.

The religion throughout Japan, it is well known, is pagan, ſplit into ſeveral ſects, who live together in the greateſt harmony. Every ſect has its own temples and prieſts. The ſpiritual emperor, the dairi, is the chief of their religion. They acknowledge and honour a Supreme Being. The author of this relation (Dr. Thunberg) ſaw two temples of the God of gods of a majeſtic height. The idol that repreſented this god was of gilded wood, and of ſo prodigious a ſize, that upon his hands ſix perſons might ſit in the Japaneſe faſhion; his ſhoulders were five toiſes broad. In the other temple, the infinite power of this god was repreſented by little gods to the number of 33,333, all ſtanding round the great idol that repreſented God. The prieſts, who are numerous in every temple, have nothing to do but to clean the pavement, light the lamps, and dreſs the idol with flowers. The temples are open to every body, even to the Dutch; and in caſe they are in want of a lodging in the ſuburbs, when they go to the court of Jeddo, they are entertained with hoſpitality in theſe temples. All the ſects agree in obſerving the five following maxims, or precepts: Not to kill, or to eat any thing that is killed; not to ſteal; not to defile another man's bed; not to lie; nor to drink wine.

Chriſtianity, if popery deſerves that name, had once made a conſiderable progreſs in this country, in conſequence of a miſſion conducted by Portugueſe and Spaniſh Jeſuits; amongſt whom the famous ſaint Francis Xavier was employed, but ſoon relinquiſhed the ſervice. There were alſo ſome Franciſcan friars of Spain engaged at laſt. The Jeſuits and friars were ſupplied from Goa, Macao, and the Manillas. At firſt the undertaking proceeded with rapid ſucceſs, but ended at laſt in the moſt tragical manner, owing to the pride and haughtineſs, the miſconduct, rapacity, and extravagant conſpiracy of the fathers againſt the ſtate. This folly and madneſs produced a perſecution of forty years duration, terminated by a moſt horrible and bloody maſſacre, not to be paralleled in hiſtory. After this the Portugueſe, as likewiſe the Chriſtian religion, were totally expelled the country, and the moſt effectual means taken for preventing their return. The natives are for this purpoſe prohibited from going out of the country; and all foreigners are excluded from an open and free trade; for, as to the Dutch and Chineſe, under which laſt name ſome other eaſtern nations go thither, they are ſhut up whilſt they remain there, and a moſt ſtrict watch is ſet upon them, inſomuch that they are no better than priſoners; and the Dutch, it is ſaid, to obtain a privilege even ſo far, declared themſelves *to be no Chriſtians, but Dutchmen*.

It was about the year of Chriſt 1549, or ſix years after the firſt diſcovery, that the fathers of the ſociety arrived there, being induced by the favourable repreſentations of a young Japaneſe who had fled to Goa. Till the year 1625, or near 1630, the Chriſtian religion ſpread through moſt of the provinces of the empire, many of the princes and lords openly embracing it; and there was very good reaſon to hope, that within a ſhort compaſs of time the whole empire would have been converted to the faith of our Saviour, had not the ambitious views, and the impatient endeavours of the fathers to reap the temporal as well as the ſpiritual fruits of their care and labour, ſo provoked the ſupreme majeſty of the empire, as to raiſe againſt themſelves and their converts a perſecution which hath not its parallel in hiſtory, whereby the religion they preached, and all thoſe that profeſſed it, were in a few years time entirely exterminated. The fathers had made a progreſs ſo great, that the princes of Bungu, Arima, and Omura, who had been baptized, ſent, in the year 1582, ſome of their neareſt relations, with letters and preſents, to pay homage to the then pope Gregory XIII. and to aſſure his holineſs of their filial ſubmiſſion to the church; an account of which moſt celebrated embaſſy has been given in the works of that incomparable hiſtorian, Thuanus, and by many other Roman-catholic writers.

But, notwithſtanding this pleaſing proſpect, the emperor, anno 1586, iſſued proclamations for the ſuppreſſion of the religion; and the perſecution began. This, however, at firſt had not that effect which the government expected; for though, according to the letters of the Jeſuits, 20,570 perſons ſuffered death for the faith of Chriſt in the year 1590 only, yet in 1591 and 1592, when all the churches were actually ſhut up, they made 12,000 new converts. The buſineſs was finally concluded by the maſſacre at Simabara, about the year 1640. The reaſons of the emperor's proclamations, making it death to embrace the religion, were as follows: 1. The new religion occaſioned conſiderable alterations in the Japaneſe church, and was prejudicial in the higheſt degree to the heathen clergy. 2. It was feared the innovation in religion might be attended with fatal conſequences even in regard to the ſick. But what more immediately gave riſe to them was, as the Japaneſe of credit confeſſed to Dr. Kæmpfer, pride and covetouſneſs; pride among the great ones, and covetouſneſs in people of leſs note; the ſpiritual fathers aiming not only at the ſalvation of their ſouls, but having an eye alſo to their money and lands; and the merchants diſpoſing of their goods in the moſt uſurious and unreaſonable manner. To confine ourſelves to the clergy here: they "thought it beneath their dignity to walk on foot any longer; nothing would ſerve them but they muſt be carried about in ſtately chairs, mimicking the pomp of the pope and his cardinals at Rome. They not only put themſelves on an equal footing with the greateſt men of the empire, but, ſwelled with eccleſiaſtical pride, fancied that even a ſuperior rank was nothing but their due. It one day happened that a Portugueſe biſhop met upon the road one of the counſellors of ſtate on his way to court. The haughty prelate would not order his chaiſe to be ſtopped, in order to alight and to pay his reſpects to this great man, as is uſual in that country; but, without taking any notice of him, nay, indeed without ſhowing him ſo much as common marks of civility, he very contemptuouſly bade his men carry him by. The great man, exaſperated at ſo ſignal an affront, thenceforward bore a mortal hatred to the Portugueſe, and, in the height of his reſentment, made his complaint to the emperor himſelf, with ſuch an odious picture of the inſolence, pride, and vanity, of this nation, as he expected could not but raiſe the emperor's utmoſt indignation." This happened in 1566. The next year the perſecution began a-new; and twenty-ſix perſons, of the number whereof were two foreign Jeſuits, and ſeveral other fathers of the Franciſcan order, were executed on the croſs. The emperor Jiojas had uſurped the crown on his pupil Tidajori, who, as likewiſe the greater part of his court and party, had been either Chriſtians themſelves, or at leaſt very favourably inclined to that religion; ſo that reaſons of ſtate mightily co-operated to forward the perſecution.

Some Franciſcan friars, whom the governor of the Manillas had ſent as his ambaſſadors to the emperor of Japan, were guilty at this time of a moſt imprudent ſtep; they, during the whole time of their abode in the country, preached openly in the ſtreets of Macao, where they reſided; and of their own accord built a church, contrary to the imperial commands, and contrary to the advice and earneſt ſolicitations of the Jeſuits.

Some time after, a diſcovery of a dangerous conſpiracy, which the fathers, and the yet remaining adherents of their religion, entered into againſt the perſon of the emperor, as a heathen prince, put a finiſhing ſtroke to the affair, and haſtened the ſentence which was pronounced ſoon after, *that the Portugueſe ſhould for ever be baniſhed the emperor's dominions*; for till then the ſtate ſeemed deſirous to ſpare the merchants and ſecular perſons, for the purpoſe of continuing trade and commerce with them, which was looked upon as a thing independent of religion. The affair of the conſpiracy was as follows: The Dutch had had an eye to the trade of Japan before 1600; and in 1611 had liberty of a free commerce granted them by the imperial letters patent, and had actually a factory at Firando. The Dutch were at war with Spain, which was then ſovereign of the Portugueſe dominions; ſo that it was natural for them to be trying to ſupplant them. The Portugueſe, on their part, made uſe of all malicious inventions to blacken their characters, calling them rebels and pirates; whence it was natural for the Dutch to endeavour to clear, and even to revenge, themſelves. Now they took an homeward-bound Portugueſe ſhip near the Cape of Good Hope, on-board of which they found ſome traitorous letters to the king of Portugal, written by one captain Moro, who was chief of the Portugueſe in Japan, himſelf a Japaneſe by birth, and a great zealot for the Chriſtian religion. The Dutch took ſpecial care to deliver the ſaid letters to their protector the prince of Firando, who communicated them without loſs of time to the governor of Nagaſaki, a great friend to the Portugueſe. Captain Moro, having been taken up, boldly, and with great aſſurance, denied the fact, and ſo did all the Portugueſe then at Nagaſaki. However, neither the governor's favour, nor their conſtant denial, was able to clear them, and to keep off the cloud which was ready to break over their heads. Hand and ſeal convinced them; the letter was ſent up to court, and captain Moro ſentenced to be burnt alive on a pale, which was executed accordingly. This letter laid open the whole plot which the Japaneſe Chriſtians, in conjunction with the Portugueſe, had laid againſt the emperor's life and throne; the want they ſtood in of ſhips and ſoldiers, which were promiſed them from Portugal; the names of the Japaneſe princes concerned in the conſpiracy; and laſtly, to crown all, the expectation of the papal bleſſing. This diſcovery made by the Dutch was afterwards confirmed by another letter written by the ſaid captain Moro to the Portugueſe government at Macao, which was intercepted and brought to Japan by a Japaneſe ſhip."

Conſidering this, and the ſuſpicions which the court had then already conceived againſt the Portugueſe, it was no difficult matter thoroughly to ruin the little credit and favour they had as yet been able to preſerve; and the rather ſince the ſtrict imperial orders, notwithſtanding, they did not leave off privately to bring over more eccleſiaſtics. Accordingly, in the year 1637, an imperial proclamation was ſent to the governors of Nagaſaki, with orders to ſee it put in execution. It was then the empire of Japan was ſhut for ever both to foreigners and natives.

Now, although the governors of Nagaſaki, on receipt of theſe commands, took care they ſhould be obeyed, yet the directors of the Portugueſe trade maintained themſelves in Japan two years longer, hoping to obtain leave to ſtay in the iſland of Deſima, and there to continue their trade. But they found themſelves at laſt wholly diſappointed; for the emperor was reſolved to get rid of them; and on aſſurance given him by the Dutch Eaſt-India company that they would ſupply for the future what commodities had been imported by the Portugueſe, he declared the Portugueſe and the Caſtilians, and whoever belonged to them, enemies of the empire, forbidding the importation of even the goods of their country, Spaniſh wines only excepted, for the uſe of the court. And thus the Portugueſe loſt their profitable trade and commerce with Japan, and were totally expelled the country before the latter end of the year 1639 or 1640; and thus ended the fruitleſs popiſh miſſion in this empire; for the Portugueſe have never been able to reſtore themſelves; and the Dutch have it not in their power to do any one thing in favour of religion, were they ſo inclined; but, as it appears, they are very indifferent as to that, and are in but little credit with the Japaneſe.

The ſuperiority of the laws of Japan over thoſe of Europe has been loudly proclaimed by Kæmpfer. The parties themſelves appear, and the cauſe is determined without delay. Yet Kæmpfer's information on this head is defective, as he does not mention any code of laws. Thunberg informs us that the laws are few, but rigidly enforced, without regard to perſons, partiality, or violence. Moſt crimes are puniſhed with death, but the ſentence muſt be ſigned by the privy-council at Jeddo. Parents and relations are made anſwerable for the crimes of thoſe whoſe moral education they ought to have ſuperintended. The police is excellent, there being not only a chief magiſtrate of each town, but a commiſſary of each ſtreet, elected by the inhabitants to watch over the property and tranquillity. Two inhabitants, in their turn, nightly patrole the ſtreet to guard againſt fire. The beſt proof that the laws are ſalutary is, that few crimes are committed, and few puniſhments inflicted. The brief code, according to Thunberg, is poſted up in every town and village, in large letters, on a ſpot ſurrounded with rails.

The population of the Japaneſe empire is ſaid to be wonderfully great; and, though a conſiderable part of the country be mountainous, yet even the mountains are the objects of obſtinate cultivation. Thunberg obſerves that the capital, Jeddo, is ſaid to be ſixty-three Britiſh miles in circumference, and at any rate rivals Pekin in ſize. Many of the villages are three quarters of a mile in length; and ſome ſo long that it requires ſeveral hours to walk through them; and theſe large villages frequently occur at very ſhort diſtances. Kæmpfer ſays that the number of people daily travelling on the highways is inconceivable; and the *Tokaido*, the chief of the ſeven great roads, is ſometimes more crowded than the moſt frequented ſtreets of European capitals. Varenius the geographer, who juſtly eſteemed this country ſo intereſting as to deſerve a particular deſcription, has from the beſt authorities eſtimated the ſtanding army maintained by the princes and governors at 368,000 infantry and 38,000 cavalry; while the cubo-emperor maintains 100,000 foot and 20,000 horſe; thus conſtituting in all a regular force of 468,000 infantry, and 58,000 cavalry. It is probable that this army does not bear a greater proportion to the population than that of an European ſtate in time of peace; and, as the army doubles that of France under the monarchy, ſo the population may alſo be double. Perhaps a more ſafe eſtimate may be formed, by ſuppoſing the population of Japan to equal that of China; and, the former country being about one-tenth part the ſize of the latter, the population will be about 30,000,000.

The revenues of this empire are minutely ſtated by Varenius, according to princes and provinces, the ſum total being 2834 tons of gold, on the Flemiſh mode of computation; and, taking the ton at only 10,000l. ſterling, the amount would be 28,340,000l. ſterling, beſides the provinces and cities which are immediately ſubject to the emperor. Theſe revenues muſt not however be conſidered as national, being only yielded in coin to the various princes. The emperor, however, beſides the large revenues of his provinces, has a conſiderable treaſure in gold and ſilver, diſpoſed in cheſts of 1000 taels, each being nearly equal in value to a Dutch rix-dollar, or about 4s. 4d. Engliſh money.

Thunberg deſcribes the perſons of the Japaneſe in the following terms: "The people of this nation are well made, active, free and eaſy in their motions, with ſtout limbs, although their ſtrength is not to be compared to that of the northern inhabitants of Europe. They are of a yellowiſh colour all over, ſometimes bordering on brown, and ſometimes on white: ladies of diſtinction, who ſeldom go out in the air without being covered, are perfectly white. It is by their eyes that, like the Chineſe, theſe people are diſtinguiſhable. Theſe organs have not that rotundity which thoſe of other nations exhibit; but are oblong, ſmall, and ſunk deeper in the head; they are dark brown, or rather black; and the eye-lids form in the great angle of the eye a deep furrow, which makes the Japaneſe look ſharp-ſighted, and diſcriminates them from other nations: the eye-brows are alſo placed ſomewhat higher. Their heads are in general large, and their necks ſhort: their hair black, thick, and ſhining, from the uſe they make of oils. Their noſes, though not flat, are yet rather thick and ſhort."

This highly-civilized people muſt of courſe diſplay great diverſity of character; but the virtues far preponderate over the vices; and even their pride is uſeful, as it prevents them from ſtooping to the mean tricks of the maritime Chineſe. In all their tranſactions, the Japaneſe ſhow great intelligence; and their preſent mode of government, admirable ſkill in agriculture, ſparing mode of life, way of trading with foreigners, manufactures, &c. afford convincing proofs of cunning, firmneſs, and intrepid courage. Here there are no appearances of that vanity ſo common among the Aſiatics and Africans, of adorning themſelves with ſhells, glaſs-beads, and poliſhed metal plates; neither are they fond of the uſeleſs European ornaments of gold and ſilver lace, jewels, &c. but are careful to provide themſelves from the productions of their own country with neat clothes, well-taſted food, and good weapons.

Economy has its peculiar mode in Japan. It is a virtue admired as well in the emperor's palace as in the meaneſt cottage. It makes thoſe of ſmall poſſeſſions content with their little, and it prevents the abundance of the rich from overflowing in exceſs and voluptuouſneſs. Hence it happens, that what in other countries is called ſcarcity, and famine, is unknown here; and that, in ſo very populous a ſtate, ſcarcely a perſon in neceſſity, or a beggar, ſhould be found.

The names of families, and of ſingle perſons, are under very different regulations from ours. The family-name is never changed; but it is never uſed in ordinary converſation, and only when they ſign ſome writing; to which they alſo for the moſt part affix their ſeal. There is alſo this peculiarity, that the ſurname is always placed firſt; juſt as in botanical books the generic name is always placed before the ſpecific name. The prænomen is always uſed in addreſſing a perſon; and it is changed ſeveral times in the courſe of life. A child receives at birth from its parents a name, which is retained till it has itſelf a ſon arrived at maturity. A perſon again changes his name when he is inveſted with any office; as alſo when he is advanced to a higher truſt; ſome, as emperors and princes, acquire a new name after death. The names of women are leſs variable; they are in general borrowed from the moſt beautiful flowers.

After marriage, the wife is confined to her own apartment, whence ſhe hardly ever ſtirs, except once a-year to the funeral-rites of her family; nor is ſhe permitted to ſee any man, except perhaps ſome very near relation, and that as ſeldom as can be. The wives, as well as in China and other parts of the eaſt, bring no portion with them, but are rather bought by the huſband of their parents and relations. The bridegroom moſt commonly ſees his bride for the firſt time upon her being brought to his houſe from the place of the nuptial ceremony; for in the temple where it is performed ſhe is covered over with a veil, which reaches from the head to the feet. A huſband can put his wives to a more or leſs ſevere death, if they give him the leaſt cauſe of jealouſy, by being ſeen barely to converſe with another man, or ſuffering one to come into their apartment.

The dreſs of the Japaneſe deſerves, more than that of any other people, the name of national; ſince they are not only different from that of all other men, but are alſo of the ſame form in all ranks, from the monarch to his meaneſt ſubject, as well as in both ſexes; and, what exceeds all credibility, they have not been altered for at leaſt 2444 years. They univerſally conſiſt of night-gowns, made long and wide, of which ſeveral are worn at once by all ranks and all ages. The more diſtinguiſhed, and the rich, have them of the fineſt ſilk; the poorer ſort of cotton. Thoſe of the women reach down to the ground, and ſometimes have a train; in the men, they reach down to the heels; travellers, ſoldiers, and labourers, either tuck them up, or wear them only down to the knees. The habit of the men is generally of one colour; the women have theirs variegated, and frequently with flowers of gold interwoven. In ſummer, they are either without lining, or have but a thin one; in winter they are ſtuffed to a great thickneſs with cotton or ſilk. The men ſeldom wear a great number; but the women thirty, fifty, or more, all ſo thin, that they ſcarcely together amount to five pounds. The undermoſt ſerves for a ſhirt, and is therefore either white or blue, and for the moſt part thin and tranſparent. All theſe gowns are faſtened round the waiſt with a belt, which in the men are about a hand's-breadth, in the women about a foot; of ſuch a length that they go twice round the waiſt, and afterwards are tied in a knot with many ends and bows. The knot, particularly among the fair ſex, is very conſpicuous, and immediately informs the ſpectator whether ſhe be married or not. The unmarried have it behind, on the back; the married before. In this belt the men fix their ſabres, fans, pipe, tobacco, and medicine-boxes. In the neck the gowns are always cut round, without a collar; they therefore leave the neck bare; nor is it covered with cravat, cloth, or any thing elſe. The ſleeves are always ill-made, and out of all proportion wide; at the opening before, they are half ſewed up, ſo that they form a ſack, in which the hands can be put in cold weather; they alſo ſerve for a pocket. Girls in particular have their ſleeves ſo long, that they reach down to the ground. Such is the ſimplicity of their habit, that they are ſoon dreſſed; and, to undreſs, they need only open their girdle and draw in their arms.

As the gowns, from their length, keep the thighs and legs warm, there is no occaſion for ſtockings; nor do they uſe them in all the empire. Among poorer perſons on a journey, and among ſoldiers, who have not ſuch long gowns, one ſees buſkins of cotton. Shoes, or, more properly ſpeaking, ſlippers, are, of all that is worn by the Japaneſe, the ſimpleſt, the meaneſt, and the moſt miſerable, though in general uſe among high and low, rich and poor. They are made of interwoven rice-ſtraw; and ſometimes, for perſons of diſtinction, of reeds ſplit very thin. They conſiſt only of a ſole, without upper-leathers or quarters. Before, there paſſes over, tranſverſely, a bow of linen of a finger's-breadth; from the point of the ſhoe to this bow goes a thin round band, which running within the great toe, ſerves to keep the ſhoe fixed to the foot. The ſhoe, being without quarters, ſlides, during walking, like a ſlipper. Travellers have three bands of twiſted ſtraw, by which they faſten the ſhoe to the foot and leg, to prevent its falling off. The Japaneſe never enter their houſes with ſhoes, but put them off in the entrance. This precaution is taken for the ſake of their neat carpets. During the time the Dutch reſide in Japan, as they have ſometimes occaſion to pay the natives viſits in their houſes, and as they have their own apartment at the factory covered with the ſame ſort of carpets, they do not wear European ſhoes, but have in their ſtead red, green, or black, ſlippers, which can eaſily be put off at entering in. They however wear ſtockings, with ſhoes of cotton faſtened by buckles. Theſe ſhoes are made in Japan, and may be waſhed whenever they become dirty.

The way of dreſſing the hair is not leſs peculiar to this people, nor leſs univerſally prevalent among them, than the uſe of their long gowns. The men ſhave the head from the forehead to the neck; and the hair remaining on the temples, and in the nape, is well beſmeared with oil, turned upwards, and then tied with a white paper thread, which is wrapped round ſeveral times. The ends of the hair beyond the head are cut croſsways, about a finger's-length being left. This part, after being paſted together with oil, is bent in ſuch a manner that the point is brought to the crown of the head; in which ſituation it is fixed by paſſing the ſame thread round it once. Women, except ſuch as happen to be ſeparated from their huſbands, ſhave no part of their head.

The head is never covered with hat or bonnet in winter or in ſummer, except when they are on a journey; and then they uſe a conical hat, made of a ſort of graſs, and fixed with a riband. Some travelling women, who are met with on the roads, have a bonnet like a ſhaving-baſon inverted on the head, which is made of cloth, in which gold is interwoven. On other occaſions, their naked heads are preſerved both from rain and the ſun by umbrellas. Travellers, moreover, have a ſort of riding-coat made of thick paper oiled. They are worn by the upper-ſervants of princes, and the ſuite of other travellers. Dr. Thunberg, and his fellow-travellers, during their journey to court, were obliged to provide ſuch for their attendants when they paſſed through the place where they are made.

The roads of the country are ſaid to be broad, kept in good condition, and even occaſionally ſwept and watered. They are furniſhed with mile-ſtones, all meaſured from one point in the capital, and with direction-poſts. The mode of travelling is thus deſcribed by Thunberg: "No wheel-carriages are to be found in this country for the ſervice of travellers; therefore, all thoſe that are poor travel on foot, and ſuch as are able to pay either ride on horſeback or are carried in kangoes or norimons. Inſtead of their long night-gowns, they often wear trowſers, or linen breeches, which reach down to the calves; and travelling ſoldiers tie theſe half-way up their thighs. Such as ride make, for the moſt part, a ſtrange figure; as, frequently, ſeveral perſons are mounted on one horſe, ſometimes a whole family. In this caſe, the man is ſeated on the ſaddle, with his legs laid forward over the horſe's neck; the wife occupies a baſket made faſt to one ſide of the ſaddle, and one or more children are placed in another baſket on the other ſide: a perſon always walks before to lead the horſe by the bridle. People of property are carried in a kind of ſedan chairs, that differ from each other in point of ſize and ornament, according to the different rank of the owners, and, conſequently, in point of expence. The worſt ſort are ſmall, inſomuch that one is obliged to ſit in them with one's feet under the ſeat; they are open on all ſides, covered with a ſmall roof, and are carried by two men. The *kangoes*, or *kagoes*, are covered in, and cloſed on the ſides; but they are almoſt ſquare, and far from being elegant. The largeſt and handſomeſt are called *norimons*; theſe are uſed by perſons in the higher departments of office, and are borne by ſeveral men. At the inns in every town and village, there is a number of men who offer their ſervices to the traveller. Theſe norimon and kango bearers can carry very heavy burthens to a great diſtance, and not only travellers but goods, which they carry tied to each end of a pole or bamboo acroſs their ſhoulders; they generally go a Japaneſe mile (or league) in an hour, and from ten to twelve of theſe miles in a day.

The weapons of the Japaneſe conſiſt of a bow and arrow, ſabre, halbert, and muſket. The bows are very large, and the arrows long, as in China. When the bows are to be bent and diſcharged, the troop always reſts on one knee, which hinders them making a ſpeedy diſcharge. In the ſpring, the troops aſſemble to practiſe ſhooting at a mark. Muſkets are not general; Dr. Thunberg only ſaw them in the hands of perſons of diſtinction, in a ſeparate and elevated part of the audience-room. The barrel is of the common length; but the ſtock is very ſhort, and there is a match in the lock. The ſabre is their principal and beſt weapon, which is univerſally worn, except by the peaſants. They are commonly a yard long, a little crooked, and thick in the back. The blades are of an incomparable goodneſs, far ſuperior to the Spaniſh blades ſo celebrated in Europe. A tolerably-thick nail is eaſily cut in two without any damage to the edge; and a man, according to the account of the Japaneſe, may be cleft aſunder. A ſeparate ſaſh is never uſed, but the ſword is ſtuck in the belt, on the left ſide, with the edge upwards, which to a European appears ridiculous. All perſons in office wear two ſuch ſabres, one of their own, and the other the *ſword of office*, as it is called; the latter is always the longer. Both are worn in the belt on the ſame ſide, and ſo diſpoſed as to croſs each other. When they are ſitting, they have their ſword of office laid on one ſide or before them.

The ſciences are very far from having arrived at the ſame height in Japan as in Europe. The hiſtory of the country is, notwithſtanding, more authentic, perhaps, than that of any other country; and it is ſtudied, without diſtinction, by all. Agriculture, which is conſidered as the art moſt neceſſary, and moſt conducive to the ſupport and proſperity of the kingdom, is no where in the world brought to ſuch perfection as here; where neither civil or foreign war, nor emigration, diminiſhes population; and where a thought is never entertained, either of getting poſſeſſion of other countries, or to import the uſeleſs and often hurtful productions of foreign lands; but where the utmoſt care is taken that no turf lies uncultivated, and no produce of the earth unemployed. Aſtronomy is purſued and reſpected; but the natives are unable, without the aid of Chineſe, and ſometimes of Dutch, almanacs, to form a true calendar, or calculate an eclipſe of the ſun or moon within minutes and ſeconds. Medicine has neither arrived, nor is it likely to arrive, at any degree of perfection. Anatomy is totally unknown; the knowledge of diſeaſes imperfect, intricate, and often fabulous. Botany, and the knowledge of medicine, conſtitute the whole of their ſkill. They uſe only ſimples; and theſe generally in diuretic and diaphoretic decoctions. They are unacquainted with compound medicines. Their phyſicians always indeed feel the pulſe; but they are very tedious, not quitting it for a quarter of an hour; beſides, they examine firſt one and then the other arm, as if the blood were not driven by the ſame heart to both pulſes. Beſides thoſe diſeaſes which they have in common with other countries, or peculiar to themſelves, the venereal diſeaſe is very frequent, which they only underſtood how to alleviate by decoctions thought to purify the blood. Salivation, which their phyſicians have heard mentioned by the Dutch ſurgeons, appears to them extremely formidable, both to conduct and to undergo; but they have lately learned the art of employing the ſublimate with much ſucceſs. The Japaneſe know little more of phyſics or chemiſtry than what they have learned of late years of the Europeans.

Their computation of time takes its riſe from *Min-o*, or 660 years before Chriſt. The year is divided according to the changes of the moon; ſo that ſome years conſiſt of twelve, and others of thirteen, months; and the beginning of the year falls out in February or March. They have no weeks conſiſting of ſeven days, or of ſix working days and a holiday; but the firſt and fifteenth day of the month ſerve for a holiday. On theſe days no work is done. On new-year's day they go round to wiſh one another a happy new year, with their whole families, clad in white and blue chequered, their holiday dreſs; and they reſt almoſt the whole of the firſt month. The day is divided only into twelve hours; and in this diviſion they are directed the whole year by the riſing and ſetting of the ſun. They reckon ſix o'clock at the riſing, and ſix likewiſe at the ſetting, of the ſun. Mid-day and mid-night are always at nine. Time is not meaſured by clocks or hour-glaſſes, but with burning matches, which are twiſted together like ropes, and divided by knots. When the match is burnt to a knot, which indicates a certain portion of time elapſed, notice is given during the day, by ſtriking the bells of the temples; and in the night, by the watchmen ſtriking two boards againſt one another. A child is always reckoned a year old at the end of the year of his birth, whether this happen at the beginning or the cloſe. A few days after the beginning of the year, is performed the horrid ceremony of trampling on images repreſenting the croſs and the Virgin Mary with her child. This ceremony is intended to impreſs every individual with hatred of the Chriſtian doctrine, and the Portugueſe who attempted to introduce it there; and alſo to diſcover whether there is any remnant of it left among the Japaneſe. It is performed in the places where the Chriſtians chiefly reſided. In Nagaſaki it laſts four days; then the images are conveyed to the circumjacent places, and afterwards are laid aſide againſt the next year. Every perſon, except the Japaneſe governor and his attendants, even the ſmalleſt child, muſt be preſent; but it is not true, as ſome have pretended, that the Dutch are alſo obliged to trample on the image. Overſeers are appointed in every place, which aſſemble the people in companies in certain houſes, call over the name of every one in his turn, and take care that every thing goes on properly. The children, not yet able to walk, have their feet placed upon it; older perſons paſs over it from one ſide of the room to the other.

The Japaneſe are much addicted to poetry, muſic, and painting; the firſt is ſaid to be grand as to the ſtyle and imagery, loftineſs, and cadence; but, like that of the Chineſe, is not eaſily underſtood or reliſhed by the Europeans. The ſame may be ſaid of their muſic, both vocal and inſtrumental; the beſt of which, of either kind, would hardly be tolerable to a nice European ear. They pretend, like the Chineſe, to have been the inventors of printing from time immemorial, and their method is the ſame with theirs, on wooden blocks; but they excel them in the neatneſs of cutting them, as well as in the goodneſs of their ink and paper. They likewiſe lay claim to the invention of gunpowder; and are vaſtly ſuperior to the Chineſe in the uſe of all ſorts of fire-arms, eſpecially of artillery, as well as the curiouſneſs of their fire-works. Their manner of writing is much the ſame as that of the Chineſe, viz. in columns from top to bottom, and the columns beginning at the right and ending at the left hand. Their characters were alſo originally the ſame, but now differ conſiderably. Their language hath ſome affinity with the Chineſe, though it appears from its various dialects to have been a kind of compound of that and other languages, derived from the various nations that firſt peopled thoſe iſlands. It is not only very regular, polite, elegant, and copious, but abounds with a great variety of ſynonyma, adapted to the nature of the ſubject they are upon, whether ſublime, familiar, or low; and to the quality, age, and ſex, both of the ſpeaker and perſon ſpoken to.

The Japaneſe are commonly very ingenious in moſt handicraft trades; and excel even the Chineſe in ſeveral manufactures, particularly in the beauty, goodneſs, and variety, of their ſilks, cottons, and other ſtuffs, and in their Japan and porcelain wares. No eaſtern nation comes up to them in the tempering and fabricating of ſcymitars, ſwords, muſkets, and other ſuch weapons.

The Japaneſe architecture is much in the ſame taſte and ſtyle as that of the Chineſe, eſpecially as to their temples, palaces, and other public buildings; but in private ones they affect more plainneſs and neatneſs than ſhow. Theſe laſt are of wood and cement, conſiſting of two ſtories; they dwell only in the lower; the upper chamber ſerving for wardrobes. The roofs are covered with ruſh-mats three or four inches thick. In every houſe there is a ſmall court, ornamented with trees, ſhrubs, and flower-pots; as likewiſe with a place for bathing. Chimneys are unknown in this country, although fire is needed from the cold month of October till the end of March. They heat their rooms with charcoal contained in a copper ſtove, which they fit round. The principal furniture of the Japaneſe conſiſts in ſtraw-mats, which ſerve them for ſeats and beds; a ſmall table for every one who chooſes to eat is the only moveable. The Japaneſe ſit always upon their hams. Before dinner begins, they make a profound bow, and drink to the health of the gueſts. The women eat by themſelves. During the courſes, they drink a glaſs of *ſakki*, which is a kind of beer made of rice kept conſtantly warm; and they drink frequently. Tea and ſakki are the moſt favourite drink of this people; wine and ſpirits are never uſed, nor even accepted when offered by the Dutch. Sakki, or rice-beer, is clear as wine, and of an agreeable taſte; taken in quantity, it intoxicates for a few moments, and cauſes head-ach. Both men and women are fond of tobacco, which is in univerſal vogue, and ſmoked continually. The gardens about their houſes are adorned with a variety of flowers, trees, verdure, baths, terraces, and other embelliſhments. The furniture and decorations of the houſes of perſons of diſtinction conſiſt in japan-work of various colours, curious paintings, beds, couches, ſkreens, cabinets, tables, a variety of porcelain jars, vaſes, tea-equipage, and other veſſels and figures, together with ſwords, guns, ſcymitars, and other arms. Their retinues are more or leſs numerous and ſplendid according to their rank; but there are few of the lords who have leſs than fifty or ſixty men richly clad and armed, ſome on foot, but moſt on horſeback. As for their petty kings and princes, they are ſeldom ſeen without 300 or 200 at leaſt, when they either wait on the emperor, which is one half of the year, or attend him abroad.

When a prince or great man dies, there are commonly about ten, twenty, or more, youths of his houſehold, and ſuch as were his greateſt favourites, who put themſelves to a voluntary death, at the place where the body is buried or burned; as ſoon as the funeral pile, conſiſting of odoriferous woods, gums, ſpices, oils, and other ingredients, is ſet on fire, the relations and friends of the deceaſed throw their preſents into it, ſuch as clothes, arms, victuals, money, ſweet herbs, flowers, and other things, which they imagine will be of uſe to him in the other world. Thoſe of the middle or lower rank commonly bury their dead, without any other burning than that of ſome odoriferous woods, gums, &c. The ſepulchres into which the bones and aſhes of perſons of rank are depoſited, are generally very magnificent, and ſituated at ſome diſtance from the towns.

The Dutch and Chineſe are the only nations allowed to traffic in Japan. The chief merchandiſe is Japaneſe copper and raw camphor. The wares which the Dutch company import are, coarſe ſugar, ivory, a great quantity of tin and lead, a little caſt iron, various kinds of fine chintzes, Dutch cloth of different colours and fineneſs, ſerge wood for dyeing, tortoiſe-ſhell, and *coſtus Arabicus.* The little merchandiſe brought by the officers on their own account, conſiſts of ſaffron, theriaca, ſealing-wax, glaſs-beads, watches, &c. &c. About the time when the Dutch ſhips are expected, ſeveral outpoſts are ſtationed on the higheſt hills by the government; they are provided with teleſcopes, and long before their arrival give the governor of Nagaſaki notice. As ſoon as they anchor in the harbour, the upper and under officers of the Japaneſe immediately betake themſelves on-board, together with interpreters; to whom is delivered a cheſt, in which all the ſailors' books, the muſter-roll of the whole crew, ſix ſmall barrels of powder, ſix barrels of balls, ſix muſkets, ſix bayonets, ſix piſtols, and ſix ſwords, are depoſited; this is ſuppoſed to be the whole remaining ammunition after the imperial garriſon has been ſaluted. Theſe things are conveyed on ſhore, and preſerved in a ſeparate warehouſe, nor are they returned before the day the ſhip quits the harbour. Such is the reſult of an attempt to propagate religion by fraud and force.

Duties are quite unknown, as well in the inland parts as on the coaſt, nor are there any cuſtoms required either for exported or imported goods; an advantage enjoyed by few nations. But, to prevent the importation of any forbidden wares, the utmoſt vigilance is obſerved; and ſome curious particulars of the ſuſpicious policy of the Japaneſe are related by Thunberg, which does not appear ſuperfluous when they have to deal with Dutchmen; as the following circumſtance will prove: "We arrived off Nagaſaki harbour on the 14th of Auguſt, (1775,) and preſently ſaw a boat coming from ſhore to meet us. The captain therefore dreſſed himſelf in a blue ſilk coat, trimmed with ſilver lace, made very large and wide, and ſtuffed, and furniſhed in front with a large cuſhion. This coat has for many years paſt been uſed for the purpoſe of ſmuggling prohibited wares into the country, as the chief and the captain of the ſhip were the only perſons who were exempted from being ſearched. The captain generally made three trips in this coat every day from the ſhip to the factory, and was frequently ſo loaded with goods, that when he went aſhore, he was obliged to be ſupported by two ſailors, one under each arm. By theſe means the captain derived a conſiderable profit annually from the other officers, whoſe wares he carried in and out, together with his own, for ready money, which might amount to ſeveral thouſand rix-dollars. This profitable traffic, however, was now at an end. Strict orders were received from court to ſearch the captain as well as others, and to make him lay aſide his ſurtout. Theſe ſtrict orders were iſſued from the court in conſequence of a diſcovery that was made in the year 1772, when the Burg, having been abandoned by her crew, had driven aſhore on the coaſt of Japan, and, on diſcharging her cargo, was found to have on-board a great quantity of prohibited goods, which principally belonged to the captain and the chief. The Burg was, as before mentioned, in 1772, ſo leaky in conſequence of the ſevere gales ſuſtained on her paſſage to this place, that, on a council being held upon her, ſhe was abandoned; and it was conſidered as ſo certain that ſhe would ſink in a few hours, that ſhe was not ſet on fire, agreeably to the company's orders in ſuch caſes. Notwithſtanding this, the ſhip drove for ſeveral days towards the ſhore of Satſuma, where ſhe was found by the inhabitants, and towed into Nagaſaki harbour. The Japaneſe, having thus the ſhip at their diſpoſal, diſcovered all her corners and hiding-places, as alſo a great number of cheſts belonging to the principal officers, which were full of the moſt prohibited goods, and marked with their names. They were particularly provoked on finding a cheſt, belonging to the chief, full of ginſeng-root, which is by no means allowed to be imported into the country. The cheſt therefore, with its contents, was burnt before the gate of the factory. Beſides the diſgrace accruing to the chief from being ſearched, the captain loſes a conſiderable ſum yearly that he gained by ſmuggling for the other officers, and the officers are deprived of the profit they made by their wares." For many years paſt the captain was not only equipped with the wide ſurtout above deſcribed, but alſo wore large and capacious breeches, in which he carried contraband wares aſhore. Theſe, however, were ſuſpected, and conſequently laid aſide; and the coat, the laſt reſource, was now, to the owner's great regret, to be taken off. It was droll enough to ſee the aſtoniſhment which the ſudden reduction in the ſize of our bulky captain excited in the major part of the ignorant Japaneſe, who before had always imagined that all our captains were actually as fat and luſty as they appeared to be.

The heat of ſummer in Japan is extremely violent, and would be inſupportable, were not the air cooled by the ſea-breezes. Equally ſevere is the cold in winter, when the wind blows from the north or north-eaſt. The weather is changeable throughout the year; and there are abundant falls of rain, eſpecially in the ſatſaki, or rainy months, which begin at Midſummer. This copious moiſture is the chief cauſe of the fertility of Japan, and its conſequent high degree of population. Thunder is not unfrequent; and tempeſts, hurricanes, and earthquakes, are very common. Thunberg has publiſhed his thermometrical obſervations, from which a clear idea may be formed of the climate. The greateſt degree of heat, at

Nagaſaki, was 98° in the month of Auguſt; and the ſevereſt cold in January, 35°. The thunder in the ſummer-months is generally during the night; and the ſnow will remain on the ground ſome days even in the ſouth.

Though there be plains of conſiderable extent, yet Thunberg aſſures us that the whole country conſiſts of mountains, hills, and valleys, the coaſt being moſtly rocky and precipitous, and inveſted with a turbulent ſea. The face of the country is alſo diverſified with many rivers and rivulets, and generally excites the ſocial ideas of induſtry. The ſoil in itſelf may be ſaid to be rather barren; but the prolific ſhowers conſpire with labour and manure to overcome even this obſtacle. Agriculture is a ſcience in the higheſt eſtimation with this ſenſible people; ſo that, except the moſt barren and untractable mountains, the earth is univerſally cultivated; and even moſt of the mountains and hills. There are no commons; and, if any portion be left uncultivated, it may be ſeized by a more induſtrious neighbour. The Japaneſe mode of manuring is to form a mixture of excrements of all kinds, with kitchen refuſe, which is carried in pails into the field, and poured with a ladle upon the plants when they have attained the height of about ſix inches. Weeding is carried to the utmoſt degree of nicety. The ſides of the hills are cultivated by means of ſtone walls, ſupporting level plats ſown with rice or eſculent roots. "Thouſands of theſe beds (ſays Thunberg) adorn moſt of their mountains, and give them an appearance which excites the greateſt aſtoniſhment in the breaſts of the ſpectators." Rice is the chief grain; buck-wheat, rye, barley, and wheat, being little uſed. The ſweet potatoe is abundant; with ſeveral ſorts of beans and peaſe, turnips, cabbages, &c. The rice is ſown in April, and gathered in November; in which laſt month the wheat is ſown, and reaped in June. The barley alſo ſtands the winter. From the ſeed of a kind of cabbage lamp-oil is expreſſed, and ſeveral plants are cultivated for dyeing; there are alſo cotton-ſhrubs, and mulberry-trees, which laſt feed abundance of ſilk-worms. The varniſh and camphor-trees, the vine, the cedar, the tea-tree, and the bamboo-reed, not only grow wild, but are planted for numerous uſes.

The rivers have not been delineated with much care. Among the few named are the Nogaſa, and the Jedogawa, which paſſes by Oſaka, where it is crowned with ſeveral bridges of cedar, more than 300 feet in length. The river Ojingawa is one of the largeſt and moſt dangerous in the country, though not ſubject, like the others, to ſwell during rains. Fuſigawa is alſo a large and rapid river, as is that called Sakgawa. But the largeſt ſeems to be the Jodo, or Yodo, which flows ſouth-weſt from the central lake of Uitz. Among the moſt important rivers Kæmpfer names the Ujin, or Ojin; the Oomi, reported by the Japaneſe hiſtory to have burſt from the ground in one night; and the Aſka. One of the chief lakes ſeems to be that of Oitz, which emits two rivers, one towards Miaco, the other towards Oſaka, and it is ſaid to be fifty Japaneſe leagues in length, each about an hour's journey on horſeback; and the breadth is conſiderable.

The principal mountain is that of Fuſi, covered with ſnow almoſt throughout the year. The Faconie mountains are in the ſame quarter, ſurrounding a ſmall lake of the ſame name. Many of the mountains are overgrown with wood; and others cultivated as before explained. There are ſeveral volcanos, and in general they abound with ever-green trees and cryſtalline ſprings. Near Firando there is a volcanic iſland, nor are others unknown in the ſurrounding ſeas. In the province of Figo there is a volcano which conſtantly emits flames; and another, formerly a coal-mine, in the province of Tſikuſer. Near the lake of Oitz is the delightful mountain of Jeſan; which is eſteemed ſacred, and is ſaid to preſent not leſs than 3000 temples.

The vegetable treaſures of Japan are numerous, and have been ably explored by Kæmpfer and Thunberg. On account, however, of the enormous population of the country, and the abſolute neceſſity of paying the utmoſt attention to the introduction of whatever may contribute to human ſuſtenance, it is not eaſy to aſcertain how far ſeveral of the eſculent plants cultivated here are truly indigenous. There are many points of reſemblance between the floras of China and Japan, and this ſimilarity has probably been ſtrengthened by a mutual interchange of uſeful vegetables; if indeed both countries have not rather derived ſome of their moſt valuable plants from Cochin-china, or the Philippine Iſlands; the ginger, the ſoy-bean, black-pepper, ſugar, cotton, and indigo, though perhaps natives of the more ſouthern regions of Aſia, are cultivated here with great ſucceſs and in vaſt abundance. The Indian laurel and the camphor-tree are found in the high central parts of Japan, as is alſo the Rhus vermix, from the bark of which exudes a gum-reſin that is ſuppoſed to be the baſis of the exquiſitely-beautiful and inimitable black varniſh with which the inlaid cabinets, and other articles of Indian luxury, are covered. Beſides the common ſweet or China orange, another ſpecies, the Citrus Japonica, is found wild and almoſt peculiar to this country. Two kinds of mulberry are met with, both in an indigenous and cultivated ſtate; the one valuable as the favourite food of the ſilk-worm, the other eſteemed for the white fibres of its inner bark, which are manufactured into paper. The larch, the cypreſs, and weeping willow, found in all the warm regions between Japan and the Mediterranean, here arrive at the extremity of their boundary to the eaſt; the ſame may be ſaid of the opium, poppy, white lily, and jalap. The trumpet-flower is common to this part of Aſia, and Peru; in which circumſtance it reſembles the vanilla, whoſe berries form an article of commerce, being largely uſed in the preparation of chocolate. The tallow-tree, the plantain, the cocoa-nut tree, and two other palms, adorn the woodland tracts, eſpecially near the ſhore, by the variety of their growth and foliage, while the uncultivated ſwamps by the ſides of the rivers are rendered ſubſervient to the uſes of the inhabitants by the profuſion and magnitude of the bamboos with which they are covered.

It is not a little remarkable that neither ſheep nor goats are found in the whole empire of Japan; the latter being deemed miſchievous to cultivation, while the abundance of cotton recompenſes the want of wool. Swine are alſo deemed pernicious to agriculture; and only a few appear in the neighbourhood of Nagaſaki, probably introduced by the Chineſe. There are in general but few quadrupeds; the number of horſes in the empire being computed by Thunberg as only equal to thoſe of a ſingle Swediſh town. Still fewer cattle are ſeen; and the Japaneſe neither uſe their fleſh nor their milk, but employ them only in ploughing or drawing carts. Their food conſiſts almoſt entirely of fiſh and fowl, with vegetables. Hens and common ducks are domeſticated chiefly on account of their eggs; a few dogs are kept from motives of ſuperſtition; and cats are favourites of the ladies. The wolf appears in the northern provinces, and foxes in other parts; theſe laſt being univerſally deteſted, and conſidered as demons incarnate.

That the precious metals, gold and ſilver, are to be found in abundance in the empire of Japan, has been well known, both to the Portugueſe, who formerly exported whole ſhip-loads of them, and to the Dutch in former times. Gold is found in ſeveral parts, and perhaps Japan may in this reſpect conteſt the palm with the richeſt country in the world; but, in order that this metal may not loſe its value by becoming too plentiful, it is prohibited to dig more than a certain ſtated quantity; not to mention that no metallic mine, of any kind whatever, can be opened and wrought without the emperor's expreſs permiſſion. When this permiſſion is obtained, two-thirds of the produce are the portion of the emperor, and the proprietor of the land receives one-third for the expences. The fineſt gold, together with the richeſt gold mines, are found on the largeſt of the Nipon iſlands near Sado. It is uſed for the mint, gilding, and embroidery; but it is not carried out of the country. Silver muſt formerly have been found in much greater plenty than at preſent, as a large quantity of it was then exported. The Japaneſe now conſider it as being more rare than gold, although the latter metal is dearer. It is ſaid to be found in the province of Bingo; and in the more northerly parts towards Kattami, very rich ſilver-mines are to be met with. Independently of theſe places, the two iſlands which are called the Gold and Silver Iſles, (*Ginſima*, *Kinſima*,) are ſaid to contain a great quantity of both of theſe precious metals. Silver is uſed for coining and for plating. Copper is quite common in every part of the empire, and is richly impregnated with gold, conſtituting the main ſource of the wealth of many provinces. It was not only formerly exported in amazing quantities, but ſtill continues to be exported both by the Dutch and Chineſe merchants. The fineſt and moſt malleable is dug in Suruga, Atſingo, Kyno, and Kuni. The laſt ſort is eſteemed to be the moſt malleable of any; whilſt that from Suruga contains the greateſt quantity of gold. Of this metal are made ſmall pieces of money for change; it is uſed likewiſe for plating, and for making utenſils, ſuch as pots, kettles, &c. Iron ſeems to be ſcarcer than any other metal in this country; this they are neither fond of importing, nor yet of exporting it for ſale; of it they manufacture ſcymitars, arms, ſciſſars, knives, and various other implements of which they ſtand in need.

The vaſt quantity of ſulphur with which moſt of the Japan iſlands abound, makes them ſubject to frequent and dreadful earthquakes. The inhabitants are ſo accuſtomed to them, that they are ſcarcely alarmed at any, unleſs they chance to be very terrible indeed, and lay whole towns in ruins, which very often proves the caſe. On theſe occaſions, they have recourſe to extraordinary ſacrifices, and acts of worſhip to their deities or demons, according to the different notions of each ſect, and ſometimes even proceed to offer human victims; but in this caſe they only take ſome of the vileſt and moſt abandoned fellows they can meet with, becauſe they are only ſacrificed to the malevolent deities.—*Thunberg's Travels*, and *Gibſon's Geography*.

JAPAN', *adj.* Japanned; belonging to Japan; brought from Japan.

JAPAN', *ſ.* Varniſhed work, work raiſed in colours after the manner of the Japaneſe.

*To* JAPAN', *v. a.* To varniſh, and embelliſh with gold and raiſed figures:

For not the deſk with ſilver nails,
  Nor bureau of expence,
Nor ſtandiſh well *japann'd*, avails
  The writing of good ſenſe. *Swift.*

To black and gloſs ſhoes. *A low phraſe:*

The god of fire
Among theſe gen'rous preſents joins his part,
And aids with ſoot the new *japanning* art. *Gay.*

JAPANE'SE, *ſ.* The natives of Japan, a native of Japan.

JAPANE'SE, *adj.* Belonging to Japan, produced in Japan.

JAPAN'NER, *ſ.* One ſkilled in Japan work. A ſhoe-blacker; ſo called becauſe he makes the ſhoes ſhine:

The poor have the ſame itch;
They change their weekly barber, weekly news,
Prefer a new *japanner* to their ſhoes. *Pope.*

JAPAN'NING, *ſ.* The art of varniſhing and drawing figures on wood, in the ſame manner as is done by the natives of Japan in the Eaſt Indies.

The ſubſtances which admit of being japanned are almoſt every kind that are dry and rigid, or not too flexible; as wood, metals, leather, and paper prepared.

Wood and metals do not require any other preparation, but to have their ſurface perfectly even and clean; but leather ſhould be ſecurely ſtrained either on frames or on boards; as its bending or forming folds would otherwiſe crack and force off the coats of varniſh; and paper ſhould be treated in the ſame manner, and have a previous ſtrong coat of ſome kind of ſize; but it is rarely made the ſubject of japanning till it is converted into *papier maché*, or wrought by other means into ſuch form, that its original ſtate, particularly with reſpect to flexibility, is loſt.

One principal variation from the method formerly uſed in japanning is, the uſing or omitting any priming or under-coat on the work to be japanned. In the older practice, ſuch priming was always uſed; and is at preſent retained in the French manner of japanning coaches and ſnuff-boxes of the *papier maché*; but in the Birmingham manufacture here, it has been always rejected. The advantage of uſing ſuch priming or under-coat is, that it makes a ſaving in the quantity of varniſh uſed; becauſe the matter of which the priming is compoſed fills up the inequalities of the body to be varniſhed; and makes it eaſy by means of rubbing and water-poliſhing to gain an even ſurface for the varniſh; and this was therefore ſuch a convenience in the caſe of wood, as the giving a hardneſs and firmneſs to the ground was alſo in the caſe of leather, that it became an eſtabliſhed method; and is therefore retained even in the inſtance of the *papier maché* by the French, who applied the received method of japanning to that kind of work on its introduction. There is nevertheleſs this inconvenience always attending the uſe of an under-coat of ſize, that the japan coats of varniſh and colour will be conſtantly liable to be cracked and peeled off by any violence, and will not endure near ſo long as the bodies japanned in the ſame manner, but without any ſuch priming, as may be eaſily obſerved in comparing the wear of the Paris and Birmingham ſnuff-boxes; which latter, when good of their kind, never peel or crack, or ſuffer any damage, unleſs by great violence, and ſuch a continued rubbing as waſtes away the ſubſtance of the varniſh; while the Japan coats of the Pariſian crack and fly off in flakes whenever any knock or fall, particularly near the edges, expoſes them to be injured. But the Birmingham manufacturers, who originally practiſed the japanning only on metals, to which the reaſon above given for the uſe of priming did not extend, and who took up this art of themſelves as an invention, of courſe omitted at firſt the uſe of any ſuch under-coat; and, not finding it more neceſſary in the inſtance of *papier maché* than on metals, continue ſtill to reject it. On which account, the boxes of their manufacture are, with regard to the wear, greatly better than the French.

The laying on the colours in gum-water, inſtead of varniſh, is alſo another variation from the method of japanning formerly practiſed; but the much greater ſtrength of the work, where they are laid on in varniſh or oil, has occaſioned this way to be exploded with the greateſt reaſon in all regular manufactures; however, they who may practiſe japanning on cabinets, or other ſuch pieces as are not expoſed to much wear and violence, for their amuſement only, and conſequently may not find it worth their while to encumber themſelves with the preparations neceſſary for the other methods, may paint with water-colours on the under-coat laid on the wood or other ſubſtance of which the piece to be japanned is formed; and then finiſh with the proper coats of varniſh, according to the methods below taught; and if the colours are tempered with the ſtrongeſt iſinglaſs ſize and honey, inſtead of gum-water, and laid on very flat and even, the work will not be much inferior in appearance to that done by the other method, and will laſt as long as the old japan.

*Of* Grounds.—The proper grounds are either ſuch as are formed by the varniſh and colour, where the whole is to remain of one ſimple colour; or by the varniſh either coloured or without colour, on which ſome painting or other decoration is afterwards to be laid. It is neceſſary, however, before we proceed to ſpeak of the particular grounds, to ſhow the manner of laying on the priming, or under-coat, where any ſuch is uſed.

This priming is of the ſame nature with that called *clear-coating*, or vulgarly *clear-coaling*, practiſed erroneouſly by houſe-painters; and conſiſts only in laying on and drying in the moſt even manner a compoſition of ſize and whiting, or ſometimes lime inſtead of the latter. The common ſize has been generally uſed for this purpoſe; but, where the work is of a nicer kind, it is better to employ the glover's or the parchment ſize; and, if a third of iſinglaſs be added, it will be ſtill better; and, if not laid on too thick, much leſs liable to peel and crack. The work ſhould be prepared for this priming, by being well ſmoothed with the fiſh-ſkin or glaſs ſhaver; and, being made thoroughly clean, ſhould be bruſhed over once or twice with hot ſize, diluted with two-thirds of water, if it be of the common ſtrength. The priming ſhould then be laid on with a bruſh as even as poſſible; and ſhould be formed of a ſize whoſe conſiſtence is betwixt the common kind and glue, mixed with as much whiting as will give it a ſufficient body of colour to hide the ſurface of whatever it is laid upon, but not more.

If the ſurface be very clean on which the priming is uſed, two coats of it laid on in this manner will be ſufficient; but if, on trial with a fine wet rag, it will not receive a proper water-poliſh on account of any inequalities not ſufficiently filled up and covered, two or more coats muſt be given it; and whether a greater or leſs number be uſed, the work ſhould be ſmoothed after the laſt coat but one is dry, by rubbing it with the Dutch ruſhes. When the laſt coat is dry, the water-poliſh ſhould be given, by paſſing over every part of it with a fine rag gently moiſtened, till the whole appears perfectly plain and even. The priming will then be completed, and the work ready to receive the painting or coloured varniſh; the reſt of the proceedings being the ſame in this caſe as where no priming is uſed.

When wood or leather is to be japanned, and no priming is uſed, the beſt preparation is to lay two or three coats of coarſe varniſh compoſed in the following manner: "Take of rectified ſpirit of wine one pint, and of coarſe ſeed-lac and reſin each two ounces. Diſſolve the ſeed-lac and reſin in the ſpirit; and then ſtrain off the varniſh." This varniſh, as well as all others formed of ſpirit of wine, muſt be laid on in a warm place; and, if it can be conveniently managed, the piece of work to be varniſhed ſhould be made warm likewiſe; and for the ſame reaſon all dampneſs ſhould be avoided; for either cold or moiſture chills this kind of varniſh, and prevents its taking proper hold of the ſubſtance on which it is laid.

When the work is ſo prepared, or by the priming with the compoſition of ſize and whiting above deſcribed, the proper japan-ground muſt be laid on, which is much the beſt formed of ſhell-lac varniſh, and the colour deſired; if white be not in queſtion, which demands a peculiar treatment, or great brightneſs be not required, when alſo other means muſt be purſued. The colours uſed with the ſhell-lac varniſh may be any pigments whatever which give the tint of the ground deſired; and they may be mixed together to form browns or any compound colours.

As metals never require to be undercoated with whiting, they may be treated in the ſame manner as wood or leather, when the under-coat is omitted, except in the inſtances particularly ſpoken of below.

*White Grounds.*—The forming a ground perfectly white, and of the firſt degree of hardneſs, remains hitherto a deſideratum, or matter ſought for, in the art of japanning, as there are no ſubſtances which form a very hard varniſh but what have too much colour not to deprave the whiteneſs, when laid on of a due thickneſs over the work.

The neareſt approach, however, to a perfect white varniſh already known, is made by the following compoſition: "Take flake white, or white lead, waſhed over and ground up with a ſixth of its weight of ſtarch, and then dried; and temper it properly for ſpreading with the maſtich-varniſh prepared as under the article VARNISH. Lay theſe on the body to be japanned, prepared with or without the under-coat of whiting, in the manner as above ordered; and then varniſh it over with five or ſix coats of the following varniſh: Provide any quantity of the beſt ſeed-lac; and pick out of it all the cleareſt and whiteſt grains, reſerving the more coloured and fouler parts for the coarſe varniſhes, ſuch as that uſed for priming or preparing wood or leather. Take of this picked ſeed-lac two ounces, and of gum-animi three ounces; and diſſolve them, being previouſly reduced to a groſs powder, in about a quart of ſpirit of wine; and ſtrain off the clear varniſh."

The ſeed-lac will yet give a ſlight tinge to this compoſition; but cannot be omitted where the varniſh is wanted to be hard; though, when a ſofter will anſwer the end, the proportion may be diminiſhed, and a little crude turpentine added to the gum-animi to take off the brittleneſs.

A very good varniſh, free entirely from all brittleneſs, may be formed by diſſolving as much gum-animi as the oil will take, in old nut or poppy oil; which muſt be made to boil gently when the gum is put into it. The ground of white colour itſelf may be laid on in this varniſh, and then a coat or two of it may be put over the ground; but it muſt be well diluted with oil of turpentine when it is uſed. This, though free from brittleneſs, is nevertheleſs liable to ſuffer by being indented or bruiſed by any ſlight ſtrokes; and it will not well bear any poliſh, but may be brought to a very ſmooth ſurface without, if it be judiciouſly managed in the laying it on. It is likewiſe ſomewhat tedious in drying, and will require ſome time where ſeveral coats are laid on; as the laſt ought not to contain much oil of turpentine.

*Blue Grounds.*—Blue japan grounds may be formed of bright Pruſſian blue, or of verditer glazed over by Pruſſian blue, or of ſmalt. The colour may be beſt mixed with ſhell-lac varniſh, and brought to a poliſhing ſtate by five or ſix coats of varniſh of ſeed-lac; but the varniſh, nevertheleſs, will ſomewhat injure the colour by giving to a true blue a caſt of green, and fouling in ſome degree a warm blue by the yellow it contains; where, therefore, a bright blue is required, and a leſs degree of hardneſs can be diſpenſed with, the method before directed in the caſe of white grounds muſt be purſued.

*Red Grounds.*—For a ſcarlet japan ground, vermilion may be uſed; but the vermilion has a glaring effect, that renders it much leſs beautiful than the crimſon produced by glazing it over with carmine or fine lake; or even with roſe-pink, which has a very good effect uſed for this purpoſe. For a very bright crimſon, nevertheleſs, inſtead of glazing with carmine, the Indian lake ſhould be uſed, diſſolved in the ſpirit of which the varniſh is compounded, which it readily admits of when good; and, in this caſe, inſtead of glazing with the ſhell-lac varniſh, the upper or poliſhing coats need only be uſed; as they will equally receive and convey the tinge of the Indian lake, which may be actually diſſolved by ſpirit of wine; and this will be found a much cheaper method than the uſing carmine. If, nevertheleſs, the higheſt degree of brightneſs be required, the white varniſhes muſt be uſed.

*Yellow Grounds.*—For bright yellow grounds, the king's yellow, or the turpeth mineral, ſhould be employed, either alone or mixed with fine Dutch pink; and the effect may be ſtill more heightened by diſſolving powdered turmeric-root in the ſpirit of wine of which the upper or poliſhing coat is made; which ſpirit of wine muſt be ſtrained from off the dregs before the ſeed-lac be added to it to form the varniſh.

The ſeed-lac varniſh is not equally injurious here, and with greens, as in the caſe of other colours; becauſe, being only tinged with a reddiſh yellow, it is little more than an addition to the force of the colours.

Yellow grounds may be likewiſe formed of the Dutch pink only; which, when good, will not be wanting in brightneſs, though extremely cheap.

*Green Grounds.*—Green grounds may be produced by mixing the king's yellow and bright Pruſſian blue, or rather the turpeth mineral and Pruſſian blue; and a cheap but fouler kind, by verdegris with a little of the above-mentioned yellows, or Dutch pink. But, where a very bright green is wanted, the cryſtals of verdegris, called *diſtilled verdigris,* ſhould be employed; and to heighten the effect they ſhould be laid on a ground of leaf-gold, which renders the colour extremely brilliant and pleaſing. They may any of them be uſed ſucceſsfully with good ſeed-lac varniſh, for the reaſon before given; but will be ſtill brighter with white varniſh.

*Orange-coloured Grounds.*—Orange-coloured japan grounds may be formed by mixing vermilion or red-lead with king's yellow, or Dutch pink; or the orange-lac, which will make a brighter orange ground than can be produced by any mixture.

*Purple Grounds.*—Purple japan grounds may be produced by the mixture of lake and Pruſſian blue; or a fouler kind, by vermilion and Pruſſian blue. They may be treated as the reſt with reſpect to the varniſh.

*Black Grounds to be produced without Heat.*—Black grounds may be formed by either ivory-black or lamp-black; but the former is preferable where it is perfectly good.

Theſe may be always laid on with ſhell-lac varniſh; and have their upper or poliſhing coats of common ſeed-lac varniſh, as the tinge or foulneſs of the varniſh can be here no injury.

*Common Black Grounds on Iron or Copper, produced by means of Heat.*—For forming the common black japan grounds by means of heat, the piece of work to be japanned muſt be painted over with drying oil; and, when it is of a moderate dryneſs, muſt be put into a ſtove of ſuch degree of heat as will change the oil to black, without burning it ſo as to deſtroy or weaken its tenacity. The ſtove ſhould not be too hot when the work is put into it, nor the heat increaſed too faſt; either of which errors would make it bliſter; but the ſlower the heat is augmented, and the longer it is continued, provided it be reſtrained within the due degree, the harder will be the coat of japan. This kind of varniſh requires no poliſh, having received, when properly managed, a ſufficient one from the heat.

*The fine Tortoiſe-ſhell Ground produced by means of Heat.*—The beſt kind of tortoiſe-ſhell ground produced by heat is not leſs valuable for its great hardneſs, and enduring to be made hotter than boiling water without damage, than for its beautiful appearance. It is to be made by means of a varniſh prepared in the following manner: "Take of good linſeed-oil one gallon, and of umbre half a pound; boil them together till the oil becomes very brown and thick; ſtrain it then through a coarſe cloth, and ſet it again to boil; in which ſtate it muſt be continued till it acquires a pitchy conſiſtence; when it will be fit for uſe."

Having prepared thus the varniſh, clean well the iron or copper plate or other piece which is to be japanned; and then lay vermilion tempered with ſhell-lac varniſh, or with drying-oil diluted with oil of turpentine, very thinly on the places intended to imitate the more tranſparent parts of the tortoiſe-ſhell. When the vermilion is dry, bruſh over the whole with the black varniſh, tempered to a due conſiſtence with oil of turpentine; and, when it is ſet and firm, put the work into a ſtove, where it may undergo a very ſtrong heat, and muſt be continued a conſiderable time; if even three weeks or a month, it will be the better.

This was given amongſt other receipts by Kunckel; but appears to have been neglected till it was revived with great ſucceſs in the Birmingham manufactures, where it was not only the ground of ſnuff-boxes, dreſſing-boxes, and other ſuch ſmall pieces, but of thoſe beautiful tea-waiters which have been ſo juſtly eſteemed and admired in ſeveral parts of Europe where they have been ſent. This ground may be decorated with painting and gilding, in the ſame manner as any other varniſhed ſurface, which had beſt be done after the ground has been duly hardened by the hot ſtove; but it is well to give a ſecond annealing with a more gentle heat after it is finiſhed.

*Method of Painting.*—Japan work ought properly to be painted with colours in varniſh; though, in order for the greater diſpatch, and, in ſome very nice works in ſmall, for the freer uſe of the pencil, the colours are ſometimes tempered in oil; which ſhould previouſly have a fourth part of its weight of gum-animi diſſolved in it; or, in default of that, of gum-ſandarac or gum-maſtich. When the oil is thus uſed, it ſhould be well diluted with ſpirit of turpentine, that the colours may be laid more evenly and thin; by which means, fewer of the poliſhing or upper coats of varniſh become neceſſary.

In ſome inſtances, water-colours are laid on grounds of gold, in the manner of other paintings; and are beſt when ſo uſed in their proper appearance, without any varniſh over them; and they are alſo ſometimes ſo managed as to have the effect of emboſſed work. The colours employed in this way for painting, are beſt prepared by means of iſinglaſs ſize corrected with honey or ſugar-candy. The body of which the emboſſed work is raiſed, need not however be tinged with the exterior colour, but may be beſt formed of very ſtrong gum-water, thickened to a proper conſiſtence by bole-armenian and whiting in equal parts; which being laid on the proper figure, and repaired when dry, may be then painted with the proper colours tempered in the iſinglaſs ſize, or in the general manner with ſhell-lac varniſh.

*Manner of Varniſhing.*—The laſt and finiſhing part of japanning lies in the laying on and poliſhing the outer coats of varniſh; which are neceſſary, as well in the pieces that have only one ſimple ground of colour, as with thoſe that are painted. This is in general beſt done with common ſeed-lac varniſh, except in the inſtances and on thoſe occaſions where we have already ſhown other methods to be more expedient; and the ſame reaſons which decide as to the fitneſs or impropriety of the varniſhes, with reſpect to the colours of the ground, hold equally with regard to thoſe of the painting; for where brightneſs is the moſt material point, and a tinge of yellow will injure it, ſeed-lac muſt give way to the whiter gums; but, where hardneſs, and a greater tenacity, are moſt eſſential, it muſt be adhered to; and where both are ſo neceſſary, that it is proper that one ſhould give way to the other in a certain degree reciprocally, a mixed varniſh muſt be adopted.

This mixed varniſh, as we have already obſerved, ſhould be made of the picked ſeed-lac. The common ſeed-lac varniſh, which is the moſt uſeful preparation of the kind hitherto invented, may be thus made: "Take of ſeed-lac three ounces, and put it into water to free it from the ſticks and filth that are frequently intermixed with it; and which muſt be done by ſtirring it about, and then pouring off the water, and adding freſh quantities in order to repeat the operation, till it be freed from all impurities, as it very effectually may be by this means. Dry it then, and powder it groſsly, and put it, with a pint of rectified ſpirit of wine, into a bottle, of which it will not fill above two-thirds. Shake the mixture well together; and place the bottle in a gentle heat, till the ſeed appears to be diſſolved; the ſhaking being in the mean time repeated as often as may be convenient; and then pour off all that can be obtained clear by this method, and ſtrain the remainder through a coarſe cloth. The varniſh thus prepared muſt be kept for uſe in a bottle well ſtopt."

When the ſpirit of wine is very ſtrong, it will diſſolve a greater proportion of the ſeed-lac; but this will ſaturate the common, which is ſeldom of a ſtrength ſufficient for making varniſhes in perfection. As the chilling, which is the moſt inconvenient accident attending thoſe of this kind, is prevented, or produced more frequently, according to the ſtrength of the ſpirit; we ſhall therefore take this opportunity of ſhowing a method by which weaker rectified ſpirits may with great eaſe, at any time, be freed from the phlegm, and rendered of the firſt degree of ſtrength: "Take a pint of the common rectified ſpirit of wine, and put it into a bottle, of which it will not fill above three parts. Add to it half an ounce of pearl-aſhes, ſalt of tartar, or any other alkaline ſalt, heated red-hot, and powdered, as well as it can be without much loſs of its heat. Shake the mixture frequently for the ſpace of half an hour; before which time, a great part of the phlegm will be ſeparated from the ſpirit, and will appear, together with the undiſſolved part of the ſalts, in the bottom of the bottle. Let the ſpirit then be poured off, or freed from the phlegm and ſalts, by means of a tritorium, or ſeparating-funnel; and let half an ounce of the pearl-aſhes, heated and powdered as before, be added to it, and the ſame treatment repeated. This may be done a third time, if the quantity of phlegm ſeparated by the addition of the pearl-aſhes appear conſiderable. An ounce of alum reduced to powder and made hot, but not burnt, muſt then be put into the ſpirit, and ſuffered to remain ſome hours; the bottle being frequently ſhaken; after which, the ſpirit, being poured off from it, will be fit for uſe." The addition of the alum is neceſſary, to neutralize the remains of the alkaline ſalt or pearl-aſhes; which would otherwiſe greatly deprave the ſpirit with reſpect to varniſhes and lacker, where vegetable colours are concerned; and muſt conſequently render another diſtillation neceſſary.

The manner of uſing the ſeed-lac or white varniſhes is the ſame, except with regard to the ſubſtance uſed in poliſhing; which, where a pure white or great clearneſs of other colours is in queſtion, ſhould be itſelf white; whereas the browner ſorts of poliſhing-duſt, as being cheaper, and doing their buſineſs with greater diſpatch, may be uſed in other caſes. The pieces of work to be varniſhed ſhould be placed near a fire, or in a room where there is a ſtove, and made perfectly dry; and then the varniſh may be rubbed over them by the proper bruſhes made for that purpoſe, beginning in the middle, and paſſing the bruſh to one end; and then, with another ſtroke from the middle, paſſing it to the other. But no part ſhould be croſſed or, twice paſſed over, in forming one coat, where it can poſſibly be avoided. When one coat is dry, another muſt be laid over it; and this muſt be continued at leaſt five or ſix times, or more, if on trial there be not ſufficient thickneſs of varniſh to bear the poliſh, without laying bare the painting or the ground-colour underneath.

When a ſufficient number of coats is thus laid on, the work is fit to be poliſhed; which muſt be done, in common caſes, by rubbing it with a rag dipped in Tripoli or pumice-ſtone, commonly called *rotten ſtone*, finely powdered; but towards the end of the rubbing, a little oil of any kind ſhould be uſed along with the powder; and, when the work appears ſufficiently bright and gloſſy, it ſhould be well rubbed with the oil alone, to clean it from the powder, and give it a ſtill brighter luſtre. In the caſe of white grounds, inſtead of the Tripoli or pumice-ſtone, fine putty or whiting muſt be uſed; both which ſhould be waſhed over to prevent the danger of damaging the work from any ſand or other gritty matter that may happen to be mixed with them.

It is a great improvement of all kinds of japan-work, to harden the varniſh by means of heat; which, in every degree that it can be applied ſhort of what would burn or calcine the matter, tends to give it a more firm and ſtrong texture. Where metals form the body, therefore, a very hot ſtove may be uſed, and the pieces of work may be continued in it a conſiderable time; eſpecially if the heat be gradually increaſed; but, where wood is in queſtion, heat muſt be ſparingly uſed, as it would otherwiſe warp or ſhrink the body, ſo as to injure the general figure.

There is another kind of japanning, called *bantam-work*, from *Bantam*, in the iſland of Java, where it is practiſed. This work reſembles that of Japan, only that it is more gaudy. There are two ſorts of bantam-work, as well as of japanning. As, in the latter, ſome are flat, lying even with the black, and others high and emboſſed; ſo, in bantam-work, ſome are flat, and others in-cut, or carved into the wood, as we find in many large ſkreens; with this difference, that the Japan artiſts work chiefly in gold and other metals; and thoſe of Bantam generally in colours, with a ſmall ſprinkling of gold. For the carved or in-cut kind, the method of performing it is thus: The wood is to be primed with whiting and ſize, till near a quarter of an inch thick; then it is to be water-planed, i. e. rubbed with a fine wet cloth, and, ſome time after, rubbed very ſmooth, the blacks laid on, varniſhed up with a good body, and poliſhed well, though with a gentle hand. This done, the deſign is to be traced out with vermilion and gum-water, exactly in the manner wherein it is intended to be cut; the figures, trees, buildings, &c. in their due proportion; then the graver is applied, with other tools, differing according to the workman's fancy; with theſe he cuts deep or ſhallow, as found convenient, but never deeper than the whiting lies, the wood being never to feel the edge of the inſtrument. Lines, or parts of the black, are ſtill to be left for the draperies, and for the diſtinction of one thing from another; the rule being to cut where the white is, and leave the black untouched. The colours are then laid into the cut-work: after this, the gold is laid in thoſe places where the deſign requires; for which purpoſe, a ſtrong thick gum-arabic water is laid with a pencil on the work; and, while this remains wet, leaf-gold is cut with a ſharp ſmooth-edged knife, ſhaped to the bigneſs and figure of the places where they are to be laid. Theſe, being taken up with a little cotton, are preſſed cloſe to the gum-water, which affords a rich luſtre. The work thus finiſhed, they clear up the black with oil, taking care not to touch the colours. The European workmen uſe braſs-duſt inſtead of gold, which is leſs bright and beautiful.

JAPA'RA, a ſea-port town of the iſland of Java, ſituated on a peninſula on the north coaſt. The harbour is formed by a river of the ſame name, and is capable of receiving a great number of ſhips. The inhabitants are Mahometants, and deteſt the Dutch: two hundred miles eaſt of Batavia.

JAPARAN'DIBA, *ſ.* in botany. See GUSTAVIA.

JAPENE', a town of Africa, in the kingdom of Jagra.

JAP'ETUS, a ſon of Cœlus or Titan, by Terra, who married Aſia, or, according to others, Clymene, by whom he had Atlas, Menœtius, Prometheus, and Epimetheus. The Greeks looked upon him as the father of all mankind. His ſons received the patronymic of *Japetionides*. *Ovid.*

JA'PHETH, the ſon of Noah. His deſcendants poſſeſſed all Europe and the iſles in the Mediterranean, as well thoſe which belong to Europe as others which depend on Aſia. They had all Aſia Minor, and the northern parts of Aſia above the ſources of the Tigris and Euphrates. Noah, when he bleſſed Japheth, ſaid to him, "God ſhall enlarge Japheth, and he ſhall dwell in the tents of Shem; and Canaan ſhall be his ſervant." This bleſſing of Noah was accompliſhed, when the Greeks, and after them the Romans, carried their conqueſts into Aſia and Africa, where were the dwelling and dominions of Shem and Canaan. The ſons of Japheth were Gomer, Magog, Madai, Javan, Tubal, Meſhech, and Tiras. The ſcripture ſays, "that they peopled the iſles of the Gentiles, and ſettled in different countries, each according to his language, family, and people." It is ſuppoſed, that Gomer was the father of the Cimbri or Cimmerians; Magog of the Scythians; Madai of the Macedonians or Medes; Javan of the Ionians and Greeks; Tubal of the Tibarenians; Meſhech of the Muſcovites or Ruſſians; and Tiras of the Thracians. By the iſles of the Gentiles, the Hebrews underſtand the iſles of the Mediterranean, and all the countries ſeparated by the ſea from the continent of Paleſtine; whither alſo the Hebrews could go by ſea only, as Spain, Gaul, Italy, Greece, and Aſia Minor. Japheth was known by the profane authors under the name of Japetus, which ſee.

JAPHI'A, [Heb. that which enlightens.] A man's name.

JAPH'LET, [Hebrew.] The name of a man.

JAPH'LETI, [Hebrew.] The name of a place.

JA'PHO, [Hebrew.] The name of a place.

IA'PIS, an Ætolian, who founded a city upon the banks of the Timavus.—A Trojan, the favourite of Apollo, from whom he received the knowledge of the power of medicinal herbs.

JAPOTAPI'TA, *ſ.* in botany. See Ochna.

JAPYD'IA, in ancient geography, a weſtern diſtrict of Illyricum, anciently threefold: the firſt *Japydia* extending from the ſprings of the Timavus to Iſtria; the ſecond, from the river Arſia to the river Tedanius; and the third, called *Inalpina*, ſituated in mount Albius and the other Alps which run out about Iſtria. Now conſtituting the ſouth part of *Carniola*, and the weſt of Auſtrian *Croatia*.

I'APYX, a ſon of Dædalus, who conquered a part of Italy, which he called *Iapygia. Ovid.*—A wind which blows from Apulia, and is favourable to ſuch as failed from Italy towards Greece. It was nearly the ſame as the Caurus of the Greeks. *Horace.*

JAQ'UEMEL. See Jacmel, p. 663.

JAQ'UET, the name of a woman.

JAQ'UET, a river on the ſouthern ſide of Chaleur Bay, called by the Indians *Boocumkick*, is about three leagues weſt of Billi Down. Here is a ſmall ſalmon-fiſhery.

*To* JAR, *v. n.* [from eoꞃꞃe, anger, Sax. or *guerre*, war, Fr. or *garren*, old Teutonic, to clamour.] To ſtrike together with a kind of ſhort rattle.—My knees tremble with the *jarring* blow. *Gay.*

The rings of iron, that on the doors were hung,
Sent out a *jarring* ſound, and harſhly rung. *Dryden.*

To ſtrike or ſound untuneably and irregularly.—I perceive you delight not in muſic. Not a whit, when it *jars* ſo. *Shakeſpeare.*

A ſtring may *jar* in the beſt maſter's hand,
And the moſt ſkilful archer miſs his aim. *Roſcommon.*

To claſh; to interfere; to act in oppoſition; to be inconſiſtent.—At laſt, though long, our *jarring* notes agree. *Shak.*

For orders and degrees
*Jar* not with liberty, but well conſiſt. *Milton.*

To quarrel; to diſpute.—They muſt be ſometimes ignorant of the means conducing to thoſe ends, in which alone they can *jar* and oppoſe each other. *Dryden.*

When thoſe renowned noble peers of Greece,
Through ſtubborn pride, among themſelves did *jar*,
Forgetful of the famous golden fleece,
Then Orpheus with his harp their ſtrife did bar. *Spenſer.*

JAR, *ſ.* A kind of rattling vibration of ſound.—In *r*, the tongue is held ſtiffly at its whole length, by the force of the muſcles; ſo as when the impulſe of breath ſtrikes upon the end of the tongue, where it finds paſſage, it ſhakes and agitates the whole tongue, whereby the ſound is affected with a trembling *jar. Holder's Elements of Speech.*—Claſh of intereſts or opinions; diſcord; debate:

He maketh war, he maketh peace again,
And yet his peace is but continual *jar*:
O miſerable men that to him ſubject are! *Fairy Queen.*

A ſtate in which a door unfaſtened may ſtrike the poſt; half-opened.—The chaffering with diſſenters, and dodging about this or t'other ceremony, is but like opening a few wickets, and leaving them a-*jar*, by which no more than one can get in at a time. *Swift.*—[From *giarro*, Italian.] An earthen veſſel.—About the upper part of the *jar* there appeared a good number of bubbles. *Boyle.*

He mead for cooling drink prepares,
Of virgin honey in the *jars*. *Dryden.*

Warriors welter on the ground,
Whilſt empty *jars* the dire defeat reſound. *Garth.*

Jar is uſed for a ſort of meaſure or fixed quantity of divers things. The *jar* of oil is from eighteen to twenty-ſix gallons; the *jar* of green ginger is about one hundred pounds weight.

JAR-KE'VI, a town of Aſiatic Turkey, in the province of Natolia: 100 miles eaſt of Kiutaja.

JA'RA, a town of Sweden, in the province of Smaland: ten miles ſouth-weſt of Johnkioping.

JA'RAH, [Hebrew.] The name of a man.

JARAMEY', an inland town of Africa, in the kingdom of Yani.

IAR'BAS, king of Gætulia, a ſon of Jupiter and Garamantis, from whom Dido bought land to build Carthage. He courted Dido, but the arrival of Æneas prevented his ſucceſs; and the queen, rather than marry Iarbas, deſtroyed herſelf. See Dido; vol. v. p. 810.

JAR'BO, a town of Sweden, in the province of Weſt Gothland: twenty-five miles north of Uddevalla.

JARBO'AS, a town of Sweden, in the province of Weſtmanland: forty-five miles weſt-north-weſt of Stroemſholm.

IAR'CHAS, a celebrated Indian philoſopher. His ſeven rings are famous for their power of reſtoring old men to the bloom and vigour of youth, according to the traditions of *Philoſtr. in Apoll.*

JAR'CHI (Solomon Ben), a famous rabbi, was born at Troyes in Champagne, in the year 1104. During the preceding century, the Jews had eſtabliſhed in this French city a college or academy, in which they taught the languages, medicine, and Jewiſh theology, at the head of which was a rich merchant and learned rabbi called *Iſaac*, who was the father of our Solomon. He beſtowed upon his ſon all the advantages of inſtruction which that ſeminary afforded, and initiated him in all the ſciences which the Arabians and the Jews alone at that period ſucceſsfully cultivated. When Solomon had finiſhed his ſtudies, he undertook to illuſtrate and comment on the work of Rabba-Barnacham relative to rabbi Judah's Collections of Talmudical Traditions. Rabba-Barnacham was prince of the academy of Sora, and his work was written about the year 322 of the Chriſtian æra. Solomon's Commentaries upon it were received by all the Jews with much applauſe. Afterwards he publiſhed highly-eſteemed gloſſes on the Jeruſalem and Babyloniſh Talmuds; and, finally, he wrote literal and moral Illuſtrations of the Bible, which were printed in the great Bibles of Venice and Baſil, and were inſerted, at leaſt the greater part of them, in De Lyra's immenſe work on the ſacred volume. Rabbi Iſaac Athias, in the introduction to a treatiſe which he wrote in the Spaniſh language on the 613 precepts of the Jewiſh law, ſays, that Solomon has commented upon the whole Bible, and the whole of the Gemara, with equal brevity and erudition. In the preface to his Analecta Rabbinica, M. Reland ſpeaks of him as one of the beſt interpreters of Scripture; and ſays, that, when any difficulties occurred to him in the Hebrew text, the illuſtrations of rabbi Jarchi appeared more ſatisfactory to him than thoſe of the greateſt critics, or any other commentator. Our author died at Troyes in 1180, in the ſeventy-ſixth year of his age. He was buried with every mark of reſpect in the Jewiſh cemetery, near that city; but, when that nation was aftewards driven out of France, they carried his remains with them into Bohemia, and interred them at Prague. Our author's commentaries on the Bible and the Talmudical writings were printed as accompaniments to a Hebrew Bible publiſhed at Amſterdam in 1660, in 4 vols. 12mo.

JARD (Francis), a French prieſt of the congregation of the Chriſtian doctrine, was born at Boulène near Avignon, in the year 1675; and died in 1768, at the advanced age of ninety-three. Conjointly with father Débonnaire he publiſhed a work entitled, *La Religion Chrétienne méditée dans le véritable Eſprit de ſes Maximes*, in 6 vols. 12mo. which met with a favourable reception from the public. The ſame ſucceſs did not attend five volumes of his Sermons, publiſhed in 1768, 12mo. owing to the want both of animation in their ſtyle, and originality in their matter.

JARDA'NUS, a Lydian, father of Omphale, the miſtreſs of Hercules. *Herodotus.*—A river of Arcadia.—Another in Crete. *Homer.*

JARDE, a river of Denmark, in the duchy of Sleſwick, which runs into the Gram five miles eaſt of Ripen.

JARDES, *ſ.* [French.] Hard callous tumours in horſes, a little below the bending of the ham on the outſide. This diſtemper in time will make the horſe halt, and grow ſo painful as to cauſe him to pine away, and become light-bellied. It is moſt common to managed horſes, that have been kept too much upon their haunches. *Farrier's Dict.*

JARDI'NE DEL REY'NA, a vaſt cluſter of iſles and rocks on the ſouth ſide of the iſland of Cuba. Theſe furniſh immenſe numbers of large and fine turtle.

JARDINET', a town of Germany, in Weſtphalia, and biſhopric of Liege: one mile and a half north of Walcour.

JARDS, a town of France, in the department of the Cher, and chief place of a canton, in the diſtrict of Sancerre: three leagues north-weſt of Sancerre.

JAR'DYN, or JARDIN (Karel du), painter of converſations, landſcapes, &c. was born at Amſterdam in 1640, and became a diſciple of Nicholas Berchem. He travelled to Italy whilſt he was yet a young man; and, arriving at Rome, he gave himſelf up alternately to ſtudy and diſſipation. Yet, amidſt this irregularity of conduct, his proficiency in the art was ſurpriſing; and his paintings roſe into ſuch high repute, that they were exceedingly coveted in Rome, and bought up at great prices. With an intention to viſit his native city, he at laſt left Rome; but, paſſing through Lyons, and meeting ſome agreeable companions, they prevailed on him to ſtay there for ſome time; and he found as much employment in that city as he could poſſibly undertake or execute. But the profits which aroſe from his paintings were not proportionable to his profuſion; and, in order to extricate himſelf from the encumbrances in which his extravagance had involved him, he was induced to marry his hoſteſs, who was old and diſagreeable, but very rich. Mortified and aſhamed of that adventure, he returned as expeditiouſly as poſſible to Amſterdam, accompanied by his wife, and there for ſome time followed his profeſſion with full as much ſucceſs as he had met with in Italy or Lyons. He returned to Rome the ſecond time; and after a year or two ſpent there in his uſual extravagant manner, he ſettled at Venice. In that city his merit was well known before his arrival, which procured him a very honourable reception. He lived there highly careſſed, and continually employed; but died at the age of thirty-eight. He was ſumptuouſly interred, out of reſpect to his talents; and, although a proteſtant, permitted to be laid in conſecrated ground.

JA'REB, [Heb. a revenger.] A man's name.

JA'RED, [Heb. a ruler.] A man's name.

JARESI'AH, [Hebrew.] The name of a man.

JARGEAU', a town of France, in the department of the Loiret, and chief place of a canton, in the diſtrict of Orleans, on the Loire, containing about 13,000 inhabitants. This town was taken by the Engliſh in the year 1428, and the year following retaken by the Maid of Orleans: eight leagues north-weſt of Gien, and three ſouth-eaſt of Orleans.

JAR'GON, *ſ.* [*jargon*, Fr. *gericonça*, Span.] Unintelligible talk; gabble; gibberiſh.—Nothing is clearer than mathematical demonſtration; yet let one, who is altogether ignorant in mathematics, hear it, and he will hold it to be plain fuſtian or *jargon*. *Bramhall.*

From this laſt toil again what knowledge flows?
Juſt as much, perhaps, as ſhows
That all his predeceſſor's rules
Were empty cant, all *jargon* of the ſchools. *Prior.*

JAR'GON, *ſ.* See *Circonius*, under the article MINERALOGY.

JARGONEL'LE, *ſ.* A ſpecies of pear. See PYRUS.

JAR'GROD, a town of Poland, in the palatinate of Braclaw: thirty-ſix miles ſouth-ſouth-weſt of Braclaw.

JAR'HA, [Hebrew.] The name of a man.

JARHISAR', a town of Aſiatic Turkey, in the province of Natolia; forty miles north-weſt Kiutaja.

JARJA'RIA, a town of Aſiatic Turkey, in the Arabian Irak, on the Tigris: ſixty miles ſouth-ſouth-eaſt of Bagdad.

JA'RIB, [Hebrew.] The name of a man.

JA'RIM. See FARIM.

JAR'IMUTH, JARMUTH, or JERIMOTH, Joſh. xv. a town reckoned to the tribe of Judah, four miles from Eleutheropolis, weſtward. *Jerome.* Thought to be the ſame with Ramoth and Remeth, Joſhua xix. and Nehem. x. 2. *Reland.*

JAR'ISZOW, a town of Poland, in the palatinate of Braclaw: fifty-ſix miles ſouth-weſt of Braclaw.

JARL'SBERG, a town of Norway, and capital of a diſtrict abounding in mines, in the dioceſe of Aggerhuus: five miles north of Tonſberg.

JAR'MIN, a town of Germany, in the circle of Upper Saxony, and Anterior Pomerania: three miles ſouth-weſt of Gutzkow.

JAR'NA, a town of Sweden, in the province of Dalecarlia: thirty-five miles weſt-ſouth-weſt of Fahlun.

JAR'NAC', a town of France, in the department of the Charente, and chief place of a canton, in the diſtrict of Cognac, on the Charente, with about 1400 inhabitants. Near this town the duke of Anjou, afterwards Henry III. obtained a victory over the Calviniſts, in the year 1569: two leagues eaſt of Cognac, and four and a half weſt of Angouleſme. Lat. 45. 50. N. lon. 0. 13. W.

JARNA'GE, a town of France, in the department of the Creuſe, and chief place of a canton, in the diſtrict of Bouſſac: three leagues eaſt of Gueret, and four ſouth of Bouſſac.

JARN'SKOG, a town of Sweden, in the province of Warmeland: thirty-eight miles north-weſt of Carlſtadt.

JAR'NUS, a town of Egypt: thirteen miles north of Abu Girge.

JARO'AH, [Hebrew.] The name of a man.

JAROCZEW', a town of Poland, in the palatinate of Kaliſh: twenty miles weſt-north-weſt of Kaliſh.

JAR'OMITZ, a town of Bohemia, in Koningingratz: nine miles north of Koningingratz, and ſixty-one eaſt-north-eaſt of Prague.

JAROSLAV'ISKOI, a government of Ruſſia, bounded on the eaſt by the government of Koſtron, on the north by the governments of Vologdaand Novgorod, on the weſt by Tverſkoi, and on the ſouth by the government of Vladimir, about 160 miles in length, and from thirty to 110 in breadth.

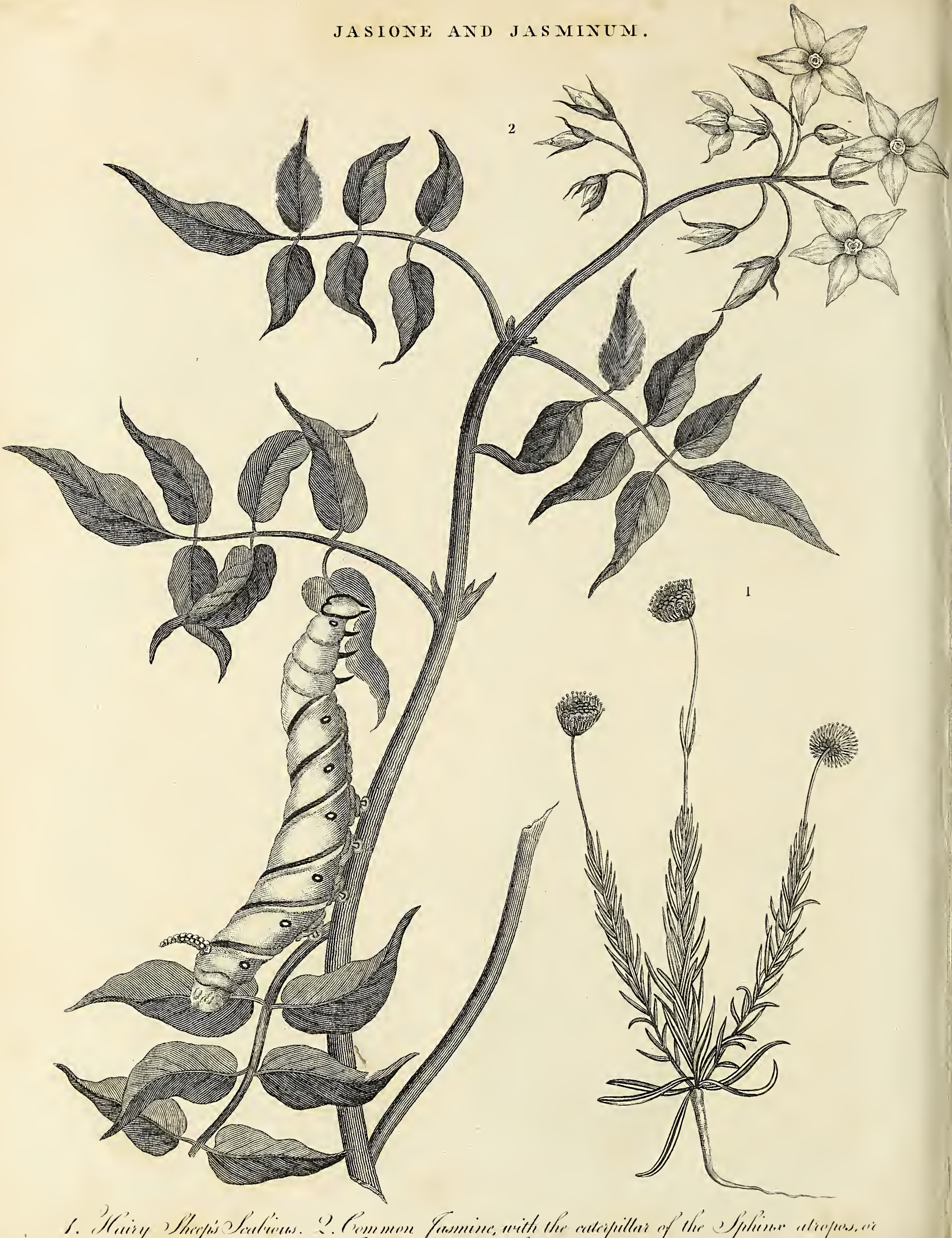
JAR'OSLAVL, a town of Ruſſia, and capital of the above government to which it gives name; celebrated for its manufacture of leather, called *Ruſſian leather*: 144 miles north-north-eaſt of Moſcow, and 340 eaſt-ſouth-eaſt of Peterſburg. Lat. 57. 35. N. lon. 58. E. Ferro.

JAR'OSLAW, a handſome town of Poland, in the palatinate of Lemberg, with a ſtrong citadel. It is remarkable for its great fair, its handſome buildings, and a battle gained by the Swedes in 1656, after which they took the town. It is ſeated on the river Saine, in E. lon. 22. 23. N. lat. 49. 58.

JAR'OSOT, a town of Poland, in the palatinate of Kiov: thirty-ſix miles weſt of Bialacerkiev.

JAR'OTSIN, a town of Poland, in the palatinate of Kaliſh: fourteen miles weſt-north-weſt of Kaliſh.

# JASIONE AND JASMINUM.



*1. Hairy Sheep's Scabious. 2. Common Jasmine, with the caterpillar of the Sphinx atropos, or Jasmine Hawk-moth, feeding on it.*

JAR'RA, a town of conſiderable extent in the Mooriſh kingdom of Ludamar in Africa. The houſes are built of clay and ſtone intermixed, a kind of wall very common in many parts of Scotland, where clay is made to ſupply the place of mortar. The greater parts of the inhabitants are negroes from the borders of the ſouthern ſtates, who prefer, ſays Mr. Park, a precarious protection under the Moors, which they purchaſe by a tribute, to the being continually expoſed to their predatory hoſtilities. The tribute which they pay is conſiderable; and they manifeſt the moſt unlimited obedience and ſubmiſſion to their Mooriſh ſuperiors; by whom they are, in return, treated with the utmoſt indignity and contempt. The Moors in this, and the other ſtates adjoining the country of the negroes, reſemble in their perſons the mulattoes of the Weſt Indies, and ſeem to be a mixed race between the Moors, properly ſo called, of the north, and the negroes of the ſouth; poſſeſſing many of the worſt qualities of both nations. Lat. 15. 5. N. lon. 6. 48. E.

JAR'RIE, a town of France, in the department of the Lower Charente, and chief place of a canton, in the diſtrict of La Rochelle: two leagues ſouth-eaſt of La Rochelle, and four and three quarters north of Rochfort.

JARS (Gabriel), an eminent mineralogiſt, was born at Lyons in 1732. His father was concerned in the mines of the Lyonnois; and, as the ſon early ſhowed an attachment to the art of metallurgy, he was placed by M. Trudaine in the eſtabliſhment for the conſtruction of bridges and cauſeways, in order to obtain a practical knowledge of the buſineſs of a miner and civil engineer. The ſkill he acquired cauſed him to be thought a proper perſon for introducing improvements into the art of working mines in France; and in 1757, at the deſire of count Maurepas, he went in company with M. Duhamel to viſit the mines of Saxony, Bohemia, Auſtria, and Hungary, finiſhing his ſurvey in 1759 with thoſe of Tyrol, Stiria, and Carinthia. In 1765 he was employed alone to examine the mines of England and Scotland. His brother, who was alſo a ſkilful mineralogiſt, accompanied him in 1766 to Hanover, Brunſwick, Heſſe, Norway, Sweden, Holland, and the Low-countries. On his return from theſe laborious journeys, M. Jars was admitted into the Academy of Sciences. He was employed in arranging the numerous and valuable obſervations he had collected, when a ſudden death in 1769 broke off his deſigns. His brother, however, reduced his manuſcripts to order, and fitted them for publication; and in 1774 printed, at Lyons, the firſt volume quarto of a work entitled *Voyages Metallurgiques, ou Recherches & Obſervations ſur les Mines & Forges de Fer, la Fabrication de l'Acier, celle du Fer blanc, & pluſieurs Mines de Charbon de Terre, &c.* Two more volumes appeared afterwards, and they form together a complete collection of theoretical and practical metallurgy down to the time in which the obſervations were made. A work entitled *Elémens de la Geometrie Souterreine*, extracted from the Metallurgic Travels of M. Jars, was publiſhed at Paris in 1780, 8vo.

JA'RUSOW, a town of Poland, in the palatinate of Lemberg: twelve miles north-eaſt of Lemberg.

JARZE', a town of France, in the department of Mayne and Loire, and chief place of a canton, in the diſtrict of Baugé: one league and half weſt of Baugé, and four and a half north-eaſt of Angers.

JA'SENITZ, a town of Germany, in the duchy of Pomerania, on the weſt ſide of the Oder, near its mouth: ten miles north of Stettin.

JAS'HAWK, *ſ.* [probably *ias*, or *eyas* hawk.] A young hawk. *Ainſworth.*

JAS'HEM, [Hebrew.] The name of a man.

JASH'ER, a book which Joſhua refers to in the following paſſage: "And the ſun ſtood ſtill, and the moon ſtayed, until the people had avenged themſelves upon their enemies; is not this written in the book of Jaſher?" It is difficult to determine what this *book of Jaſher*, or "the upright," is. St. Jerom and the Jews believed it to be Geneſis, or ſome other book of the Pentateuch, wherein God foretold he would do wonderful things in favour of his people. Huetius ſuppoſes it was a book of morality, in which it was ſaid that God would ſubvert the courſe of nature in favour of thoſe who put their truſt in him. Others pretend, it was public annals, or records, which were ſtyled *juſtice* or *upright*, becauſe they contained a faithful account of the hiſtory of the Iſraelites. Grotius believes, that this book was nothing elſe but a ſong, made to celebrate this miracle and this victory. This ſeems the more probable opinion, becauſe the words cited by Joſhua as taken from this work, "Sun, ſtand thou ſtill upon Gibeon, and thou moon in the valley of Ajalon," are ſuch poetical expreſſions as do not ſuit with hiſtorical memoirs; beſides that in the 2d book of Samuel (i. 18.) mention is made of a book under the ſame title, on account of a ſong made on the death of Saul and Jonathan.

JASH'UB, [Hebrew.] A man's name.

JASH'UBITE, *ſ.* A deſcendant of Jaſhub.

JASI'EL, [Hebrew.] The name of a man.

JA'SION, or JASIUS, a ſon of Jupiter and Electra, one of the Atlantides, who reigned over part of Arcadia, where he diligently applied himſelf to agriculture. He married the goddeſs Cybele, or Ceres; and all the gods were preſent at the celebration of his nuptials. He had by Ceres two ſons, Philomelus and Plutus, to whom ſome have added a third, Corybas, who introduced the worſhip and myſteries of his mother in Phrygia. He had alſo a daughter whom he expoſed as ſoon as born, ſaying that he would raiſe only male children. The child, who was ſuckled by a ſhe-bear and preſerved, rendered herſelf famous afterwards under the name of Atalanta. Jaſion was killed with a thunderbolt of Jupiter, and ranked among the gods after death by the inhabitants of Arcadia. *Heſiod.*

JASIO'NE, *ſ.* [from the Greek, σιος for ϑεος, and ια, a violet; that is, the divine violet. *Linn.*] SHEEP'S SCABIOUS; in botany, a genus of the claſs ſyngeneſia, order monogamia, natural order of campanacea, (campanulaceæ, *Juſſ.*) The generic characters are—Calyx: perianthium common ten-leaved; alternate leaflets interior, narrower, including very many flowers on very ſhort peduncles; permanent. Perianthium proper five-cleft, ſuperior, permanent. Corolla: proper one-petalled, regular, deeply five-cleft; diviſions lanceolate, upright. Stamina: filaments five, awl-ſhaped, ſhort; antheræ five, oblong, connected at the baſe. Piſtillum: germ roundiſh, inferior; ſtyle filiform, length of the corolla; ſtigma bifid. Pericarpium: capſule roundiſh, five-cornered, crowned with the proper calyx, ſubbilocular, gaping at the tip, with a round hole; partition divided at the axis. Seeds; many, ſubovate; receptacle ſubgloboſe, pedicelled, free, in the baſe of the capſule. The central floſcules are often abortive; with an undivided club-ſhaped ſtigma.—*Eſſential Character.* Calyx common ten-leaved; corolla five-petalled, regular; capſule inferior, two-celled.

*Species.* Jaſione montana, mountain jaſione, or hairy ſheep's ſcabious; a ſingle ſpecies. Root annual, rigid, whitiſh and fibrous. Stems many, erect or procumbent, from a ſpan to a foot in height or more, ſomewhat rigid, beſet with ſhort rough hairs, angular, ſtriated, green, often tinged with purple; for ſomething more than one third of their height, they are clothed with numerous leaves, which are linear or linear-lanceolate, waved at the margins, bluntiſh at the end, hairy on both ſurfaces, ſeſſile, and pointing upwards; the remainder of the ſtem is naked, and terminated by one flowering head. Linnæus remarks, that the leaves are obſcurely ſerrated. Leers affirms that the calyx has conſtantly twenty leaflets, in four rows, ſubſerrated, the outer ones gradually larger. The anthers are at firſt almoſt wholly united, but when the pollen is evacuated they ſpread, and are jointed only at the baſe. The central florets are barren, with the ſtigma club-ſhaped, quite entire, having pollen ſcattered over it, and not villoſe; the capſules are on very ſhort pedicels, and never ripen. The lateral florets, in greater numbers, are

are fertile; theſe have alſo a club-ſhaped ſtigma, which becomes afterwards bifid; becauſe the anthers of theſe have evacuated their pollen before the ſtigma burſts, it ſeems probable that the fecundation is made by the anthers of the barren florets. The ſtyles of the barren florets are all upright; but thoſe of the fertile ones are bent down, for the eaſier reception of the pollen. In this curious account of the proceſs of fecundation in this plant, the botaniſt cannot but remark the affinity that it bears in this circumſtance to the genuine plants of the claſs ſyngeneſia, where Linnæus placed it, and whence modern reformers have removed it. In its general appearance it ſo reſembles a ſcabious, as to be taken for one by unſkilful botaniſts. It is common on dry ſandy grounds, heaths, and hilly paſtures, flowering from June to Auguſt. The whole plant is milky, and is ſometimes eaten by ſheep. Linnæus ſays, that bees are particularly fond of the flowers. Ray calls it *rampions with ſcabious-like heads,* and Withering, *ſcabious ſheep's-bit.* It varies much in ſize, and on the ſea-coaſt of Cornwall it is only about an inch high when full grown, and the whole plant is very hairy.

β. The younger Linnæus, in his Supplement, mentions a variety with perennial roots, the ſtem higher than in the common ſort, the heads of flowers larger. It varies with very ſmooth and very hairy leaves from the ſame root, ſome entire, and others ſerrate. Its native place is unknown; but the ſeeds were communicated by Monſ. Thouin. Villars, however, affirms that the common jaſione is perennial. See ASTRANTIA.

JASK, a town of Croatia: fourteen miles north of Carlſtadt.

JA'SLO, a town of Poland, in the palatinate of Sandomirz: ſeventy-two miles ſouth-ſouth-weſt of Sandomirz.

JASTOWIEC'Z, a town of Poland, in the palatinate of Kaminiec: forty-eight miles weſt-north-weſt of Kaminiec.

JAS'MINE, *ſ.* [*gelſeminum*; *jaſmin,* Fr. It is often pronounced *jeſſamine.*] A creeping ſhrub with a fragrant flower. See JASMINUM.

Thou, like the harmleſs bee, may'ſt freely range;
From *jaſmine* grove to grove may'ſt wander. *Thomſon.*

JASMI'NI FLO'RE. See VOLKAMERIA.

JASMINOI'DES. See CESTRUM and LYCIUM.

JASMI'NUM, *ſ.* [from ιον, Gr. violet, and ιασμη, odour; on account of the fine odour of the flowers.] JASMINE, or JESSAMINE; in botany, a genus of the claſs diandria, order monogynia, natural order of ſepiariæ, (jaſmineæ, *Juſſ.*) The generic characters are—Calyx: perianthium one-leafed, tubulated, oblong; mouth five-toothed, upright, permanent. Corolla: one-petalled, ſalver-ſhaped; tube cylindric, long; border five-parted, flat. Stamina: filaments two, ſhort; antheræ ſmall, within the tube of the corolla. Piſtillum: germ roundiſh; ſtyle filiform, length of the ſtamens; ſtigma bifid. Pericarpium: berry oval, ſmooth, two-celled or two-capſuled. Seeds: two, large, ovate-oblong, arillated, convex on one ſide, flat on the other. The ſhape of the flower varies as to acuteneſs or obtuſeneſs. The berry is in ſome ſimple, in others dicoccous.—*Eſſential Character.* Corolla ſalver-ſhaped; berry dicoccous; ſeeds ſolitary, arillated.

*Species.* 1. Jaſminum ſambac, or Arabian jaſmine: leaves oppoſite, ſimple, elliptic, ovate, and ſubcordate, membranaceous, opaque, branchlets and petioles pubeſcent, calycine ſegments awl-ſhaped. Arabian jaſmine riſes with a winding ſtalk to the height of fifteen or twenty feet, ſending out many ſmall branches. Leaves ſmooth, near three inches long, and almoſt two broad, of a light green, on ſhort footſtalks, and ending in acute points. The flowers are produced at the end of the branches, and alſo upon the ſide-ſhoots, on ſhort peduncles, each generally ſuſtaining three flowers, the two lower oppoſite, and the middle one longer. Theſe flowers are of a pure white, and have a moſt agreeable odour, ſomewhat like orange-flowers, but ſweeter; when fully blown, they drop out of their cups upon being ſhaken, and frequently fall out in the night, changing ſoon to a purpliſh colour. The plants continue flowering great part of the year, when they are kept in a proper temperature of warmth. This beautiful plant, ſo much eſteemed for its highly odoriferous flowers, is a native of the Eaſt Indies, and is much cultivated there, in China, and the Weſt Indies. There are ſeveral varieties of it in thoſe countries. We have it both with ſingle and double flowers, and alſo with double large flowers. The laſt (Mr. Miller ſays) grows naturally at Malabar; and, having a moſt agreeable odour, the women there ſtring the flowers to hang round their necks, by way of ornament. It grew in the royal garden at Hampton Court at the end of the ſeventeenth century; but, being loſt there, was known in Europe only in the garden of the grand duke of Tuſcany, who would not ſuffer any cuttings or layers to be taken from his plants, till Mr. Miller received a plant of it from the Malabar coaſt, by captain Quick, about the year 1730.

2. Jaſminum glaucum, or glaucous-leaved jaſmine: leaves oppoſite, ſimple, lanceolate, ſhining, calycine ſegments awl-ſhaped. A ſhrub with round, even, oppoſite, branches; the flowers are larger than thoſe of common jaſmine. Native of the Cape of Good Hope, where it was found by Thunberg; and alſo by Maſſon. It was introduced here in 1774, and flowers in Auguſt.

3. Jaſmine Capenſe, or Cape jaſmine: leaves oppoſite, ternate, ovate, acuminate; ſtem erect, angular. Found alſo at the Cape by Thunberg.

4. Jaſminum Azoricum, or Azorian jaſmine: leaves oppoſite, ternate, leaflets ovate and ſubcordate, waved; branchlets ſmooth, round; ſegments of the corolla equal to the tube. Azorian jaſmine has longer ſlender branches, which require ſupport, and may be trained twenty feet high; leaves of a lucid green, and continuing all the year; flowers clear white, and with a very agreeable ſcent. Native of the Azores; of Madeira, according to the Kew catalogue. It flowers from May to November.

5. Jaſminum angulare, or angular jaſmine: leaves oppoſite, ternate, leaflets ovate, obtuſe; branchlets angular, both they and the petioles villoſe, peduncles axillary, three-flowered. Allied to the preceding, but differing in its angular villoſe branches. Native of the Cape of Good Hope.

6. Jaſminum auriculatum, or Malabar jaſmine: leaves oppoſite, ternate, on the flowering branchlets ſimple; calyxes angular, branches round and pubeſcent. Cultivated in Malabar, in the gardens of the idolaters.

7. Jaſminum flexile, or flexuoſe jaſmine: ſmooth, leaves oppoſite, ternate; racemes axillary, brachiate; ſtem climbing, branches round. Native of the Eaſt Indies.

8. Jaſminum didymum, or Society-iſle jaſmine: ſmooth, leaves oppoſite, ternate; leaflets ovate-lanceolate; racemes axillary. Native of the Society Iſles, in the South Seas.

9. Jaſminum ſimplicifolium, or ſimple-leaved jaſmine: leaves oppoſite, ovate-lanceolate, ſimple. Native of the Friendly Iſles, in the South Seas.

10. Jaſminum fruticans, or common yellow jaſmine: leaves alternate, ternate; leaflets obovate and wedge-ſhaped, obtuſe; branches angular, calycine ſegments awl-ſhaped. Common yellow jaſmine has weak angular branches which require ſupport, and will riſe to the height of eight or ten feet, if planted againſt a wall or pale. Native of the ſouth of Europe and the Levant. Cultivated in 1597 by Gerarde. Beſides the common name of yellow jaſmine, Parkinſon has thoſe of *ſhrubby trefoil* and *make-bate,* which are now obſolete.

11. Jaſminum humile, or Italian yellow jaſmine: leaves alternate, acute, ternate, and pinnate; branches angular; calycine ſegments very ſhort. Italian yellow jaſmine is ſo called becauſe the plants were annually brought from Italy by thoſe who came over with orange-trees. The flowers are generally larger than thoſe of the preceding, but have very little ſcent, and are ſeldom produced ſo early in the ſeaſon. Simple leaves are frequently intermixt with the ternate. Its native country was not known.

It was cultivated here in 1730; and flowers from July to September.

12. Jaſminum odoratiſſimum, or yellow Indian jaſmine; leaves alternate, bluntiſh, ternate and pinnate; branches round, calycine ſegments very ſhort. Yellow Indian jaſmine riſes with an upright woody ſtalk eight or ten feet high, covered with a brown bark, ſending out ſeveral branches, which want no ſupport. Leaflets of a lucid green, ovate and entire, continuing green all the year, the two ſide ones much leſs than the end one. The flowers are produced at the ends of the ſhoots in bunches; the whole of a bright yellow colour, and moſt grateful odour. The flowers come out from July to October and November; and are frequently ſucceeded by oblong oval berries, which turn black when ripe, and have each two ſeeds. Native of the iſland of Madeira.

13. Jaſminum officinale, or common white jaſmine: leaves oppoſite, pinnate; leaflets acuminate, buds almoſt upright. Stem ſhrubby, weak, climbing, round, ſmooth, branching; leaflets uſually ſeven, broad, lanceolate, quite entire, ſmooth, dark green, the end one larger and more pointed than the reſt. Corolla white, odorous; border ſometimes only four-cleft. We are not certain as to the native country of our common white jaſmine. Linnæus ſays India and Swiſſerland; but to the latter it is confeſſedly exotic, although it be now accuſtomed to the climate, and grows ſpontaneouſly on the rocks, particularly about Chiavenna. Probably it is wild in the Eaſt Indies. Mr. Miller affirms, that it grows naturally in Malabar, and ſeveral parts of India; yet has been long inured to our climate, ſo as to thrive and flower extremely well; but it never produces any fruit in England. Loureiro ſays, that it is wild about Canton in China. According to Parkinſon, it was thought to have been firſt brought to Spain out of Syria or thereabouts, and from Spain to us. Gerarde cultivated this ſhrub, no leſs eſteemed for elegance than fragrance, in 1597. He ſays it was then common in moſt parts of England, being uſed for arbours, and to cover banquetting-houſes in gardens; and that maſter Lyte would have it to grow wild among us, which however it did not as far as he could underſtand.

14. Jaſminum grandiflorum, Spaniſh or Catalonian jaſmine: leaves oppoſite, pinnate; leaflets bluntiſh, buds horizontal. Spaniſh or Catalonian jaſmine has much ſtronger branches than the common white ſort, of which Linnæus once ſuppoſed this to be only a variety. The leaflets are placed cloſer, and are of a lighter green, the ſide ones are obtuſe, but the odd one ends in an acute point. The flowers are axillary, on peduncles two inches long, each ſuſtaining three or four flowers, of a bluſh red on their outſide, but white within; the tube of the corolla is longer, the ſegments are obtuſe, twiſted at the mouth of the tube, and of a much thicker texture. Linnæus remarks, that it reſembles the common ſort very much; but he gives the following diſtinctions; that the ſtem is ſtraight, not ſcandent; the leaflets nearer to the ſtem, more ovate, not ſmaller, the three outer ones confluent by the widened petiole, ſo that they cannot fall ſeparate. It is a native of the Eaſt Indies; and Mr. Miller adds, of the iſland of Tobago, where the woods are full of it, and whence Mr. Robert Millar ſent him a great quantity. It appears from Parkinſon that it was cultivated here in 1629, when he ſays it was ſcarcely made well acquainted with our Engliſh air. It came to us from Spain, and thence acquired the name of Spaniſh or Catalonian jaſmine.

15. Jaſminum nervoſum, or nerved-leaved jaſmine: leaves ovate, three-nerved. Native of Cochin-china, in hedges.

16. Jaſminum trinerve, or three-nerved jaſmine: leaves oppoſite, ſimple, ovate, attenuated, three-nerved; peduncles axillary, one-flowered. Native of Java.

17. Jaſminum ſcandens, or climbing jaſmine: leaves oppoſite, ſimple, ovate-oblong, attenuated; panicles brachiate, calycine ſegments briſtle-ſhaped, reflex. Native of Bengal, climbing to the tops of trees, according to Koenig, who communicated it.

*Propagation and Culture.* The plants of Arabian jaſmine are frequently imported from Italy by the Italian gardeners, who bring orange-trees for ſale; but theſe are always grafted upon ſtocks of the common jaſmine, and, not keeping pace in their growth with the ſtock, become very unſightly; beſides, the ſtocks are very apt to ſhoot from the bottom, and, if theſe ſhoots be not conſtantly rubbed off, they will ſtarve the graft. The beſt method therefore to obtain plants is by layers or cuttings. The former is the ſureſt method; for, unleſs the cuttings be very carefully managed, they will not take root; and the ſtems, being pliable, may eaſily be brought down, and laid in pots filled with a ſoft loamy ſoil, plunged into a hot-bed of tan; if the branches be laid down in the ſpring, and carefully watered, they will put out roots by autumn, when they ſhould be cut from the old plants, and each tranſplanted into a ſeparate ſmall pot, and then plunged into the tan-bed, where they ſhould be ſhaded from the ſun till they have taken new root. Cuttings may be planted from May to Auguſt, in pots filled with the ſame earth, and plunged into a moderate hot-bed of tanner's bark. The pots ſhould be pretty large, to contain ten or twelve cuttings; they ſhould be cloſely covered with bell or hand-glaſſes to exclude the air, ſhaded from the ſun in the heat of the day, and gently refreſhed with water when the earth is dry; they will have taken root by Auguſt, when they may be tranſplanted into ſeparate pots, and treated in the ſame way as the layers. This plant may be preſerved in a moderate degree of warmth, but will thrive much better in the bark-ſtove, and produce a greater quantity of flowers; as the leaves continue all the year, it will make a fine appearance in the ſtove at all ſeaſons; and it will produce flowers great part of the year.

Azorian jaſmine is pretty hardy, and requires only to be ſheltered from ſevere froſt. It is a green-houſe plant, but will live againſt a warm wall, if dung be laid to the roots, and a mat hung looſely over it in froſty weather. It deſerves a place in every green-houſe, for the leaves, being of a ſhining green, make a good appearance all the year; and the flowers, having a fine ſcent, and continuing long in ſucceſſion, render it very valuable. Common yellow jaſmine was formerly more cultivated than now; for, the flowers having no ſcent, few perſons regard them. It often produces ſo many ſuckers as to become troubleſome; and, as it cannot be kept in order for ſtandards, it is ſeldom introduced into gardens at preſent. It is eaſily propagated by ſuckers or layers. Italian or dwarf yellow jaſmine was brought over by the Italian gardeners with orange-trees. Theſe were grafted upon the common yellow jaſmine ſtocks. This is ſomewhat more tender than the preceding, but it will endure the cold of our ordinary winters, in a warm ſituation. It may be propagated by laying down the tender branches; or by budding or inarching it upon the common yellow ſort; the latter mode is preferable, as making hardier plants: for the method, ſee p. 400 of this volume. It ſhould be planted againſt a warm wall, and in very ſevere winters will require to be ſheltered with mats. It muſt be dreſſed and pruned as the white jaſmine.

Yellow Indian jaſmine is propagated either by ſeeds, or laying down the tender branches; if by ſeeds, which it ſometimes produces in England, make a moderate hot-bed in the ſpring, into which plunge ſome ſmall pots, filled with freſh light earth; and in a day or two after, when you find the earth in the pots warm, put your ſeeds therein; about four in each pot will be ſufficient, covering them about an inch thick with the ſame light earth, and obſerve to refreſh the pots with water as often as you ſhall perceive the earth dry; but do not give them too much at each time, which would be apt to rot the ſeeds. In about ſix or eight weeks after ſowing, the plants will appear above ground, at which time it will be neceſſary to remove the pots into another freſh hot-bed, of a moderate

rate temperature, in order to bring the plants forward; water them as often as is neceſſary, and in the great heat of the day the glaſſes ſhould be tilted pretty high, and ſhaded with mats, to prevent the plants from being ſcorched with heat. About the middle of May begin to harden them to the open air, by taking off the glaſſes when the weather is warm; but this muſt be done cautiouſly, for you ſhould not expoſe them to the open ſun in a very hot day at firſt, which would greatly injure them; but rather take off the glaſſes in warm cloudy weather at firſt, or in gentle ſhowers of rain, and ſo by degrees inure them to bear the ſun; and in June take the pots out of the hot-bed, and carry them to ſome well-ſheltered ſituation, where they may remain until the beginning of October; at which time they muſt be carried into the green-houſe, obſerving to place them where they may enjoy as much free air as poſſible when the windows are opened, as alſo to be clear from the branches of other plants. During the winter ſeaſon they will require to be often watered, but be careful not to give them too much at each time; and in March remove theſe plants each into a ſeparate pot, being careful not to take the earth from their roots; and, if at this time you plunge them into a freſh moderate hot-bed, it will greatly facilitate their rooting again, and be of great ſervice to the plants; but, when they are rooted, you muſt give them a great deal of air; for, if you draw them too much, they will become weak in their ſtems, and incapable to ſupport their heads, which is a great defect in theſe trees. You muſt alſo harden them to the open air, into which they ſhould be removed about the middle of May, obſerving, as was before directed, to place them in a ſituation that is defended from ſtrong winds, which are injurious to theſe plants, eſpecially while they are young. In winter, houſe them as before, and continue the ſame care, with which they will thrive very faſt, and produce annually great quantities of flowers. In the ſpring theſe plants ſhould be pruned, when you ſhould cut off all decayed branches; but you muſt not ſhorten any of the other branches, as is directed for the Spaniſh ſort, for the flowers of this kind are produced only at the extremity of the branches, which, if ſhortened, they would be cut off; and theſe, growing of a more ligneous ſubſtance than the other, will not produce ſhoots ſtrong enough to flower the ſame year. If you would propagate this plant from layers, the ſhoots would be laid down in March; and if you give them a little cut at the joint, as is practiſed in laying carnations, it will promote their rooting; obſerve to refreſh often with water, when the weather is dry; which, if carefully attended to, the plants will be rooted by the ſucceeding ſpring, fit to be tranſplanted, when they muſt be planted in pots filled with light earth, and managed as was before directed for ſeedling plants.

The common white jaſmine is eaſily propagated by laying down the branches, which will take root in one year, and may then be cut from the old plant, and planted where they are deſigned to remain; it may alſo be propagated by cuttings, which ſhould be planted early in the autumn; and, if the winter ſhould prove ſevere, the ſurface of the ground between them ſhould be covered with tan, ſea-coal aſhes, or ſaw-duſt, which will prevent the froſt from penetrating deep into the ground, and thereby preſerve the cuttings; or, where theſe are wanting, ſome peaſe-haulm, or other light covering, ſhould be laid over the cuttings in hard froſt; but theſe muſt be removed when the weather is mild, for they will keep off the air and occaſion damps, which often deſtroy them. When theſe plants are removed, they ſhould be planted where they are deſigned to be continued, which ſhould be either againſt ſome wall, pale, or other fence, where the flexible branches may be ſupported; for, although it is ſometimes planted as a ſtandard, and formed into a head, yet it will be very difficult to keep it in any handſome order; or, if you do, you muſt cut off all the flowering branches; for the flowers are always produced at the extremity of the ſame year's ſhoots, which, if ſhortened before the flowers are blown, will entirely deprive the trees of flowers. Theſe plants ſhould be permitted to grow rude in the ſummer, for the reaſon before given; nor ſhould you prune and nail them until the middle or latter end of March, when the froſty weather is paſt; for, if it ſhould prove ſharp froſty weather after their rude branches are pruned off, and the ſtrong ones are expoſed thereto, they are very often deſtroyed; and, this plant being very backward in ſhooting, there will be no danger of hurting by late pruning. There are two varieties of this with variegated leaves, one with white, and the other with yellow, ſtripes; but the latter is the moſt common; theſe are propagated by budding them on the plain jaſmine, and it often happens that the buds do not take, but yet they have communicated their gilded miaſma to the plants; ſo that, in a ſhort time after, many of the branches, both above and below the places where the buds have been inſerted, have been thoroughly tinctured; and the following year very diſtant branches, which had no other communication with thoſe which were budded than by the root, have been as completely tinged as any of the nearer branches, ſo that the juices muſt have deſcended into the root. The two ſtriped ſorts ſhould be planted in a warm ſituation, eſpecially the white-ſtriped; for they are much more tender than the plain, and are very ſubject to be deſtroyed by great froſts; therefore the white-ſtriped ſhould be planted to a ſouth or ſouth-weſt aſpect, and in very ſevere winters the branches ſhould be covered with mats or ſtraw, to prevent their being killed. The yellow-ſtriped is not ſo tender, ſo may be planted againſt walls to eaſt or weſt aſpects; but theſe plants with variegated leaves are not ſo much in eſteem as formerly.

The Spaniſh jaſmine is propagated by budding or inarching it upon the common white jaſmine, on which it takes very well, and is rendered hardier than thoſe which are upon their own ſtocks. But the plants of this kind being brought over from Italy every ſpring in ſo great plenty, they are ſeldom raiſed here. We ſhall therefore proceed to the management of ſuch plants as are uſually brought into England from the place above-mentioned, which are generally tied up in ſmall bunches, containing four plants, and their roots wrapped about with moſs, to preſerve them from dying; which, if it happen that the ſhip has a long paſſage, will often occaſion them to puſh out ſtrong ſhoots from their roots, which muſt always be taken off before they are planted, otherwiſe they will exhauſt the whole nouriſhment of the plant, and deſtroy the graft. In the making choice of theſe plants, you ſhould carefully obſerve if their grafts are alive, and in good health; for, if they are brown and ſhrunk, they will not puſh out, ſo that there will be only the ſtock left, which is of the common ſort. When you receive theſe plants, you muſt clear the roots of the moſs, and all decayed branches ſhould be taken off; then place the roots in a pot or tub of water, which ſhould be ſet in the green-houſe, or ſome other room, where it may be ſcreened from the cold; in this ſituation they may continue two days, after which you muſt prune off all the dry roots, and cut down the branches within four inches of the place where they were grafted, and plant them into pots filled with freſh light earth; then plunge the pots into a moderate hot-bed of tanners' bark, obſerving to water and ſhade them as the heat of the ſeaſon may require. In about a month or ſix weeks after they will begin to ſhoot, when you muſt carefully rub off all ſuch as are produced from the ſtock below the graft; and you muſt now let them have a great ſhare of air, by raiſing the glaſſes in the heat of the day; and, as the ſhoots extend, they ſhould be topped, to ſtrengthen them, and by degrees ſhould be hardened to endure the open air, into which they ſhould be removed the beginning of June, but muſt have a warm ſituation the firſt ſummer; for, if they are too much expoſed to the winds, they will make but indifferent progreſs, being rendered ſomewhat tender by the hot-bed. If the ſummer proves warm, and the trees have ſucceeded well, they will produce ſome flowers in the autumn following, though they will be few in number, and not near ſo ſtrong as they will be the ſucceeding years, when the trees are ſtronger and have better roots. Theſe plants are commonly preſerved in green-houſes, with oranges, myrtles, &c. and, during the winter ſeaſon, will require to be frequently watered; which ſhould be performed ſparingly each time, eſpecially in cold weather, for too much wet at that ſeaſon will be apt to rot the fibres of their roots; they ſhould alſo have a great ſhare of freſh air when the weather will permit, for which purpoſe they ſhould be placed in the cooleſt part of the green-houſe, among plants that are hardy, where the windows may be opened every day, except in froſty weather; nor ſhould they be crowded too cloſe among other plants, which often occaſions the tender part of their ſhoots to grow mouldy and decay. In April the ſhoots of theſe plants ſhould be ſhortened down to four eyes, and all the weak branches ſhould be cut off; and, if you have the conveniency of a glaſs-ſtove, or a deep frame, to place the pots in at that ſeaſon, to draw them out again, it will be of great ſervice in forwarding their flowering; yet ſtill you ſhould be careful not to force them too much; and, as ſoon as they have made ſhoots three or four inches long, the glaſſes ſhould be opened in the day-time, that the plants may by degrees be inured to the open air, into which they ſhould be removed by the latter end of May, or the beginning of June; otherwiſe their flowers will not be ſo fair, nor continue ſo long. If the autumn prove favourable, theſe plants will continue to produce freſh flowers until November; and ſometimes, when they are ſtrong, they will continue flowering later; but then they muſt have a great ſhare of air when the weather is mild and will admit of it, otherwiſe the flower-buds will grow mouldy and decay.

But, notwithſtanding moſt people preſerve theſe plants in green-houſes, yet they will endure the cold of our ordinary winters in the open air, if planted againſt a warm wall, and covered with mats in froſty weather; they will alſo produce ten times as many flowers in one ſeaſon as thoſe kept in pots, and the flowers will likewiſe be much larger; but they ſhould not be planted abroad till they have acquired ſtrength, ſo that it will be neceſſary to keep them in pots three or four years, whereby they may be ſheltered from the froſt in winter; and, when they are planted againſt the wall, which ſhould be in May, that they may take good root in the ground before the ſucceeding winter, you muſt turn them out of the pots, preſerving the earth to their roots; and, having made holes in the border where they are to be planted, you ſhould place them therein, with their ſtems cloſe to the wall; then fill up the holes round their roots with good, freſh, rich earth, and give them ſome water to ſettle the ground about them, and nail up their ſhoots to the wall, ſhortening ſuch of them as are very long, that they may puſh out new ſhoots below to furniſh the wall, continuing to nail up all the ſhoots as they are produced. In the middle, or toward the latter end, of July, they will begin to flower, and continue to produce new flowers until the froſt prevents them; which, when you obſerve, you ſhould carefully cut off all the tops of ſuch ſhoots as have buds formed upon them, as alſo thoſe which have the remains of faded flowers left; for, if theſe are ſuffered to remain on, they will ſoon grow mouldy, eſpecially when the trees are covered, and thereby infect many of the tender branches, which will greatly injure the trees. Towards the middle of November, if the weather proves cold and the nights froſty, you muſt begin to cover your trees with mats, which ſhould be nailed over them pretty cloſe; but this ſhould be done when the trees are perfectly dry, otherwiſe the wet being lodged upon the branches, will often cauſe a mouldineſs upon them, and the air being excluded therefrom, will rot them in a ſhort time; it will alſo be very neceſſary to take off the mats as ſoon as the weather will permit, to prevent this mouldineſs, and only keep them cloſe covered in froſty weather, and at which time you ſhould alſo lay ſome mulch upon the ſurface of the ground about their roots, and faſten ſome bands of hay about their ſtems, to guard them from the froſt; and, in very ſevere weather, you ſhould add a double or treble covering of mats over the trees; by which method, carefully performed, you may preſerve them through the hardeſt winters. In the ſpring, as the weather is warmer, you ſhould by degrees take off the covering; but you ſhould be careful not to expoſe them too ſoon to the open air, as alſo to guard them againſt the morning froſts and dry eaſterly winds, which often reign in March, to the no ſmall deſtruction of tender plants expoſed thereto; nor ſhould you quite remove your covering until the middle of April, when the ſeaſon is ſettled; at which time you ſhould prune the trees, cutting out all decayed and weak branches, ſhortening the ſtrong ones to about two feet long, which will cauſe them to ſhoot ſtrong and produce many flowers. There is a variety of this with ſemi-double flowers, which is at preſent more rare in England, and only to be found in ſome curious gardens; though in Italy it is pretty common, from whence it is ſometimes brought over amongſt the ſingle; the flowers of this kind have only two rows of leaves, ſo that it is rather cultivated for its curioſity, than for any extraordinary beauty in the flowers. This may be propagated by budding it upon the common white jaſmine, as has been directed for the ſingle, and muſt be treated in in the ſame manner. See CESTRUM, CHIOCOCCA, CITHAREXYLUM, EHRETIA, GUAICUM, IPOMÆA, JUSSIEUA, IXORA, LANTANA, NYCTANTHES, PSYCHOTRIA, VOLKAMERIA.

JASMI'NUM ARAB'ICUM. See COFFEA.

JASMI'NUM CAPEN'SE. See GARDENIA FLORIDA.

JASMI'NUM IN'DICUM. See PLUMERIA RUBRA.

JAS'MUND, a peninſula of the iſland of Rugen, in the German Sea, which, with another peninſula called *Witto*, forms a large bay, fronting the north-eaſt, which, in hazy weather, often proves deſtructive to veſſels: the bay is called *Tromperwyck*.

JASNIKIMIER', a town of Poland, in the palatinate of Kiov: twenty-ſix miles eaſt-ſouth-eaſt of Bialacerkiev.

JAS'NITZ THAL, a river of Germany, in the duchy of Stiria, which runs into the river Muehr near Pruck.

JA'SON, a celebrated hero, ſon of Alcimede, daughter of Phylacus, by Æſon the ſon of Cretheus, and Tyro the daughter of Salmoneus. Tyro, before her connection with Cretheus the ſon of Æolus, had two ſons, Pelias and Neleus, by Neptune. Æſon was king of Iolchos; and at his death the throne was uſurped by Pelias, on account of the tender youth of Jaſon, the lawful ſucceſſor. The education of young Jaſon was entruſted to the care of the centaur Chiron; and he was removed from the preſence of the uſurper, who had been informed by an oracle that one of the deſcendants of Æolus would dethrone him. After he had made the moſt rapid progreſs in every branch of ſcience, Jaſon left the centaur, and by his advice went to conſult the oracle. He was ordered to go to Iolchos, his native country, covered with the ſpoils of a leopard, and dreſſed in the garments of a Magneſian. In his journey he was ſtopped by the inundation of the river Evenus, or Enipeus, over which he was carried by Juno, who had changed herſelf into an old woman. In croſſing the ſtreams, he loſt one of his ſandals; and, at his arrival at Iolchos, the ſingularity of his dreſs and the fairneſs of his complexion attracted the notice of the people, and drew a crowd around him in the market-place. Pelias came to ſee him with the reſt; and, as he had been warned by the oracle to beware of a man who ſhould appear at Iolchos with one foot bare, and the other ſhod, the appearance of Jaſon, who had loſt one of his ſandals, alarmed him. His terrors were ſoon after augmented. Jaſon, accompanied by his friends, repaired to the palace of Pelias, and boldly demanded the kingdom which he had unjuſtly uſurped.

The boldneſs and popularity of Jaſon intimidated Pelias; he was unwilling to abdicate the crown, and yet he feared the reſentment of his adverſary. As Jaſon was young and ambitious of glory, Pelias, at once to remove his immediate claims to the crown, reminded him that Æetes king of Cholchis had inhumanly murdered their common relation Phryxus. He obſerved that ſuch a treatment called aloud for puniſhment, and that the undertaking would be accompanied with much glory and fame. He farther added, that his old age had prevented him from avenging the death of Phryxus; and that, if Jaſon would undertake the expedition, he would reſign to him the crown of Iolchos when he returned victorious from Colchis. Jaſon readily accepted a propoſal which ſeemed to promiſe ſuch military fame. His intended expedition was made known in every part of Greece, and the youngeſt and braveſt of the Greeks aſſembled to accompany him, and ſhare his toils and glory. They embarked on-board a ſhip called *Argo*, and after a ſeries of adventures they arrived at Colchis. Æetes promiſed to reſtore the golden fleece, which was the cauſe of the death of Phryxus, and of the voyage of the Argonauts, provided they ſubmitted to his conditions. Jaſon was to tame bulls who breathed flames, and who had feet and horns of braſs, and to plough with them a field ſacred to Mars. After this he was to ſow in the ground the teeth of a ſerpent from which armed men would ariſe, whoſe fury would be converted againſt him who ploughed the field. He was alſo to kill a monſtrous dragon who watched night and day at the foot of the tree on which the golden fleece was ſuſpended. All were concerned for the fate of the Argonauts; but Juno, who watched with an anxious eye over the ſafety of Jaſon, extricated them from all theſe difficulties. Medea, the king's daughter, fell in love with Jaſon; and, as her knowledge of herbs, enchantments, and incantation, was uncommon, ſhe pledged herſelf to deliver her lover from all his dangers if he promiſed her eternal fidelity. Jaſon, not inſenſible to her charms and to her promiſe, vowed eternal fidelity in the temple of Hecate, and received from Medea whatever inſtruments and herbs could protect him againſt the approaching dangers. He appeared in the field of Mars, he tamed the fury of the oxen, ploughed the plain, and ſowed the dragon's teeth. Immediately an army of men ſprang from the field, and ran towards Jaſon. He threw a ſtone among them, and they fell one upon the other till all were totally deſtroyed. The vigilance of the dragon was lulled to ſleep by the power of herbs, and Jaſon took from the tree the celebrated golden fleece, which was the ſole object of his voyage. Theſe actions were all performed in the preſence of Æetes and his people, who were all equally aſtoniſhed at the boldneſs and ſucceſs of Jaſon. After this celebrated conqueſt, Jaſon immediately ſet ſail for Europe with Medea, who had been ſo inſtrumental in his preſervation. Upon this Æetes, deſirous to revenge the perfidy of his daughter Medea, ſent his ſon Abſyrtus to purſue the fugitives. Medea killed her brother, and ſtrewed his limbs in her father's way, that ſhe might more eaſily eſcape, while he was employed in collecting the mangled body of his ſon. For ſome other conjectures on the purpoſe of the Argonautic expedition, ſee the article ARGONAUTS, vol. ii. p. 148.

The return of the Argonauts into Theſſaly was celebrated with univerſal feſtivity; but Æſon, Jaſon's father, was unable to attend on account of the infirmities of old age. This obſtruction was removed; and Medea, at the requeſt of her huſband, reſtored Æſon to the vigour and ſprightlineſs of youth. Pelias, the uſurper of the crown of Iolchos, wiſhed alſo to ſee himſelf reſtored to the flower of youth; and his daughters, perſuaded by Medea, who wiſhed to avenge her huſband's wrongs, cut his body to pieces, and placed his limbs in a cauldron of boiling water. Their credulity was ſeverely puniſhed. Medea ſuffered the fleſh to be conſumed to the bones, and Pelias was never reſtored to life. This inhuman action drew the reſentment of the populace upon Medea, and ſhe fled to Corinth with her huſband Jaſon, where they lived in perfect union and love during ten ſucceſſive years. Jaſon's partiality for Glauce, the daughter of the king of the country, afterwards diſturbed their matrimonial happineſs, and Medea was divorced, that Jaſon might more freely indulge his amorous propenſities. This infidelity was ſeverely revenged by Medea, who deſtroyed her children in the preſence of their father. After his ſeparation from Medea, Jaſon lived an unſettled and melancholy life. As he was one day repoſing himſelf by the ſide of the ſhip which had carried him to Colchis, a beam fell upon his head, and he was cruſhed to death. This tragical event had been predicted to him before by Medea, according to the relation of ſome authors. Some ſay that he afterwards returned to Colchis, where he ſeized the kingdom, and reigned in great ſecurity.

JAS'PER, *ſ.* in mineralogy. See JASPIS.

JAS'PER, a man's name.

JAS'PIS, *ſ.* the JASPER; in mineralogy, a genus of ſiliceous earth, conſiſting of ſilex, a ſmaller proportion of alumine, and a ſmall quantity of oxyd of iron, with generally a little magneſia and potaſh; hardiſh, opake, breaking into indeterminate fragments, of a conchoidal texture, lightiſh, ſometimes detached, ſometimes a principal ingredient of ancient mountains, of a common form; loſing its colour in the fire. There are four ſpecies.

1. Jaſpis Ægyptia, or Egyptian pebble: of a dull colour, varied with differently-coloured concentric ſtripes or layers, and black dendritical figures. Found near Suez in Egypt, and ſometimes in Hungary and Lorraine, generally in longiſh oval flattiſh pebbles, and enveloped in a coarſe rough cruſt; colour liver-brown, glittering when broken, the fragments irregularly angular and opake, and taking a fine poliſh; the concentric ſtripes or layers are various ſhades of yellow, reddiſh, green, or white, but the dots and dendritical figures are always black; fracture conchoidal; when heated it does not decrepitate. Specific gravity 2·6. It is made into vaſes, ſnuff-boxes, and other ornaments.

2. Jaſpis faſciata, ſtriped or riband jaſper: in differently-coloured alternate parallel layers, without luſtre internally, of an imperfectly-conchoidal texture. Found in Siberia, in Saxony near Gnantſtein and Wolftitz, and particularly fine at Ural, in large amorphous maſſes forming long layers; colours yellowiſh, greeniſh-grey, ochraceous, iſabella yellow, browiſh-red, pale or dark fleſh-red, mountain or dark green; generally diſpoſed in parallel layers, which are commonly ſtraight, rarely curved, ſeldomer in oblong ſpots. When broken it exhibits a dull imperfectly-conchoidal ſurface, and is ſometimes ſemi-tranſparent on the edges. It takes a high poliſh.

3. Jaſpis porcellana, or porcellane jaſper: hard, rifty internally, of an imperfectly-conchoidal fracture. This ſpecies is found in large compact layers, and frequently between the fiſſures of baſaltes, in Bohemia and Saxony; has an arid appearance when broken, like dried clay, and is full of cracks oe ſlits; and is ſuppoſed to have been altered by the action of fire.

4. Jaſpis vulgaris, or common jaſper: hardiſh, ſhining, or poliſhed internally, of one uniform colour, or veined or ſpotted. Found in Germany, Saxony, Sileſia, Hungary, &c. in large compact maſſes, ſometimes coarſely interſperſed in alternate layers with other ſtones, and often in obtuſe angular pieces; colours different ſhades of black, white, yellow, red, brown, and green; often variegated, ſpotted, or veined, with ſeveral colours; is frequently enriched with iron and gold ores, and admits a fine poliſh; fracture conchoidal, or ſometimes imperfectly foliated. Specific gravity from 2·53 to 2·70.

*Wood Jaſper.* This variety is ſo called from its general appearance, which often very accurately reſembles petrified wood. In ſome caſes this appearance is the reſult of the original formation of the ſubſtance; in others it ſeems to have ariſen from the actual depoſition of ſiliceous in the place of vegetable matter. The following diſtinctive mark has been given by which to aſcertain the real origin of this jaſper: "In petrified wood not only the concentric circles of the original vegetable are preſent, but alſo the veſſels or fibres which extend from the centre towards the circumference." The ſmooth Turkey hone-ſtone is made of this variety of jaſper, which is found in Bohemia, Hungary, &c. and in Siberia; but the matrix of it is not known. Maſſes, cloſely reſembling trunks and branches of trees, occur in great abundance diſperſed over the ſandy diſtricts of the northern part of Africa.

JAS'QUE, a town of Perſia, in the Gulf of Ormus. Lat. 25. 40. N. lon. 76. 50. E. Ferro.

JASSE'NA, a town of Bohemia, in Konigingratz: eight miles north-eaſt of Konigingratz.

JASS'Y, a town of European Turkey, and capital of Moldavia; ſuppoſed to have been a garriſon town in the time of the Romans: it has a citadel and ſome fortifications. The inhabitants are chiefly Greeks, and it is the ſee of an archbiſhop. In the year 1753, it was almoſt wholly burned down, with the palace of the hoſpodar, ſome Roman catholic convents, and a Proteſtant Lutheran church. In the year 1711, and in 1739, it was taken by the Ruſſians. In the year 1788, it was again taken by the Ruſſians, and reſtored in 1790: 200 miles eaſt of Otchakov, and 370 north of Conſtantinople. Lat. 47. 10. N. lon. 45. 30. E. Ferro.

JAS'TROVICZ, a lake of Croatia, four miles north-weſt of Damianovitz.

JASUBILI'HEM, [Hebrew.] The name of a place.

JASWO'NY, a town of Samogitia: twenty-four miles ſouth-eaſt of Roſienne.

JAT, a town of Sweden, in the province of Smaland: twelve miles ſouth of Wexio.

JATHNI'EL, [Hebrew.] The name of a man.

JA'TOE, a town of the iſland of Borneo: 120 miles north of Negara.

IATROLEP'TES, *ſ.* [ιατρος, Gr. a phyſician, and αλειπτης, an anointer.] A phyſician who undertakes to cure diſeaſes by external unctions.

IATROLEP'TIC, *adj.* and *ſ.* That which cures by anointing; that part of phyſic that cures by friction with unctuous ſubſtances, and the application of fomentations and plaſters.

IATROCHEM'IST, *ſ.* A chemical phyſician, or one who uſes or preſcribes chiefly chemical preparations.

IATROMATHEMATI'CIAN, *ſ.* A phyſician who conſiders diſeaſes and their cauſes mathematically, and preſcribes according to mathematical proportions. *Bailey.*

IAT'ROPHA, *ſ.* [from ιατρον, Gr. a medicine, or rather poiſon; and φαγω, to eat. *Linn.*] PHYSIC-NUT, CASSAVA, or MANIHOT, and CAOUTCHOUC, or INDIA RUBBER; in botany, a genus of the claſs monoecia, order monadelphia, natural order of tricoccæ, (euphorbiæ, *Juſſ.*) The generic characters are—I. Male flowers. Calyx: perianthium ſcarcely manifeſt. Corolla: one petalled, funnel-form; tube very ſhort; border five-parted; diviſions roundiſh, ſpreading, convex, concave beneath. Stamina: filaments ten, awl-ſhaped, approximated in the middle; the five alternate ones ſhorter, upright, ſhorter than the corolla; antheræ roundiſh, verſatile. Piſtillum: a weak rudiment, latent in the bottom of the flower. II. Female flowers in the ſame umbel with the males. Calyx: none. Corolla: five-petalled, roſaceous. Piſtillum: germ roundiſh, three-furrowed; ſtyles three, bifid; ſtigmas ſimple. Pericarpium: capſule roundiſh, tricoccous, three-celled, cells bivalve. Seeds: ſolitary, roundiſh.—*Eſſential Character.* Male. Calyx none; corolla one-petalled, funnel-form; ſtamina ten, alternately longer and ſhorter. Female. Calyx none; corolla five-petalled, ſpreading; ſtyles three, bifid; capſule three-celled; ſeed one.

*Species.* 1. Iatropha goſſypifolia, cotton-leaved phyſic-nut, or wild caſſava: leaves five-parted, lobes ovate, entire, ciliate; briſtles glandular, branched on the petioles. Stem from two to three feet high, herbaceous, branched, ſmooth. Branches ſubdivided, round, beſet at the baſe with branched glanduliferous cilias or briſtles. Leaves digitate, veined, tender, often three-lobed; lobes acute, ſerrate, toothed and ciliate, cilias glandular. Common peduncle terminating; partial cymed, bifid; male flowers very copious, females ſolitary, in the forks of the peduncles. Native of the Weſt-India iſlands; very common in moſt parts of Jamaica, where the ſoil is dry and gravelly, and the ſituation warm. It grows moſt luxuriantly about houſes, where the ground is warmed with dung, and riſes in ſuch places to the height of three feet and a half, or more. It is a very beneficial plant in every plantation where they raiſe any quantity of poultry, which are very fond of the ſeeds. A decoction of the leaves is ſometimes uſed as a purgative in the dry belly-ach. Hence it is called *belly-ach weed.* Browne names it *wild caſava,* or *caſadar.*

2. Iatropha glauca, or glaucous-leaved phyſic-nut: calycled; leaves five-cleft and three-cleft, ſerrate-toothed; petioles naked, ſtipules palmate. Stem herbaceous, erect, a foot high, pubeſcent. It is diſtinguiſhed from the preceding at firſt ſight by its glaucous hue; but, beſides this, it differs in having the leaves produced at the baſe, but not tranſverſe; the lobes oblong, ſharply ſerrate, not ovate and ciliate-glandular as in that; and the petioles naked, without branched glandular hairs. Native of Arabia and the Eaſt Indies.

3. Iatropha ſpinoſa, or prickly-ſtalked phyſic-nut: calycled; leaves three-parted, lobes angular upwards, and quite entire; ſtem ſhrubby, prickly.

4. Iatropha variegata, or variegated phyſic-nut: calycled; leaves lanceolate, quite entire.

5. Iatropha glanduloſa, or glandular phyſic-nut: calycled; leaves five-lobed, villoſe; lobes toothletted, glandular; ſtem ſhrubby, without ſtipules.

6. Iatropha Moluccana, or Molucca phyſic-nut: leaves ovate, quite entire, ſomewhat toothed. This is a tree, with alternate ovate or ovate-cordate leaves, with ſome ſcarcely-conſpicuous angles, or one or two teeth, acute like thoſe of Hernandia, but not peltate. It has the ſame general appearance with the other ſpecies, but differs in the calyx, and the number of petals and piſtils. Now that it is better known, it is found that it ought to conſtitute a diſtinct genus. Native of the Molucca Iſlands and Ceylon.

7. Iatropha divaricata, or divaricated phyſic-nut: leaves ovate, acuminate, entire, very ſmooth; racemes divaricating. Native of Jamaica.

8. Iatropha curcus, or angular-leaved phyſic-nut: leaves cordate, angular. Stem a fathom in height, or, according to Browne, ſeldom more than ſeven or eight feet, ſuffruteſcent, round, ſmooth, and branched. Leaves five-angled, the angles at the baſe rounded, the reſt acute. Flowers in terminating cymes; males pale yellow; females green. Native of South America and the iſlands in the Weſt Indies. Browne ſays it is very common in all the ſugar-colonies, and cultivated frequently in incloſures, but dies after a few years. The leaves are much uſed in reſolutive baths and fomentations, and the ſeeds ſometimes as a purgative; but they operate very violently, and are therefore now but little uſed. Gærtner ſuggeſts, that it was firſt obſerved by Boyle; that the fruit might be eaten with ſafety if the embryo were taken out.

9. Iatropha multifida, or French phyſic-nut: leaves many-parted, even; ſtipules briſtle-ſhaped, multifid. This grows generally to the height of five, ſix, or ſeven, feet, with a very ſmooth ſuffruteſcent ſtem, and ſpreading branches. This ſpecies is now very common in moſt of the iſlands in the Weſt Indies, but was introduced from the continent firſt into the French iſlands, whence it is called in the Britiſh iſlands *French phyſic-nut.* It is much cultivated in Jamaica, and forms no ſmall ornament in their flower-gardens, with its large bunches of beautiful red flowers. The whole plant diſtils a tenacious watery liquor. The ſeeds are purgative, but ſo violent in their operation that they are now rarely adminiſtered, though

formerly they were almoſt the only purgative medicine uſed among the Spaniards. It was cultivated in 1696 in the royal garden at Hampton Court; and flowers from June to Auguſt.

10. Iatropha manihot, or eatable-rooted phyſic-nut, or caſſava: leaves palmate, lobes lanceolate, quite entire, even. The caſſava ſhoots from a tough, branched, woody, root, whoſe ſlender collateral fibres ſwell into thoſe fleſhy conic maſſes for which the plant is cultivated; and riſes, by a ſlender woody knotted ſtalk, to the height of four, five, or ſix, feet; ſometimes more. Leaves alternate, ſmooth, on long petioles, ſeven-lobed; lobes narrow at the baſe, growing broader till within an inch and a half of the top, where they diminiſh to an acute point; the three middle lobes are about ſix inches long, and two broad where broadeſt; the two next are about an inch ſhorter, and the two outſide lobes are not more than three inches long; the middle lobes are ſinuated on each ſide near the top, but the two outer are entire. The flowers are produced in umbels at the top of the ſtalks, ſome male and others female; petals five, ſpreading; in the male flowers ſtamens ten, united; in the females, germ round with three furrows in the centre; ſtyles three, two diſtant, and one riſing between them ſhorter, all crowned by a ſingle ſtigma. Capſule roundiſh.' See this ſpecies repreſented in the annexed Engraving. Native of South America. Pere Rochon ſays that it was tranſported into the Iſle of France from Braſil. This plant, which formerly ſupplied the greateſt part of the ſuſtenance of the native Indians, is now raiſed in moſt parts of America, and generally conſidered as a very beneficial vegetable, yielding an agreeable wholeſome food; and this, with its eaſy growth and hardy nature, recommends it every where. It grows to perfection in about eight months, but the roots will remain a conſiderable time in the ground uninjured. They are generally dug up as occaſion requires, and prepared for uſe in the following manner: 'Being firſt well waſhed and ſcraped, then rubbed to a pulpy farina on iron graters, they are put into ſtrong linen or palmetto bags, and placed in a convenient preſs, until the juice is entirely expreſſed; the farina is then taken out and ſpread in the ſun for ſome time, pounded in large wooden mortars, run through coarſe ſieves, and afterwards baked on iron plates placed over proper fires, and when hot beſtrewed with the ſifted meal to whatever ſize or thickneſs people pleaſe to have the cakes made; this agglutinates as it heats, grows gradually harder, and, when thoroughly baked, is a wholeſome well-taſted bread.' TAPIOCA is alſo prepared from this root. The juice of the root is ſweetiſh, but more or leſs of a deleterious nature both freſh and in the putrid ſtate, though it hardly retains any thing of this quality whilſt it ferments. The milky juice ſwallowed, or the root eaten without preparation, brings on convulſions, and occaſions violent retching and purging; it acts only on the nervous ſyſtem, and produces no inflammation in the ſtomach; but the ſtomach of a man, or other animal, poiſoned by it, appears to be contracted one half. However violent the rough juice may be found immediately after it is expreſſed, it is certain that the roots are daily eaten by hogs without prejudice; and a little mint-water and ſalt of wormwood will calm the moſt violent ſymptoms that ariſe on taking it, and prevent all bad conſequences, even in the human ſpecies, if it be but timely adminiſtered. Cayenne pepper has been more recently pronounced an antidote. *Med. Facts*, vol. vii.

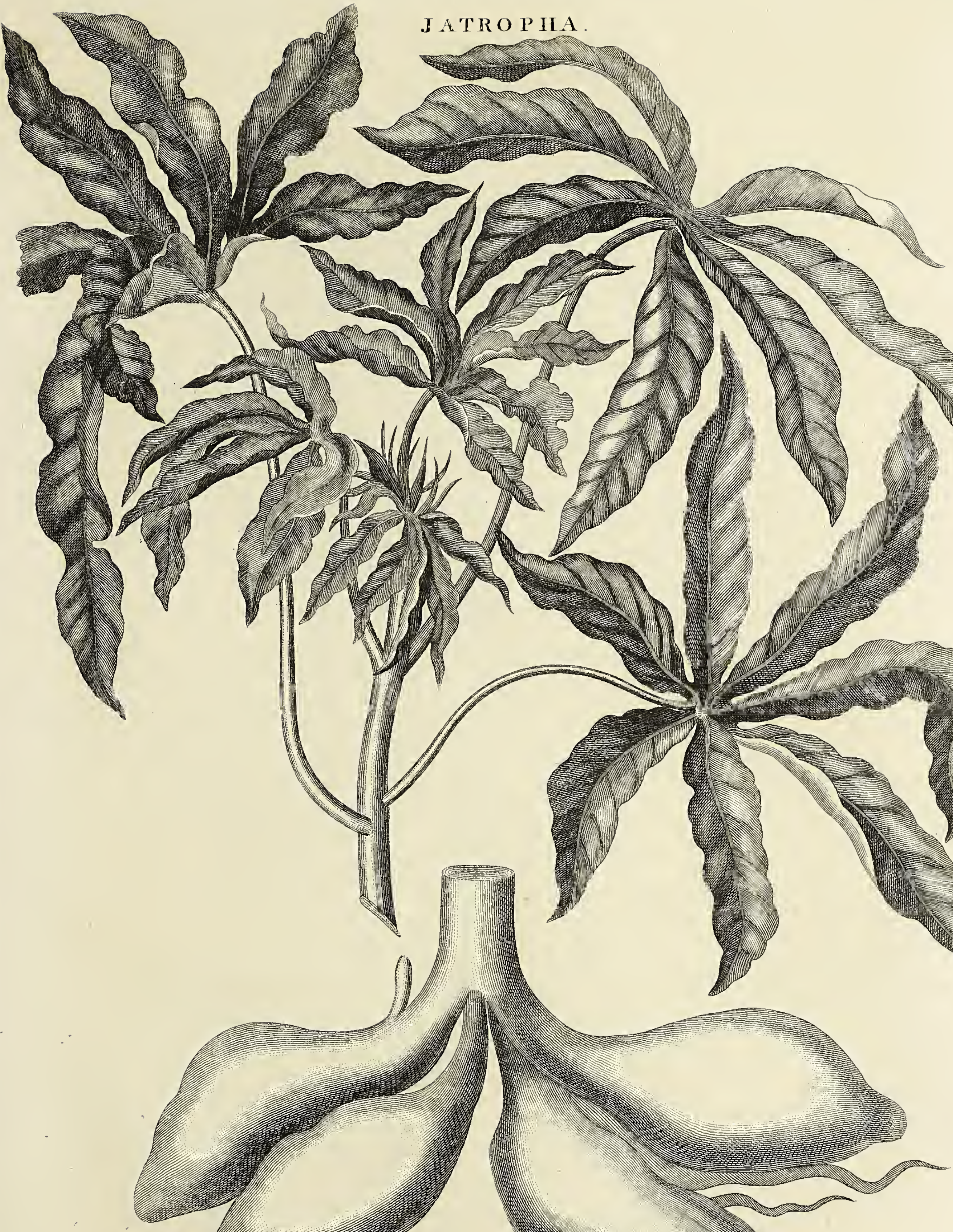
What is expreſſed from the farina of caſſava is frequently preſerved and prepared for many economic uſes; in boiling it throws up a thick viſcid ſcum, which is always caſt away, and the remaining fluid is ſometimes diluted and kept for common drink; and is thought in that ſtate to reſemble whey. Some uſe it in ſauces for fiſh and many other ſorts of food; purpoſes for which it was employed by the native Indians, long before any European had landed in thoſe parts of the world. The farina, whilſt yet impregnated with the juice, makes an excellent ſalve, which ſeldom fails to clean and heal the moſt deſperate ſores; where theſe are very foul, or the parts too much relaxed, it is ſometimes mixed with a few pounded tobacco-leaves; and has been often found effectual, where common ointments have not had the leaſt force; it is alſo uſed by way of poultice, and is an excellent reſolutive.

In Madagaſcar, caſſava is the ordinary food of the blacks, and the French call it *Madagaſcar bread*. In the Weſt Indies this plant is called *caſſava*, *caſſada*, or *caſſadar*. In braſil, *mandihoca*, *manuba*, *manduba*; whence we have the name *manihot*, and in French, *manihiot*. The Caribes call it *yuka* or *juka*; which name is adopted in Germany, and by the Spaniards, who call it *yucca de caſſabe*. The Germans and Dutch have alſo adopted the Weſt Indian name, as well as the Engliſh. At Rio di Janeiro they call the flour or meal of the caſſava root, *farinha di pao*; which may, not improperly, be tranſlated, "powder of poſt." It was cultivated here in 1739 by Mr. Miller; and flowers in July and Auguſt.

11. Iatropha janipha, or Carthaginian phyſic-nut: leaves palmate, lobes quite entire, the middle ones on both ſides lobed with a ſinus. This is an upright ſhrub, quite ſmooth all over, abounding in an aqueous juice, that is ſomewhat clammy, and has the ſmell of walnut-leaves. In cloſe woods it frequently riſes with a weak, unbranched, rodlike, ſtem, to the height of twenty feet, and it retains this habit in the European ſtoves; among other ſhrubs in open places it is commonly no more than ſix feet high, and approaches very near to the figure of the preceding ſort, from which Linnæus ſeems to think this is hardly ſpecifically different. In the ruined walls of the fortreſs of Boca Chica it is become a ſort of tree, eight feet high, with a ſtraight trunk four inches in diameter, and with a pretty head. Loureiro deſcribes it as only four feet high, with a ſtraight, unbranched, unarmed, ſtem. 'Roots very tuberous, like thoſe of aſphodel, in bundles; the tubers ovate-oblong, acute, white within and without, three inches long, with a ſweetiſh hot taſte. Leaves large, elegant, palmate-digitate; lobes five, (about nine, according to Loureiro,) oblong, acuminate, contracted in the middle on both ſides by a very large ſinus; the outer ones frequently quite entire. The fruit is covered with a fleſhy green pellicle, marked with ſix white ſtreaks, and ſhining very much; it is then globular, and more than half an inch in diameter; but this dries up and falls off, and then the capſule remains three-lobed on the ſides.' But this is more or leſs the caſe in the other ſpecies of this genus, Croton, and Acalypha. The ſeeds are ſhining, ſubovate, green or aſh-coloured. Native of South America; common about Carthagena, flowering almoſt the whole year; alſo of China, according to Loureiro, who adds, that it is uſed, not raw, but boiled, as are ſolutive, like the preceding.

12. Iatropha urens, or ſtinging phyſic-nut: leaves palmate, toothed, prickly. This has a thick, ſwelling, fleſhy, root, from which ariſes an herbaceous ſtalk as big as a man's thumb, four or five feet high, and dividing into ſeveral branches; theſe are very cloſely armed with long brown ſpines; the footſtalks of the leaves are ſix or ſeven inches long, which are alſo armed with ſpines, but not ſo cloſely, nor are the ſpines ſo long as thoſe on the ſtalk and branches; the leaves are deeply cut into five lobes, which are jagged deeply on their ſides, and the nerves are armed with ſtinging ſpines; the flowers are produced in umbels at the top of the branches, ſtanding upon long naked peduncles; they are of a pure white colour; the male flowers appear firſt; they are five-petalled, forming a ſhort tube at bottom, and ſpreading open flat above; the ſtamens are the length of the tube, and fill it up at the mouth; the female flowers are ſmaller, but of the ſame ſhape, with an ovate three-cornered germ. Native of Braſil. Mr. Miller ſays, 'it was found at Carthagena in New Spain by Mr. Robert Millar, who ſent the ſeeds to England, which ſucceeded in ſeveral curious gardens. But, according to the

# JATROPHA.



*Jātropha Manihot, or Eatable-rooted Physic-nut, or Cassava.*

London Publiſhed as the act directs June 12-1809 by J. Wilkes.

Catalogue of the Royal Garden at Kew, it had been introduced before by Mr. Bentick in 1690. It flowers from May to July.

Mr. Miller has another ſort, found by Dr. Houſtoun at Vera Cruz, where it was planted for ornament. Having leaves divided like the common wolfsbane, he names it Iatropha aconitifolia. It riſes with a ſtrong, brittle, woody ſtalk, ten or twelve feet high, covered with a grey bark, and dividing into many branches. The leaves are armed with ſmall ſtinging ſpines like thoſe of the nettle. At the ends of the branches come out the flower-ſtalks, which are five or ſix inches long, and ſuſtain an umbel of white flowers. The males are one-petalled, and have a pretty long tube, divided at top into five ſegments; the females expand in form of a roſe, and are ſucceeded by a globular, prickly, tricoccous fruit. It is probably a variety of the *urens*.

13. Iatropha herbacea, or herbaceous phyſic-nut: prickly, leaves three-lobed; ſtem herbaceous. This is an annual plant, riſing with an herbaceous ſtalk about a foot high, dividing into two or three branches; the whole cloſely armed with long, briſtly, ſtinging, ſpines. The flowers grow in an umbel at the ends of the branches; they are ſmall, of a dirty white colour; three-lobed capſules, covered with the ſame ſpines as the plant. Native of Vera Cruz.

14. Iatropha elaſtica, elaſtic-gum-tree, or caoutchouc: leaves ternate, elliptic, quite entire; hoary underneath, on long petioles. The tree yielding that reſin which is now commonly known under the name of elaſtic gum, caoutchouc, or Indian rubber, is ſuppoſed to be of this genus; but there are ſeveral others which yield a ſimilar juice, as Ficus Indica, Cecropia peltata, Siphonia caoutchouc, Artocarpus integrifolia, and Urceola elaſtica; and perhaps other ſpecies of thoſe genera, eſpecially of the Iatropha and Siphonia. This tree is a native of Guiana, of Quito, and Braſil, particularly in Para, where it is called *maſſaradub:* The Indians by an inciſion in the bark extract a viſcid white ſubſtance, like that which iſſues from the fig-tree; they receive it into earthen moulds, to make rings, bracelets, girdles, ſyringes, hats, boots, flambeaux, figures of animals, &c. Abbé Rochon ſays that the inhabitants of Madagaſcar alſo make flambeaux of it, which burn without wicks, and afford them a very good light when they go out to fiſh in the night-time; but he deſcribes the tree which yields the elaſtic gum in Madagaſcar as twenty feet high, the leaves eight inches long and two inches broad, the fruit reſembling a round fig, and full of ſmall ſeeds. We may conclude therefore that this tree is the Ficus Indica; certainly not an Iatropha. The coagulated juice however is of the ſame nature.

The firſt account which we have of the elaſtic gum or reſin, or caoutchouc as it is called by the Indians to the ſouth-eaſt of Quito, is in a memoir by Monſ. de la Condamine in the Memoirs of the French Academy for 1751, and in his relation of the river of Amazons in 1745. The tree which yields this ſubſtance grows along the banks of this river, and is very common in the foreſts of the province of Emeralds to the north of Quito, where it is called *hheve*, and whence Aublet has taken his generic name, Hevea. The tree is deſcribed as very lofty and ſtraight, and quite naked up to the head, which is very ſmall; the trunk of the largeſt is only about two feet in diameter. The foliage is not unlike that of the caſſava, No. 10. The fruit is triangular, incloſing three ſeeds. Theſe ſeeds or kernels, peeled and boiled in water, yield a thick oil, which the Indians uſe as butter with their food. The wood of the tree is light and fit for maſts. For the general hiſtory of CAOUTCHOUC, ſee that article, vol. iii. p. 744; and for its chemical properties, as far as were then known, ſee CHEMISTRY, vol. iv. p. 340. to which the following remarks may now be added.

Caoutchouc, when pure, is of a white colour, and without taſte or ſmell; the black colour of the caoutchouc of commerce is owing to the method of drying it after it has been ſpread upon moulds. The uſual way is to ſpread a thin coat of the milky juice upon the mould, and then to dry it by expoſing it to ſmoke; afterwards another coat is laid on, which is dried in the ſame way. Thus the caoutchouc of commerce conſiſts of numerous layers of pure caoutchouc alternating with as many layers of ſoot.

Caoutchouc is not altered by expoſure to the air. It is perfectly inſoluble in alcohol; but alcohol renders it colourleſs. It is perfectly ſoluble in ether. This property was firſt pointed out by Macquer: Berniard, on the contrary, found it to be ſcarcely at all ſoluble in ſulphuric ether, which was the ether uſed by Macquer; and that even nitric ether was but an imperfect ſolvent. See vol. iv. p. 340. The difference in the reſults of theſe two chemiſts was very ſingular; both were remarkable for their accuracy, and both were too well acquainted with their ſubject to be eaſily miſled. The matter was cleared up by Mr. Cavallo: he found that ether, when newly prepared, ſeldom or never diſſolved caoutchouc completely; but, if waſhed previouſly in water, it never failed to diſſolve the caoutchouc with facility. When the ether is evaporated, the caoutchouc held in ſolution is obtained unaltered; in this ſtate, therefore, it might be employed to make inſtruments of different kinds; but that method would be too expenſive for ordinary purpoſes. However, it has ſince been diſcovered that it may be melted by means of water only; ſee vol. iii. p. 745, new edit.

Another curious particular relative to caoutchouc is its electric property. This was diſcovered and communicated as long ago as Nov. 1797, in the Monthly Magazine. The electric property may be aſcertained in the following manner: Take a quarter of a ſheet of writing-paper, hold it to the fire till it be pretty warm, and then immediately lay it upon a table, or any even ſurface; hold it there ſteadily to prevent its ſlipping, and briſkly rub it, ten or a dozen times, in the ſame direction, with a piece of India rubber. Now, upon attempting to lift the paper, it will be found to adhere cloſely to the table; and, being ſuddenly raiſed, and again brought within a ſmall diſtance, it will be ſtrongly attracted to the table. This is occaſioned by a quantity of electric fluid accumulated between the table and the paper, by the friction of the rubber; for, on preſenting a conducting body, the paper will be attracted to it. Sparks, attended with a crackling noiſe, may be drawn from the paper in the uſual manner; which, when viewed in the dark, appear more luminous than might at firſt be ſuppoſed. It muſt be ſuppoſed, however, that unleſs the paper be lifted very expeditiouſly from the table, the greater part of the fluid will eſcape in doing it; and conſequently, the paper will exhibit but ſmall ſigns of electricity. Indeed, the quantity of fluid accumulated is always much greater than that which remains on the paper; but in dry froſty weather, the beſt time for making the experiment, the quantity remaining will be conſiderable. The paper muſt be previouſly warmed at the fire; for continuing the friction, even till the paper grows warm, has never ſucceeded.

Some new lights have alſo been thrown upon the nature and properties of this ſubſtance by the experiments of Mr. John Gough, as detailed in the Memoirs of the Mancheſter Society, vol. i. ſecond ſeries, 1806. Mr. G. obſerved, that, when the ſubſtance was much diſtended, a portion of its caloric was extricated; that a piece of it, when kept permanently ſtretched, was ſhortened by heat, and lengthened by cold; and that an increaſe of temperature diminiſhed its ſpecific gravity. If it be ſtretched in warm water, it retains its elaſticity; but if, when ſtretched, it be placed in water colder than itſelf, it remains diſtended until heat be applied, when it again contracts. Hence it is concluded, "that the elaſticity of caoutchouc depends on the caloric contained between its pores;" and that, if the caloric be removed from it, the elaſticity is deſtroyed. By diſtenſion, the pores are forcibly diminiſhed, and a quantity of caloric is extricated; while the affinity which exiſts between the ſubſtance and caloric gives it a tendency to return to its former figure, in order that, by the enlargement of the pores, the original quantity of caloric may be received.

*Propagation and Culture.* All theſe plants, being natives of the warm-parts of America, are too tender to thrive in the open air in England. The firſt ſort is cultivated in the Weſt Indies for food, where it is propagated by cutting the ſtalks into lengths of ſeven or eight inches, which, when planted, put out roots. The other ſorts are eaſily propagated by ſeeds, which ſhould be ſown on a good hot-bed in the ſpring, and when the plants are fit to remove, they ſhould be each tranſplanted into a ſmall pot filled with light earth, and then plunged into a freſh hot-bed of tanners' bark, carefully ſhading them till they have taken freſh root; after which they muſt be treated in the ſame manner as other tender plants from hot countries, admitting freſh air to them daily, in proportion to the warmth of the ſeaſon; but as many of the ſorts have ſucculent ſtalks, ſome of which have a milky juice, they ſhould have but little water given them, for they are ſoon deſtroyed by wet. The thirteenth ſort is an annual plant; if the ſeeds are ſown early in the ſpring, and the plants are brought forward, they will perfect their ſeeds the ſame year; but the other ſorts are perennial, ſo do not flower till the ſecond or third year; therefore the plants ſhould be plunged into the tan-bed in the ſtove, where they ſhould conſtantly remain, giving them a large ſhare of air in warm weather; but in winter they muſt be tenderly treated, and in that ſeaſon muſt have very little water. With this management the plants will continue ſeveral years, and produce their flowers, and frequently perfect their ſeeds in England. The caſſava thrives beſt in the Weſt Indies, in a free mixed ſoil, is propagated by the bud or gem, and is generally cultivated in the following manner: The ground is firſt cleared, and hoed up into ſhallow holes, of about ten or twelve inches ſquare, and ſeldom above three or four inches in depth. When they intend to plant, they provide a ſufficient number of full-grown ſtems, and cut them into junks, of about ſix or ſeven inches length, as far as they find them tough and woody, and well furniſhed with prominent, well-grown, hardy, buds; of theſe they lay one or two in every hole, and cover them over with mould from the adjoining bank; but care muſt be taken to keep the ground clean, until the plants riſe to a ſufficient height to cover the mould, and to prevent the growth of all weaker weeds.

IA'TRUS (Matthew), a Greek monk and prieſt who flouriſhed in the thirteenth century, and took his ſurname from an iſland in the Propontis, of which he was a native. That his time is not to be referred to an earlier period than what we have already mentioned, may be concluded from ſome expreſſions made uſe of by him relating to dignities which had no exiſtence till after the reign of the emperor Alexius Angelus, which terminated in the year 1203. He was the author of two treatiſes in Greek verſe, which, from the meaſure in which they are written, are rather to be claſſed among political ſongs than regular poems. The former of them is employed in deſcribing the different officers belonging to the great church at Conſtantinople; and the latter, the officers connected with the imperial palace in the ſame city. The original of both was publiſhed, with a Latin verſion and notes, by James Goar, and annexed to his edition of George Codinus's treatiſe, De Officiis Conſtant. printed at Paris in 1648, folio. Cave alſo is of opinion, that he was the author of the *Quæſtiones & Cauſæ Matrimoniales*, which form almoſt the whole eighth book of the Jur. Græco-Rom. For the ſubjects of ſuch manuſcripts of his as are ſtill extant, or have been quoted, &c. the reader may conſult Cave's Hiſt. Lit. vol. ii.

JAT'TIR, [Hebrew.] The name of a man.

JA'VA, a large iſland of the Eaſt Indies, lying between lat. 6. to 8. S. and from lon. 105. and 116. E. extending in length 700 miles, and in breadth about 100. It is ſituated to the ſouth of Borneo, and ſouth-eaſt from the peninſula of Malacca, having Sumatra lying before it, from which it is ſeparated by a narrow paſſage, now ſo famous in the world by the name of the *Strait of Sunda*. The country is mountainous and woody in the middle; but a flat coaſt, full of bogs and marſhes, renders the air unhealthful. It produces pepper, indigo, ſugar, tobacco, rice, coffee, cocoa-nut, plantains, cardamoms, and other tropical fruits. Gold alſo, but in no great quantities, has been found in it. It is diverſified by many mountains, woods, and rivers; in all which nature has very bountifully beſtowed her treaſures. The mountains are many of them ſo high as to be ſeen at the diſtance of three or four leagues. That which is called the *blue mountain* is by far the higheſt of them all, and ſeen the fartheſt off at ſea. They have frequent and very terrible earthquakes in this iſland, which ſhake the city of Batavia and places adjacent, to ſuch a degree, that the fall of the houſes is expected every moment. The waters in the road are exceſſively agitated, inſomuch that their motion reſembles that of a boiling pot; and in ſome places the earth opens, which affords a ſtrange and terrible ſpectacle. The inhabitants are of opinion, that theſe earthquakes proceed from the mountain Parang, which is full of ſulphur, ſaltpetre, and bitumen. The fruits and plants of this iſland are all in their ſeveral kinds excellent, and almoſt out of number. There are abundance of foreſts ſcattered over it, in which are all kinds of wild beaſts, ſuch as buffaloes, tigers, rhinoceroſes, and wild horſes, with an infinite variety of ſerpents, ſome of them of an enormous ſize. Crocodiles are prodigiouſly large in Java, and are found chiefly about the mouths of rivers; for, being amphibious animals, they delight moſtly in marſhes and ſavannals. There is, in ſhort, no kind of animal wanting here; fowls they have of all ſorts, and exquiſitely good, eſpecially peacocks, partridges, pheaſants, wood-pigeons; and, for curioſity, they have the Indian bat, which differs little in form from ours; but its wings, when extended, meaſure a full yard, and the body of it is of the ſize of a rat. They have fiſh in great plenty, and very good; ſo that for the value of three-pence there may be enough bought to dine ſix or ſeven men. They have likewiſe a multitude of tortoiſes, the fleſh of which is very little inferior to veal, and there are many who think it better.

It is ſaid, that there are in the iſland upwards of forty great towns, which, from the number of their inhabitants, would, in any other part of the world, merit the title of *cities*; and more than 4500 villages, beſides hamlets, and ſtraggling houſes lying very near each other, upon the ſea-coaſt, and in the neighbourhood of great towns; hence, upon a fair and moderate computation, there are within the bounds of the whole iſland, taking in perſons of both ſexes, and of all ranks and ages, more than thirty millions of ſouls. There are a great many princes in the iſland, of which the moſt conſiderable are, the emperor of Materan, who reſides at Kataſura, and the kings of Bantam and Japara. Upon the firſt of theſe many of the petty princes are dependent; but the Dutch are abſolute maſters of the greateſt part of the iſland, particularly of the north coaſt; though there are ſome of the princes beyond the mountains, on the ſouth coaſt, who ſtill maintain their independency. See BANTAM and BATAVIA, in our ſecond volume; in which articles the hiſtory of Java has been almoſt entirely anticipated.

JA'VA HEAD', the weſtern point of the iſland of Java. Lat. 6. 18. S. lon. 104. 15. E. Greenwich.

JA'VAN, [Heb. a deceiver.] A man's name.

JAUDE, a town of France, in the department of the Charente, and chief place of a canton, in the diſtrict of La Rochefoucauld: three leagues north-north-eaſt of Angouleſme.

JOUDONNIE'RE, a town of France, in the department of the Vendée, and chief place of a canton, in the diſtrict of La Chataigneraye: three leagues weſt of La Chataigneraye.

*To* JAV'EL, or JABLE, *v. a.* To bemire; to ſoil over with dirt through unneceſſary traverſing and travelling. This word is ſtill retained in Scotland and the northern counties.

JAV′EL, *ſ.* A wandering or dirty fellow.—Sir Thomas More, preparing himſelf for execution, put on his beſt apparel, which the lieutenant compelled him to put off again, ſaying, That he who ſhould have them was but a *javel.* What, ſays ſir Thomas, ſhall I account him a *javel,* who ſhall this day do me ſo great a benefit? *More.*

When as time, flying with wings ſwift,
Expired had the term that thoſe two *javels*
Should tender up a reckoning of their travels. *Hubb.*

JAV′ELIN, *ſ.* [*javeline,* Fr.] A ſpear or half-pike, which anciently was uſed either by foot or horſe. It had an iron head pointed:

Others, from the wall, defend
With dart and *jav'lin,* ſtones, and ſulph'rous fire;
On each hand ſlaughter and gigantic deeds. *Milton.*

She ſhakes her myrtle *jav'lin:* and, behind,
Her Lycian quiver dances in the wind. *Dryden.*

Flies the *javelin* ſwifter to its mark,
Launch'd from the vigour of a Roman arm? *Addiſon.*

JAVEL′LO (Chryſoſtome), a learned Italian Dominican of the ſixteenth century, taught philoſophy and theology at Bologna, and died about the year 1540. He wrote a work on philoſophy, another on politics, and another on Chriſtian œconomy, which are eſteemed; with notes on Pomponatius, and other works, printed in 3 vols. folio.

JAU′ER, a principality of Sileſia, bounded on the north by the principalities of Glogau and Sagan, on the eaſt by Lignitz and Schweidnitz, on the ſouth by Bohemia, and on the weſt by Bohemia and Luſatia. The whole principality is mountainous. Its mountains are covered with wood. It yields likewiſe pit-coal and mill-ſtones. The mountains contain various ores, with numerous mines of iron and copper, which are actually worked. In this principality too is a mineral ſpring, with ſome warm baths, which are much frequented. Excluſive of twelve towns, in this principality are ſome villages four miles in length. Some of theſe villages contain two hundred families and upwards, and among their inhabitants are artificers, particularly weavers, whoſe goods are bought up for exportation. The earthenware is much eſteemed. The principal towns are Jauer, Hirſchberg, Lowenberg, and Bunzlau, all of which give name to circles or diſtricts, and are their reſpective capitals.

JAU′ER, a town of Sileſia, and capital of the principality of the ſame name. In the year 1640, this town was taken and plundered by the Imperialiſts: ſixteen miles north-weſt of Schweidnitz, and twelve north of Freyburg. Lat. 50. 66. N. lon. 24. 4. E. Ferro.

JAV′ERLHAC, a town of France, in the department of the Dordogne, and chief place of a canton, in the diſtrict of Nontron: four miles north-weſt of Nontron.

JAUFFROY′ (Stephen), a French prieſt of the congregation of the Chriſtian doctrine, was a native of Ollioules in the dioceſe of Toulon, and died in the year 1760, at what age we are not informed. His character is repreſented to have been very reſpectable, both on account of his extenſive knowledge and his virtuous manners. He preſented to the world a collection of The Synodal Statutes, publiſhed by the General Synod held at Mende, in 1738 and 1739, 8vo. and he drew up an account of The Conferences at Mende, which appeared after his death, in 1761, 12mo.

JAUFTIO′NI, a river in Louiſiania, which runs a ſouth-eaſt courſe, and empties into the Miſſiſſippi in lat. 39. 15. N. about ſixteen miles ſouth of the mouth of Fabiani river, and thirteen north of that of Oahaha river.

JAU′JAC, or JAULNAC, a town of France, in the department of the Ardeche, and chief place of a canton, in the diſtrict of Tanargue: five leagues ſouth-weſt of Privas.

JAVI′SO, a river of Naples, in the province of Calabria Citra, which runs into the Crate.

JAUL′NAIS, a town of France, in the department of the Vienne, and chief place of a canton, in the diſtrict of Poitiers: two leagues north of Poitiers, and three and a half ſouth-ſouth-weſt of Chatellerault.

*To* JAUNCE, *v.n.* [the old word for.] To jaunt:

I was not made a horſe,
And yet I bear a burden like an aſs,
Spur-gall'd and tir'd by *jauncing* Bolingbroke. *Shakeſp.*

JAUN′DICE, *ſ.* [*jaunie, jauniſſe,* yellow, Fr.] A diſtemper from obſtructions of the glands of the liver, which prevents the gall being duly ſeparated by them from the blood; and ſometimes, eſpecially in hard drinkers, they are ſo indurated as never after to be opened, and ſtraiten the motion of the blood ſo much through that viſcus, as to make it divert with a force great enough into the gaſtric arteries, which go off from the hepatic, to break through them, and drain into the ſtomach; ſo that vomiting of blood, in this diſtemper, is a fatal ſymptom. *Quincy.*

Why ſhould a man, whoſe blood is warm within,
Sit like his grandſire cut in alabaſter?
Sleep when he wakes, and creep into the *jaundice*
By being peeviſh? *Shakeſpeare.*

For the cure of this diſorder, ſee the article PATHOLOGY.

JAUN′DICED, *adj.* Infected with the jaundice:

All ſeems infected, that th' infected ſpy,
As all looks yellow to the *jaundic'd* eye. *Pope.*

*To* JAUNT, *v.n.* [*janter,* Fr.] To wander here and there; to buſtle about. It is now always uſed in contempt or levity.

JAUNT, *ſ.* Ramble; flight; excurſion. It is commonly uſed ludicrouſly, but ſolemnly by Milton:

Our Saviour meek, and with untroubled mind,
After his airy *jaunt,* though hurry'd ſore,
Hungry and cold, betook him to his reſt. *Milton.*

JAUN′TINESS, *ſ.* [from *jaunty* or *janty,* corrupted from *gentil,* Fr. See JANTY.] Airyneſs; flutter; genteelneſs.—A certain ſtiffneſs in my limbs entirely deſtroyed that *jauntineſs* of air I was once maſter of. *Addiſon.*

JAUN′TING, *ſ.* The act of rambling.

JAV′ORNICK, a mountain of Carniola: ſixteen miles eaſt of Trieſt.

JAVRON′, a town of France, in the department of the Mayenne, and chief place of a canton, in the diſtrict of Villaine: one league and three quarters north-north-weſt of Villaine, and two eaſt of Laſſay.

JAUSIE′R, a town of France, in the department of the Lower Alps, and chief place of a canton, in the diſtrict of Barcelonette: four miles north-eaſt of Barcelonette.

JAUT, a tribe of rajapouts; they are Hindoos, who poſſeſs a large territory to the ſouthward of the Jumna; they are governed by a raja, who is called Soorudge Maun. *Roberts's Indian Gloſſary.*

JAUX′A. See ATUN-XAUXA.

JAW, *ſ.* [*joue,* a cheek, Fr.] The bone of the mouth in which the teeth are fixed.—Piſo, who probably ſpeaks Ariſtotle's meaning, ſaid that the crocodile doth not only move his upper *jaw,* but that his nether *jaw* is immoveable. *Grew.*

More formidable hydra ſtands within,
Whoſe *jaws* with iron teeth ſeverely grin. *Dryden.*

The mouth:

My tongue cleaveth to my *jaws,* and thou haſt brought me into the duſt of death. *Pſalm* xxii. 15.

A ſmeary foam works o'er my grinding *jaws,*
And utmoſt anguiſh ſhakes my lab'ring frame. *Rowe.*

JAW-BONE, *ſ.* The bone of the jaw.

JAW-TOOTH, *ſ.* One of the grinders.

JAW′OR, a town of Lithuania, in the palatinate of Novogrodek; forty-eight miles ſouth-ſouth-weſt of Novogrodek.

IAXAR'TES, now *Sir* or *Sihon*, a river of Sogdiana, miſtaken by Alexander for the Tanais. It falls into the eaſt of the Caſpian ſea.

JAXT, or Yaxt, a river of Germany, which runs into the Neckar near Wimpfen.

JAXT'BERG, or Yatxberg, a town of Germany, in Franconia, and biſhopric of Wurzburg: thirty-one miles ſouth of Wurzburg, and ſix ſouth of Mergentheim.

JAY, *ſ.* [named from *his cry. Skinner.*] A bird. See Corvus.—I am highly delighted to ſee the *jay* or the thruſh hopping about my walks. *Spectator.*

Admires the *jay*, the inſect's gilded wings,
Or hears the hawk, when Philomela ſings. *Pope.*

JAY (Guy-Michaal le), a learned advocate of the parliament of Paris, who flouriſhed in the ſeventeenth century. He was profoundly ſkilled in the oriental languages, and formed the noble deſign, when the copies of the Polyglott of Antwerp were becoming ſcarce, of publiſhing a ſimilar work, on a larger plan, and at his own expence. This deſign he was enabled to carry into execution, though with the ruin of his fortune. He might have been reimburſed his expences, however, and alſo received an ample compenſation for his labours, if he would have permitted it to appear under the name of cardinal Richlieu, who was jealous of the reputation which cardinal Ximenes had acquired by patroniſing the famous Spaniſh Polyglott; but M. le Jay choſe to reſerve to himſelf all the glory of the undertaking. Being now poor and a widower, he embraced the eccleſiaſtical life, and obtained the ſmall deanery of Vezelay, in the Nivernois. The income ariſing from this benefice, and the inadequate ſums which he received from the ſale of his work, were his only means of ſubſiſtence till ſome years afterwards, when cardinal Mazarine made him a preſent of nineteen thouſand livres. The king, likewiſe as a reward of his zeal and diſintereſtedneſs, granted him letters of nobility, and a brevet of counſellor of ſtate. He died in the year 1675, but at what age we are not informed. The Polyglott of M. le Jay is in ten very large folio volumes, which were publiſhed at different periods from 1628 to 1645. It is a beautiful work in point of typography, but is too bulky to be uſed with convenience. This edition of the Bible contains the Syriac and the Arabic verſions, with their Latin tranſlations and the Hebrew Samaritan text of the Pentateuch, with the Samaritan tranſlation of the ſame in Samaritan characters, which are not in the Polyglott of Ximenes. It is a curious circumſtance, that, notwithſtanding all the labour and expence which M. le Jay had beſtowed on this work, he ſhould, in his general preface, make uſe of language, from which readers who concur with him in opinion muſt pronounce his undertaking to have been at leaſt entirely uſeleſs. For he there maintains, that of all the Bibles we ought at preſent to receive only the ancient Latin tranſlation, which alone, he concludes, we ought to conſult when we meet with any difficulties. If, as father Simon pertinently remarks, this was M. le Jay's perſuaſion, he certainly was to blame in ruining himſelf by printing a Bible containing ſo many different texts; he ought only to have printed the vulgate edition, which, acccording to him, is the true original by which we ought to regulate the Hebrew text. The high price at which this work was offered for ſale in England, induced Walton to form his ſcheme of publiſhing a Polyglott Bible which, though leſs beautiful, is more complete and commodious than our author's.

JAY, a townſhip in Cumberland county, diſtrict of Maine, lately incorporated; and thus named in honour of John Jay, governor of the ſtate of New York.

JAY's VAL'LEY, a ſettlement in the town of Kattſkill, ſtate of New York, formerly called *Minor Kill.* This name was changed in honour of the preſent governor of New York.

JAY'NA, a canton, pariſh, and river, on the ſouth ſide of the iſland of St. Domingo. The rivers Nigua and Jayna are about four leagues apart; and between them lies an extenſive and fertile plain, which was originally an abundant ſource of riches to the coloniſts. The quantity of pure gold that was dug from its cavities, its ſugar, cocoa, indigo, and other plantations, paid duties to a greater amount than thoſe paid by all the Spaniſh part of the iſland put together. It was in this territory, and on the river Jayna, that the famous lump of gold was found, which the Spaniſh writers ſay weighed 3600 Spaniſh dollars; without mentioning many others of a remarkable ſize. The ſettlements Gamboa, Guayabal, Bonaventura, and Cagnabola, which laſt was formerly called the Whale, are very inconſiderable; the whole employment of the people is breeding of cattle, or the waſhing of gold ſand. Indigo grows wild here. The river Jayna is not fordable; it is croſſed in canoes and ſkins at 250 fathoms from its mouth; and the animals are obliged to ſwim acroſs it. The coaſt lying between Jayna and St. Domingo is of rock, almoſt perpendicular, in general from ſix to fifteen feet high. Oppoſite this coaſt are a number of ſhoals, each of about forty fathoms wide. Towards the ſource of this river were the celebrated gold mines of St. Chriſtopher's, near which Columbus erected the fort of that name. There are alſo rich ſilver-mines on this river. The eſtabliſhments in the plain of St. Roſe, and thoſe on the Jayna, ought to be looked upon as depending on the city of St. Domingo. They are reckoned to contain 2000 perſons; for the moſt part people of colour, free and ſlaves.

JAYPOU'R, a town of Hindooſtan, in the country of Oriſſa: 400 miles ſouth-ſouth-weſt of Patna, and 192 weſt-ſouth-weſt of Cattack. Lat. 19.5.N. lon. 82.48.E. Greenwich.

JAYS'PIZ, a town of Moravia, in Znaym: twelve miles weſt-ſouth-weſt of Crumau.

JA'ZAR, the name of a place. 1 *Mac.*

JA'ZER, [Heb. help.] A diſtrict in the land of Iſrael.

JAZI'EL, [Hebrew.] A man's name.

JA'ZIR, [Hebrew.] A man's name.

I'BACH, a river of Germany, in the Briſgau, which runs into the Elz near Simonſwald.

IB'ALI, a town of European Turkey, in the province of Macedonia, ſituated near Drino Nero: ſixty miles north-north-weſt of Akrida.

IBAMETA'RA, *ſ.* in botany. See Spondias.

I'BAR, or Hibar, a town of European Turkey, in Servia: ten miles north of Novi-baſar.

I'BAR, or Hibar, a river of European Turkey, which runs into the Morava twenty miles north of Precop.

I'BAS, biſhop of Edeſſa in the fifth century, and famous in eccleſiaſtical hiſtory on account of the oppoſite deciſions concerning his orthodoxy, pronounced by the fourth and fifth general councils. He was a Syrian by nation, and appears to have been elected to the ſee of Edeſſa about the year 436. While he was a preſbyter of that church, he wrote a letter to one Maris, a Perſian, concerning the council of Epheſus, and the condemnation of Neſtorius, in which he was thought, not without reaſon, to favour the Neſtorian doctrine. Several years after he had been made biſhop of Edeſſa, having for ſome reaſons excommunicated four preſbyters of his church, they revived againſt him the charge of Neſtorianiſm. In order to eſtabliſh this charge, they accuſed him of pronouncing an anathema againſt Cyril, biſhop of Alexandria, and branding him with hereſy; and of having ſaid in one of his public diſcourſes, "I do not envy Jeſus Chriſt his divinity, ſince I can alſo become divine, as he is of the ſame nature with myſelf." The matter was inveſtigated in two ſynods held during the year 448, one at Tyre, and the other at Berytus, in which Ibas ſtrenuouſly denied that he had made uſe of any ſuch expreſſion concerning Chriſt, as his enemies pretended. With reſpect to the anathema which he had pronounced againſt Cyril, he reminded his judges that it had been delivered before the peace had taken place between the eaſtern biſhops and that prelate, but maintained that ſince that time a perfect agreement had ſubſiſted between them. After hearing both parties, the judges pronounced Ibas not guilty of the charge preferred againſt him. Notwithſtanding this acquittal, in the following year he was again accuſed of Neſtorianiſm before the council of Epheſus, which, from the violence and injuſtice of its proceedings, was called *the aſſembly of robbers*; and by them a decree of depoſition, exile, and impriſonment, was paſſed againſt him. According to the teſtimony of Facundus biſhop of Hermiana, he was from this time cruelly haraſſed, in being ſent from one place of confinement to another, till in the year 451 the council of Chalcedon pronounced his ſentiments orthodox, and decreed that he ſhould be reſtored to the dignity of which he had been deprived. Several years after his death he was again condemned as a Neſtorian, by the fifth general council which aſſembled at Conſtantinople in 553. His Letter to Maris is one of the pieces which compoſed the celebrated *Three Chapters*, noticed under the article FACUNDUS. For an account of the ſchiſms to which the diſputes about theſe Chapters gave riſe, we muſt refer to the eccleſiaſtical hiſtorians, and particularly to Moſheim. The above-mentioned Letter is inſerted in the fourth volume of the Collect. Concil. in Greek and Latin.

IBAYÇAIBAL', or YBAIÇAVAL, a river of Spain, which runs into the Bay of Biſcay a little below Bilbao.

IB'BAR, [Hebrew.] A man's name.

IB'BENBUHREN, a town of Germany, in Weſtphalia, and county of Lingen: ſix miles north of Tecklenburg.

IB'BER, a river of England, in the county of Derby, which runs into the Rother near Cheſterfield.

IB'BOT (Benjamin), an able and judicious divine of the church of England, was born at Beachamwell, in the county of Norfolk, of which place his father was rector in the year 1680. After he had received the preparatory education of the grammar-ſchool, in the year 1695 he was entered of Clare-hall, Cambridge, where he purſued his academical ſtudies with commendable diligence and proficiency. Having been admitted to his degree of B. A. in 1699, in the following year he removed to Corpus-Chriſti college, and was made a ſcholar of that houſe. He commenced M. A. in 1703, and was elected into a Norfolk fellowſhip in 1706; but he reſigned that ſituation in the following year, upon his being patroniſed by archbiſhop Teniſon, who took him into his family in the capacity of librarian, and ſoon afterwards made him his chaplain. In the year 1708, the archbiſhop collated Mr. Ibbot to the treaſurerſhip of the church of Wells; and he alſo preſented him to the rectory of the united pariſhes of St. Vedaſt, Foſter-lane, and St. Michael le Querne, in the city of London. In the years 1713 and 1714, he preached the courſe of ſermons for the lecture founded by the honourable Robert Boyle, in conſequence of the appointment of the archbiſhop, who was the ſole ſurviving truſtee. In the year 1716, Mr. Ibbot was appointed one of the chaplains in ordinary to king George I. and when his majeſty paid a viſit to the univerſity of Cambridge, in the following year, our author was created doctor of divinity by royal mandamus. In the year 1724 he was preſented to a prebend in the collegiate church of St. Peter, in Weſtminſter; but he prematurely fell a ſacrifice to his aſſiduous application to his ſtudies and profeſſional duties, in 1725, when in the forty-fifth year of his age. After his death, his friend Dr. Clarke ſelected from his manuſcripts, "Thirty Sermons on Practical Subjects," which were publiſhed for the benefit of his widow in 1726, in 2 vols. 8vo. and in the following year, his "Courſe of Sermons preached at the Lecture founded by the honourable Robert Boyle," was publiſhed in an octavo volume, in purſuance of his deſire, expreſſed in his will. Both publications reflect credit on the author's abilities as a ſolid, judicious, and uſeful, preacher; and his Boyle's lecture ſermons deſerve to be diſtinguiſhed among the maſterly replies of our Engliſh divines to Mr. Collins's Diſcourſe of Free-Thinking. Beſides the above, he was the author of ſome ſingle ſermons publiſhed in his lifetime; and of a tranſlation, but without his name, of Puffendorff's treatiſe *De Habitu Religionis Chriſtianæ ad Vitam civilem*, or Of the Relation between the Church and the State, &c. 1719, 8vo.

I'BER, a river of Spain, in the province of Eſtremadura, which runs into the Tagus near Talavera la Vieja.

IBE'RIA, a country of Aſia, between Colchis on the weſt and Albania on the eaſt, governed by kings. Pompey invaded it, and made great ſlaughter of the inhabitants, and obliged them to ſurrender by ſetting fire to the woods where they had fled for ſafety. It is now called GEORGIA.—An ancient name of Spain, derived from the river Iberus.

IBE'RIAN, *adj.* Belonging to Spain.

IB'ERIS, *ſ.* [ſuppoſed to be ſo named from *Iberia*, its place of natural growth.] CANDY-TUFT; in botany, a genus of the claſs tetradynamia, order ciliculoſa, natural order of ſiliquoſæ or cruciformes, (cruciferæ *Juſſ.*) The generic characters are—Calyx: perianthium four-leaved; leaflets obovate, concave, ſpreading, ſmall, equal, deciduous. Corolla: four-petalled, unequal; petals obovate, obtuſe, ſpreading, claws oblong, upright; of theſe the two exterior petals are far larger, and equal to each other; the two interior very ſmall, reflex. Stamina: filaments ſix, awl-ſhaped, upright; of which the two lateral ones are ſhorter; anthers roundiſh. Piſtillum: germ roundiſh, compreſſed; ſtyle ſimple, ſhort. Stigma obtuſe. Pericarpium: ſilicle upright, ſuborbiculate, compreſſed, emarginate, ſurrounded by a ſharp edge, two-celled; partition lanceolate; valves navicular, compreſſed, carinated. Seeds a few, ſubovate. —*Eſſential Character.* Corolla irregular, with the outer petals larger; ſilicle emarginate; many-ſeeded: (one ſeed only in each cell in ſome of the ſpecies.)

*Species.* 1. Iberis ſemperflorens, or broad-leaved evergreen candy-tuft: fruteſcent, leaves wedge-ſhaped, quite entire, blunt. This is a ſhrubby plant, about a foot and a half high, having many ſlender branches, which ſpread on every ſide, and fall towards the ground if they are not ſupported. Theſe branches are well furniſhed towards their extremity with leaves, which continue green all the year; and in ſummer the flowers are produced at the end of the ſhoots; they are white and grow in an umbel, continue long in beauty, and, being ſucceeded by others, the plants are rarely deſtitute of them from the end of Auguſt to the beginning of June, which renders this plant valuable. There is a variety with ſtriped leaves. It is a native of Perſia and Sicily, and was cultivated in the Oxford garden in 1680.

2. Iberis ſempervirens, or narrow-leaved ever-green candy-tuft: fruteſcent, leaves linear, quite entire, acute. This is of humbler growth than the firſt, ſeldom riſing more than ſix or eight inches high; nor do the branches grow woody, but are rather herbaceous. The leaves continue green through the year, and the flowers are of as long duration as thoſe of the firſt ſort. Native of the iſland of Candia on rocky ground. Cultivated in the botanic garden at Chelſea in 1739; flowering from April to June.

3. Iberis garexiana: leaves oblong-lanceolate, acute; ſtems fruticuloſe, diffuſed, flexile, warted; branchlets leafy, upright. It agrees with the two preceding ſorts in having fruteſcent ſtems, ſmooth leaves, and white flowers; but differs from the *ſempervirens* in having the ſtems not upright, the branches neither rigid nor ſtriated, and the leaves acute; from the *ſemperflorens* in the leaves not appearing in winter, and in the ſtems being flexile, more ſlender, and warted by the fallen leaves. The ſeed-veſſel differs no otherwiſe from a capſule than in having deciduous valves, and it has only a ſingle ſeed in each of the two cells. Native of Piedmont, about Strop, above Tende, in the high mountains between Briga and Carlin, and above Frabroſa.

4. Iberis Gibraltarica, or Gibraltar candy-tuft: fruteſcent, leaves toothed at the tip. Stems many, thick, green, ſtriated, aſcending, from a foot to eighteen inches in length, divided into ſeveral branches. The flowers bear ſome

reſemblance to thoſe of the common candy-tuft, No. 8. but when they blow in perfection they are uſually twice as large; hence they are highly ornamental in the green-houſe, early in the ſpring, which is the time of their appearing. Native of Spain.

5. Iberis ſaxatilis, or rock candy-tuft: ſuffruteſcent, leaves lanceolate-linear, fleſhy, acute, quite entire, ciliate. Root woody, hard, twiſted, and large. Stems, diffuſed, numerous, branched at the baſe, ſcarred with fallen branches and leaves, three or four inches high. Native of the ſouth of France and Italy. It varies with leaves almoſt flat, and little if at all ciliated.

6. Iberis rotundifolia, or round-leaved candy-tuft: herbaceous, leaves ovate, ſtem-leaves embracing, even, juicy. Native of Swiſſerland, Carniola, ſouth of France, Italy, Sileſia; flowers from May to July. This and all the preceding ſorts are perennial; the following are annual, except perhaps the next, which ſeems to be perennial.

7. Iberis cepeæfolia, or onion-leaved candy-tuft: herbaceous, leaves ovate, ſtem-leaves ſeſſile, even, juicy. Root long, round, ſlender, fungous, branched, creeping obliquely, reddiſh violet coloured on the outſide. Stems ſeveral, ſcarcely half a ſpan in height, all proſtrate, with the flowering tops curved upwards; they are ſmooth, round, tinged with reddiſh violet, leafy. Leaves copious, ſcattered, fleſhy, very ſmooth, deep green, with ſometimes a glaucous hue, but leſs than in the preceding. The flowers have the ſame pleaſant ſmell with thoſe of the preceding, which it is ſtrange no author has obſerved. Seeds two, rufous, in each cell. Native of Carinthia, flowering at the beginning of May.

8. Iberis umbellata, or purple candy-tuft: herbaceous, leaves lanceolate, acuminate; the lower ſerrate, the upper quite entire. The root of common purple candy-tuft is annual, white, oblong, fuſiform; ſtem upright, leafy, half a foot or a ſpan to a foot in height, ſubangular, green, ſmooth, branching. Leaves frequent, alternate, lanceolate, acuminate, ſmooth. Flowers in a hemiſpherical corymb on peduncles half an inch in length; the outer petals more than twice as large as the inner ones. Seeds ſolitary, ovate, flatted, a little beaked near the umbilicus, ferruginous-rufeſcent. Native of the ſouth of Europe. Cultivated in 1596 by Gerarde.

The uſual colour of the flowers is a pale purple; but there is one variety with bright purple, and another with white, flowers; the latter however is ſeldom ſeen in our gardens, the ſeeds of the *amara* being commonly ſubſtituted for it. It flowers in June and July, and may be continued in ſucceſſion till autumn.

9. Iberis amara, or white candy-tuft: herbaceous, leaves lanceolate, acute, ſomewhat toothed; flowers in racemes. Linnæus ſays that the white candy-tuft reſembles the preceding very much, only it is ſmaller. It is however ſufficiently diſtinct in ſeveral circumſtances. The ſtem ſeven or eight inches high, pubeſcent, ſomewhat rugged, branched; branches diffuſed, alternate, the lower ones ſometimes oppoſite, not riſing all to the ſame height. Leaves linear-lanceolate, blunt, ſeſſile, decurrent, bright green, thickiſh, ſmooth, the lower ones ſerrate, the reſt toothletted, eſpecially in front, or with a tooth or two on each ſide. Flowers white in a terminating ſpike-like raceme; or rather, in a corymb lengthening into a raceme as the infloreſcence advances. Calyx erect. The two outer petals double the length of the two inner ones. Silicles rounder and a little ſmaller than in the preceding. The ſeeds are more elliptic, flatted like a lens, paler, and ſurrounded with a very narrow rim of a deeper colour. Native of Swiſſerland, Germany, Auſtria, ſouth of France, and England. In Oxfordſhire about Henley, Nettlebed, and Mungewell; in Berkſhire about Wallingford Common; but not mentioned as wild in England by any of our old writers.

10. Iberis linifolia, or flax-leaved candy-tuft: herbaceous, leaves linear, quite entire; ſtem-leaves ſerrate, ſtem panicled, corymbs hemiſpherical. Native of Spain, Portugal, and Provence; flowers in July, and is annual.

11. Iberis odorata, or ſweet-ſcented candy-tuft: herbaceous, leaves linear, widening at top and ſerrate. This ſeldom grows ſo large as the purple candy-tuft, and the flowers are much ſmaller, but have an agreeable odour. The flowers are in cloſe corymbs, and of a ſnowy whiteneſs. Native of the mountains near Geneva.

12. Iberis Arabica, or Arabian candy-tuft: herbaceous, leaves ovate, ſmooth, veinleſs, quite entire, ſilicles two-lobed at the baſe and tip. Native of Arabia and Cappadocia.

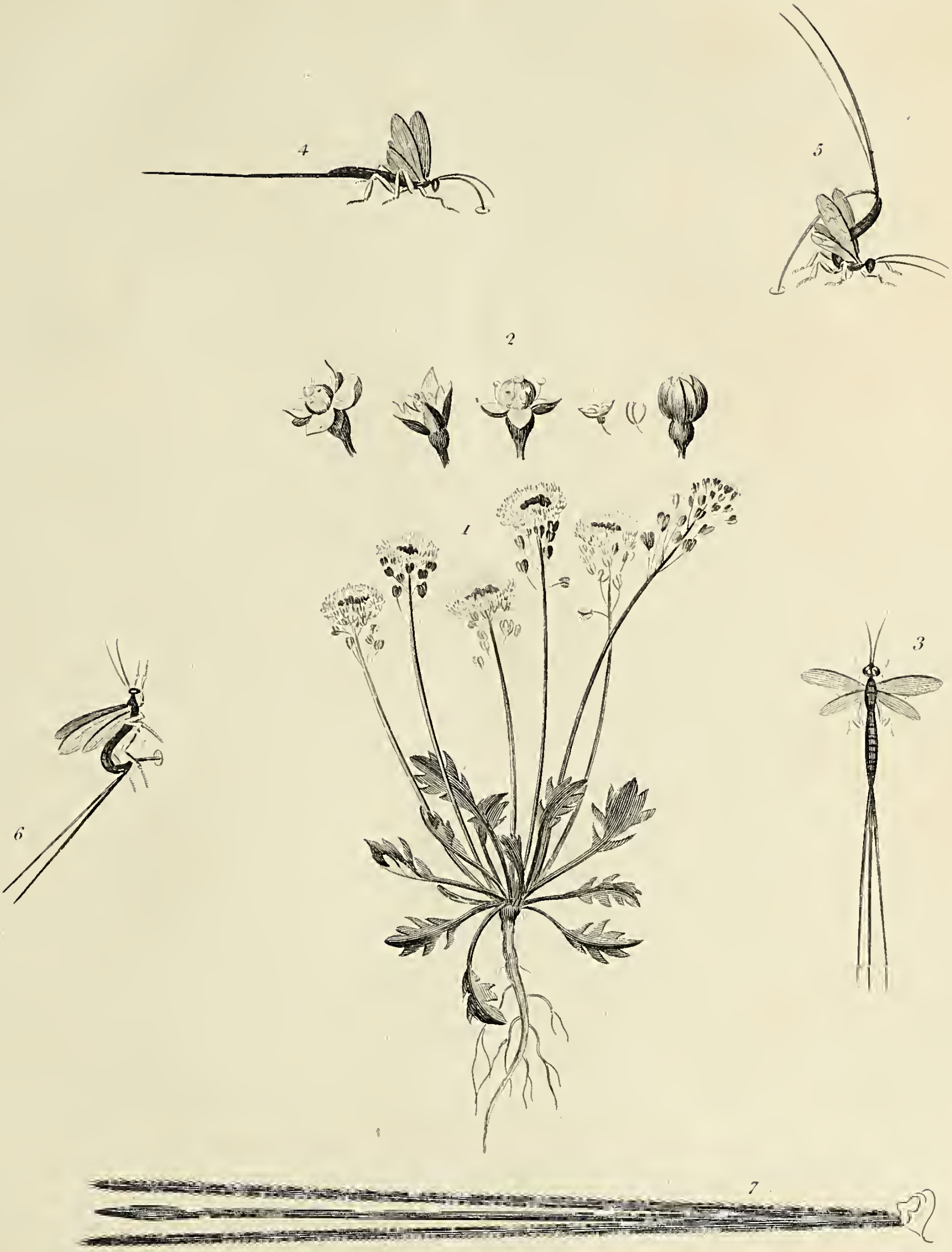
13. Iberis nudicaulis, naked-ſtalked candy-tuft, or rock-creſs: herbaceous, leaves ſinuate, ſtem naked ſimple. Stems from two to four inches in height, numerous, decumbent when young, riſing as they advance, and finally upright; ſimple, round and ſmooth; naked, or with one, two, or three, ſeſſile leaves below the middle. Flowers, ſmall, white, and without ſcent. The more luxuriant the plant, the more it is diſpoſed to produce leaves on the ſtem; in this ſtate the lower ones are divided into three or five ſegments, but they are very minute, and appear in May and June; the ſeed-veſſels, which are large in proportion to the plant, ſucceed in July. Native of moſt parts of Europe, in dry and barren ſoils. With us, near London ſparingly; as on Hounſlow-heath, Putney and Barnes commons, near Hampton-court and Richmond; Blackheath by the road from Greenwich to Lewiſham; Ilford in Eſſex; near Gamlingay in Cambridgeſhire; Bungay in Suffolk, Norwich; Penſham in Worceſterſhire; Hamerhill near Salop; Nottingham-park; Little Creaton in Northamptonſhire; between Corby Caſtle and Carliſle; and in Scotland.

14. Iberis pinnata, or winged candy-tuft: herbaceous, leaves pinnatifid. Stem about half a foot in height, commonly ſimple, but ſometimes with a branch or two. Flowers clear white, ſeldom purple. Linnæus remarks, that the calyx is red, but the petals white; and when in fruit the form of the corymb continues, as in I. umbellata, without lengthening out into a raceme or thyrſe, as it does in ſome of the ſpecies. Native of the ſouth of Europe; and flowers from June to Auguſt.

*Propagation and Culture.* The firſt is a plant ſomewhat tender, therefore generally preſerved in green-houſes in winter, where, being placed among other low plants towards the front of the houſe, it makes an agreeable variety, as it continues flowering all the winter. But, although it is commonly ſo treated, yet in moderate winters this plant will live in the open air, if it be planted in a warm ſituation and on a dry ſoil. This plant however very rarely produces ſeeds in England, therefore is only propagated by cuttings, which, if planted during any of the ſummer-months, and ſhaded from the ſun, and duly watered, will be rooted in two months, and may afterwards be either planted in pots or into the borders where they are deſigned to ſtand. The 2d, 3d, 4th, and 10th, may be increaſed by cuttings in the ſame manner.

The 5th, 6th, and 7th, are propagated by ſeeds, ſown on a ſhady border in autumn; when the plants are ſtrong enough to remove, tranſplant them into a ſhady border, where they are to remain, and they will require no other care but to keep them clean from weeds. The other ſpecies are ſown in ſmall patches in the borders of the flower-garden; and, by ſowing them at three or four different times, there may be a ſucceſſion of them in flower till autumn. When grown up they ſhould be thinned, that they may put out ſide-branches, flower ſtronger, and continue longer in beauty. Formerly the eighth was ſown for edgings, but theſe and all annuals are unfit for that purpoſe. The thirteenth is rarely admitted into gardens. The ſeeds may be ſown in autumn where the plants are deſigned to remain, and require no other care but to keep them clean from weeds. See CARDAMINE, LEPIDIUM, and THLASPI.

# IBERIS AND ICHNEUMON.



1. 2. Naked stalked Candy-tuft, and its fructification. 3. The Ichneumon manifestator. 4. 5. 6. The same in different positions, as described at p. 732. 7. The tube and its sheaths greatly magnified.

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IB'ERVILLE, an iſland of Weſt Florida, in the river Miſſiſſippi. Lat. 30. 24. N. lon. 91. 24. W. Greenwich.

IB'ERVILLE, a river of Weſt Florida, which runs into the Miſſiſſippi near Manchac.

IBE'RUS, a river of Spain, now called *Ebro*, which formerly ſeparated the Roman from the Carthaginian poſſeſſions in that country.—A river of Iberia in Aſia, flowing from mount Caucaſus into the Cyrus.—A fabulous king of Spain.

I'BEX, *ſ.* in zoology. See CAPRA.

IB'HAR, [Heb. election.] The name of a man.

IBIPITAN'GA, *ſ.* in botany. See PLINIA.

I'BIS, *ſ.* in ornithology. See TANTALUS.

IBIS'CUS, *ſ.* in botany. See HIBISCUS, vol. ix.

IB'LEAM, [Hebrew.] A man's name.

IBNEI'AH, [Hebrew.] A man's name.

IB'NEN SEE, a lake of Germany, in Swabia: four miles north-north-eaſt of Heligenberg.

IBNI'JAH, [Hebrew.] A man's name.

I'BOS, a town of France, in the department of the Higher Pyrennees: one league weſt of Tarbes.

I'BRAHIM, a mountain of Arabia, in the province of Yemen: forty miles ſouth of Chamir.

I'BRAHIM, ſultan of the Turks. See the article TURKEY.

I'BRAHIM AL SHI'RAZI, a celebrated muſſulman doctor who flouriſhed at an unknown period, was a native of the city of Shiraz, the capital of the province of Fars, or Perſia properly ſo called. He is alſo ſometimes ſurnamed *Al Firouzabadi*, ſince his family was originally from Firouzabad, which is not far diſtant from Shiraz, and in the ſame province of Fars. He lived much in retirement, employed in ſtudy and devotional exerciſes, and ſuſtains a high rank among the expounders of the muſſulman law. He was the author of many works in Arabic, ſtill extant and highly eſteemed; the principal of which are, *Almo Hab*, or the Good Man; *Tanbih Filfekh*, or An Exhortation to the Study of Juriſprudence; and *Lamé*, or the Exemplar; which is an illuſtration of the principal articles, or, as the Mahometans call them, the *foundations*, of the law. He is alſo believed to have been the author of a work on the art of ſcholaſtic diſputation, entitled *Al-Nakth fil Khelaf v Almaɓunat filgedel*, or the Search after Truth.

I'BRAHIM AL MEROU'ZI, a very celebrated muſſulman doctor, who derived his ſurname from the city of Merou, in the province of Khoraſan, of which he was a native. He was the author of many works in the Arabic language, which are greatly valued; and among others of a commentary on the Mozni, conſiſting of an abridgment of muſſulman law. He reſided at Bagdat, where he was conſulted as an oracle in matters of juriſprudence; and ſo high was his reputation, that one of the gates of that city, which was not far from his houſe, was called after his name *Darbe Al Merouzi*, or, the Gate of Merouzi. He was of the Schafei ſect; and when he was advanced in life removed from Bagdat to Cairo in Egypt, where he died in the year of the hegira 340, or 951 of the Chriſtian æra.

I'BRAHIM BEN MEHE'RAN, ſurnamed *Esfaraïni*, from his being a native of a ſmall town of Khoraſan, called Esfarain, dependent on the capital city of Niſchabour. He was one of the moſt celebrated doctors of the ſect of Schafei, from whom the moſt learned characters in Khoraſan and Irak profeſſed to derive their doctrine. He was the author of numerous works; the principal of which is a controverſial performance, containing a defence of the muſſulman law againſt the objections of thoſe unbelievers and atheiſts deſcribed by the Arabs under the title of *Melahedin*, or men without religion. Abdalgafer, a Perſian author, makes frequent mention of him in the Chronicle of Niſchabour, and ſays, that the college in that city where he taught his opinions ſtill bears his name. He died in the year 418 of the hegira, or 1027 of the Chriſtian æra.

I'BRAIM, a town of Hungary: fourteen miles north-north-eaſt of Nanas.

I'BRAIM, a river of Perſia, which runs into the Perſian Gulf two leagues ſouth-weſt of Mina.

I'BRAS, a town of Lithuania, in the palatinate of Brzeſc: forty miles ſouth-weſt of Pinſk.

I'BRI, [Hebrew.] A man's name.

IBRI'GI, a town of European Turkey, in the province of Romania: ſixteen miles north-north-weſt of Gallipoli.

I'BRIM, a town of Africa, in the northern part of Nubia, on the borders of Egypt, ſubject to the Turks.

I'BRIS, a ſmall iſland of Scotland, in the Frith of Forth: two miles and a half north-weſt of North Berwick.

I'BURAR, a town of Aſiatic Turkey, in the province of Caramania: ſixteen miles north of Alameh.

I'BURG, a town of Germany, in Weſtphalia: ten miles ſouth of Oſnabruck.

IB'YAN, [Hebrew.] The name of a man.

IB'YCUS, a Greek lyric poet, of whoſe works there are only a few fragments remaining, flouriſhed 550 B. C. It is ſaid, that he was aſſaſſinated by robbers; and that, when dying, he called upon ſome cranes he ſaw flying to bear witneſs. Some time after, one of the murderers, ſeeing ſome cranes, ſaid to his companions, "There are the witneſſes of Ibycus's death:" which being reported to the magiſtrates, the aſſaſſins were put to the torture, and, having confeſſed the fact, were hanged. Thence aroſe the proverb *Ibyci grues*.

I'ÇA, or YÇA, a town of South America, in the audience of Lima, and one of three towns which give name to a province called *Iça Piſco & Naſca*. It is ſituated in a valley, and watered by a river which in the ſummer would be dry but from the induſtry of the inhabitants, who have turned ſeveral ſtreams into its bed. The principal commerce of the place conſiſts in glaſs, wine, brandy, &c.

I'ÇA PIS'CO & NAS'CA, a province of Peru, in the audience of Lima, ſo called from the three principal towns; it comprehends about 140 miles along the coaſt of the Pacific Ocean, interſected with ſandy deſerts: olives and wines are cultivated; and both the oil and the wine are eſteemed excellent, and ſent into the other provinces, where the land can be watered; it produces corn, maize, and variety of excellent fruit. The inhabitants near the coaſt are chiefly employed in catching fiſh, of which they cure a great quantity, and ſend into the inland country, where they find a ready ſale.

ICA'CO, *ſ.* in botany. See CHRYSOBALANUS.

ICA'DES, [εικας, of εικοσι, Gr. twenty.] An ancient feſtival celebrated monthly on the twentieth day, by the Epicurean philoſophers, in memory of their maſter Epicurus, born on the twentieth. They bore his images about their houſes in ſtate, and made ſacrifices.

IC'ARIM, [Hebrew.] The name of a mountain. *Joſh.* xv.

ICA'RIUS, an Athenian, father of Erigone. He gave wine to ſome peaſants, who drank it with the greateſt avidity, ignorant of its intoxicating nature. They were ſoon deprived of their reaſon; and the fury and reſentment of their friends and neighbours were immediately turned upon Icarius, who periſhed by their hands. After death he was honoured with public feſtivals, and his daughter was led to diſcover the place of his burial by means of his faithful dog Mœra. Erigone hung herſelf in deſpair, and was changed into a conſtellation called Virgo, Icarius was changed into the ſtar Bootes, and the dog Mœra into the ſtar Canis. *Apollodorus.*

IC'ARUS, a ſon of Dædalus, who, with his father, fled with wings from Crete to eſcape the reſentment of Minos. His flight being too high proved fatal to him; the ſun melted the wax which cemented his wings, and he fell into that part of the Ægean ſea which was called after his name. *Ovid.*

ICCICARI'BA, *ſ.* in botany. See AMYRIS.

ICE, *ſ.* [ıꞅ, Sax. *eyſe*, Dut.] Water or other liquor made ſolid by cold.—If I ſhould aſk whether *ice* and water were two diſtinct ſpecies of things, I doubt not but I ſhould be anſwered in the affirmative. *Locke.*

You are no ſurer, no,
Than is the coal of fire upon the *ice*,
Or hail-ſtone in the ſun. *Shakeſpeare.*

Concreted ſugar.

The younger Lemery obſerves, that ice is only a re-eſtabliſhment of the parts of water in their natural ſtate; that the mere abſence of fire is ſufficient to account for this re-eſtabliſhment; and that the fluidity of water is a real fuſion, like that of metals expoſed to the fire; differing only in this, that a greater quantity of fire is neceſſary to the one than the other. See the article CHEMISTRY, vol. iv. p. 205. Galileo was the firſt that obſerved ice to be lighter than the water which compoſed it; and hence it happens, that ice floats upon water, its ſpecific gravity being to that of water as eight to nine. This rarefaction of ice ſeems to be owing to the air-bubbles produced in water by freezing; and which, being conſiderably larger in proportion to the water frozen, render the body ſo much ſpecifically lighter; theſe air-bubbles, during their production, acquire a great expanſive power, ſo as to burſt the containing veſſels, though ever ſo ſtrong. See COLD, vol. iv. and FREEZING, vol. viii.

M. Mairan, in a diſſertation on ice, attributes the increaſe of its bulk chiefly to a different arrangement of the parts of the water from which it is formed; the icy ſkin on the water being compoſed of filaments which, according to him, are found to be conſtantly and regularly joined at an angle of 60°; and which, by this angular diſpoſition, occupy a greater volume than if they were parallel. He found the augmentation of the volume of water by freezing, in different trials, a 14th, an 18th, a 19th, and, when the water was previouſly purged of air, only a 22d part; that ice, even after its formation, continues to expand by cold; for, after water had been frozen to ſome thickneſs, the fluid part being let out by a hole in the bottom of the veſſel, a continuance of the cold made the ice convex; and a piece of ice, which was at firſt only a 14th part ſpecifically lighter than water, on being expoſed ſome days to the froſt, became a 12th part lighter. To this cauſe he attributes the burſting of ice on ponds. But it appears from an experiment of Dr. Hooke, in 1663, that ice refracts the light leſs than water; whence he infers, that the lightneſs of ice, which cauſes it to ſwim in water, is not produced merely by the ſmall bubbles which are viſible in it, but that it ariſes from the uniform conſtitution or general texture of the whole maſs; a fact which was afterward approved by M. de la Hire. See Hooke's Exper. by Derham, p. 26.

But a diſcovery the moſt curious and important of any of modern times, relative to the formation of ice, is that deſcribed by count Rumford in his Eſſay on the Manner in which Heat is propagated in Fluids.

After proving in a very ſatisfactory way, that the particles of fluids are incapable of imparting heat *to each other*, and that, when their temperature is undergoing any change, an inteſtine motion is kept up in them, by a ſucceſſive alteration taking place in the ſpecific gravity of their particles, he proceeds to ſhow, that "all bodies are condenſed by cold without limitation, '*water only excepted*,'" and deſcribes the wonderful effects produced in conſequence of this particular law.

"Though in temperatures above blood-heat (ſays count Rumford) the expanſion of water with heat is very conſiderable, yet in the neighbourhood of the freezing point it is almoſt nothing. And what is ſtill more remarkable, as it is an exception to one of the moſt general laws of nature with which we are acquainted, when in cooling it comes within eight or nine degrees of Fahrenheit's ſcale of the freezing point, inſtead of going on to be farther condenſed as it loſes more of its heat, it *actually expands* as it grows colder, and continues to expand more and more as it is more cooled."

"If the whole amount of the condenſation of any given quantity of boiling-hot water, on being cooled to the point of freezing, be divided into any given number of equal parts, the condenſations correſponding to equal changes of temperature will be very unequal in different temperatures. Thus, in cooling 22½ degrees of Fahrenheit's ſcale, (or one eighth part of the interval between the boiling and the freezing points,) the condenſation will be,

| | | | | | Condenſation. |
|---|---|---|---|---|---|
| In cooling 22½°, viz. from | 212 | to | 189½ | - | 18 parts. |
| | 189½ | — | 167 | - | 16·2 |
| | 167 | — | 144½ | - | 13·8 |
| | 144½ | — | 122 | - | 11·5 |
| | 122 | — | 99½ | - | 9·3 |
| | 99½ | — | 77 | - | 7·1 |
| | 77 | — | 54½ | - | 3·9 |
| | 54½ | — | 32 | - | 0·2 |

Hence it appears, that the condenſation of water, or increaſe of its ſpecific gravity in being cooled 22½ degrees of Fahrenheit's ſcale, is at leaſt *ninety times greater* when the water is boiling-hot, than when it is at the mean temperature of the atmoſphere in England, (54½,) or within 22½ degrees of freezing—(for 18 is to 0·2 as 90 to 1.)

"All liquids, it is true, in cooling, are more condenſed by any given change of temperature when they are very hot than when they are colder; but theſe differences are nothing compared to thoſe we obſerve in water.

"The ratio of the condenſation in cooling from 212° to 189½°, to that in cooling from 54½° to 32° in each of the undermentioned fluids, has been ſhown, by the experiments of M. de Luc, to be as follows:

| | |
|---|---|
| Olive oil - - - - - | as $1\frac{14}{100}$ to 1 |
| Strong ſpirits of wine - - | as $1\frac{20}{100}$ to 1 |
| A ſaturated ſolution of ſea-ſalt in water | as $1\frac{38}{100}$ to 1 |

"The difference between the laws of the condenſation of pure water, and of the ſame fluid when it holds in ſolution a portion of ſalt, is ſtriking; but, when we trace *the effects* which are produced in the world by that arrangement, we ſhall be loſt in wonder and admiration."

After enlarging on this ſubject, he proceeds thus: "As nouriſhment and life are conveyed to all living creatures through the medium of water;—*liquid*—*living* water;—to preſerve life, it was abſolutely neceſſary to preſerve a great quantity of water in a fluid ſtate, in winter as well as in ſummer.

"But in cold climates the temperature of the atmoſphere, during many months in the year, is ſo much below the freezing point, that, had not meaſures been taken to prevent ſo fatal an accident, all the water muſt inevitably have been changed to ice, which would infallibly have cauſed the deſtruction of every living thing. Extraordinary meaſures were therefore neceſſary for preſerving in a liquid ſtate as much of the water exiſting in thoſe climates as is indiſpenſably neceſſary for the preſervation of vegetable and animal life; and this could only be done by contriving matters ſo as to prevent this water from parting with its heat to the cold atmoſphere.

"It has been ſhown, I believe I may venture to ſay proved, in the moſt ſatisfactory manner, that liquids part with their heat ONLY in conſequence of their internal motions; and that the more rapid theſe motions are, the more rapid is the communication of the heat; that theſe motions are produced by the change in the ſpecific gravity of the liquid, occaſioned by the change of temperature, and of courſe that they are more rapid, as the ſpecific gravity of the liquid is the more changed by any given change of temperature.

"But it has been ſhown that the change in the ſpecific gravity of water is extremely ſmall, which takes place in any given change of temperature, *below the mean temperature of the atmoſphere*; and particularly when the temperature of the water is very near the freezing point; and hence it follows, that water muſt give off its heat very ſlowly when it is near freezing.

"But this is not all. There is a ſtill more extraordinary, and in its conſequences more wonderful, circumſtance which remains to be noticed. When water is cooled to within eight or nine degrees of the freezing point, it not only ceaſes to be farther condenſed, but is actually *expanded* by farther diminutions of its heat; and this expanſion goes on as the heat is diminiſhed, as long as the water can be kept fluid; and when it is changed to ice, it expands even ſtill more, and the ice floats on the ſurface of the uncongealed part of the fluid."

Count Rumford next ſhows how very powerfully this wonderful contrivance tends to retard the cooling of water when it is expoſed in a cold atmoſphere.

"It is well known that there is no communication of heat between two bodies as long as they are both at the ſame temperature; and it is likewiſe known that the *tendency* of heat to paſs from a hot body into one which is colder, with which it is in contact, is greater, as the difference is greater in the temperatures of the two bodies.

"Suppoſe now that a maſs of very cold air repoſes on the quiet ſurface of a large lake of freſh water, at the temperature of 55° of Fahrenheit's thermometer. The particles of water at the ſurface on giving off a part of their heat to the cold air with which they are in contact, and in conſequence of this loſs of heat becoming ſpecifically heavier than thoſe hotter particles on which they repoſe, muſt of courſe deſcend. This deſcent of the particles which have been cooled neceſſarily forces other hotter particles to the ſurface, and theſe being cooled in their turns bend their courſe downwards; and the whole maſs of water is put into motion, and continues in motion as long as the proceſs of cooling goes on.

"As ſoon as the water in cooling has arrived at the temperature of about 40°, as at that temperature it ceaſes to be farther condenſed, its internal motion ceaſes, and thoſe of its particles which happen to be at its ſurface remain there; and, after being cooled down to the freezing point, they give off their latent heat, and ice begins to be formed.

"As ſoon as the ſurface of the water is covered with ice, the communication of heat from the water to the atmoſphere is rendered extremely ſlow and difficult; for ice, being a *bad conductor of heat*, forms a very warm covering to the water; and moreover, it prevents the water from being agitated by the wind. Farther, as the temperature of the ice at its lower ſurface is always very nearly the ſame as that of the particles of liquid water with which it is in contact, (the warmer particles of this fluid, in conſequence of their greater ſpecific gravity, taking their places below,) the communication of heat between the water and the ice is neceſſarily very ſlow on that account.

"As ſoon as the upper ſurface of the ice is covered with ſnow, (which commonly happens ſoon after the ice is formed,) this is an additional and very powerful obſtacle to prevent the eſcape of the heat out of the water; and, though the moſt intenſe cold may reign in the atmoſphere, the increaſe of the thickneſs of the ice will be very ſlow."

Mr. Dalton, in his New Syſtem of Chemical Philoſophy, ſtates the principal facts of congelation as follows: "1ſt. The ſpecific gravity of ice is leſs than that of water, in the ratio of 92 to 100. 2d. When water is expoſed in a large ſuſpended jar to cool in ſtill air of 20° or 30°, it may be cooled 2° or 3° below freezing; but, if any tremulous motion takes place, there appear inſtantly a multitude of ſhining hexangular ſpiculæ floating, and ſlowly aſcending in the water. 3d. It is obſerved, that the ſhoots or ramifications of ice at the commencement, and in the early ſtage of congelation, are always at an angle of 60° or 120°. 4th. Heat is given out during congelation, as much as would raiſe the temperature of water 140° or 150°. The ſame quantity is again taken in when the ice is melted. This quantity may be $\frac{1}{40}$th of the whole heat which water of 32° contains. 5th. Water is denſeſt at 36° of the old ſcale, or 38° of the new; from that point it gradually *expands* by cooling or by heating alike, according to the law ſo often mentioned, that of the ſquare of the temperature. 6th. If water be expoſed to the air and to agitation, it cannot be cooled below 32°; the application of cold freezes a part of the water, and the mixture of ice and water acquires the temperature of 32°. 7th. If the water be kept ſtill, and the cold be not ſevere, it may be cooled in large quantities to 25° or below, without freezing; if the water be confined in the bulb of the thermometer, it is very difficult to freeze it by any cold mixture above 15° of the old ſcale, (Fahrenheit's;) but it is equally difficult to cool the water much below that temperature without its freezing. I have obtained it as low as 7° or 8°, and gradually heated it again without any part of it being frozen. 8th. In the laſt caſe of what may be called *forced* cooling, the law of expanſion is ſtill obſerved as given above. 9th. When water is cooled to 15° or below in a bulb, it retains the moſt perfect tranſparency; but, if it accidentally freeze, the congelation is inſtantaneous, the bulb becoming in a moment opake, and white like ſnow, and the water is projected up the ſtem. 10th. When water is cooled below freezing, and congelation ſuddenly takes place, the temperature riſes inſtantly to 32°."

He then proceeds as follows: "In order to explain theſe phenomena, let it be conceived that the ultimate or ſmalleſt elements of water are all globular, and exactly of the ſame ſize; let the arrangement of theſe atoms be in ſquares, ſo that each particle touches four others in the ſame horizontal plane. Conceive a ſecond ſtratum of particles placed upon theſe in like order of ſquares, but ſo that each globule falls into the concavity of four others on the firſt ſtratum, and conſequently reſts upon four points, elevated 45° above the centres of the globules. A perpendicular ſection of ſuch globule, reſting upon two diagonal globules of the ſquare. Conceive a third ſtratum placed in like manner upon the ſecond, &c. the whole being ſimilar to a ſquare pile of ſhot. The above conſtitution is conceived to repreſent that of water at the temperature of greateſt denſity.

"Now the angle of a rhombus is 60°, and its ſupplement 120°; if any particular angles are manifeſted in the act of congelation, therefore, we ought to expect theſe, agreeable to the 2d and 3d phenomena. Whenever any remarkable change in the internal conſtitution of any body takes place, whether by the acceſſion and junction of new particles, or by new arrangements of thoſe already exiſting in it, ſome modifications in the atmoſpheres of heat muſt evidently be required; though it may be difficult to eſtimate the quantity, and ſometimes even the kind of change ſo produced, as in the preſent caſe. So far therefore the theory propoſed agrees with the 4th phenomenon.

"In order to explain the other phenomena, it will be requiſite to conſider more particularly the mode by which bodies are expanded by heat. Is the expanſion occaſioned ſimply by the enlargement of the individual atmoſpheres of the component particles? This is the caſe with elaſtic fluids, and perhaps with ſolids, but certainly not with liquids. How is it poſſible that water ſhould be expanded a portion repreſented by 1 upon the addition of a certain quantity of heat at one temperature, and by 340 upon the addition of a like quantity at another temperature, when both temperatures are remote from the abſolute zero, the one perhaps 6000° and the other 6170? The fact cannot be accounted for on any other ſuppoſition than that of a change of arrangement in the component particles; and a *gradual* change from the ſquare to the rhomboidal arrangement, is in all probability effected both by the addition and abſtraction of heat. It is to be ſuppoſed then, that water of the greateſt poſſible denſity has its particles arranged in the ſquare form; but, if a given quantity of heat be added to, or taken from it, the particles commence their approach to the rhomboidal form, and conſequently the whole is expanded, and that the ſame, by the ſame change of temperature, whether above or below that point.

"If heat be taken away from water of 38°, then expanſion is the conſequence, and a moderate inclination of the particles towards the rhomboidal form; but this only extends a ſmall way, whilſt the maſs is ſubject to a tremulous motion, ſo as to relieve the obſtructions occaſioned by friction; by the energy of certain affinities, the new form is completed in a moment, and a portion of ice formed; heat is then given out, which retards the ſubſequent formation, till at laſt the whole is congealed. This is the ordinary proceſs of congelation; but, if the maſs of water cooled is kept in a ſtate of perfect tranquillity, the gradual approach to the rhomboidal form can be carried much farther; the expanſion goes on according to the uſual manner, and the ſlight friction or adheſion of the particles is ſufficient to counteract the balance of energies in favour of the new formation, till ſome accidental tremor contributes to adjuſt the equilibrium. A ſimilar operation is performed when we lay a piece of iron on a table, and hold a magnet gradually nearer; the proximity of the approach, without contact, is much aſſiſted by guarding againſt any tremulous motion of the table. Hence the reſt of the phenomena are accounted for."

Though it has been generally ſuppoſed that the natural cryſtals of ice are ſtars of ſix rays, forming angles of 60° with each other, yet this cryſtallization of water, as it may properly be called, ſeems to be as much affected by circumſtances as that of ſalts. Hence we find a conſiderable difference in the accounts of thoſe who have undertaken to deſcribe theſe cryſtals. M. Mairan informs us, that they are ſtars with ſix radii; and his opinion is confirmed by obſerving the figure of froſt on glaſs. M. Romé de Liſle determines the form of the ſolid cryſtal to be an equilateral octahedron. M. Haſſenfratz found it to be a priſmatic hexahedron; but M. d'Antic hit upon a method of reconciling theſe ſeemingly oppoſite opinions. In a violent hail-ſtorm, where the hailſtones were very large, he found they had ſharp wedge-like angles of more than half an inch; and in theſe he ſuppoſed it impoſſible to ſee two pyramidal tetrahedra joined laterally, and not to conclude that each grain was compoſed of octahedrons converging to a centre. Some had a cavity in the middle; and he ſaw the oppoſite extremities of two oppoſite pyramids, which conſtitute the octahedron; he likewiſe ſaw the octahedron entire united in the middle; all of them were therefore ſimilar to the cryſtals formed upon a thread immerſed in a ſaline ſolution. On theſe principles M. Antic conſtructed an artificial octahedron reſembling one of the largeſt hailſtones; and found that the angle at the ſummit of the pyramid was 45°, but that of the junction of the two pyramids 145°. It is not, however, eaſy to procure regular cryſtals in hailſtones where the operation is conducted with ſuch rapidity; in ſnow and hoar-froſt, where the cryſtallization goes on more ſlowly, our author is of opinion that he ſees the rudiments of octahedra.

Ice, as is explained under the article FROST, vol. viii. p. 79, forms generally on the ſurface of water; but this too, like the cryſtallization, may be varied by an alteration in the circumſtances. In Germany, particularly the northern parts of that country, it has been obſerved that there are three kinds of ice. 1. That which forms on the ſurface. 2. Another kind formed in the middle of the water, reſembling nuclei or ſmall hail. 3. The ground ice, which is produced at the bottom, eſpecially where there is any fibrous ſubſtance to which it may adhere. This is full of cells like a waſp's neſt, but leſs regular; and performs many ſtrange effects in bringing up very heavy bodies from the bottom, by means of its inferiority in ſpecific gravity to the water in which it is formed. The ice which forms in the middle of the water riſes to the top, and there unites into large maſſes; but the formation both of this and the ground-ice takes place only in violent and ſudden colds, where the water is ſhallow, and the ſurface diſturbed in ſuch a manner that the congelation cannot take place. The ground-ice is very deſtructive to dykes and other aquatic works. In the more temperate European climates theſe kinds of ice are not met with.

Thoſe huge maſſes of ice which float about upon the ſeas near or within the polar circles, are called by the ſailors *Ice-Iſlands*. Many of theſe fluctuating iſlands are met with on the coaſts of Spitzbergen, to the great danger of the ſhipping employed in the Greenland fiſhery. In the midſt of thoſe tremendous maſſes navigators have been arreſted and frozen to death. In this manner the brave ſir Hugh Willoughby periſhed with all his crew in 1553; and in the year 1773, lord Mulgrave, after every effort which the moſt finiſhed ſeaman could make to accompliſh the end of his voyage, was caught in the ice, and was near experiencing the ſame unhappy fate. The ſcene, diveſted of the horror from the expectation of inevitable deſtruction, was the moſt beautiful and pictureſque. Two large ſhips becalmed in a vaſt baſon, ſurrounded on all ſides by iſlands of various forms; the weather clear; the ſun gilding the circumambient ice, which was low, ſmooth, and even; covered with ſnow, excepting where the pools of water on part of the ſurface appeared cryſtalline with the young ice; the ſmall ſpace of ſea they were confined in perfectly ſmooth. After fruitleſs attempts to force a way through the fields of ice, their limits were perpetually contracted by its cloſing; till at length it beſet each veſſel till they became immoveably fixed. The ſmooth extent of ſurface was ſoon loſt; the preſſure of the pieces of ice, by the violence of the ſwell, cauſed them to pack; fragment roſe upon fragment, till they were in many places higher than the main-yard. The movements of the ſhips were tremendous and involuntary, in conjunction with the ſurrounding ice, actuated by the currents. The water ſhoaled to fourteen fathoms. The grounding of the ice or of the ſhips would have been equally fatal; the force of the ice might have cruſhed them to atoms, or have lifted them out of the water and overſet them, or have left them ſuſpended on the ſummits of the pieces of ice at a tremendous height, expoſed to the fury of the winds, or to the riſk of being daſhed to pieces by the failure of their frozen dock. An attempt was made to cut a paſſage through the ice; after a perſeverance worthy of Britons, it proved fruitleſs. The commander, at all times maſter of himſelf, directed the boats to be made ready to be hauled over the ice, till they arrived at navigable water, (a taſk alone of ſeven days,) and in them to make their voyage to England. The boats were drawn progreſſively three whole days. At length a wind ſprung up, the ice ſeparated ſufficiently to yield to the preſſure of the full-ſailed ſhips, which, after labouring againſt the reſiſting fields of ice, arrived on the 10th of Auguſt in the harbour of Smeeringberg, at the weſt end of Spitzbergen, between it and Hackluyt's Headland.

The forms aſſumed by the ice in this chilling climate are extremely pleaſing to even the moſt incurious eye. The ſurface of that which is congealed from the ſea-water (for we muſt allow it two origins) is flat and even, hard, opake, reſembling white ſugar, and incapable of being ſlid on, like the Britiſh ice. The greater pieces, or fields, are many leagues in length; the ſmaller are the meadows of the ſeals, on which thoſe animals at times frolic by hundreds. The motion of the ſmaller pieces is as rapid as the currents; the greater, which are ſometimes two hundred leagues long, and ſixty or eighty broad, move ſlow and majeſtically; often fix for a time, immoveable by the power of the ocean, and then produce in the horizon that bright white appearance called the *blink*. The approximation of two great fields produces a moſt ſingular phenomenon; it forces the ſmaller (if the term can be applied to pieces of ſeveral acres ſquare) out of the water, and adds them to their ſurface; a ſecond and often a third ſucceeds; ſo that the whole forms an aggregate of a tremendous height. Theſe float in the ſea like ſo many rugged mountains, and are ſometimes five or ſix hundred yards thick; but the far greater part is concealed beneath the water. Theſe are continually increaſed in height by the freezing of the ſpray of the ſea, or of the melting of the ſnow, which falls on them. Thoſe which remain in this frozen climate receive continual growth; others are gradually wafted by the northern winds into ſouthern latitudes, and melt by degrees by the heat of the ſun, till they waſte away, or diſappear in the boundleſs element. The colliſion of the great fields of ice, in high latitudes, is often attended with a noiſe that for a time takes away the ſenſe of hearing any thing elſe; and the ſmaller with a grinding of unſpeakable horror. The water which daſhes againſt the mountainous ice freezes into an infinite variety of forms; and gives the voyager ideal towns, ſtreets, churches, ſteeples, and every ſhape which imagination can frame.

Another claſs of curious forms aſſumed by ice is called *Icebergs*. Theſe are large bodies of ice filling the valleys between the high mountains in northern latitudes. Among the moſt remarkable are thoſe of the eaſt coaſt of Spitzbergen. They are ſeven in number, but at conſiderable diſtances from each other: each fills the valleys for tracts unknown, in a region totally inacceſſible in the internal parts. The glaciers of Swiſſerland ſeem contemptible to theſe; but preſent often a ſimilar front into ſome lower valley. The laſt exhibits over the ſea a front three hundred feet high, emulating the emerald in colour: cataracts of melted ſnow precipitate down various parts, and black ſpiring mountains, ſtreaked with white, bound the ſides, and riſe crag above crag, as far as eye can reach in the back ground. At times immenſe fragments break off, and tumble into the water with a moſt alarming daſhing. A piece of this vivid green ſubſtance has fallen, and grounded in twenty-four fathoms water, and ſpired above the ſurface fifty feet. Similar icebergs are frequent in all the arctic regions; and to their lapſes is owing the ſolid mountainous ice which infeſts thoſe ſeas. Froſt ſports wonderfully with theſe icebergs, and gives them majeſtic as well as other moſt ſingular forms. Maſſes have been ſeen aſſuming the ſhape of a Gothic church, with arched windows and doors, and all the rich drapery of that ſtyle, compoſed of what an Arabian tale would ſcarcely dare to relate, of cryſtal of the richeſt ſapphirine blue: tables with one or more feet; and often immenſe flat-roofed temples, like thoſe of Luxor in Egypt, ſupported by round tranſparent columns of cœrulean hue, float by the aſtoniſhed ſpectator. Theſe icebergs are the creation of ages, and receive annually additional height by the falling of ſnows and of rain, which often inſtantly freezes, and more than repairs the loſs occaſioned by the influence of the melting ſun. See the article GLACIER, vol. viii. p. 586.

Here it may not be amiſs to notice a phenomenon called the *freezing rain*, or *raining ice*, a very uncommon kind of ſhower, which fell in the weſt of England, in December 1672. (See the Philoſ. Tranſact. No. 90.) This rain, as ſoon as it touched any thing above ground, as a bough, or the like, immediately ſettled into ice; and by multiplying and enlarging the icicles, it broke all down with its weight. The rain that fell on the ſnow immediately froze into ice, without ſinking in the ſnow at all. It made an incredible deſtruction of trees, beyond any thing in all hiſtory. "Had it concluded with ſome guſt of wind," ſays a gentleman on the ſpot, "it might have been of terrible conſequence." The ſprig of an aſh-tree, of juſt three quarters of a pound, being weighed, the ice thereon weighed ſixteen pounds. Some were frighted with the noiſe in the air; till they diſcerned it was the clatter of the ice among the boughs daſhed againſt each other. Dr. Beale obſerves, that there was no conſiderable froſt obſerved on the ground during the whole; whence he concludes, that a froſt may be very fierce and dangerous on the tops of ſome hills; while, in other places, it keeps at two, three, or four, feet diſtance above the ground, rivers, lakes, &c. and may wander about, very furiouſly in ſome places, and be remiſs in others, not far off. This icy rain was followed by glowing heats, and a wonderful forwardneſs of vegetation.

At Peterſburg in Ruſſia, the covering of the Neva with ice, and the breaking up of it, are remarkable phenomena. When the ice is ſetting-in, as it is called, ſmall detached flakes of ice are ſeen floating down the current, which ſoon grow into large fields, and acquire ſo great a momentum, that the bridges muſt be haſtily taken aſunder, to prevent their being carried away by the ice, a diſaſter which has happened more than once. Theſe large plains of ice continue for a day or two paſſing with the current, while the boats are ſeen rowing between them; till all at once the floating ice ſtops, either by the gulf being already cloſed below, or the flakes of ice freezing together: when immediately foot-paſſengers, who have been waiting on the ſhores for this happy moment, go over in all ſafety. Nothing is more common than to ſee boats croſſing the river, and, in two hours afterwards, to behold hundreds of people going over on foot. No leſs rapid is the departure of the ice. In the ſpring, the firſt indication of this approaching event is the ſtanding of the ſnow-water on the ice; then the ice becomes more porous, or divides into ſpiculæ, lets the water through, and becomes of a blackiſh colour. At length it parts, while the roads that have been well trod during the winter ſtill remain; ſo that often foot-paſſengers are ſeen on theſe roads, and, between them and the floating ſheets of ice, boats in great numbers paſſing and repaſſing. By the force of the current, and ſhocks received from the floating ice, at length the roads give way; the ice continues to fall down with the ſtream for a day or two to the gulf, and the whole river is clear. A week or a fortnight after this, the ice of the Lagoda comes down; which, according as the wind may happen to be, continues a couple or more days, ſometimes as many weeks, and renders the atmoſphere uncommonly chill.

The ice and the cold are of ſervice to the inhabitants in various ways. Diſtances are much ſhortened by their means, inaſmuch as people, horſes, and carriages of all ſorts, and of ever ſo great burden, can croſs the Neva, and the other rivers, lakes, and canals, in all places and directions; and the Cronſtadt gulf ſupplies, in ſome meaſure, the want of navigation during the winter, by the tranſport of commodities of every denomination over the ice. As ice-cellars here are a neceſſary of life, for keeping proviſions of all kinds during the ſummer, ſo every houſe in every quarter of the town is provided with one of them, to be filled with large blocks cut out of the river. This operation generally takes place about the beginning of February. The ice alſo promotes the pleaſure of the inhabitants, by giving them an opportunity for the diverſion of ſledge and horſe-racing, and for that of the ice-hills, ſo much admired by the populace. The weight of theſe *ice-hills*, together with that of a multitude ſometimes of 5000 or 6000 perſons ſtanding about them on holidays, give the ſpectator a ſurpriſing idea of the ſtrength and ſolidity of the ice. They are conſtructed in the following manner. A ſcaffolding is raiſed upon the river about thirty feet in height, with a landing-place on the top, the aſcent to which is by a ladder. From this ſummit a ſloping plane of boards, about four yards broad and thirty long, deſcends to the ſuperficies of the river: it is ſupported by ſtrong poles gradually decreaſing in height, and its ſides are defended by a parapet of planks. Upon theſe boards are laid ſquare maſſes of ice about four inches thick, which being firſt ſmoothed with the axe and laid cloſe to each other, are then ſprinkled with water: by theſe means they coaleſce, and, adhering to the boards, immediately form an inclined plane of pure ice. From the bottom of this plain the ſnow is cleared away for the length of 200 yards and the breadth of four, upon the level bed of the river; and the ſides of this courſe, as well as the ſides and top of the ſcaffolding, are ornamented with firs and pines. Each perſon, being provided with a ſledge, mounts the ladder; and having attained the ſummit, he ſets himſelf upon his ſledge at the upper extremity of the inclined plane, down which he ſuffers it to glide with conſiderable rapidity, poiſing it as he goes down; when the velocity acquired by the deſcent carries it above one hundred yards upon the level ice of the river. At the end of this courſe, there is uſually a ſimilar ice-hill, nearly parallel to the former, which begins where the other ends; ſo that the perſon immediately mounts again, and in the ſame manner glides down the other inclined plane of ice. This diverſion he repeats as often as he pleaſes. The boys alſo are continually employed in ſkaiting down theſe hills; they glide chiefly upon one ſkait, as they are able to poiſe themſelves better upon one leg than two. Theſe ice-hills exhibit a pleaſing appearance upon the river, as well from the trees with which they are ornamented, as from the moving objects which at particular times of the day are deſcending without intermiſſion.

What may be executed in ice was ſhown by the ice-palace which the empreſs Anne cauſed to be built on the bank of the Neva in 1740. It was conſtructed of huge quadrats of ice hewn in the manner of free ſtone: the edifice was fifty-two feet in length, ſixteen in breadth, and twenty in height. The walls were three feet thick. In the ſeveral apartments were tables, chairs, beds, and all kinds of houſehold furniture, of ice. In front of the palace, beſides pyramids and ſtatues, ſtood ſix cannons carrying balls of ſix pounds weight, and two mortars, of ice. From one of the former, as a trial, an iron ball, with only a quarter of a pound of powder, was fired off. The ball went through a two-inch board, at ſixty paces from the mouth of the cannon; and the piece of ice-artillery, with its lavette, remained uninjured by the exploſion. The illumination of the ice-palace at night had an aſtoniſhingly grand effect.

Another frozen ſpectacle of wonder at St. Peterſburg is the *ice-market*, a place for the ſale of proviſions in a ſtate of congelation. Here the aſtoniſhed ſight is arreſted by a vaſt open ſquare, containing the bodies of many thouſand animals piled in pyramidal heaps; cows, ſheep, hogs, fowls, butter, eggs, fiſh—all ſtiffened into granite. See the article Froſt, vol. viii. p. 80.

The fiſh are attractively beautiful; poſſeſſing the vividneſs of their living colour, with the tranſparent clearneſs of wax imitations. The beaſts preſent a far leſs pleaſing ſpectacle, moſt of the larger ſort being ſkinned, and claſſed according to their ſpecies; groupes of many hundreds are ſeen piled up on their hind legs againſt one another, as if each were making an effort to climb over the back of its neighbour. The motionleſs apparent animation of their ſeemingly ſtruggling attitudes (as if ſuddenly ſeized in moving, and petrified by froſt) gives a horrid life to this dead ſcene. Had an enchanter's wand been inſtantaneouſly waved over this ſea of animals, during their different actions, they could not have been fixed more decidedly. Their hardneſs, too, is ſo extreme, that the natives chop them up for the purchaſers like wood, and the chips of their carcaſes fly off in the ſame way as ſplinters do from maſſes of timber and coals. The proviſions collected here are the product of countries many thouſand verſts beyond Moſcow, Siberia, Archangel, and ſtill remoter provinces furniſh the merchandiſe, which, during the froſt's ſeverity, is conveyed here on ſledges. In conſequence of the multitudes of theſe commodities, and the ſhort period allowed to the exiſtence of the market, they are cheaper than at any other part of the year, and are, therefore, brought in large quantities to be laid up as winter ſtock. When depoſited in cellars, they keep good for a length of time.

At certain hours every day, the market, while it laſts, is a faſhionable lounge. There you meet all the gaiety of St. Peterſburg; even from the imperial family down to the Ruſſian merchant's wife. Incredible crowds of ſledges, carriages, and pedeſtrians, throng the place; and the different groupes of ſpectators, purchaſers, vendors, and commodities, form ſuch an extraordinary ſpectacle as no other city is known to equal. *Sir R. K. Porter's Travels.*

*To break the* Ice. To make the firſt opening to any attempt.—Thus have I *broken the ice* to invention, for the lively repreſentation of floods and rivers neceſſary for our painters and poets. *Peacham.*

After he'd a while look'd wiſe,
At laſt *broke* ſilence and *the ice.* *Hudibras.*

*To make* Ices. The ſeveral gradations, in bringing this greateſt luxury of warm climates to perfection, were perhaps the following: firſt, preſerving ſnow in pits, which probably was practiſed in very early ages, and mixing it with the beverage; next, boiling the water and placing it in a veſſel in the midſt of ſnow, which is mentioned (at leaſt the principle is recognized) by Ariſtotle and Galen; then, the aid of evaporation was called, by which artificial ice is procured throughout Hindooſtan; laſtly, nitre was employed to refrigerate the water containing the liquor to be uſed. The laſt diſcovery is claimed by Villa Franca, a Spaniard, in 1550: but we think it more probable that the Portugueſe found it in their Indian poſſeſſions.

In many countries the warmth of the climate renders ice not only a deſirable, but even a neceſſary, article; ſo that it becomes an object of ſome conſequence to fall upon a ready and cheap method of procuring it. Though the cheapeſt method hitherto diſcovered ſeems to be that related under the article Cold, vol. iv. p. 766, by means of ſal ammoniac or Glauber's ſalt, yet it may not be amiſs to take notice of ſome attempts made by Mr. Cavallo to diſcover a method of producing a ſufficient degree of cold for this purpoſe by the evaporation of volatile liquors. He found, however, in the courſe of theſe experiments, that ether was incomparably ſuperior to any other fluid in the degree of cold it produced. The price of the liquor naturally induced him to fall upon a method of uſing it with as little waſte as poſſible. The thermometer he made uſe of had the ball quite detached from the ivory piece on which the ſcale was engraved. The various fluids were then thrown upon the ball through the capillary aperture of a ſmall glaſs veſſel ſhaped like a funnel; and care was taken to throw them upon it ſo ſlowly, that a drop might now and then fall from the under part, excepting when thoſe fluids were uſed which evaporate very ſlowly; in which caſe it was ſufficient barely to keep the ball moiſt, without any drop falling from it. During the experiment the thermometer was kept very gently turning round its axis, that the fluid made uſe of might fall upon every part of its ball. He found this method preferable to that of dipping the ball of the thermometer into the fluid and taking it out again immediately, or even of anointing it conſtantly with a feather. The evaporation, and conſequently the cold produced by it, may be increaſed by blowing on the thermometer with a pair of bellows; though this was not uſed in the experiments now to be related, on account of the difficulty of its being performed by one perſon, and likewiſe becauſe it occaſions much uncertainty in the reſults.

The room in which the experiments were made was heated to 64° of Fahrenheit; and with water it was reduced to 56°, *viz.* 8° below that of the room, or of the water employed. The effect took place in about two minutes; but though the operation was continued for a longer time, it did not ſink lower. With ſpirit of wine it ſunk to 48°. The cold was greater with highly rectified ſpirit than with the weaker ſort; but the difference is leſs than would be expected by one who had never ſeen the experiment made. The pure ſpirit produces its effect much more quickly. On uſing various other fluids which were either compounded of water and ſpirituous liquors or pure eſſences, he found that the cold produced by their evaporation was generally ſome intermediate degree between that produced by water and the ſpirit of wine. Oil of turpentine ſunk the mercury three degrees; but olive-oil and others, which evaporate very ſlowly, or not at all, did not ſenſibly affect the thermometer.

To obſerve how much the evaporation of ſpirit of wine, and conſequently the cold produced by it, would be increaſed by electricity, he put the tube containing it into an inſulating handle, and connected it with the conductor of an electrical machine, which was kept in action during the time of making the experiment; by which means one degree of cold ſeemed to be gained, as the mercury now ſunk to 47° inſtead of 48°, at which it had ſtood formerly. On trying the three mineral acids, he found that they heated the thermometer inſtead of cooling it, which effect he attributes to the heat they themſelves acquired by uniting with the moiſture of the atmoſphere. The vitriolic acid, which was very ſtrong and tranſparent, raiſed the mercury to 102°, the ſmoking nitrous acid to 72°, and the marine to 66°.

The apparatus for uſing the leaſt poſſible quantity of ether for freezing water, conſiſts in a glaſs tube terminating in a capillary aperture, which is to be fixed upon the bottle containing the ether. Round the lower part of the neck ſome thread is wound, in order to let it fit the neck of the bottle. When the experiment is to be made, the ſtopper of the bottle containing the ether is to be removed, and the tube juſt mentioned put in its room. The thread round the tube ought alſo to be previouſly moiſtened with water or ſpittle before it is put into the neck of the bottle, in order the more effectually to prevent the eſcape of the ether betwixt the neck of the phial and tube. Holding then the bottle by its bottom, and keeping it inclined, the ſmall ſtream of ether iſſuing out of the aperture of the tube, is directed upon the ball of the thermometer, or upon a tube containing water or other liquor that is required to be congealed. As ether is very volatile, and has the remarkable property of increaſing the bulk of air, there is no aperture requiſite to allow the air to enter the bottle while the liquid flows out. The heat of the hand is more than ſufficient to force out the ether in a continued ſtream. In this manner, throwing the ſtream of ether upon the ball of a thermometer in ſuch a quantity that a drop might now and then, every ten ſeconds for inſtance, fall from the bulb of the thermometer, Mr. Cavallo brought the mercury down to 3°, or 29° below the freezing point, when the atmoſphere was ſomewhat hotter than temperate. When the ether is very good, i. e. capable of diſſolving elaſtic gum, and has a ſmall bulb, not above twenty drops of it are required to produce this effect, and about two minutes of time; but the common ſort muſt be uſed in greater quantity, and for a longer time; though at laſt the thermometer is brought down by this very nearly as low as by the beſt ſort.

To freeze water by the evaporation of ether, Mr. Cavallo took a thin glaſs tube about four inches long, and one-fifth of an inch diameter, hermetically ſealed at one end, with a little water in it, ſo as to take up about half an inch of the cavity. Into this tube a ſlender wire was introduced, the lower extremity of which was twiſted into a ſpiral, and ſerved to draw up the bit of ice when formed. He then held the glaſs tube by its upper part with the fingers of the left hand, and kept it continually and gently turning round its axis, firſt one way and then the other; whilſt with the right hand he held the phial containing the ether in ſuch a manner as to direct the ſtream on the outſide of the tube, and a little above the ſurface of the water contained in it. The capillary aperture ſhould be kept almoſt in contact with the ſurface of the tube containing the water; and by continuing the operation for two or three minutes, the water will be frozen as it were in an inſtant. This congelation, however, is only ſuperficial; in order to congeal the whole quantity of water, the operation muſt be continued a minute or two longer; after which the wire will be found kept very tight by the ice. The hand muſt then be applied to the outſide of the tube, in order to ſoften the ſurface of the ice; which would otherwiſe adhere very firmly to the glaſs; but when this is done, the wire eaſily brings it out.

Sometimes our author was accuſtomed to put into the tube a ſmall thermometer inſtead of the wire, and thus he had an opportunity of obſerving a very curious phenomenon unnoticed by others, viz. that in the winter time water requires a ſmaller degree of cold to congeal it than in the ſummer. In the winter, for inſtance, the water in the tube will freeze when the thermometer ſtands about 30°; but in the ſummer, or even when the thermometer ſtands at 60°, the quickſilver muſt be brought down 10, 15, or even more, degrees below the freezing point, before any congelation can take place. In the ſummer time therefore a greater quantity of ether, and more time, will be required to congeal any given quantity of water than in winter. When the temperature of the atmoſphere has been about 40°, our author has been able to congeal a quantity of water with an equal quantity of good ether; but in ſummer two or three times the quantity are required to perform the effect. "There ſeems (ſays he) to be ſomething in the air, which, beſides heat, interferes with the freezing of water, and perhaps of all fluids; though I cannot ſay from my own experience whether the above-mentioned difference between the freezing in winter and ſummer takes place with other fluids, as milk, oils, wines," &c.

The proportion of ether requiſite to congeal water, ſeems to vary with the quantity of the latter; that is, a large quantity of water ſeems to require a proportionably leſs quantity of ether to freeze it than a ſmaller one. "In the beginning of the ſpring (ſays Mr. Cavallo), I froze a quarter of an ounce of water with about half an ounce of ether; the apparatus being larger, though ſimilar to that deſcribed above. Now as the price of ether, ſufficiently good for the purpoſe, is generally about 18d. or 2s. per ounce, it is plain, that with an expence under two ſhillings, a quarter of an ounce of ice, or ice-cream, may be made, in every climate, and at any time, which may afford great ſatisfaction to thoſe perſons, who, living in thoſe places where no natural ice is to be had, never ſaw or taſted any ſuch delicious refreſhment. When a ſmall piece of ice, for inſtance, of about ten grains weight, is required, the neceſſary apparatus is very ſmall, and the expence not worth mentioning. I have a ſmall box four inches and a half long, two inches broad, and one and a half deep, containing all the apparatus neceſſary for this purpoſe, viz. a bottle capable of containing about one ounce of ether; two pointed tubes, in caſe one ſhould break; a tube in which the water is to be frozen, and a wire. With the quantity of ether contained in this ſmall and very portable apparatus, the experiment may be repeated about ten times. A perſon who wiſhes to perform ſuch experiments in hot climates, and in places where ice is not eaſily procured, requires only a larger bottle of ether beſides the whole apparatus deſcribed above." Electricity increaſes the cold produced by means of evaporating ether but very little, though the effect is perceptible. Having thrown the electrified and alſo the unelectrified ſtream of ether upon the bulb of a thermometer, the mercury was brought down two degrees lower in the former than in the latter caſe.

The following is the common method of making *ice-cream.* Take a ſufficient quantity of cream; and, when it is to be mixed with raſpberry, or currant, or pine, a quarter part as much of the juice or jam as of the cream: after beating and ſtraining the mixture through a cloth, put it with a little juice of lemon into the mould, which is a pewter veſſel, and varying in ſize and ſhape at pleaſure; cover the mould, and place it in a pail about two-thirds full of ice, into which two handfuls of ſalt have been thrown; turn the mould by the hand-hold with a quick motion to and fro, in the manner uſed for milling chocolate, for eight or ten minutes; then let it reſt as long, and turn it again for the ſame time; and having left it to ſtand half an hour, it is fit to be turned out of the mould, and to be ſent to table. Lemon-juice and ſugar, and the juices of various kinds of fruits, are frozen without cream, and, when cream is uſed, it ſhould be well mixed.

Sir Robert Barker thus deſcribes the proceſs of making ice in the Eaſt Indies, in a country where he never ſaw any natural ice. On a large plain they dig three or four pits, each about thirty feet ſquare, and two feet deep; the bottoms of which are covered from eight to twelve inches thick, with ſugar-cane, or the ſtems of the large Indian corn, dried. On this bed are placed in rows a number of ſmall ſhallow unglazed earthen pans, formed of a very porous earth, a quarter of an inch thick, and about an inch and a quarter deep; which, at the duſk of the evening, they fill with ſoft water that has been boiled. In the morning, before ſun-riſe, the ice-makers, attend at the pits, and collect what has been frozen in baſkets, which they convey to the place of preſervation. This is uſually in ſome high and dry ſituation, by ſinking a pit fourteen or fifteen feet deep, which they line firſt with ſtraw, and then with a coarſe kind of blanketing. The ice is depoſired in this pit, and beaten down with rammers, till at length its own accumulated cold again freezes it, and it forms one ſolid maſs. The mouth of the pit is well ſecured from the exterior air with ſtraw and blankets, and a thatched roof is thrown over the whole. Phil. Tranſ. vol. lxv. p. 252.

Boerhaave alſo gives a method of producing artificial froſt without either ſnow or ice. We muſt have for this purpoſe, at any ſeaſon of the year, the coldeſt water that can be procured; this is to be mixed with a proper quantity of any ſalt (ſal ammoniac will anſwer the intention beſt), at the rate of about three ounces to a quart of water. Another quart of water muſt be prepared in the ſame manner with the firſt; the ſalt, by being diſſolved in each, will make the water much colder than it was before. The two quarts are then to be mixed together, and this will make them colder ſtill. Two quarts more of water prepared and mixed in the ſame manner are to be mixed with theſe, which will increaſe the cold to a much higher degree in all. The whole of this operation is to be carried on in a cold cellar; and a glaſs of common water is then to be placed in the veſſel of the fluid thus artificially cooled, and it will be turned into ice in the ſpace of twelve hours.

There is alſo a method of making artificial ice by means of ſnow, without any kind of ſalt. For this purpoſe fill a ſmall pewter diſh with water, and upon that ſet a common pewter plate filled, but not heaped, with ſnow. Bring this ſimple apparatus near the fire, and ſtir the ſnow in the plate: the ſnow will diſſolve, and the ice will be formed on the back of the plate which was ſet in the diſh of water.

Mr. Reaumur tried the effect of ſeveral ſalts, and examined the various degrees of cold by an ice-thermometer, which, being placed in the fluid to be frozen, ſhowed very exactly the degree of cold by the deſcent of the ſpirit. Nitre, or ſaltpetre, uſually paſſes for a ſalt that may be very ſerviceable in theſe artificial congelations; but the experiments of this gentleman prove that this opinion is erroneous. The moſt perfectly refined ſaltpetre employed in the operation ſunk the ſpirit in the thermometer only three degrees and a half below the fixed point. Leſs refined nitre ſunk the thermometer lower, and gave a greater degree of cold; owing to the common or ſea-ſalt that it contains when leſs pure, which has a greater effect than the pure ſaltpetre itſelf. Two parts of common ſalt being mixed with three parts of powdered ice in very hot weather, the ſpirit in the thermometer immediately deſcended fifteen degrees, which is half a degree lower than it would have deſcended in the ſevereſt cold of our winters. Mr. Reaumur then tried the ſalts all round, determining, with great regularity and exactneſs, what was the degree of cold occaſioned by each in a given doſe. Among the neutral ſalts, none produced a greater degree of cold than the common ſea-ſalt. Among the alkalies, ſal ammoniac ſunk the thermometer only to thirteen degrees; pot-aſhes ſunk it juſt as low, as well refined ſaltpetre.

For the common uſes of the table, the ice is not required to be very hard, or ſuch as is produced by long continuance of violent cold: it is rather deſired to be like ſnow. Saltpetre, which is no very powerful freezer, is therefore more fit for the purpoſe than a more potent ſalt. It is not neceſſary that the congelation ſhould be very ſuddenly made; but that it may retain its form as long as may be, when made, is of great importance. If it be deſired to have ices very hard and firm, and very ſuddenly prepared, then ſea-ſalt is of all others moſt to be choſen for the operation. The ices thus made will be very hard, but they will ſoon run. Pot-aſhes afford an ice of about the hardneſs that is uſually required: this forms indeed very ſlowly, but then it will preſerve a long time. Common wood-aſhes will perform the buſineſs very nearly in the ſame manner as the pot-aſhes; but, for this purpoſe, the wood which is burnt ought to be freſh.

The ſtrong acid ſpirits of the neutral ſalts act much more powerfully in theſe congelations than the ſalts themſelves, or indeed than any ſimple ſalt can do. Thus, ſpirit of nitre mixed with twice its quantity of powdered ice, immediately ſinks the ſpirit in the thermometer to nineteen degrees, or four degrees more than that obtained by means of ſea-ſalt, the moſt powerful of all the ſalts in making artificial cold. A much greater degree of cold may be given to this mixture, by piling it round with more ice mixed with ſea-ſalt. This gives a redoubled cold, and ſinks the thermometer to twenty-four degrees. If this whole matter be covered with a freſh mixture of ſpirit of nitre and ice, a ſtill greater degree of cold is produced, and ſo on; the cold being by this method of freſh additions to be increaſed almoſt without bounds: but it is to be obſerved, that every addition gives a ſmaller increaſe than the former.

It is very remarkable in the acid ſpirits, that, though ſea-ſalt is ſo much more powerful than nitre in ſubſtance in producing cold, yet the ſpirit of nitre is much ſtronger than that of ſea-ſalt; and another not leſs wonderful phenomenon is, that ſpirit of wine, which is little elſe than liquid fire, has as powerful an effect in congelations, or very nearly ſo, as the ſpirit of nitre itſelf.

*To* ICE, *v. a.* To cover with ice; to turn to ice; to cover with concreted ſugar.

ICE-BLINK. See the article GREENLAND, vol. ix. p. 5.

ICE-BOAT, *ſ.* A boat ſo conſtructed as to ſail upon ice, very common in Holland, particularly upon the river Maeſe and the lake Y. They go with incredible ſwiftneſs, ſometimes ſo quick as to affect the breath; and are found very uſeful in conveying goods and paſſengers over lakes and great rivers in that country. Boats of different ſizes are placed in a tranſverſe form upon a two and a half or three inch deal board; at the extremity of each end are fixed irons, which turn up in the form of ſkaits; upon this plank the boat reſts, and the two ends ſeem as out-riggers to prevent overſetting; whence ropes are faſtened that lead to the head of the maſt in the nature of ſhrouds, and others are paſſed through a block acroſs the bowſprit: the rudder is made ſomewhat like a hatchet with the head placed downward, which, being preſſed down, cuts the ice, and ſerves all the purpoſes of a rudder in the water, by enabling the helmſman to ſteer, tack, &c.

ICE-BUILT, *adj.* Heaped with ice.—Where ſhaggy forms o'er *ice-built* mountains roam. *Gray.*

ICE-HILLS. See p. 719.

ICE-HOUSE, *ſ.* A repoſitory for ice, eſpecially during the ſummer months. Profeſſor Beckmann, in the third volume of his Hiſtory of Inventions, has proved clearly that the ancients were well acquainted with what ſerved the purpoſe of ice-houſes. "The art (ſays he) of preſerving ſnow for cooling liquors during the ſummer, in warm countries, was known in the earlieſt ages. This practice is mentioned by Solomon, *Proverbs* xxv. 15. and proofs of it are ſo numerous in the works of the Greeks and the Romans, that it is unneceſſary for me to quote them, eſpecially as they have been collected by others. How the repoſitories for keeping it were conſtructed, we are not expreſsly told; but it is probable that the ſnow was preſerved in pits or trenches. When Alexander the Great beſieged the city of Petra, he cauſed thirty trenches to be dug, and filled with ſnow, which was covered with oak branches; and which kept in that manner for a long time. Plutarch ſays, that a covering of chaff and coarſe cloth is ſufficient; and at preſent a like method is purſued in Portugal. Where the ſnow has been collected in a deep gulf, ſome graſs or green ſods, covered with dung from the ſheep-pens, is thrown over it; and under theſe it is ſo well preſerved, that the whole ſummer through it is ſent the diſtance of ſixty Spaniſh miles to Liſbon. "When the ancients, therefore, wiſhed to have cooling liquors, they either drank the melted ſnow, or put ſome of it in their wine, or they placed jars filled with wine in the ſnow, and ſuffered it to cool there as long as they thought proper. That ice was alſo preſerved for the like purpoſe, is probable from the teſtimony of various authors; but it appears not to have been uſed ſo much in warm countries as in the northern. Even at preſent ſnow is employed in Italy, Spain, and Portugal; but in Perſia ice. I have never any where found an account of Grecian or Roman ice-houſes. By the writers on agriculture they are not mentioned."

In the choice of a ſituation for an ice-houſe, the principal regard ſhould be, that of a dry ſpot of ground; for, wherever there is moiſture, the ice will melt; therefore in all ſtrong lands, which detain the wet, there cannot be too much care taken to make drains all round the building to carry off all moiſture; for, when this is lodged near the building, it will occaſion a damp there, which will always be prejudicial to the keeping of the ice. The next conſideration muſt be, to have the place ſo elevated, that there may be deſcent enough to carry off whatever wet may happen near the building, or from ſuch portions of the ice as may occaſionally melt; alſo, that the place be as much expoſed to the ſun and air as poſſible; and not placed under the drip or in the ſhade of trees, as hath been too often practiſed, under a falſe notion, that, if it ſhould be expoſed to the ſun, the ice will melt away in ſummer; for this never can be the caſe where there is ſufficient care taken to exclude the outward air (which muſt always be regarded in the building of theſe houſes), as the heat of the ſun can never penetrate through the double arches of the building, ſo as to add any warmth to the included air; but, when the building is entirely open to the ſun and wind, all damps and vapours will thereby be removed from about the building, which can never be kept too dry, or free from moiſt vapours. As to the figure of the building, that may be according to the fancy of the owner; but, for the well into which the ice is to be put, a circular figure is the moſt convenient; the depth of the well, as alſo the diameter of it, muſt be proportioned to the quantity of ice wanted; but it is always beſt to have enough; for, when the houſe is well built, it will keep the ice for two or three years; and there will be this advantage in having it large enough to contain ice for two years conſumption, that if a mild winter ſhould happen, when there is not ice to be had, there will be a ſtock to ſupply the want.

If the quantity wanted is not great, a well of ſix feet diameter, and eight feet deep, will be large enough; but, for a large conſumption, it ſhould not be leſs than nine or ten feet diameter, and as many deep; where the ſituation is either dry chalk, gravel, or ſand, the pit may be entirely below the ſurface of the ground; but, in ſtrong loam, clay, or moiſt ground, it will be the beſt way to raiſe it ſo high above the ſurface, as that there may be no danger from the wet. At the bottom of the well there ſhould be a ſpace left about two feet deep, to receive any moiſture which may drain from the ice, and a ſmall underground drain ſhould be laid from this, to carry off the wet; over this ſpace of two feet, ſhould be placed a ſtrong grate of wood to let the moiſture fall down, which may at any time happen from melting of the ice. The ſides of this well muſt be walled up with brick or ſtone, at leaſt two feet thick; but, if it is yet thicker, it will be better, becauſe, the thicker the walls are made, the leſs danger there will be of the well being affected by any external cauſe. When the well is brought within three feet of the ſurface, there muſt be another outer arch or wall begun, which muſt be carried up to the height of the top of the intended arch of the well; and, if there is a ſecond arch turned over from this well, it will add to the goodneſs of the houſe; but, if not, then the plate into which the roof is to be framed muſt be laid on this outer wall, which ſhould be carried high enough above the inner arch, to admit of a door-way in, to get out the ice. If the building is to be covered with ſlates or tiles, there ſhould be a thickneſs of reeds laid under, to keep out the ſun and external air; if theſe reeds are laid two feet thick, and plaſtered over with lime and hair, there will be no danger of the heat getting through it. The external wall need not be built circular, but of any other figure, either ſquare, hexangular, or octangular; and, where it ſtands much in ſight, may be ſo contrived as to make it a good object.

The aperture of the mouth of the well need not be more than two feet and a half diameter, which will be large enough to put down the ice, and there ſhould be a ſtone fitted to ſtop this aperture, which muſt be cloſed up as ſecure as poſſible, after the ice is put in, and all the vacant ſpace above and between this and the outer door muſt be filled cloſe with barley ſtraw, to exclude the air; ſo the door to enter for taking out the ice ſhould be on the oppoſite ſide; and this door ſhould be no larger than is abſolutely neceſſary for the coming at the ice, and muſt be ſtrong and cloſe to exclude the air; and at five or ſix feet diſtance from this another door ſhould be contrived, which ſhould be cloſely ſhut before the inner door is opened, whenever the ice is taken out.

The building, being finiſhed, ſhould have time to dry before the ice is put into it; for, when the walls are green, the damp of them frequently melts the ice. At the bottom of the well, upon the wooden grate, ſhould be laid ſome ſmall faggots; and, if upon theſe a layer of reeds is placed ſmooth for the ice to lie upon, it will be better than ſtraw, which is commonly uſed. In the choice of the ice, the thinner it is, the better it may be broken to powder; for, the ſmaller it is broken, the better it will unite when put into the well. In putting it in, care muſt be taken to ram it cloſe; as alſo, by laying ſtraw, to allow a vacancy all round next the wall, of about two inches; this is to give paſſage to any moiſture which may be occaſioned by the melting of ſome of the ice on the top, which, if pent up, will melt the ice downward. When the ice is put into the well, if there is a little ſaltpetre mixed at every ten inches or a foot thickneſs, it will cauſe the ice to join more cloſely into a ſolid maſs. The ice being all incorporated into one ſolid body, there muſt be a crow or other iron inſtrument always in readineſs to break it up; taking out no more at a time than is wanted.

Mr. Miller propoſes to make uſe of the ice-houſe as an ornamental building; that however is ſeldom done; and it is generally placed in a ſequeſtered ſpot, on the ſide of a hill or ſloping ground, the baſe of which is lower than the bottom of the well; the outſide being well banked up with earth, the better to keep out all air and heat, and the embankment being neatly covered with turf.

Ice may be preſerved in any dry place under ground, by covering it well with chaff, ſtraw, or reeds. Great uſe is made of chaff in ſome places of Italy to preſerve ice; the ice-houſe for this purpoſe need only be a deep hole dug in the ground on the ſide of a hill, from the bottom of which they can eaſily carry out a drain, to let out the water which is ſeparated at any time from the ice, that it may not melt and ſpoil the reſt. If the ground is tolerably dry, they do not line the ſides with any thing, but leave them naked, and only make a covering of thatch over the top of the hole; this pit they fill either with pure ſnow, or elſe with ice taken from the pureſt and cleareſt water; becauſe they do not uſe it as we do in England, to ſet the bottles in, but really mix it with the wine. They firſt cover the bottom of the hole with chaff, and then lay in the ice, not letting it any where touch the ſides, but ramming in a large bed of chaff all the way between; they thus carry on the filling to the top, and then cover the ſurface with chaff; and in this manner it will keep as long as they pleaſe. When they take any of it out for uſe, they wrap the lump up in chaff, and it may then be carried to any diſtant place without waſte or running.

I'CE-MARKET. See p. 720.

I'CE-PLANT. See Meſembryanthemum.

I'CEBERG, *ſ.* See p. 719.

I'CEING, *ſ.* The act or art of turning into ice, or of applying ice to cool any thing.

I'CELAND, a large iſland laying in the northern part of the Atlantic Ocean, between 63 and 68 degrees of north latitude, and between 10 and 26 of weſt longitude; its greateſt length being about 700 miles, and its breadth 300. It belongs to Denmark.

This country, lying partly within the frigid zone, and being liable to be ſurrounded with vaſt quantities of ice which come from the polar ſeas, is, on account of the coldneſs of its climate, very inhoſpitable; but much more ſo for other reaſons. It is exceedingly ſubject to earthquakes; and ſo full of volcanoes, that the little part of it which appears fit for the habitation of man ſeems almoſt totally laid waſte by them. The beſt account that hath yet appeared of the iſland of Iceland is in a late publication intitled, "Letters on Iceland, &c. written by Uno Von Troil, D.D. firſt chaplain to his Swediſh majeſty." This gentleman ſailed from London on the 12th of July, 1772, in company with Mr. Banks, Dr. Solander, and Dr. James Lind, of Edinburgh. After viſiting the weſtern iſles of Scotland, they arrived on the 28th of Auguſt at Iceland, where they caſt anchor at Beſſeſtedr or Beſſaſtadr, lying in about 64. 6. N. lat. in the weſtern part of the iſland. The country had to them the moſt diſmal appearance that can be conceived. Imagine to yourſelf (ſays Dr. Troil) a country, which from one end to the other preſents to your view only barren mountains, whoſe ſummits are covered with eternal ſnow, and between them fields divided by vitrified cliffs, whoſe high and ſharp points ſeem to vie with each other to deprive you of the ſight of a little graſs which ſcantily ſprings up among them. Theſe ſame dreary rocks likewiſe conceal the few ſcattered habitations of the natives; and no where a ſingle tree appears which might afford ſhelter. The proſpect, however, though not pleaſing, was uncommon and ſurpriſing. Whatever preſented itſelf to our view bore the marks of devaſtation; and our eyes, accuſtomed to behold the pleaſing coaſts of England, now ſaw nothing but the veſtiges of the operation of a fire, Heaven knows how ancient!

The climate of Iceland, however, is not unwholeſome, nor naturally ſubject to exceſſive colds, notwithſtanding its northward ſituation. There have been inſtances indeed of Fahrenheit's thermometer ſinking to 24° below the freezing point in winter, and riſing to 104° in ſummer. Since the year 1749, obſervations have been made on the weather; and the reſult of theſe obſervations hath been unfavourable, as the coldneſs of the climate is thought to be on the increaſe, and of conſequence the country is in danger of becoming unfit for the habitation of the human race. Wood, which formerly grew in great quantities all over the iſland, cannot now be raiſed. Even the hardy firs of Norway cannot be reared in this iſland. They ſeem indeed to thrive till they are about two feet high; but then their tops wither, and they ceaſe to grow. This is owing chiefly to the ſtorms and hurricanes which frequently happen in the months of May and June, and which are very unfavourable to vegetation of every kind. In 1772, governor Thodal ſowed a little barley, which grew very briſkly; but, a ſhort time before it was to be reaped, a violent ſtorm ſo effectually deſtroyed it, that only a few grains were found ſcattered about. Beſides theſe violent winds, this iſland lies under another diſadvantage, owing to the floating ice with which the coaſts are often beſet. This ice comes on by degrees, always with an eaſterly wind, and frequently in ſuch quantities as to fill up all the gulfs on the north-weſt ſide of the iſland, and even to cover the ſea as far as the eye can reach; it alſo ſometimes drives to other ſhores. It generally comes in January, and goes away in March. Sometimes it only reaches the land in April; and, remaining there for a long time, does an incredible deal of miſchief. It conſiſts partly of mountains of ice, ſaid to be ſometimes ſixty fathoms in height; and partly of field-ice, which is neither ſo thick nor ſo much dreaded. Sometimes theſe enormous maſſes are grounded in ſhoal-water; and in theſe caſes they remain for many months, nay years, undiſſolved, chilling the atmoſphere for a great way round. When many ſuch bulky and lofty ice-maſſes are floating together, the wood which is often found drifting between them, is ſo much chafed, and preſſed with ſuch violence together, that it ſometimes takes fire; which circumſtance has occaſioned fabulous accounts of the ice being in flames.

In 1753 and 1754, this ice occaſioned ſuch a violent cold, that horſes and ſheep dropped down dead by reaſon of it, as well as for want of food; horſes were obſerved to feed upon dead cattle, and the ſheep ate of each other's wool. In 1755, towards the end of the month of May, the waters were frozen over in one night to the thickneſs of an inch and five lines. In 1756, on the 26th of June, ſnow fell to the depth of a yard, and continued falling through the months of July and Auguſt. In the year following it froze very hard towards the end of May and beginning of June, in the ſouth part of the iſland, which occaſioned a great ſcarcity of graſs. Theſe froſts are generally followed by a famine, many examples of which are to be found in the Icelandic chronicles. Beſides theſe calamities, a number of bears annually arrive with the ice, which commit great ravages among the ſheep. The Icelanders attempt to deſtroy theſe intruders as ſoon as they get ſight of them. Sometimes they aſſemble together, and drive them back to the ice, with which they often float off again. For want of fire-arms, they are obliged to uſe ſpears on theſe occaſions. The government alſo encourage the deſtruction of theſe animals, by paying a premium of ten dollars for every bear that is killed, and purchaſing the ſkin of him who killed it."

Thunder and lightning are ſeldom heard in Iceland, except in the neighbourhood of volcanoes. Aurora borealis is very frequent and ſtrong. It moſt commonly appears in dry weather; though there are not wanting inſtances of its being ſeen before or after rain, or even during the time of it. The lunar halo, which prognoſticates bad weather, is likewiſe very frequent here; as are alſo parhelia, which appear from one to nine in number at a time. Theſe parhelia are obſerved chiefly at the approach of the Greenland ice, when an intenſe degree of cold is produced, and the frozen vapours fill the air. Fire-balls, ſometimes round and ſometimes oval, are obſerved, and a kind of *ignis fatuus* which attaches itſelf to men and beaſts; and comets are alſo frequently mentioned in their chronicles. This laſt circumſtance deſerves the attention of aſtronomers.

Iceland, beſides all the inconveniencies already mentioned, has two very terrible ones, called by the natives *ſkrida* and *ſnioſlodi*: the name of the firſt imports large pieces of a mountain tumbling down and deſtroying the lands and houſes which lie at the foot of it; this happened in 1554, when a whole farm was ruined, and thirteen people buried alive. The other word ſignifies the effects of a prodigious quantity of ſnow, which covers the tops of the mountains, rolling down in immenſe maſſes, and doing a great deal of damage; of this there was an inſtance in 1699, during the night, when two farms were buried, with all their inhabitants and cattle. This laſt accident Iceland has, in common with all very mountainous countries, particularly Swiſſerland.

At what time the iſland of Iceland was firſt peopled is uncertain. An Engliſh colony indeed is ſaid to have been ſettled there in the beginning of the fifth century; but of this there are not ſufficient proofs. There is, however, reaſon to ſuppoſe that the Engliſh and Iriſh were acquainted with this country, under another name, long before the arrival of the Norwegians; for the celebrated Bede gives a pretty accurate deſcription of the iſland. But of theſe original inhabitants we cannot pretend to ſay any thing, as the Iceland chronicles go no farther back than the arrival of the Norwegians. What they relate is to the following purpoſe.

Naddodr, a famous pirate, was driven on the coaſt of Iceland in 861, and named the country *Snio-land*, Snowland, on account of the great quantities of ſnow with which he perceived the mountains covered. He did not remain there long; but on his return extolled the country to ſuch a degree, that one Garder Suafarſon, an enterpriſing Swede, was encouraged by his account to go in ſearch of it in 864. He ſailed quite round the iſland, and gave it the name of *Gardalſholmur*, or Garder's iſland. Having remained in Iceland during the winter, he returned in the ſpring to Norway, where he deſcribed the new-diſcovered iſland as a pleaſant well-wooded country. This excited a deſire in Floke, another Swede, reputed the greateſt navigator of his time, to undertake a voyage thither. As the compaſs was then unknown, he took three ravens on-board to employ them on the diſcovery. By the way he viſited his friends at Ferro; and, having ſailed farther to the northward, he let fly one of his ravens, which returned to Ferro. Some time after, he diſmiſſed the ſecond, which returned to the ſhip again, as he could find no land. The laſt trial proved more ſucceſsful; the third raven took his flight to Iceland, where the ſhip arrived a few days after. Floke ſtaid here the whole winter with his company; and, becauſe he found a great deal of floating ice on the north ſide, he gave the country the name of Iceland, which it has ever ſince retained.

When they returned to Norway in the following ſpring, Floke, and thoſe that had been with him, made a very different deſcription of the country. Floke deſcribed it as a wretched place; while one of his companions, named Thorulfr, praiſed it ſo highly, that he affirmed butter dropped from every plant; which extravagant commendation procured him the name of *Thorulfr-ſmior*, or Butter-Thorulfr.

From this time there are no accounts of any voyages to Iceland, till Ingolfr and his friend Leifr undertook one in 874. They ſpent the winter on the iſland, and determined to ſettle there for the future. Ingolfr returned to Norway, to provide whatever might be neceſſary for the comfortable eſtabliſhment of a colony, and Leifr in the mean time went to aſſiſt in the war in England. After an interval of four years, they again met in Iceland, the one bringing with him a conſiderable number of people, with the neceſſary tools and inſtruments for making the country habitable; and the other imported his acquired treaſures. After this period many people went there to ſettle; and, in the ſpace of ſixty years, the whole iſland was inhabited. The tyranny of Harold Pulchricomus, king of Norway, contributed not a little to the population of Iceland; and ſo great was the emigration of his ſubjects, that he was at laſt obliged to iſſue an order, that no one ſhould ſail from Norway to Iceland without paying four ounces of fine ſilver to the king.

Beſides the Norwegians, new colonies arrived from different nations, between whom wars ſoon commenced; and the Icelandic hiſtories are full of the accounts of their battles. In addition to which, ſome curious particulars relative to the ancient ſtate of this iſland have lately been publiſhed by a Mr. Vhorkelyn, a native of the country. From his work it appears that Iceland, for a very conſiderable ſpace of time, viz. from the beginning of the 10th to the middle of the 13th century, was under a republican form of government. At firſt the father, or head of every family, was an abſolute ſovereign; but, in the progreſs of population and improvement, it became neceſſary to form certain regulations for the ſettlement of diſputes concerning the frontiers of different eſtates. For this purpoſe the heads of the families concerned aſſembled themſelves, and formed the outlines of a republic. In the mean time they carried on a proſperous trade to different parts; ſending ſhips even to the Levant, and to Conſtantinople, at that time celebrated as the only ſeat of literature and humanity in the world. Deputies were likewiſe ſent from this iſland over land to that capital, for the improvement of their laws and civilization; and this a whole century before the firſt cruſade. In theſe ancient Icelandic laws, therefore, we meet with evident traces of thoſe of the Greeks and Romans. For example, beſides a body of written laws which were read every third year to the people, they had two men choſen annually by the heads of families, with conſular power, not only to enforce the laws then in being, but, when theſe proved deficient, to act as neceſſity required. Theſe laws do not appear to have inflicted capital puniſhments upon any perſon. Murderers were baniſhed to the *wood*; that is, to the interior and uncultivated parts of the iſland, where no perſon was allowed to approach them within a certain number of fathoms. In caſes of baniſhment for leſs crimes, the friends of the offender were allowed to ſupply him with neceſſaries. The culprit, however, might be killed by any perſon who found him without his bounds; and he might even be hunted and deſtroyed in his ſanctuary, provided he did not withdraw himſelf from the iſland within a twelvemonth after his ſentence, which it was ſuppoſed he might accompliſh by means of the annual arrival and departure of ſhips. Every man's perſon was free until he had forfeited his rights by ſome crime againſt ſociety; and ſo high was their reſpect for independence, that great indulgence was allowed for the power of paſſion: if any provoking word or behaviour had been uſed, no puniſhment was inflicted on the party who reſented it, even though he ſhould have killed his adverſary. By the laws of Iceland, the poor were committed to the protection of their neareſt kindred, who had a right to their labour as far as they were able to work, and afterwards to indemnification if the poor perſon ſhould acquire any property. Children were obliged to maintain their parents in their old age; but, if the latter had neglected to give them good education, they were abſolved from this duty.

Theſe inſtitutions did not prove ſufficient to reſtrain the turbulent ſpirit of the Icelanders. They continually waged war with each other; and, by their inteſtine conflicts, ſo weakened all parties, that the whole became at laſt a prey to a few arbitrary and enterpriſing men; who, as is too generally the caſe, wantonly abuſed their power to the oppreſſion of their countrymen and the diſgrace of humanity. Notwithſtanding theſe troubles, however, the Icelanders remained free from a foreign yoke till 1261; when the greateſt part of them put themſelves under the protection of Hakans king of Norway, promiſing to pay him tribute upon certain conditions agreed on between them; and the reſt followed their example in 1264. Afterwards, Iceland, together with Norway, became ſubject to Denmark. For a long time the care of the iſland was committed to a governor, who commonly went there once a-year; though, according to his inſtructions, he ought to have reſided in Iceland. As the country ſuffered incredibly through the abſence of its governors, it was reſolved a few years ago that they ſhould reſide there, and have their ſeat at Beſſeſſtedr, one of the old royal domains. He has under him a bailiff, two laymen, a ſheriff, and twenty-one *ſyſſelmen*, or magiſtrates who ſuperintend ſmall diſtricts; and almoſt every thing is decided according to the laws of Denmark.

At the firſt ſettlement of the Norwegians in Iceland, they lived in the ſame manner as they had done in their own country, namely, by war and piracy. Their ſituation with regard to the kings of Norway, however, ſoon obliged them to apply to other ſtates, in order to learn as much of the knowledge of government and politics as was neceſſary to preſerve their colony from ſubjugation to a foreign yoke. For this purpoſe they often ſailed to Norway, Denmark, Sweden, England, and Scotland. The travellers, at their return, were obliged to give an account to their chiefs of the ſtate of thoſe kingdoms through which they paſſed. For this reaſon, hiſtory, and what related to ſcience, was held in high repute as long as the republican form of government laſted; and the great number of hiſtories to be met with in the country, ſhow at leaſt the deſire of the Icelanders to be inſtructed. To ſecure themſelves, therefore, againſt their powerful neighbours, they were obliged to enlarge their hiſtorical knowledge. They likewiſe took great pains in ſtudying perfectly their own laws, for the maintenance and protection of their internal ſecurity. Thus Iceland, at a time when ignorance and obſcurity overwhelmed the reſt of Europe, was enabled to produce a conſiderable number of poets and hiſtorians. When the Chriſtian religion was introduced about the end of the 10th century, more were found converſant in the law than could have been expected, conſidering the extent of the country, and the number of its inhabitants. Fiſhing was followed among them; but they devoted their attention conſiderably more to agriculture, which has ſince entirely ceaſed.

Two things have principally contributed towards producing a great change both in their character and way of life, viz. the progreſs of the Chriſtian religion, and their ſubjection firſt to Norway, and afterwards to Denmark. For, if religion, on one ſide, commanded them to deſiſt from their ravages and warlike expeditions, the ſecular power, on the other, deprived them of the neceſſary forces for the execution of them; and, ſince this time, we find no farther traces of their heroic deeds, except thoſe which are preſerved in their hiſtories.

The modern Icelanders apply themſelves to fiſhing and breeding of cattle. They are middle-ſized and well made, though not very ſtrong; and the women are in general ill-featured. Vices are much leſs common among them, than in other parts where luxury and riches have corrupted the morals of the people. Though their poverty diſables them from imitating the hoſpitality of their anceſtors in all reſpects, yet they continue to ſhow their inclination to it; they cheerfully give away the little they have to ſpare, and expreſs the utmoſt joy and ſatisfaction if you are pleaſed with their gift. They are uncommonly obliging and faithful, and extremely attached to the government. They are very zealous in their religion. An Icelander never paſſes a river or any other dangerous place, without previouſly taking off his hat, and imploring the divine protection; and he is always thankful for the protection of the Deity when he has paſſed the danger in ſafety. They have an inexpreſſible attachment to their native country, and are no where ſo happy. An Icelander therefore rarely ſettles in Copenhagen, though ever ſuch advantageous terms ſhould be offered him. On the other hand, we cannot aſcribe any great induſtry or ingenuity to theſe people. They work on in the way to which they have all along been accuſtomed, without thinking of improvements They are not cheerful in converſation, but ſimple and credulous; and have no averſion againſt a bottle, if they can find an opportunity. When they meet together, their chief paſtime conſiſts in reading their hiſtory. The maſter of the houſe makes the beginning, and the reſt continue in their turns when he is tired. Some of them know theſe ſtories by heart; others have them in print, and others in writing. Beſides this, they are great players at cheſs and cards, but only for their amuſement, ſince they never play for money; which, however, ſeems to have been formerly in uſe among them; for, by one of their old laws, a fine is impoſed upon thoſe who play for money.

The modern Icelanders have made very little alteration in their dreſs from what was formerly in uſe. The men all wear a linen ſhirt next to the ſkin, with a ſhort jacket, and a pair of wide breeches over it. When they travel, another ſhort coat is put over all. The whole is made of coarſe black cloth, called *wadmal*; but ſome wear clothes of a white colour. On their head they wear large three-cornered hats, and on their feet Iceland ſhoes and worſted ſtockings. Some of them indeed have ſhoes from Copenhagen; but, as they are rather too dear for them, they generally make their own ſhoes, ſometimes of the hide of oxen, but more frequently of ſheep's leather. They make them by cutting a ſquare piece of leather, rather wider than the length of the foot; this they ſew up at the toes and behind at the heel, and tie it on with leather thongs. Theſe ſhoes are convenient enough where the country is level; but it would be very difficult for us who are not accuſtomed to walk with them among the rocks and ſtones, though the Icelanders do it with great eaſe.

The women are likewiſe dreſſed in black wadmal. They wear a bodice over their ſhifts, which are ſewed up at the boſom; and above this a jacket laced before, with long narrow ſleeves reaching down to the wriſts. In the opening on the ſide of the ſleeve, they have buttons of chaſed ſilver, with a plate fixed to each button; on which the lover, when he buys them in order to preſent them to his miſtreſs, takes care to have his name engraved along with hers. At the top of the jacket a little black collar is fixed, of about three inches broad, of velvet or ſilk, and frequently trimmed with gold cord. The petticoat is likewiſe of wadmal, and reaches down to the ankles. Round the top of it is a girdle of ſilver or ſome other metal, to which they faſten the apron, which is alſo of wadmal, and ornamented at top with buttons of chaſed ſilver. Over all this they wear an upper-dreſs nearly reſembling that of the Swediſh peaſants; with this difference, that it is wider at bottom; it is cloſe at the neck and wriſts, and a hand's-breadth ſhorter than the petticoat. It is adorned with a facing down to the bottom, which looks like cut velvet, and is generally woven by the Icelandic women. On their fingers they wear gold, ſilver, or braſs, rings. Their head-dreſs conſiſts of ſeveral cloths wrapped round the head, almoſt as high again as the face. It is tied faſt with a handkerchief, and ſerves more for warmth than ornament. Girls are not allowed to wear this head-dreſs till they are marriageable. At their weddings they are adorned in a very particular manner: The bride wears, cloſe to the face, round her head-dreſs, a crown of ſilver gilt. She has two chains round her neck, one of which hangs down very low before, and the other reſts on her ſhoulders. Beſides theſe, ſhe wears a ſmaller chain, from whence generally hangs a little heart, which may be opened to put ſome kind of perfume in it. This dreſs is worn by all the Icelandic women without exception; only with this difference, that the poorer ſort have it of coarſe wadmal, with ornaments of braſs; and thoſe that are in eaſier circumſtances have it of broad cloth, with ſilver ornaments gilt.

The houſes of the Icelanders are very indifferent, but the worſt are ſaid to be on the ſouth ſide of the iſland. In ſome parts they are built of drift-wood, in others of lava, almoſt in the ſame manner as the ſtone-walls we make for incloſures, with moſs ſtuffed between the pieces of lava. In ſome houſes the walls are wainſcotted on the inſide. The roof is covered with ſods, laid over rafting, or ſometimes over the ribs of whales; the walls are about three yards high, and the entrance ſomewhat lower. Inſtead of glaſs, the windows are made of the chorion and amnios of ſheep, or the membranes which ſurround the womb of the ewe. Theſe are ſtretched on a hoop, and laid over a hole in the roof. In the poorer ſort of houſes they employ for the windows the inner membrane of the ſtomach of animals, which is leſs tranſparent than the others.

As the iſland of Iceland produces no kind of grain, the inhabitants of conſequence have no bread but what is imported; and which, being too dear for common uſe, is reſerved for weddings and other entertainments. The common and uſual food, therefore, is freſh and dried fiſh, milk, oatmeal, and fleſh; but they chiefly live on dried fiſh dreſſed with butter. It is remarkable, that they eat all their proviſions without ſalt. Their common beverage is milk, either warm from the cow or cold, and ſometimes boiled; they likewiſe uſe butter-milk with or without water. On the coaſts they generally drink blanda and ſour milk; which is ſold after it is ſkimmed at two-fifths of a rixdollar per caſk; ſome likewiſe ſend for beer from Copenhagen, and ſome brew their own. A few of the principal inhabitants alſo have claret and coffee. The common people ſometimes drink a kind of tea, which they make from the leaves of the *dryas octopetala*, and the *veronica officinalis*.

On the coaſts the men employ themſelves in fiſhing, both ſummer and winter. On their return home, when they have drawn and cleaned their fiſh, they give them to their wives, whoſe care it is to dry them. In the winter, when the inclemency of the weather prevents them from fiſhing, they are obliged to take care of their cattle, and ſpin wool. In ſummer, they mow the graſs, dig turf, provide fuel, go in ſearch of ſheep and goats that were gone aſtray, and kill cattle. They prepare leather with the *ſpiraca ulmaria* inſtead of bark. Some few work in gold and ſilver; and others are inſtructed in mechanics, in which they are tolerable proficients. The women prepare the fiſh, take care of the cattle, manage the milk and wool, ſew, ſpin, and gather eggs and down. When they work in the evening, they uſe, inſtead of an hour-glaſs, a lamp with a wick made of epilobium dipt in train oil, which is contrived to burn four, ſix, or eight, hours.

Among the common people of Iceland, time is not reckoned by the courſe of the ſun, but by the work they have done, and which is preſcribed by law. According to this preſcription, a man is to mow as much hay in one day as grows on thirty fathoms of manured ſoil, or forty fathoms of land which has not been manured; or he is to dig ſeven hundred pieces of turf eight feet long and three broad. If as much ſnow falls as reaches to the horſes' bellies, a man is required daily to clear a piece of ground ſufficient for one hundred ſheep. A woman is to rake together as much hay as three men can mow, or to weave three yards of wadmal a-day.

The wages of a man are fixed at four dollars and twelve yards of wadmal; and thoſe of a woman at two dollars and five yards of wadmal. When men are ſent a-fiſhing out of the country, there is allowed to each man, by law, from the 25th of September to the 14th of May, ſix pounds of butter and eighteen pounds of dried fiſh every week. This may ſeem to be too great an allowance; but it muſt be remembered that they have nothing elſe to live upon. When they are at home, and can get milk, &c. every man receives only five pounds of dried fiſh and three quarters of a pound of butter a-week.

The food and manner of life of the Icelanders by no means contribute to their longevity. It is very rare indeed to ſee an inhabitant of Iceland exceed the age of fifty or ſixty; and the greater part are attacked by grievous diſeaſes before middle age. Of theſe the ſcurvy and elephantiaſis or leproſy are the worſt. They are alſo ſubject to the gout in their hands, owing to their frequent employment in fiſhing, and handling the wet fiſhing-tackle in cold weather. St. Anthony's fire, the jaundice, pleuriſy, and lowneſs of ſpirits, are frequent complaints in this country. The ſmall pox alſo is exceedingly fatal, and not long ago deſtroyed 16,000 perſons. By theſe diſeaſes, and the frequent famines with which the country has been afflicted, the inhabitants are reduced to a much ſmaller number than they formerly were, inſomuch that it is computed they do not in all exceed 60,000.

The exports of Iceland conſiſt of dried fiſh, ſalted mutton and lamb, beef, butter, tallow, train-oil, coarſe woollen cloth, ſtockings, gloves, raw wool, ſheep-ſkins, lamb-ſkins, fox-furs of various colours, eider-down, feathers, and formerly ſulphur; but there is no longer a demand for this mineral. On the other hand, the Icelanders import timber, fiſhing lines and hooks, tobacco, bread, horſe-ſhoes, brandy, wine, ſalt, linen, a little ſilk, and a few other neceſſaries, as well as ſuperfluities for the better ſort. The whole trade of Iceland is engroſſed by a monopoly of Danes, indulged with an excluſive charter. This company maintains factories at all the harbours of Iceland, where they exchange their foreign goods for the merchandiſe of the country; and, as the balance is in favour of the Icelanders, pay the overplus in Daniſh money, which is the only current coin in this iſland. All their accounts and payments are adjuſted according to the number of fiſh; two pounds of fiſh are worth two ſhillings in ſpecie, and forty-eight fiſh amount to a rixdollar. A Daniſh crown is computed at thirty fiſh; what falls under the value of twelve fiſh cannot be paid in money; but muſt be bartered either for fiſh or roll-tobacco, an ell of which is equal to one fiſh. The weights and meaſures of the Icelanders are nearly the ſame with thoſe uſed in Denmark.

The Icelanders being neither numerous nor warlike, and altogether unprovided with arms, ammunition, garriſons, or fleets, (though, while an independent republic, they had ſhips which traded to all parts of the world,) are in no condition to defend themſelves from invaſion, but depend entirely on the protection of his Daniſh majeſty, to whom they are ſubject. The revenues which he draws from this iſland conſiſt of the income of divers eſtates, as royal demeſne, amounting to about 8000 dollars per annum; of the money paid by the company for an excluſive trade, to the value of 20,000 dollars; and of a fixed proportion in the tithes of fiſh paid in ſome particular diſtricts.

Iceland is noted for the volcanoes with which it abounds, and which ſeem to be more furious than any yet diſcovered in the other parts of the globe. Indeed, from the lateſt accounts, it would ſeem as if this miſerable country were little other than one continued volcano. Mount Hecla has been commonly ſuppoſed to be the only burning mountain, or at leaſt the principal one, in the iſland. It has indeed been more taken notice of than many others of as great extent, partly from its having had more frequent eruptions than any ſingle one, and partly from its ſituation, which expoſes it to the ſight of ſhips ſailing to Greenland and North America. It is ſituated in the ſouthern part of the iſland, about twenty miles from the ſea, above which it riſes 5000 feet. The ſummit is covered with ſnow, except about the numerous craters, where the heat predominates. On the higheſt point, in one of thoſe hot ſituations, where Fahrenheit's thermometer was at 24 in the air, it roſe to 153 when placed on the ground. The eruptions from Hecla itſelf have not been numerous: there were only ten from the year 1104 to 1693, after which it remained quiet till 1766, when it threw out flames and lava, and committed terrible devaſtations, ſome of the matter being thrown to the diſtance of 150 miles, and a circuit of nearly fifty was laid waſte by the burning lava. But in a liſt of eruptions publiſhed in the Appendix to Pennant's Arctic Zoology, it appears, that out of fifty-one remarkable ones, only one third have proceeded from Hecla, the other mountains it ſeems being no leſs active in the work of deſtruction than this celebrated one. Theſe eruptions take place in the mountains covered with ice, which the inhabitants call *jokuls.* Some of theſe, as appears from a large map of Iceland made by order of his Daniſh majeſty in 1734, have been ſwallowed up. Probably the great lakes met with in this country may have been occaſioned by the ſinking of ſuch mountains, as ſeveral inſtances of a ſimilar nature are to be met with in other parts of the world. The great Icelandic lake called *Myvatu* may probably have been one. Its bottom is entirely formed of lava, divided by deep cracks, which ſhelter during winter the great quantity of trouts which inhabit this lake. It is now only thirty feet deep; but originally was much deeper; being nearly filled up in the year 1728 by an eruption of the great mountain Krafle. The fiery ſtream took its courſe towards Myvatu, and ran into it with an horrid noiſe, which continued till the year 1730.

The mountains of Iceland are of two kinds, primitive and poſterior. The former conſiſt of ſtrata uſually regular, but ſometimes confuſed. They are formed of different ſorts of ſtone, without the leaſt appearance of fire. Some are compoſed of ſand and free-ſtone, petroſilex or chert, ſlaty or fiſſile ſtone, and various kinds of earth or bole, and ſteatitæ; different ſorts of breccia, or conglutinated ſtones; jaſpers of different kinds; Iceland cryſtal; the common rhomboid ſpathum, chalcedonies ſtratified and botryoid; zeolites of the moſt elegant kinds; cryſtals, and various other ſubſtances that have no relation to volcanoes. Theſe primitive mountains are thoſe called *jokuls*, and are higher than the others. One of them, called *Æſian*, or *Rias*, is 6000 feet high. It ſeems to be compoſed of great and irregular rocks of a dark grey colour, piled on each other. Another, called *Enneberg*, is about 3000 feet high; the *Snæfield Jokul*, 2287 yards; the *Snæfieldnas*, or promontory of Snæfield, is from 300 to 400 fathoms. *Hornſtrand*, or the coaſt by the north Cape Nord, is very high, from 300 to 400 fathoms. The rocks of Drango are ſeven in number, of a pyramidal figure, riſing out of the ſea at a ſmall diſtance from the cliffs, four of which are of a vaſt height, and have a moſt magnificent appearance.

Eaſtward from the Snæfield begins the Eiſberge, ſoaring to a vaſt height; many parts of which have felt the effects of fire, and in ſome of the melted rocks are large cavities. *Budda-lekkur*, a rock at one end of this mountain, is alſo volcanic, and has in it a great cavern hung with ſtalactitæ. The name of *Solvahamar* is given to a tremendous range of volcanic rocks, compoſed entirely of flags, and covered in the ſeaſon with ſea-fowl. It would be endleſs, however, to mention all the places which bear the marks of fire in various forms, either by having been vitrified, changed into a fiery colour, ragged and black, or bear the marks of having run for miles in a ſloping courſe towards the ſea.

Theſe volcanoes, though ſo dreadful in their effects, ſeldom begin to throw out fire without giving warning. A ſubterraneous rumbling noiſe heard at a conſiderable diſtance, as in other volcanoes, precedes the eruption for ſeveral days, with a roaring and cracking in the place from whence the fire is about to burſt forth; many fiery meteors are obſerved, but generally unattended with any violent concuſſion of the earth, though ſometimes earthquakes, of which ſeveral inſtances are recorded, have accompanied theſe dreadful conflagrations. The drying up of ſmall lakes, ſtreams, and rivulets, is alſo conſidered as a ſign of an impending eruption; and it is thought to haſten the eruption when a mountain is ſo covered with ice, that the holes are ſtopped up through which the exhalations formerly found a free paſſage. The immediate ſign is the burſting of the maſs of ice with a dreadful noiſe; flames then iſſue forth from the earth, and lightning and fire-balls from the ſmoke; ſtones, aſhes, &c. are thrown out to vaſt diſtances. Egbert Olasfen relates, that, in an eruption of Kattle-gia in 1755, a ſtone weighing 290 pounds was thrown to the diſtance of twenty-four Engliſh miles. A quantity of white pumice-ſtone is thrown up by the boiling waters; and it is conjectured, with great probability, that the latter proceeds from the ſea, as a quantity of ſalt, ſufficient to load ſeveral horſes, has frequently been found after the mountain has ceaſed to burn.

To enumerate the ravages of ſo many dreadful volcanoes, which from time immemorial have contributed to render this dreary country ſtill leſs habitable than it is from the climate, would greatly exceed our limits. It will be ſufficient to give an account of that which happened in 1783, and which, from its violence, ſeems to have been unparalleled in hiſtory.

Its firſt ſigns were obſerved on the 1ſt of June by a trembling of the earth in the weſtern part of the province of Skapterfiall. It increaſed gradually to the 11th, and became at laſt ſo great, that the inhabitants quitted their houſes, and lay at night in tents on the ground. A continual ſmoke or ſteam was perceived riſing out of the earth in the northern and uninhabited parts of the country. Three *fire-ſpouts*, as they were called, broke out in different places, one in Ulfarſdal, a little to the eaſt of the river Skapta; the other two were a little to the weſtward of the river called Ilwerfisfliot. The river Skapta takes its riſe in the north-eaſt, and, running firſt weſtward, it turns to the ſouth, and falls into the ſea in a ſouth-eaſt direction. Part of its channel is confined for about twenty-four Engliſh miles in length, and is in ſome places 200 fathoms deep, in others 100 or 150, and its breadth in ſome places 100, 50, or 40, fathoms. Along the whole of this part of its courſe the river is very rapid, though there are no conſiderable cataracts or falls. There are ſeveral other ſuch confined channels in the country, but this is the moſt conſiderable. The three fire-ſpouts, or ſtreams of lava, which had broke out, united into one, after having riſen a conſiderable height into the air; arriving at laſt at ſuch an amazing altitude as to be ſeen at the diſtance of more than 200 Engliſh miles; the whole country, for double that diſtance, being covered with a ſmoke or ſteam not to be deſcribed.

On the 8th of June this fire firſt became viſible. Vaſt quantities of ſand, aſhes, and other volcanic matters, were ejected, and ſcattered over the country by the wind, which at that time was very high. The atmoſphere was filled with ſand, brimſtone, and aſhes, in ſuch a manner as to occaſion continual darkneſs; and conſiderable damage was done by the pumice-ſtones which fell, red-hot, in great quantities. Along with theſe a tenacious ſubſtance like pitch fell in vaſt quantity; ſometimes rolled up like balls, at other times like rings or garlands, which proved no leſs deſtructive to vegetation than the other. This ſhower having continued for three days, the fire became very viſible, and at laſt arrived at the amazing height already mentioned. Sometimes it appeared in a continued ſtream, at others in flaſhes or flames ſeen at the diſtance of 30 or 40 Daniſh miles, (180 or 240 of ours,) with a continual noiſe like thunder, which laſted the whole ſummer.

The ſame day that the fire broke out there fell a vaſt quantity of rain, which, running in ſtreams on the hot ground, tore it up in large quantities, and brought it down upon the lower lands. This rain-water was much impregnated with acid and other ſalts, ſo as to be highly corroſive, and occaſion a painful ſenſation when it fell on the hands or face. At a greater diſtance from the fire the air was exceſſively cold. Snow lay upon the ground three feet deep in ſome places; and in others there fell great quantities of hail, which did very much damage to the cattle and every thing without doors. Thus the graſs and every kind of vegetation in thoſe places neareſt the fire was deſtroyed, being covered with a thick cruſt of ſulphureous and ſooty matter. Such a quantity of vapour was raiſed by the conteſt of the two adverſe elements, that the ſun was darkened and appeared like blood, the whole face of nature ſeeming to be changed; and this obſcurity ſeems to have reached as far as the iſland of Britain; for during the whole ſummer of 1783, an obſcurity reigned throughout all parts of this iſland; the atmoſphere appearing to be covered with a continual haze, which prevented the ſun from appearing with his uſual ſplendour. The dreadful ſcene above deſcribed laſted in Iceland for ſeveral days; the whole country was laid waſte, and the inhabitants fled every where to the remoteſt parts of their miſerable country, to ſeek for ſafety from the fury of this unparalleled tempeſt.

On the firſt breaking out of the fire, the river Skapta was conſiderably augmented, on the eaſt ſide of which one of the fire-ſpouts was ſituated; and a ſimilar overflow of water was obſerved at the ſame time in the great river Piorſa, which runs into the ſea a little to the eaſtward of a town called *Orrebakka*, and into which another river called *Tuna*, after having run through a large tract of barren and uncultivated land, empties itſelf. But on the 11th of June the waters of the Skapta were leſſened, and in leſs than twenty-four hours totally dried up. The day following, a prodigious ſtream of liquid and red-hot lava, which the fire-ſpout had diſcharged, ran down the channel of the river. This burning torrent not only filled up the deep channel above-mentioned, but, overflowing the banks of it, ſpread itſelf over the whole valley, covering all the low grounds in its neighbourhood; and, not having any ſufficient outlet to empty itſelf by, it roſe to a vaſt height, ſo that the whole adjacent country was overflowed, inſinuating itſelf between the hills, and covering ſome of the lower ones. The hills here are not continued in a long chain or ſeries, but are ſeparated from one another, and detached, and between them run little rivulets or brooks; ſo that, beſides filling up the whole valley in which the river Skapta ran, the fiery ſtream ſpread itſelf for a conſiderable diſtance on each ſide, getting vent between the above-mentioned hills, and laying all the neighbouring country under fire. The ſpouts ſtill continuing to ſupply freſh quantities of inflamed matter, the lava took its courſe up the channel of the river, overflowing all the grounds above, as it had done thoſe below the place whence it iſſued. The river was dried up before it, until at laſt it was ſtopped by the hill whence the Skapta takes its riſe. Finding now no proper outlet, it roſe to a prodigious height, and overflowed the village of Buland, conſuming the houſes, church, and every thing that ſtood in its way; though the high ground on which this village ſtood ſeemed to enſure it from any danger of this kind.

The fiery lake, ſtill increaſing, ſpread itſelf out in length and breadth for about thirty-ſix Engliſh miles; and, having converted all this tract of land into a ſea of fire, it ſtretched itſelf towards the ſouth, and, getting vent again by the river Skapta, ruſhed down its channel with great impetuoſity. It was ſtill confined between the narrow banks of that river for about ſix miles (Engliſh;) but, coming at laſt into a more open place, it poured forth in prodigious torrents with amazing velocity and force; ſpreading itſelf now towards the ſouth, tearing up the earth, and carrying on its ſurface flaming woods and whatſoever it met with. In its courſe it laid waſte another large diſtrict of land. The ground where it came was cracked, and ſent forth great quantities of ſteam long before the fire reached it; and every thing near the lake was either burnt up or reduced to a fluid ſtate. In this ſituation matters remained from the 12th of June to the 13th of Auguſt; after which the fiery lake no longer ſpread itſelf, but nevertheleſs continued to burn; and, when any part of the ſurface acquired a cruſt by cooling, it was quickly broken by the fire from below; and this, tumbling down among the melted ſubſtance, was rolled and toſſed about with prodigious noiſe and crackling; and in many parts of its ſurface, ſmall ſpouts or at leaſt ebullitions were formed, which continued for ſome length of time.

In other directions this dreadful inundation proved no leſs deſtructive. Having run through the narrow part of the channel of Skapta as early as the 12th of June, it ſtretched out itſelf towards the weſt and ſouth-weſt, overflowing all the flat country, and its edge being no leſs than ſeventy fathoms high at the time it got out of the channel of the river. Continuing its deſtructive courſe, it overflowed a number of villages, running in every direction where it could find a vent. In one place it came to a great cataract of the river Skapta, about fourteen fathoms in height, over which it was precipitated with tremendous noiſe, and thrown in great quantities to a very conſiderable diſtance. In another place it ſtopped up the channel of a large river, filled a great valley, and deſtroying two villages by approaching only within one hundred fathoms of them. Others were overflowed by inundations of water proceeding from the rivers which had been ſtopped in their courſes; until at laſt all the paſſages on the ſouth, eaſt, and weſt, being ſtopped, and the ſpouts ſtill ſending up incredible quantities of freſh lava, it burſt out to the north and north-eaſt, ſpreading over a tract of land forty-eight miles long and thirty-ſix broad. Here it dried up the rivers Tuna and Axaſyrdi; but even this vaſt effuſion being inſufficient to exhauſt the ſubterraneous reſources of liquid fire, a new branch took its courſe for about eight miles down the channel of the river Ilwerfisfliot, when, coming again to an open country, it formed what our author calls a *ſmall lake of fire*, about twelve miles in length and ſix in breadth. At laſt, however, this branch alſo ſtopped on the 16th of Auguſt; the fiery fountains ceaſed to pour forth new ſupplies, and this moſt aſtoniſhing eruption came to a period.

The whole extent of ground covered by this dreadful inundation was computed at no leſs than ninety miles long and forty-two in breadth; the depth of the lava being from ſixteen to twenty fathoms. Twelve rivers were dried up, twenty or twenty-one villages were deſtroyed, and 224 people loſt their lives. The extent above-mentioned, however, is that only on the ſouth, eaſt, and weſt; for that towards the north, being over uninhabited land, where nobody cared to venture themſelves, was not exactly known. Some hills were covered by this lava; others were melted down by its heat; ſo that the whole had the appearance of a ſea of red-hot and melted metal.

After this eruption, two new iſlands were thrown up from the bottom of the ſea. One, about three miles in circumference, and about a mile in height, made its appearance in the month of February 1784, where there was formerly 100 fathoms water. It was about one hundred miles ſouth-weſt from Iceland, and forty-eight from a cluſter of ſmall iſlands called Gierſugla. It continued for ſome time to burn with great violence, ſending forth prodigious quantities of pumice-ſtones, ſand, &c. like other volcanoes. The other lay to the north-weſt, between Iceland and Greenland. It burnt day and night without intermiſſion for a conſiderable time; and was alſo very high, and larger than the former. Since that time, however, one or both of theſe iſlands have been ſwallowed up.

All the time of this great eruption, and for a conſiderable time after, the whole atmoſphere was loaded with ſmoke, ſteam, and ſulphureous vapours. The ſun was ſometimes wholly inviſible; and when it could be ſeen was of a reddiſh colour. Moſt of the fiſheries were deſtroyed; the banks where the fiſh uſed to reſort being ſo changed, that the fiſhermen could not know them again; and the ſmoke was ſo thick, that they could not go far out to ſea. The rain-water, falling through this ſmoke and ſteam, was ſo impregnated with ſalt and ſulphureous matter, that the hair and even the ſkin of the cattle were deſtroyed; and the whole graſs of the iſland was ſo covered with ſoot and pitchy matter, that what had eſcaped the deſtructive effects of the fire became poiſonous; ſo that the cattle died for want of food, or periſhed by eating thoſe unwholeſome vegetables. Nor were the inhabitants in a much better ſituation; many of them having loſt their lives by the poiſonous qualities of the ſmoke and ſteam with which the whole atmoſphere was filled; particularly old people, and ſuch as had any complaint in the breaſt and lungs.

Iceland is remarkable alſo for hot and boiling ſprings, ſome of which ſpout up into the air to a ſurpriſing height. All the jets d'eau which have been contrived with ſo much art, and at ſuch an enormous expence, cannot by any means be compared with theſe wonders of nature in Iceland. The water-works at Herenhauſen throw up a ſingle column of water of half a quarter of a yard in circumference to a height of about ſeventy feet; thoſe at the Winterkaſten at Caſſel throw it up, but in a much thinner column, one hundred and thirty feet; and the jet d'eau at St. Cloud, which is thought the greateſt of all the French water-works, caſts up a thin column eighty feet in the air; but ſome ſprings in Iceland pour forth columns of water ſeveral feet in thickneſs to the height of many fathoms; and ſome affirm of ſeveral hundred feet.

Theſe ſprings are unequal in their degrees of heat; but we have obſerved none under 188 degrees of Fahrenheit's thermometer; in ſome it is 192, 193, 212, and in one ſmall vein of water 213, degrees. From ſome the water flows gently, and the ſpring is then called *laug*, a bath; from others it ſpouts with a great noiſe, and is then called *huer*, or *kittel*. It is very common for ſome of theſe ſpouting-ſprings to cloſe up, and others to appear in their ſtead. All theſe hot waters have an incruſting quality; ſo that we very commonly find the exterior ſurface from whence it burſts forth covered with a kind of rind, which almoſt reſembles chaſed work, and which we at firſt took for lime, but which was afterwards found by Mr. Bergman to be of a ſiliceous or flinty nature. In ſome places the water taſtes of ſulphur, in others not; but when drunk as ſoon as it is cold, it taſtes like common boiled water. The inhabitants uſe it at particular times for dying; and were they to adopt proper regulations, it might be of ſtill greater uſe. Victuals may alſo be boiled in it, and milk held over its ſteam becomes ſweet; owing, moſt probably, to the exceſſive heat of the water, as the ſame effect is produced by boiling it a long time over the fire. They have begun to make ſalt by boiling ſea-water over it, which, when it is refined, is very pure and good, for this iſland does not naturally produce ſalt. The cows which drink this hot water yield a great deal of milk. Egbert Olafſen relates, that the water does not become turbid when alkali is thrown into it, nor does it change the colour of ſyrup of violets. Horrebow aſſerts, that, if you fill a bottle at one of the ſpouting ſprings, the water will boil over two or three times while the ſpring throws forth its water; and if corked too ſoon, the bottle will burſt.

Among the many hot ſprings to be met with in Iceland, ſeveral bear the name of *geyſer*; the following is a deſcription of the moſt remarkable of that name, and in the whole iſland. "It is about two days journey from Hecla, near a farm called Kaukadul. Here a poet would have an opportunity of painting whatever nature has of beautiful and terrible, united in one picture, by delineating this ſurpriſing phenomenon. Repreſent to yourſelf a large field, where you ſee on one ſide, at a great diſtance, high mountains covered with ice, whoſe ſummits are generally wrapped in clouds, ſo that their ſharp and unequal points become inviſible. This loſs, however, is compenſated by a certain wind, which cauſes the clouds to ſink, and cover the mountain itſelf when its ſummit appears as it were to reſt on the clouds. On the other ſide, Hecla is ſeen, with its three points covered with ice, riſing above the clouds, and, with the ſmoke which aſcends from it, forming other clouds at ſome diſtance from the real ones; and on another ſide is a ridge of high rocks, at the foot of which boiling water from time to time iſſues forth; and further on extends a marſh of about three Engliſh miles in circumference, where are forty or fifty boiling ſprings, from which a vapour aſcends to a prodigious height. In the midſt of theſe is the greateſt ſpring *geyſer*, which deſerves a more exact and particular account. In travelling to the place about an Engliſh mile and a half from the *huer*, from which the ridge of rocks ſtill divided us, we heard a loud roaring noiſe, like the ruſhing of a torrent precipitating itſelf from ſtupendous rocks. We aſked our guide what it meant; he anſwered, it was *geyſer* roaring; and we ſoon ſaw with our naked eyes what before ſeemed almoſt incredible. The depth of the opening or pipe from which the water guſhes cannot well be determined; for ſometimes the water ſunk down ſeveral fathoms, and ſome ſeconds paſſed before a ſtone which was thrown into the aperture reached the ſurface of the water. The opening was perfectly round, and nineteen feet in diameter, and terminated in a baſon fifty-nine feet in diameter. Both the pipe and the baſon were covered with a rough ſtalactic rind, which had been formed by the force of the water; the outermoſt border of the baſon is nine feet and an inch higher than the pipe itſelf. The water here ſpouted ſeveral times a-day, but always by ſtarts, and after certain intervals. The people who lived in the neighbourhood told us, that they roſe higher in cold and bad weather than at other times; and Egbert Olafſen and ſeveral others affirm, that it has ſpouted to the height of ſixty fathoms. The force of the vapours which throw up theſe waters is exceſſive; it not only prevents the ſtones which are thrown into the opening from ſinking, but even throws them up to a very great height, together with the water. When the baſon was full, we placed ourſelves before the ſun in ſuch a manner that we could ſee our ſhadows in the water; when every one obſerved round the ſhadow of his own head (though not round that of the heads of others) a circle of almoſt the ſame colours which compoſe the rainbow, and round this another bright circle. This moſt probably proceeded from the vapours exhaling from the water." *Von Troil, ubi ſupra.*

Iceland abounds with pillars of baſaltes, which the lower ſort of people imagine have been piled upon each other by the giants, who made uſe of ſupernatural force to effect it. They have generally from three to ſeven ſides; and are from four to ſix feet in thickneſs, and from twelve to ſixteen yards in length, without any horizontal diviſions. But ſometimes they are only from ſix inches to one foot in height, and they are then very regular, inſomuch that they are ſometimes made uſe of for windows and door-poſts. In ſome places they only peep out here and there among the lava, or more frequently among the tufa; in other places they are quite overthrown, and pieces of broken pillars only make their appearance. Sometimes they extend without interruption for two or three miles in length. In one mountain they have a ſingular appearance: on the top the pillars lie horizontally; in the middle they are ſloping; the loweſt are perfectly perpendicular; and in ſome parts they are bent into a ſemicircular figure. The matter of the Iceland baſaltes ſeems to be the ſame with that of STAFFA, which ſee; alſo the article MINERALOGY; and, for an inquiry into the nature and formation of BASALTES, ſee that article, vol. ii. p. 769.

ICE'NI, the ancient name of the people of Suffolk, Norfolk, Cambridgeſhire, and Huntingdonſhire, in England.

ICH-DI'EN. See the article HERALDRY, vol. ix. p. 458.

I'CHE, a town of France, in the department of the Voſges, and chief place of a canton, in the diſtrict of La Marche: one league and a quarter ſouth-ſouth-eaſt of La Marche, and one and a half north-north-weſt of Chatillon ſur Saône.

ICHNEU'MON, *ſ.* in entomology, a genus of hymenopterous inſects, containing 510 different ſpecies, all characteriſed by the antennæ, which have more than thirty articulations; by the mouth, armed with jaws, but without a tongue; feelers four; the abdomen is joined to the body by a pedicle or ſtalk, and which terminates in a projecting ſting incloſed in a cylindrical ſheath. It is from the ſervices they perform, in deſtroying caterpillars, plant-lice, and other inſects, that they have derived their name: theſe animals are devoured by them, as the genuine ichneumon deſtroys the crocodiles. See the article VIVERRA.

As the ſpecies and varieties of the ichneumons are prodigiouſly numerous, ſo their manners are extremely diverſified. In the general outlines of their character, they all agree, being remarkable for their depredations among the inſect tribes. In ſome, the female is furniſhed with a wimble, attached to her abdomen; and with this inſtrument, though delicate, ſhe is capable of piercing through lime and plaſter. The larvæ of waſps and maſon-bees are the devoted prey of this ſpecies, which no ſooner eſpies one of their neſts, than with its wimble it perforates the mortar of which it is conſtructed. This operation, which is performed with ſingular dexterity, is no ſooner finiſhed, than it depoſits its eggs in the inſide, to the number of one, two, and ſometimes more. Some are contented with gluing their ova to the ſkin of a caterpillar, while others penetrate through it, and depoſit the egg in its body. The ova hatched within the caterpillar, after being quickened into life, preys upon the inteſtines of that animal, without, however, deſtroying its vitals. Upon the life of the one animal that of the other ſeems to depend; and the ichneumon ſpares the caterpillar upon which it feeds, till it is about to enter into its chryſalis ſtate. In the mean time, the caterpillar in which it is encloſed is apparently healthy, and prepares to undergo the ſame transformation; a function which it is ſeldom able to accompliſh, becauſe the interior parts eſſential to the butterfly, though not to the worm, are deſtroyed. Often theſe caterpillars, which have been the cradle of thirty or forty ichneumons, are ſeen fixed to the bark of a tree, as if they were ſitting upon their eggs; and it is diſcovered that the larvæ which were within their bodies have ſpun their threads, with which, as with cords, the unhappy caterpillar has been faſtened down, and periſhed miſerably.

An ingenious entomologiſt deſcribes the operation as follows: "Obſerving ſome caterpillars feeding on a leaf, my attention was attracted by a little ichneumon-fly, which appeared as if deliberating where to ſettle. I was ſurpriſed to ſee the caterpillars endeavouring by various contortions to get out of its way, and more ſo whenever the fly poiſed on the wing, as if going to drop. At length the paraſite made its choice, and ſeated itſelf on the back of one of the largeſt of the cluſter. It was in vain that the caterpillar endeavoured to diſlodge the enemy; and its anguiſh at intervals appeared intolerable, in conſequence of the wounds given by the fly. At every wound the poor caterpillar wreathed and twiſted its whole frame, endeavouring to diſengage the enemy, ſometimes aiming its mouth towards the place; but it was all in vain; its little tormentor ſtill kept its place. When it had inflicted thirty or forty wounds, it took its flight with a viſible triumph; in each of theſe wounds the ichneumon had depoſited an egg. I took the caterpillar home to obſerve the progreſs of the eggs which were thus placed in its body, taking care to give it a freſh ſupply of leaves from time to time; it recovered to all appearance from the wounds, and from that time, for the ſpace of four or five days, ſeemed to feed with its uſual avidity. The eggs were all hatched into ſmall oblong voracious worms, which fed from the moment of their appearance on the fleſh of the caterpillar in whoſe body they were incloſed, and ſeemingly without wounding the organs of reſpiration or digeſtion; and, when they had arrived at their full growth, they ate their way out of the ſides of the animal. Theſe are what have vulgarly been called *caterpillar-eaters*. The caterpillar thus attacked by the larva of the ichneumon never eſcapes, its deſtruction is infallible; but then its life is not taken away at once; the larva, while it is feeding thereon, knows how to ſpare the parts which are eſſential to life, becauſe its own is at that time tied up in that of the caterpillar. No butterfly is produced from the caterpillar; the worms that feed on it are no ſooner out of its body, than every one ſpins its own web, and under this they paſs the pupa ſtate, in order to introduce them to their winged form."

One of the moſt familiar examples of this proceſs is afforded by the well-known caterpillar of the common white butterfly, which, in the autumn may be frequently obſerved to creep up ſome wall or other convenient ſurface, in order to undergo its own change into chryſalis; but in the ſpace of a day or two a numerous tribe of ſmall maggots will be ſeen to emerge from it, and immediately proceed to envelope themſelves in diſtinct yellow ſilken caſes; the whole forming a groupe around the caterpillar. Other ſmall ſpecies of ichneumon pierce the ſkins of newly-changed chryſaliſes of butterflies and moths, in which their larvæ remain during their own incomplete ſtate. Others again are ſo very ſmall that the female pierces even the eggs of moths and butterflies, and depoſits her own in each. Other ichneumons are of very conſiderable ſize, and the females of theſe ſelect ſome large caterpillar for their victim, as thoſe of the larger Sphinges, ſuch as the S. liguſtri, convolvuli, &c. or one of the large and middle-ſized moths, as the Phalæna vinula, quercus, &c. &c. Theſe large ichneumons are generally bred in ſmall numbers, and ſometimes the female depoſits but a ſingle egg in the ſelected caterpillar.

The ſeeming ſeverity of the proceſs ordained by nature for giving birth to the genus Ichneumon, may be much diminiſhed by ſuppoſing, (what all the enſuing phænomena ſeem to imply,) that, after the firſt operation of piercing the ſkin and depoſiting the eggs is performed by the female ichneumon, the caterpillar feels no acute pain, the included enemies feeding only on its juices, and evidently ſparing the more important organs; ſo that it loſes its life by a very gradual decay. It was the want of an exact knowledge of the genus Ichneumon that proved ſo conſiderable an embarraſſment to the older entomologiſts, who, having ſeen a brood of ichneumons proceed from the chryſalis of a butterfly, could not but conclude that the production of inſects was rather a variable and uncertain operation of nature than a regular continuation of the ſame ſpecies. The obſervations however of Swammerdam, Malpighi, Roëſel, and others, have long ſince removed the dicffiulties which formerly obſcured the hiſtory of the inſect tribe.

The numerous ſpecies of Ichneumon are diſtributed into ſix diviſions, or families, from the colour of their ſcutellum and antennæ, as follow: 1. Thoſe with a whitiſh ſcutcheon, and antennæ annulated with a whitiſh band. 2. Thoſe which have a white ſcutcheon, and antennæ entirely black. 3. With a ſcutcheon of the ſame colour as the thorax; the antennæ encompaſſed with a fillet. 4. With a ſcutcheon of the ſame colour as the thorax; and antennæ black and ſetaceous. 5. With ſetaceous clay-coloured antennæ. 6. With ſmall filiform antennæ, and the abdomen oval and ſlender.

From what has been ſaid, it will be readily inferred, that the whole of this genus are paraſitical, that is, derive their ſupport and nouriſhment from other inſects, ſome depoſiting their eggs in the larva, others again in the pupa, and ſome even in the ovum or egg itſelf, the contents of which, minute as they are, are ſufficient to ſupport the young larvæ until their change into the pupa ſtate. Some depoſit only one egg in a place, as the Ichneumon ovulorum, and others again a great number, as the Ichneumon puparum, &c. but whether the egg is placed in the pupa, larva, or ovum, the deſtruction of the foſter-parent is inevitable. To treat of each ſpecies would fill a volume: we ſhall therefore ſelect as an example, the Ichneumon manifeſtator, an inſect truly wonderful in its formation, and which in a diſtinguiſhing manner unites the two properties of a penetration and foreſight bordering on ſagacity, in finding a ſuitable ſituation for depoſiting its own eggs, and alſo rendering futile and abortive the labour and ſagacity of another animal, who, to all appearance, had rendered its offſpring perfectly ſecure. The following remarks on this ſpecies are the ſubſtance of a paper in the Tranſactions of the Linnæan Society, by Thomas Marſham, eſq. the ſecretary.

Ichneumon manifeſtator: body black, without ſpots; abdomen ſeſſile, cylindrical, legs rufous: "On the 9th of June, 1787, I diſcovered this inſect ſettling on the top of an old poſt, as I was walking in Kenſington gardens; and its peculiar appearance and extraordinary actions led me to obſerve it attentively. It moved rapidly over the top of the poſt, having its antennæ bent in the form of an arch, and with a ſtrong vibratory motion feeling about until it came to a hole made by ſome inſect, into which it thruſt its antennæ quite to the head. It remained a minute at leaſt in this ſituation, apparently very buſy; and then, drawing out its antennæ, came round to the exactly-oppoſite ſide of the hole, again thruſt in its antennæ, and remained nearly the ſame time. It next proceeded to one ſide of the hole, repeating the operation, the antennæ quivering in a ſurpriſing manner; and, having now again drawn out its antennæ, turned about, and, dexterouſly meaſuring a proper diſtance, threw back its abdomen over the head and thorax, at the ſame time projecting its long and delicate tube into the hole; which when it had accompliſhed, it brought its body into a direct perpendicular ſituation, the two ſheaths of the tube ſtanding directly upright, as did the abdomen, while the tube itſelf proceeded from the anus down the under ſide of the abdomen into the hole. After remaining near two minutes in this poſture, it drew out the tube, turned round, and again applied its antennæ to the hole for nearly the ſame time as before, and alſo inſerted the tube in the ſame dexterous way. This operation was repeated three times; but approaching too near, in hopes with a ſhallow magnifier to obſerve what paſſed at the end of the tube, I frightened it away. My curioſity being excited, I waited, but in vain, for the return of the fly, and had it not in my power to viſit the ſame ſpot for a week; but on the 16th of the ſame month I was amply gratified, luckily ſeeing many of them at work. They appeared to pierce the ſolid wood with their tubes, which they forced in even to half their length, conſtantly paſſing them down the abdomen between the hinder thighs, which cloſed and kept them ſtraight whenever any over-reſiſtance forced them to bend. I was ſo aſtoniſhed to ſee an inſtrument apparently weak and ſlender, able, with the ſtrength of ſo ſmall an animal, to pierce ſolid wood half or three quarters of an inch deep, that I attended to every motion of the inſect, hoping to diſcover in what manner it was done; and on very particular attention I obſerved, that all thoſe who appeared to pierce the ſolid wood, did it through the centre of a ſmall white ſpot reſembling mould or mildew, which on minute examination with a magnifier I found to be fine white ſand, which delicately cloſed up a hole made by the Apis maxilloſa, and where I have no doubt the bees' young were depoſited. In deep holes that were not cloſed, the inſect not only thruſt in the whole tube, but in ſome caſes the whole of the abdomen and poſterior legs, leaving out only the two fore-feet and wings, which it placed in contrary directions like two arms. The grooves which incloſe the tube were alſo projected up the back, with the ends appearing above the head out of the hole.

"In October I ſaw another of theſe inſects on a ſtrong poſt, on Leſſneſs Heath, near Erith, in Kent. It had fixed its tube before I arrived, and I waited a conſiderable time, in hopes it would withdraw it; but, a gentleman who was with me being impatient, and doubting my account of it, I with difficulty forced the inſect to draw it out, and then opened the hole, which was cloſed with a ſtiff pellet of turpentine. Each ſucceeding year I had opportunities of ſeeing many of theſe inſects at work; but on the 23d of July, 1791, I again paid very particular attention to ſome I ſaw in Kenſington gardens, but more immediately to the action of the antennæ, which they thruſt into many holes and crevices, but ſoon drew them out, not finding, I preſume, a proper ſituation for their eggs. I obſerved one with its tube inſerted into the ſide of a rail, which I watched with great attention. It had fixed itſelf over a ſmall patch of reddiſh ſand that covered the hole of the Apis maxilloſa, three of its legs being placed on each ſide the ſpot; the abdomen was bent inward, ſo that the end of it was embraced by the hinder thighs, which kept it in a ſteady poſition, the whole tube being inſerted in the rail. It frequently drew out the tube about a quarter or three eighths of an inch, and thruſt it in again with great force; in the interim between theſe thruſts, I could plainly perceive a motion in the apex of the abdomen connected with the tube ſimilar to the pulſation of an artery, which motion ceaſed whenever the action of the tube took place. This pulſatory motion I conceive was occaſioned by the eggs paſſing from the body of the inſect to the tube; and I felt an inclination to ſeize the little animal at the moment, and examine the tube, which is of a fine crimſon colour and ſemi-tranſparent, to ſee if an egg might remain in it; but an anxious deſire to ſee the whole of its operation prevented me; and, when it had finiſhed its work and withdrawn the tube, it was too late. Another particular inſtance of ſagacity in this little animal is worthy of remark: the grooves or caſes of the tube were as uſual projected in a ſtraight line from the abdomen; but the wind being very powerful, rendered it difficult for this delicate animal to maintain its ſituation, as theſe long caſes, which are feathered, were ſo ſtrongly acted upon by the wind as to endanger its being overſet ſeveral times. To remedy this inconvenience, it, with a wonderful dexterity, brought them down between its legs, and projected them forwards under its body toward the head, by which means it retained its ſituation ſecurely. It is now ſeven years ſince I began my obſervations on this little animal, in which time I have never been able to diſcover an ichneumon that I could ſuſpect to be the male; and am therefore led to make theſe remarks public, in hopes ſome gentleman may have been more ſucceſsful, and by whoſe means its hiſtory may be completed."

ICHNOG'RAPHY, *ſ.* in architecture, is a tranſverſe or horizontal ſection of a building, exhibiting the plot of the whole edifice, and of the ſeveral rooms and apartments in any ſtory; together with the thickneſs of the walls and partitions; the dimenſions of the doors, windows, and chimneys; the projectures of the columns and piers, with every thing viſible in ſuch a ſection. The word is derived from the Greek ιχνος, footſtep, and γραφω, I write, as being a deſcription of the footſteps or traces of a work. Among painters it ſignifies a deſcription of images or of ancient ſtatues of marble and copper, of buſts and ſemi-buſts, of paintings in freſco, moſaic works, and ancient pieces of miniature.

ICHNU'SA, an ancient name of Sardinia, which it received from its likeneſs to a human foot.

ICHOG'LANS, *ſ.* The grand ſignior's pages ſerving in the ſeraglio. Theſe are the children of Chriſtian parents, either taken in war, purchaſed, or ſent in preſents from the viceroys and governors of diſtant provinces; they are the moſt ſprightly, beautiful, and well-made, that can be met with; and are always reviewed and approved of by the grand ſignior himſelf before they are admitted into the ſeraglios of Pera, Conſtantinople, or Adrianople, being the three colleges where they are educated, or fitted for employments, according to the opinion the court entertains of them.

I'CHOR, *ſ.* [Greek.] A thin watery humour like ſerum; but ſometimes uſed for a thicker kind flowing from ulcers, called alſo *ſanies.*

ICH'OROUS, *adj.* Serous; ſanious; thin; undigeſted. —The lung-growth is imputed to a ſuperficial ſanious or *ichorous* exulceration. *Harvey.*

ICH'TERHAUSEN, a town of Germany, in Upper

Saxony, and principality of Gotha: twelve miles eaſt-ſouth-eaſt of Gotha.

ICHTHYOCOL'LA, *ſ.* [Greek; from ιχθυς, a fiſh, and κολλα, glue.] Isinglass; a preparation from the air-bladders of the cod-fiſh, ſturgeon, and ſome others. For the methods of preparing it, ſee the article Fishery, vol. vii. p. 417. and Gadus, vol. viii. p. 156. When properly made, it is one of the fineſt of the animal glues, and without ſmell or taſte. When beat into ſhreds it readily diſſolves in water or milk, forming a mild, nutritious, reſtorative, aliment; as well as a remedy in the fluor albus, continued diarrhœas, and other evacuations from debility. Its ſolution in water or ſpirit, if nicely ſpread upon ſilk, is an elegant plaſter for the ſlighteſt injuries to the ſkin; and, joined with ſome reſins, it is called *court-plaſter*. It is ſaid to agree with the gum-tragacanth in medicinal virtues; but, like all other animal mucilages, it ſoon runs into a ſtate of putrefaction, and becomes more irritating than the vegetable mucilages. Hollow cylinders of iſinglaſs are employed to ſupport the ſides of a divided inteſtine, when united by a ſuture: a paſſage is thus left for the contents, which by a ſolution of the iſinglaſs is gradually enlarged till the wound is healed.

ICHTHYOLI'THUS, *ſ.* [from ιχθυς, a fiſh, and λιθος, a ſtone.] In mineralogy, a genus of petrifactions, conſiſting of the body or parts of a fiſh changed into a foſſil ſubſtance.

1. Ichthyolithus niger: in a black ſlaty ſtone. Found in a black ſlate in the iſland of Sheppey, and various parts of Wales; alſo in the mountains of Swiſſerland, Sileſia, Germany, &c. impregnated with bitumen, pyritaceous matter, or oxyd of copper. The fiſhes themſelves reſemble the eel, ſword-fiſh, cod, flat-fiſh, perch, roach, dace, mackarel, mullet, carp, tench, pipe-fiſh, ray, &c.

2. Ichthyolithus albidus: in a pale ſlaty ſtone. Found in various parts of England; on Mount Libanus in Paleſtine; in the eccleſiaſtical territories of Italy; in Swiſſerland, Bavaria, &c. The fiſhes are rarely of the ſea-kind, as flat-fiſh, mackarel, gurnard, &c. but uſually of the freſh-water kind, as eels, perch, tench, dace, roach, ſalmon, &c. They are ſeldom found whole, but in different parts, as the head, gill-covers, and other bones, fins, tails, tendrils, or ſcales.

3. Ichthyolithus bufonites, or toadſtone. The grinders of the ſea-wolf, commonly called *toadſtones*, are found in various parts of England, particularly in Oxfordſhire; generally roundiſh and hollowed like a cup, from the ſize of a ſmall pea to nearly an inch in diameter; colour black, grey, or brown, ſometimes finely variegated, always poliſhed.

4. Ichthyolithus gloſſopetra: the teeth of the ſhark. Theſe have been found in various parts of England and Scotland; in Malta, Italy, France, Germany, &c. of various ſizes, ſolitary or many together, looſe or attached to other foſſils, fibrous internally, ſhining outwardly; colour bay or dark brown, ſometimes glaucous or ſea-green.

ICHTHYOL'OGIST, *ſ.* [from *ichthyology*.] A writer upon fiſhes; a deſcriber of fiſhes.

ICHTHYOL'OGY, *ſ.* [of ιχθυς, a fiſh, and λογος, a diſcourſe.] A treatiſe upon fiſhes; that department of zoology which comprehends the claſſification and deſcription of fiſhes.

Among animated beings, there are two very numerous claſſes, the firſt of which claim the air for their abode, the ſecond the floods; but which, by the apparent contraſts in their habits, yet the ſecret analogies which combine their motions, are calculated rather than any others to unfold to us certain views of that wonderful collection of relations and connections which are derived from the firſt law of nature. We will therefore compare them together, and exhibit their principal features in the ſame picture.

Swimming and flying may be conſidered as the ſame act performed in fluids of a different nature. The inſtruments which effect them, the organs which facilitate them, the motions by which they are produced, accelerated, retarded, or directed, the obſtacles by which they are diminiſhed, turned aſide, or ſuſpended, are ſimilar or analogous; and, after this general and remarkable agreement, we ſhall not be ſurpriſed at thoſe ſecondary analogies which we may meet with between the habits of birds and thoſe of fiſhes.

The wing of the bird and the fin of the fiſh differ much leſs than at firſt ſight may be ſuppoſed; and hence it is that the ſame word has been uſed to deſignate them in ſeveral languages. Each preſents a large ſurface in compariſon to the ſize of the body, which ſurface the animal can increaſe or diminiſh at will, either by forcibly ſtretching it out, or by drawing it into folds or plaits. The fin, like the wing, is ſubject to theſe different diſplays, becauſe, like the wing, it conſiſts of a membranous ſubſtance, ſoft and pliable; and, when it has received the dimenſion conſonant to the immediate will of the animal, it preſents, like the wing, a reſiſting ſurface; it acts with preciſion, and ſtrikes with force, becauſe, equally with the inſtrument of flying, it is ſuſtained by little cylinders, regular or irregular, ſolid, hard, almoſt inflexible; and, if not defended by feathers, it is ſometimes ſtrengthened by ſcales, which are of a ſimilar conſiſtence. The ſpecific weight of birds is very nearly that of the air; that of fiſhes is ſtill nearer to the weight of water, and eſpecially of ſea-water.

The organization of birds is calculated to unite a large ſize with the leaſt weight; their lungs are very much extended; they have large air-bladders; their bones are hollowed and perforated ſo as eaſily to admit the atmoſpheric fluids into their cavities. Fiſhes have moſtly a peculiar bladder, which it is in their power to inflate, and thereby increaſe their ſuperficial volume or ſize, but, inſtead of increaſing at the ſame time their weight, it really leſſens their ſpecific gravity, being filled with a fluid or gas of extraordinary levity, as we ſhall more fully explain farther on.

The tail of a bird is a helm, and their wings are oars. —The anal and dorſal fins may alſo be compared to a power which governs and directs, while the tail properly ſo called, lengthened by the caudal fin, ſtrikes the water like an oar, and, communicating to the whole animal the impulſe itſelf receives, drives it forward.

Birds work their wings with more or leſs celerity; but, when they are on the full ſtretch, and they wiſh to uſe them in changing their poſition, they do not give them two equal motions in ſucceſſion; they raiſe them much ſlower than they drop them; they give alternately a very ſtrong and a very weak ſtroke, in order that when they aſcend, for inſtance, the upper current of air, being leſs agitated by them than the lower one, may oppoſe leſs reſiſtance to their being borne up from beneath.—Several of the fins of fiſhes, in like manner, frequently give equal and unequal ſtrokes alternately; and, if the tail ſtrikes with equal rapidity to the right and to the left, it is from the equal reſiſtance of the lateral preſſure againſt which the animal acts obliquely, which gives it the diagonal direction it naturally ſeeks.

Thus we may ſay that birds ſwim in the air; and that fiſhes fly in the water. The atmoſphere is the ſea of the former; the ſea is the atmoſphere of the latter. But fiſhes occupy their domain more fully than birds. Birds of the boldeſt flights, ſuch as the eagle, and the ſpecies of Pelecanus called the man-of-war bird, ſeldom riſe into the higher regions of the air; they never explore thoſe limits of the ethereal regions where the rarity of the atmoſphere would affect their reſpiration, and the coldneſs of the temperature would ſtrike them with torpor or death. The neceſſity of food, reſt, and ſhelter, bring them continually near the earth.—Not ſo the fiſhes. They range perpetually and in every direction through the immenſity of the ocean; in a fluid, which, being almoſt of equal denſity and warmth at all depths, neither impedes them by its rarity nor by its temperature. They penetrate its abyſs unfathomable by men; they ruffle its very ſurface; and they find their food almoſt at every point between.

Certain winds promote, retard, ſtop, or change the direction of, the journeys of birds.—Certain currents of water accelerate, diminiſh, ſuſpend, or change, the varied courſe of the inhabitants of the ſeas.

Thoſe birds only, whoſe ſtrength of wing has gained them the name of great ſailors, but which might rather be called great rowers, can reſiſt the violent motions of the atmoſphere, brave the tempeſt, and oppoſe the unchained winds.—Thoſe fiſhes only, whoſe broad fins, large tail, and ſtrong muſcles, entitle them to the name of *ſwimmers* or *rowers* in particular, are able to reſiſt the oppoſing waves, brave the ſtorm, and boldly purſue their courſe through thoſe dreadful commotions which ſeem to harrow up the very depths of the ocean.

Birds, weak and ill-provided for defence, tremble at the formidable bill and cruel claws of the tyrants of the air.—Fiſhes of a ſmall ſize and unarmed, continually flee from the bloody teeth of the ſhark and other rapacious animals which infeſt the rivers and ſeas.

From the ſurface of the earth, over which the bird has its airy abode, the bird often receives death from the hand of the ſportſman, or from ſnares which its inſtinct cannot always avoid.—In the midſt of his aquatic empire, the fiſh periſhes by the treacherous bait, or lingers a ſhort time in the fiſherman's net.

The neceſſity of ſeeking proper food, or of eſcaping a dangerous enemy, occaſions irregular journeys or migrations in birds.—The neceſſity of avoiding the ſight or ſmell of the ferocious tyrants of the ſea, or of appeaſing hunger ſtill more cruel, produces the irregular journeys of fiſhes.

When the winter ſeaſon approaches in the temperate countries, and eſpecially in thoſe parts neareſt the polar circle, birds begin their regular or periodical migrations. They can no longer remain where the earth is covered with ſnow; where the ſurface of the water is cruſted with ice; where the inſects die, or conceal themſelves; where the fields are ſtripped of grain, and the trees of fruit: they depart therefore; approaching the tropics, they ſeek a milder, a happier, dwelling; all-bountiful Providence directs their courſe. They follow the direction of the meridians; they traverſe conſequently large continents. They unite in numerous flocks; males and females, young and old, collected without diſtinction of ſex or age, fly from the empire of froſt to enjoy the ſun's rays in another country, till ſuch time as the ſame mild reign is reſtored in their own. Then they return in the ſame order and by the ſame route.—The diverſity of ſeaſons does not ſeem to produce ſuch conſiderable changes in the temperature of the different parts of the ocean, as to force fiſhes to a regular annual emigration; but the deſire of reproduction, which is always performed near the ſhores, impels them, at the return of ſpring, to quit the main ocean, and repair to the banks and ſhallows. They do not proceed in the direction of the meridian; but, according to the poſition of continents in the midſt of the main ocean, they moſtly endeavour to trace one of the parallels of the globe, to arrive more eaſily and quickly at the lands whoſe borders are to receive their eggs or milt. The females arrive firſt, being more eager to get rid of their load which is greater; the males follow. Moſt commonly they follow the ſame parallels when they aſcend the ſtreams and great rivers, and when they return; becauſe, with the exception of the Miſſiſſippi, of ſome rivers in Terra Firma in America, of the Rhone, the Nile, the Boryſthenes, the Don, the Volga, the Sindus, the Ava, the river of Cambogia, and ſome others, rivers run from eaſt to weſt, or from weſt to eaſt.

The birds which inhabit large continents are the moſt numerous; ſo are the fiſhes in thoſe parts which contain the moſt extenſive banks. It is not ſurpriſing, therefore, that there are more birds in the northern hemiſphere than in the ſouthern, on account of the greater quantity of land it contains; nor that we ſhould find more fiſh in the ſame northern hemiſphere, becauſe, though the finny tribe have greater ſpace in the ſouthern half, on account of the vaſt ſeas it contains, and the ſmall number of continents and iſlands, there are but few ſhores where the fiſhes can depoſit their ſpawn; ſpace is not wanting for the individuals, but banks are wanting for the ſpecies.

If, with ſeveral naturaliſts, we admit that the waters in former ages were higher than at preſent, and covered parts of the preſent continents, ſo as to divide them into a great number of iſlands, though without much diminiſhing their total ſurface, we may alſo ſuppoſe, from the preceding obſervations, that there were at that time much fewer birds than at preſent, and more fiſh, becauſe every diviſion made in the land by the ſea neceſſarily increaſed the number of places convenient for the reproduction and multiplication of fiſhes.

ICHTHYOLOGY has hitherto been but little ſtudied in England; the reaſon of which is owing to our want of books on that ſubject. Many fiſhes well known in one country were perhaps never heard of in another; even thoſe ſpecies found in Saxony, Sileſia, Pomerania, Pruſſia, and Germany, are not all deſcribed by the great Linnæus; in Linnæus alſo, the deſcriptions are often ſo ſhort as to be by no means clear; and the accounts in Artedius are often unſatisfactory, becauſe he confounds the names, and becauſe his drawings are not faithful repreſentations of the ſubjects he deſcribes.

In general it may be remarked, that the hiſtory of fiſhes has in our days been greatly neglected, while every other part of natural hiſtory has made a rapid progreſs; for, while books and authors have multiplied ſo prodigiouſly, how rarely do we met with any ſatisfactory treatiſe on the ſubject of fiſhes! Surpriſing indeed is it to think that this branch of natural hiſtory has been ſo neglected. Whole ſocieties have made the ſtudy and management of bees their occupation; and certainly fiſh, which furniſh ſuch abundant food, and have been at all times a conſiderable branch of commerce, deſerve at leaſt as great a ſhare of our attention. See the article FISHERY, vol. vii. p. 406.

Bloch has enriched this branch of natural hiſtory with accurate deſcriptions and excellent coloured plates of a vaſt number of new ſpecies, and ſome entirely new genera; and to his ſplendid work we have been greatly indebted, as will be ſeen by a reference to our articles CYPRINUS, GYMNOTUS, &c. As he confined his ſtudies principally to this ſubject, his accounts are far more accurate than thoſe of any writer which preceded, even than the great Linnæus himſelf, whoſe vaſt genius extended itſelf to ſuch a multitude of objects. Bloch adhered to the Linnæan ſyſtem as much as poſſible, introducing his own newly-diſcovered ſpecies and genera next to thoſe they moſt reſembled. His deſcriptions of the fiſhes of Germany, Pruſſia, and Pomerania, are very valuable, as being made from the real ſubjects, and moſtly on the ſpot; and, having an extenſive correſpondence in various parts of the world, he added many hitherto not at all known in Europe, and exceeding in the brilliancy of their colours all that were known; this was particularly the caſe with reſpect to the beautiful ſpecimens tranſmitted to him by Mr. John, miſſionary at the Daniſh ſettlement at Tranquebar, on the Coromandel coaſt. The difficulty of preſerving and tranſmitting ſpecimens from theſe regions is ſtrikingly pourtrayed in a letter from that gentleman to Dr. Bloch, extracts from which are inſerted in the 10th part of his Ichthyologie, as follows: "Sir, A Daniſh veſſel brought me a few days ago your letter, dated the 14th of November, 1789. This veſſel was ſeventeen months on her paſſage. Being informed of the continuation of your work, I began to make collections for you upon a large ſcale; I employed perſons to fiſh in all the lakes and rivers of this ſettlement, and made agreements with thoſe who went out to ſea. I put a quantity of fiſhes newly taken, eſpecially carps from the lakes, (of which we have here much more beautiful ſpecimens than in Europe,) into a large veſſel of baked earth; alas! in three days the whole was rotted, and the trouble and expence loſt. Then I had recourſe to glaſs, as the only reſource for preſerving fiſh; but glaſs bottles are very rare in this country, and corks to ſtop them with ſtill more difficult to procure; yet even then many were ſpoiled for want of being ſoaked in freſh ſpirit or arrack three or four times. The fiſhes and inſects I collected have cauſed me to expend in the ſpace of a year more than a hundred bottles of ſpirit and arrack; a bottle of ſpirit coſts 3s. 6d. ſterling, of arrack about 10d. Putridity comes on here a vaſt deal quicker than in Europe; fiſhes cannot be preſerved in ſmall caſks unleſs the ſpirit is three or four times renewed, which occaſions a vaſt expence; and freſh-water fiſh, as carp, &c. decay much ſooner than ſea-fiſh and inſects. I then thought of the expedient of ſplitting the fiſhes, and ſpreading the halves upon paſteboard, with which I was fortunately provided; by this mode I had made a conſiderable collection, which I intended to have ſent you in October; but, not finding at that time any ſhip ſailing for Europe, I was obliged to keep it during the rainy ſeaſon; and the whole was deſtroyed by the worms! the like fate attended a collection of ſtuffed beaſts intended for another naturaliſt. For you muſt obſerve, that the rainy ſeaſon, which laſts from October till January, occaſions a degree of dampneſs of which you can hardly have an idea in Europe; the pillows and mattraſſes of our beds were as if ſoaked in water. Still I did not deſpair; I began afreſh; I ſummoned together men who fiſh in lakes and rivers, and thoſe who fiſh in the ſea, (two ſets of people, I muſt obſerve by the way, of entirely different natures, who never herd together; they never eat or drink together, they never intermarry;) my own European pupils and the Malabar boys ſet to work afreſh in cleaning and preparing fiſhes, which I then dried in an oven, and varniſhed over with Kajaput oil. Herewith I ſend you a quantity of them, ticketed and accompanied with remarks; with a quantity in bottles which I preſerved of the before-mentioned collection, for, as I know that your deſcriptions include the internal conſtruction, I doubted not you would prefer complete ſpecimens preſerved in ſpirits. I beg of you, ſir, and of others who may have occaſion for my ſervices in this way, to conſider, that in this place we are in abſolute want of all the materials for preſerving ſubjects of natural hiſtory, as knives and other inſtruments for diſbowelling; needles and pins for faſtening inſects; bottles, corks, and boxes; paper requiſite for drying and preſerving of plants, &c. Every perſon, therefore, who ſends me ſuch commiſſions, ſhould tranſmit theſe materials; or years muſt be loſt before I can procure them from Europe."

More recently, La Cepede has publiſhed an entirely new Natural Hiſtory of Fiſhes. That ingenious writer has thrown much new light upon the ſubject, and enriched this department with many new ſpecies brought into France by the celebrated travellers Commerſon, Dombey, &c.

Here perhaps it may not be amiſs to mention the uſual mode of preſerving fiſh for cabinets. Linnæus's method is, to expoſe them to the air, and, when they acquire ſuch a degree of putrefaction that the ſkin loſes its coheſion to the body of fiſh, it may be ſlid off almoſt like a glove; the two ſides of the ſkin may then be dried upon paper like a plant, or one of the ſides may be filled with plaſter of Paris to give the ſubject a due plumpneſs. A fiſh may be prepared, after it has acquired this degree of putrefaction, by making a longitudinal inciſion on the belly, and carefully diſſecting the fleſhy parts from the ſkin, which are but ſlightly attached to it in conſequence of the putreſcency. The ſkin is then to be filled with cotton and the antiſeptic powder uſed for preſerving birds; and, laſtly, to be ſewed up where the inciſion was made.

Fecundity, beauty, and longevity, are three remarkable attributes of the finny race; and hence the Grecian mythology, more reaſonable perhaps than we are aware of, made the beautiful goddeſs of love to riſe from the boſom of the ocean, with fiſhes of the moſt brilliant colours ſporting about her. Let us not be ſurpriſed at this allegory, which is as inſtructive as it is pleaſing. The Greeks had ſtudied fiſh more than they had other animals; they knew them better; for the table they preferred them to the choiceſt fowl; and this predilection they tranſmitted not only to the modern Greeks, who long preſerved it, but alſo to the Romans.

A fiſh is defined, "a red-blooded animal, which reſpires in the water by means of gills." Theſe ſeem to be the moſt certain and conſtant characters; for the red blood diſtinguiſhes them from worms, and the gills inſtead of lungs from all other animals: hence the cetaceous tribe, as the whale, dolphin, &c. is excluded from this claſs. See the word CETE, vol. iv. But, though fiſhes are red-blooded animals, yet the red particles are not round, as in the mammalia claſs, but oval, as in the amphibia. The natural heat of fiſhes, Cepede obſerves, is not above two or three degrees above the freezing point. They can endure almoſt any degree of cold, provided it come on gradually; they lie torpid under the ice in the polar ſeas; and revive when the vernal ſun melts the ice, and opens their priſon; but a violent degree of cold, ſuch as that produced by a mixture of ice with muriat of lime, kills any fiſh that is put ſuddenly into it.

Naturaliſts obſerve an exceeding great degree of wiſdom in the ſtructure of fiſhes, and in their conformation to the element in which they are to live. Moſt of them have the ſame external form, ſharp at either end, and ſwelling in the middle, by which they are enabled to traverſe the fluid in which they reſide with greater velocity and eaſe. This ſhape is in ſome meaſure imitated by men in thoſe veſſels which they deſign to ſail with the greateſt ſwiftneſs; but the progreſs of the ſwifteſt-ſailing ſhip is far inferior to that of fiſhes. Any of the large fiſhes overtake a ſhip in full ſail with the greateſt eaſe, play round it as though it did not move at all, and can get before it at pleaſure.

In moſt fiſhes, the aperture of the mouth is in the front of the head: but in ſome, as the ſhark, ſturgeon, barbel, &c. it is in the under part; in others, as the raſp-fiſh and ſea-dragon, it is above. In ſome ſpecies, as the carp, the lips are moveable, and furniſhed with bones peculiar to themſelves. What are called the *lip-bones* will be more particularly deſcribed under the genus Labrus, or wraſſe. The voracious fiſhes, as the trout and ſmelt, have generally the jaws, palate, and tongue, furniſhed with teeth. The upper jaw of the ſword-fiſh projects much beyond the lower; and both jaws in the orphis end in ſharp points; in ſome, as the ſilurus and gudgeon, the mouth is furniſhed with filaments called *cirrhi*, or barbles.

The eye is compoſed of the pupil, the iris, and the cryſtalline humour, which laſt is round, that the fiſh may the better ſee in the water. Fiſhes have no eye-lids; but inſtead of theſe, nature has given to ſeveral ſpecies, as the eel-pout, a cuticle which anſwers the ſame purpoſe. The part above the eyes, which joins the head to the body, is called the *nape*, or nape of the neck, though fiſhes properly have no neck. The *coverings of the gills* are on each ſide; in fiſhes which have ſcales, they are generally compoſed of two bony laminæ or plates; but in others, as the eels, &c. they are membranous. The membrane of the gills is compoſed of rays, either bony or cartilaginous, and placed at the throat; ſometimes it is hid entirely by the coverings of the gills, as in the ſole; ſometimes it is but half covered, as in moſt fiſhes; but in ſome, as the ſea-ſcorpion, it is quite bare. Under theſe coverings, on each ſide, are four gills, (more or leſs,) conſiſting of a

bony

bony or cartilaginous arch, with a double fringe, between which the blood circulates in very ſmall veſſels. The *gills* are faſtened within on each ſide to two bones in the palate. It is by means of the gills that fiſhes breathe. They draw the water by the mouth, at the ſame time ſhutting the aperture of the gills; by this means the gills are to fiſhes, for the circulation of the blood, what the lungs are to other animals for the inſpiration of air; for, if the fiſh ſuddenly raiſes up the covering of the gills, the water inſtantly ruſhes out, in the ſame manner as air eſcapes from the lungs by expiration. But there are ſome fiſh which have been ſuppoſed to poſſeſs a kind of lungs beſides the gills; ſuch are the lamprey, thornback, &c. This gave Linnæus the idea of forming them into a particular claſs of amphibious animals, (*amphibiæ nantes.*) But the very principle itſelf has been lately denied and refuted by Vicq. d'Azyr, a French writer. Theſe ſpecies have an aperture on each ſide; and the lower part, between the membrane of the gills and the aperture of the mouth, is called the throat.

A peculiarity called the *ſingle gill* is met with in ſome ſpecies. Beſides the four gills, each of which is compoſed of a double row of fringes, ſeveral fiſhes have a fifth, with only a ſingle row of fringe; this has no bony arch, nor is it looſe like the reſt, but it ſpreads along the inſide of the front gill-covert juſt to its outer rim. Like the double gills, it is arched, and receives a ſmall branch of the artery which furniſhes blood to the other gills. It is not always proportioned to the ſize of the other gills, being ſometimes large, ſometimes ſmall, and in ſome fiſh there is only as it were the beginning or rudiment of a gill. Pallas ſpeaks of a kind of ſingle gill in a cartilaginous fiſh, the Cyclopterus dentatus, in which ſpecies he obſerved three double gills looſe, and a ſingle one, fixed, which he calls *adnata*. Brouſſonet ſpeaks of it under the name of *pſeudobranchia*, or baſtard-gill, having remarked it in the Pleuronectes mancus, the Chætodon longiroſtris, and the Clupea thriſſa. Dr. Walbaum, in his new and enlarged edition of Artedius, gives it different denominations, as *branchia manea, branchia acceſſoria*, &c. he found it in the ſword-fiſh. Profeſſor Monro has noticed it in his Account of the Circulation of the Blood, &c. in Fiſhes: he calls it *ſingle gill*. But none of theſe authors has given a ſatisfactory account of its uſes. Bloch took infinite pains to diſcover the nature and uſe of the ſingle gill. He firſt examined, whether perhaps, being an appendage to the lungs or to the gills, it might not be peculiar to the fiſhes of hot climates, as requiſite to bring more cool air to the blood? whether it is wanting in thoſe fiſhes which die ſoon after they are taken out of the water? whether peculiar to cartilaginous fiſhes, or to the branchioſtegous? to ſalt-water fiſh, or to thoſe of freſh-water? to thoſe of lakes or thoſe in rivers? to the ſtationary or the migratory; for he conceived, that ſome of theſe circumſtances, being aſcertained, might become the baſis for a claſſification of ſuch fiſh; as hereby we might aſſign the proper country or haunts of a fiſh before unknown; or, in caſe of tranſporting certain fiſh, it would readily be known in what waters they would thrive beſt. But all his enquiries were vain; he never could diſcover why the ſingle gill is neceſſary to ſome fiſh, and why others can do without it. In the courſe of the alphabet, we have mentioned the genera and ſpecies, as they occur, which poſſeſs this peculiarity, leaving future naturaliſts to draw their own concluſions. It certainly opens a wide field for ſpeculation, and no ſatisfactory or analogical concluſions have yet been drawn from examining the qualities and properties of thoſe genera and ſpecies in which it is found. According to Bloch's claſſification, the ſingle gill is preſent in 29 genera, (though not in all the ſpecies of each,) in 15 it is partly formed, and in 12 it is entirely wanting. Among thoſe which have it not, we find, the ſilure, the pike, the pond-loach, the eel, the perch, &c. which, living often in ſtill waters, might be ſuppoſed to have colder blood than others, and therefore not to need an organ for cooling the blood, which ſome have ſuppoſed this to be; and this is confirmed by ſome of the mixed genera, as the Cyprinus, in which thoſe ſpecies which live in ſtill water are without it, as the carp, tench, crucian, &c. while thoſe are furniſhed with it which live in running ſtreams, as the narrow carp, the bley, &c. But this conjecture, thus ſupported, falls to the ground, when it is obſerved that the river-loach, which lives only in pure cool gravelly ſtreams, is provided with it, and that it is wanting in moſt ſea-fiſh. This gill might indeed be taken as a diſtinctive mark to ſubdivide the numerous genus of ſalmons and that of carps, as ſome ſpecies of each are furniſhed with it.

Fiſhes, as before obſerved, have no neck; the head joins on to the body. The body of moſt fiſhes is covered with ſmall bright laminæ of the nature of horn, called *ſcales*. Some ſpecies, as the turbot, ſturgeon, &c. have bony or cartilaginous protuberances inſtead of ſcales; others are covered with tubercles, as the ſtickleback; and others again have the ſkin entirely ſmooth, but covered with a viſcous gluey matter, as the loach, ſilurus, &c. The looking-glaſs carp, with large ſcales, with which the body is however only covered in part, ſeems to hold a middle place between theſe extremes.

The body, or trunk, conſiſts of the breaſt, the belly, and the tail. The breaſt is ſhort, becauſe the lungs are in the head; it is ſeparated from the belly by a white ſhining membrane called diaphragm. The belly is the part between the breaſt and the tail. In ſome ſpecies the belly is thick: in others it is thin or carinated. In ſome the back is quite round; in others only partly ſo; but in moſt ſpecies it terminates in a kind of ſharp edge, as the belly often does.

We call the *ſides* the ſpace between the belly and back. In moſt fiſhes may be diſcerned on each ſide a line which ſtretches from the head to the fin of the tail: this is called the *lateral line*.

The *fins* take their name from the parts they belong to, as the pectoral fins, the dorſal, ventral, anal, and tail, fins. The dorſal fin is ſometimes ſingle, as in the pike; ſome fiſh have two, as the perch, &c. and ſome three, as the ſtockfiſh, &c. Some ſpecies, as the ſalmon, have a ſecond fin, which however is only a lengthened membrane, called *pinna adipoſa*. The pectoral fins are always two in number; they are placed near the opening of the gills; and the fiſh uſes them as oars to advance in the water. In ſome few ſpecies theſe are ſo lengthened, that the fiſhes can uſe them as wings, and ſuſtain themſelves for ſome time in the air. There are ſeveral ſpecies which have no ventral fins; theſe are called *apodes*, or "wanting feet;" ſuch are the eel, ſword-fiſh, &c. The ventral fins, when preſent, are always two in number, and ſerve like feet to ſuſtain the fiſh when at the bottom of the water. They are of courſe placed under the body, but not always in the ſame ſpot; they are ſometimes near the throat, ſometimes at the breaſt, and ſometimes at the belly. In the firſt caſe, the fiſh are called *jugulares:* ſuch are the ſtock-fiſh, eelpout, &c. in the ſecond caſe, they are called *thoracici*, as the perch, &c. in the third, they take the name of *abdominales*, as the pike, the ſalmon, carp, &c. The anal fin, which is placed between the belly and the tail, is generally ſingle, and, with the dorſal fin, ſerves to keep the fiſh in equilibrio. The tail-fin ends the external parts of the fiſh; it ſerves them to advance, turn, and direct their motions. In ſome it is round, in others ſtraight. Sometimes there is a cut or dent which forms a ſort of creſcent when it is not deep, and a fork when it is, as may be ſeen in the ſword-fiſh and the bream. All theſe varieties in the formation of the different parts are ſo many diſtinctive marks whereby to arrange the fiſhes into orders, genera, and ſpecies.

The fins conſiſt of a membrane of greater or leſs height, breadth, and thickneſs, and ſupported by cylinders moveable or not, more or leſs numerous, which are called *rays*, becauſe they are diſpoſed ſometimes like rays diverging from a centre. The fins, however, of ſome fiſh, are compoſed of rays without a membrane, or of a membrane without rays. Theſe rays are *bony* in ſome, *cartilaginous* in others. Of the bony rays there are two kinds: ſome are ſolid, long, rather conical, ending in a ſharp point, and ſeem all of one piece; theſe are called *ſimple rays*, or *ſpines*. Other bony rays are compoſed of ſeveral ſmall cylindrical pieces placed one over the other; theſe may be called articulated rays; but, as the uppermoſt of theſe articulations (i.e. thoſe moſt diſtant from the baſe of the fin) generally ſplit into two or more diviſions, they are called *branched rays*; or ſometimes *bifurcated* or *dichotomous rays*. Theſe articulations are found in the cartilaginous rays alſo. The rays, both ſimple and articulated, are in general tranſparent; but ſome of the very ſtrong ſimple bony rays muſt be excepted.

Beſides the fins, there are in ſome fiſhes certain appendages which, when ſituated at the breaſt, are called *fingers*, or digitated appendages, as in the red gurnet. Others have immediately above the ventral fins a pointed ſubſtance riſing from the ſkin, which is called the *ventral appendage*; it is cartilaginous, and half covered with ſcales: it is probable that it ſerves in a particular manner to ſuſtain the ventral fin.

Fiſhes are generally covered on the whole ſurface with a *ſkin*, which is ſoft and viſcous; however thick it may be, it is generally the more flexible and covered with ſlime in proportion as the ſcales are ſmall or fewer in number. Several other animals, as ſerpents, oviparous quadrupeds, and ſome of the mammalia claſs, are furniſhed with ſcales, as well as fiſhes. Scarcely any ſpecies of fiſh is really without ſcales; there are ſome kinds, indeed, upon which the niceſt eye, even with a microſcope, cannot diſtinguiſh any ſcales while the fiſh is freſh, and the ſkin covered with that viſcoſity which is more or leſs abundant in all fiſh; but, when the fiſh has been ſome time dead, and the ſkin has been naturally or artificially dried, there is perhaps no ſpecies whatever from which a careful operator might not detach minute ſcales, which come away like a ſhining powder, and form a heap of hard, diaphanous, and brilliant, laminæ. See the ſubject reſumed farther on, and exemplified with figures.

The form of the ſcales is various; ſometimes they are tapered away into ſpines; at others they are thickened and raiſed into tubercles; but moſt commonly they are ſmooth plates, either flat or raiſed by a bone. Theſe plates, which are the ſcales properly ſo called, are either round, oval, or hexagonal; part of their circumference is ſometimes minutely ſerrated; in ſome ſpecies they are few in number, and lie quite apart; in others they join; in others they lie one over the other like tiles upon a houſe. They communicate with the body of the fiſh by means of certain veſſels; but they are alſo attached to the ſkin by a certain portion, more or leſs, of their circumference. It is worthy of remark, that a vaſt number of fiſh who uſually keep in the main ocean, and which are rarely expoſed to be rubbed againſt by approaching the ſhores, have their ſcales faſtened but by a ſmall portion of their circumference; but they are more firmly fixed, and covered in part by the epidermis, in many of thoſe which frequent the ſhores, and which are thence called *litorales*, or ſhore-loving; and they are ſtill more ſtrongly fixed, and covered entirely by the epidermis, in moſt of thoſe which live in the mud, and make holes to hide themſelves in.

The *teeth* are generally ſtrong and numerous. They are of various ſhapes: ſome are rather conical or compreſſed, lengthened, and ſharp-pointed, ſometimes ſerrated on their edges, or preſenting many teeth in one, and often bent; ſome are compreſſed, terminating in a broad cutting edge; others again are almoſt hemiſpherical, or even entirely flatted againſt the baſe. They take their name from their ſhape and uſe, not from their poſition. The *grinders* are thoſe hemiſpherical or much-flattened teeth, which are intended to cruſh, bruiſe, and comminute, hard ſubſtances; the *cutting-teeth* are like the front teeth of men and ſome quadrupeds, with a broad ſharp edge or blade; but the moſt numerous are thoſe which Cepede calls *laniares*, or tearing-teeth, which are long, ſharp, often bent or hooked in different directions, and ſerve to retain, tear, and mangle, the prey; indeed not a great many fiſh have any but theſe laſt. The teeth are covered with an enamel, as in other animals. Some ſpecies have the teeth fixed in bony or very hard ſockets; in others the roots are in membranous capſules only, and the fiſh can raiſe or depreſs them, and turn them in different directions at will.

The conformation of the internal parts of fiſhes varies in many reſpects from other animals. The tongue is cartilaginous: and in many of the voracious fiſhes, as the trout and the ſmelt, it is even furniſhed with teeth. Others, as the carp, have no tongue at all; which makes it appear probable, that the tongue in fiſhes is rather deſtined to retain food than as an organ of taſte. Teeth are alſo frequently found on the palate and in the throat.

To proceed with the examination of the interior parts. Next to the throat, which is often very capacious, commences the inteſtinal canal, which runs to the anus; but it widens in its courſe, and receives the name of *ſtomach*. This organ, which lies longitudinally in the body, varies in different ſpecies in ſhape, ſize, thickneſs of its membranes, and the folds or wrinkles formed by theſe membranes. In ſome fiſh, this canal appears ſo plainly divided, that ſuch have been ſaid to have two ſtomachs; and its texture in others is truly muſcular, inſtead of membranous. Between the two portions of the inteſtinal canal divided by the ſtomach, appear certain hollow membranous tubes, opening only towards the inteſtines, ſomewhat reſembling the *cæcum*, or blind-gut, in the human frame; they are ſometimes long, and of leſs diameter than the inteſtine; ſometimes they are thick and very ſhort. They are in number from one up to one hundred, according to the ſpecies. The inteſtinal canal is almoſt ſtraight in ſome fiſhes, eſpecially in thoſe whoſe bodies are long; it returns to the ſtomach, and then bends towards the anus, in many others; and in ſome it makes ſeveral convolutions, and is longer than head, body, and tail, all together.

The power of digeſtion in fiſhes is very great; yet this does not ariſe from the action of heat, as in men and moſt animals; and, on the other hand, the membranes or coats of the ſtomach are too thin for the purpoſes of triturating or pounding the food to prepare it for decompoſition. But we find in general that the digeſtive juices of fiſhes are very active and in great quantity. The ſpleen is often triangular, ſometimes long, always of a dark colour; the gall-bladder is large; the liver is very large, ſometimes ſingle, ſometimes divided into two or three lobes, and ſometimes as long as the abdomen itſelf. This quantity and ſtrength of digeſtive juices is particularly neceſſary to thoſe ſpecies which have ſcarcely any ſinuoſity in the inteſtinal canal, no appendage to the pylorus, no teeth in the gullet, and which therefore cannot ſo much tear and grind their food, nor retain it any conſiderable time in the inteſtines. But this deficiency is ſupplied or avoided by a peculiar property in ſome ſpecies: the pike, for example, and the reſt of the *eſox* genus, have a faculty which has been obſerved in rapacious beaſts and birds: they eaſily return by the mouth the ſubſtances they cannot digeſt.

The urine of fiſhes is ſomewhat of a thicker conſiſtence than in other animals; probably becauſe it partakes of that oily nature which abounds in all the parts of fiſhes. It is ſtrained through the kidneys, and paſſes by the navel.

The nutritive juices are diſtributed by the lymphatics, lacteals, and other abſorbent veſſels, as in other animals; and the circulation of the blood is carried on nearly in the ſame manner. The *heart*, which is the principal inſtrument of circulation, is commonly incloſed in a very thin membrane called the pericardium; it varies in ſhape, according to the ſpecies; but contains two cavities: a ventricle, the ſides of which are very thick, wrinkled, and often full of little holes; and an auricle, much larger, and *before* the left part of the ventricle, with which it communicates by an orifice furniſhed with two valves. Here let us obſerve, once for all, that the words *before*, *behind*, *above*, *below*, refer to the horizontal poſition of the fiſh. The blood is brought into the auricle before it is ſent into the ventricle, which is by means of the vena cava, or at leaſt the extremity of that vein, called ſinus venoſus, which lies in the hinder part of the auricle. The blood runs from the ventricle, through an orifice guarded by two other valves, into an arterial ſac, or large cavity, which might almoſt be conſidered as a ſecond ventricle, and which contracts when the heart dilates, and puffs up when the heart is compreſſed; its pulſations are manifeſt; when leſſening in diameter, it forms a true artery, to which the name of aorta has been given: it is analogous to what is called the pulmonary artery in man and many other red-blooded animals. Its office is to carry blood to the gills, which ſerve the office of lungs in fiſhes: for this purpoſe it divides into two branches, running right and left to the gills on each ſide; and each of theſe branches breaks off into as many minute ſubdiviſions as may be neceſſary according to the number of gills and the branches and fringes in each. From the gills the blood is tranſmitted to the other parts of the body.

The *muſcles* of fiſhes do not differ conſiderably from thoſe of other red-blooded animals. Their tendons are indeed inſerted into the ſkin, which is not the caſe in man and moſt quadrupeds; but the ſame arrangement is obſerved not only in ſerpents which have ſcales, but alſo in the porcupine and hedgehog, which are covered with ſpines. The muſcles are eaſily diſtinguiſhed by the ſhape of the fibres they conſiſt of, and by their irritability. They more readily ſeparate into very thin fibres than the muſcles of more complex animals; and theſe fibrillæ, how minute ſoever, appear always flattened, and not cylindrical; ſo that they always exhibit two unequal diameters; which has not been remarked in the muſcles of man, quadrupeds, birds, or reptiles.

The principal muſcles of fiſhes are as follows: 1. On each ſide of the body, a muſcle ſtretches from the head to the extremity of the tail; this is compoſed of ſeveral tranſverſe muſcles, ſimilar and parallel to each other, ſtanding obliquely. 2. The upper part of the body and tail is covered by two longitudinal muſcles, called *dorſals*, which occupy the ſpace between the lateral or ſide muſcles. When there is a fin upon the back, theſe muſcles are interrupted or divided, conſequently there are four inſtead of two; they are ſix in number if there are two dorſal fins, eight if three. 3. The lateral muſcles unite under the body; but under the tail they are ſeparated by two longitudinal muſcles, which are divided into two pair when there are two anal fins. 4. There are ſeveral muſcles of different ſizes about the head; of the largeſt, two are placed under the eyes, and two in the lower jaw. One alſo belongs to the membrane of the gills, and throws out a tendon to each ray by which that membrane is ſuſtained. 5. Each pectoral fin has two raiſing-muſcles placed on the outer ſurface of thoſe bones which have been compared to the collar-bone and ſhoulder-blade, and two depreſſing muſcles under the ſame bones. The dorſal and anal fins have each four muſcles, two raiſers and two depreſſors. Each of the lower fins has three muſcles, one raiſer and two depreſſors. Four ſtrong muſcles belong to the tail-fin: one ſtraight and two oblique ones called ſuperior; the fourth, from its poſition, is called inferior.

The muſcles of fiſhes are more irritable than thoſe of other animals which have red blood; they yield more eaſily to equal ſtimuli. This is accounted for as follows: the muſcular fibres contain two principles, the earthy and the glutinous; and irritability ſeems to depend upon the greater proportion of the latter, as may be obſerved in the polypes, and young animals in general. This gluten, or oily nature, pervades fiſh more than any other red-blooded animals. Their whole texture is pervaded by that *oil* ſo well known in commerce and the arts, which is ſecreted more particularly in the liver, and the extraction and preparation of which furniſhes ſo much employment for the induſtry of man, and ſo much profit and convenience to repay that induſtry. The oil is the cauſe of the different degrees of tranſparency exhibited in conſiderable portions of the bodies of fiſhes, even when pretty thick; and hence men have learned to give tranſparency to certain ſubſtances by impregnating them with oil, as for inſtance, oiled paper, which is often uſed inſtead of glaſs. The phoſphoric light which fiſhes emit ariſes alſo from the oil; and this faculty does not leave them when they die. Some fiſhes, in the torrid zone, appear at night like a lambent flame, as Adanſon obſerved at Senegal; and, when numbers of them are collected together, combining with other cauſes which render the ſurface of the ſea phoſphoric, it is a moſt magnificent ſpectacle; but this oily matter, which is one of the elements of fiſhes, emits a light ſo ſtrong as to be viſible on the ſurface when the fiſh is at a conſiderable depth; Borda obſerved this at the depth of ſeven metres, or three and twenty feet. But the oil has a more eſſential ſervice, namely, to preſerve the fiſh unchanged amid the active element of water.

But another viſcous ſubſtance, analogous to oil, yet different from it in many particulars, is elaborated in certain veſſels, carried under the external teguments, and ſpread on the ſurface of the body through ſeveral apertures. The number, form, and poſition, of theſe apertures, canals, and ſecretory organs, differ according to the ſpecies; but this humour principally oozes through orifices on different parts of the head, and along the body and tail on each ſide; and thus is formed, according to Cepede, what we call the lateral line. This line is the more ſtriking when the fiſh has very viſible ſcales, becauſe it is formed then not only of the excretory pores we have juſt mentioned, but of a canal conſiſting of as many tubes as there are ſcales over thoſe orifices, and hollowed out in the ſubſtance of the ſcales themſelves. This line varies in different ſpecies from one to three on each ſide; alſo in length, direction, bendings, interruptions, and the ſpines it may be armed with. This viſcous ſubſtance, often renewed, covers the whole exterior of the fiſh; and hinders the water from penetrating the integuments; it makes the body more ſupple, and gives it the faculty of gliding with greater facility through the water, which this kind of varniſh ſeems to throw off. *Animal oil*, therefore, which probably is the principle elaborated for the production of this gluten, acts both directly and indirectly, both externally, and internally, upon fiſhes; their moſt compact and hard parts bear the marks of this their nature; its influence and its eſſence pervade even the ſolid frame upon which reſt all the ſoft parts we have been examining.

The *ſolid parts* are either cartilaginous or bony. They make a compact whole ſimilar to the ſkeleton in other animals; their interior ſtrata are firſt produced, and firſt acted upon by the different cauſes of growth. But, when cartilaginous, they differ conſiderably from the bones of quadrupeds, birds, and men. Endued with a mucoſity which is the firſt principle of the animal oil ſo abundant in fiſhes, they are provided with cells, but not with any cavity properly ſo called; they do not contain that ſubſtance called marrow of the bones in man, quadrupeds, and birds: they are a collection of laminæ. And for this reaſon La Cepede has ſeparated the whole race of fiſh into two grand diviſions, the cartilaginous and the bony. The ſolids of the bony claſs greatly reſemble thoſe of other animals and men.

Let us next examine the *nervous ſyſtem*. The brain, in which the nerves originate, is very ſmall in proportion to the ſize of the head in fiſhes. In the common whale, for inſtance, its weight is about the 25000th part of the total weight of the fiſh, the 38000th in the tunny, the 2500th in the ſhark, the 2000th in the ſilurus, the 1400th in the pike, the 600th in the carp; whereas in man it is known to be about the 40th part; in many quadrupeds, eſpecially the elephant, the 500th part, in the canary-bird the 20th, in the cock and ſparrow a 30th, in the eagle, the 200th, in the gooſe the 400th, in the adder the 800th, and about the 6000th part in the ſea-tortoiſe. The brain in fiſhes is divided into lobes; the internal part is brown; the exterior or cortical part is white and fatty. The ſpinal marrow, which iſſues from that organ, and whence all the nerves which do not run immediately from the brain are derived, extends along the back-bone to the extremity of the tail; yet not within the vertebræ, which we have before obſerved are not hollow, but over them, in a channel or gutter formed on purpoſe.

But the ſtrength of the nervous ſyſtem does not entirely depend on the brain; the ſpinal marrow has a ſhare in it; and it may be ſaid to reſide in each ſeparate nerve; for the farther we recede from man, in our approach towards inſects and worms, we ſhall find the different organs more independent of each other. The nerves of fiſhes are as large in proportion as in the mammalia claſs, though proceeding from a brain which is ſmaller.

The action of the nerves produces the *ſenſes* of ſmelling, taſting, feeling, &c. The organs of *ſmell* are very extenſive; the noſtrils are in general double, ſituated between the eyes and the mouth, at a greater or leſs diſtance from the extremity of the ſnout. The nerves which act upon them are the firſt pair coming immediately from the brain; they are very thick, and, being divided in the noſtrils into a great number of ramifications, multiply the ſurfaces of the ſenſitive faculty, and make it ſuſceptible of being acted upon by the ſlighteſt impreſſions. Theſe ramifications are more particularly ſpread over thoſe numerous membranes which lie in two rows in moſt of the cartilaginous fiſhes, eſpecially the rays, but diſpoſed in radii in the bony kinds, and pervading the interior cavities which contain the true organ of ſmell. The water penetrates into theſe cavities, carrying with it the odorant particles it is loaded with: theſe orifices by which it enters are either ſingle or double, round or oval: here it circulates, and then is repelled, for the admiſſion of freſh, by the contractions and dilatations which the animal is capable of making in theſe organs.

As to the faculty of *hearing*, it is now generally agreed, beyond controverſy, that fiſhes have it; and in this reſpect we have come back to the opinion of the ancients, for both Ariſtotle and Pliny held the ſame thing; but it was afterwards contradicted, on account of the auditory organs not being immediately viſible. On this ſubject therefore we muſt ſay a few words. Thoſe animals who live continually in the water, and who receive the impreſſions of ſound through the medium of a fluid more denſe than that of the atmoſphere, exhibit neither the outward organ of hearing, nor the membrane or cavity called tympanum, nor that paſſage from the inſide of the mouth called the Euſtachian tube, nor thoſe auditory bones called *incus*, *malleus*, and *ſtapes*. Theſe parts are wanting, not only in fiſhes, but in many ſerpents, in crabs, and other white-blooded animals, as the *ſepia*, which ſtill have an organ of hearing, and live in the midſt of the waters. But fiſhes have yet the organs neceſſary for hearing, the parts of which are very obvious, very large, and very diſtinct, though hitherto little known. They were firſt obſerved ſo long ago as 1673, by Nicholas Stenton, of Copenhagen, who deſcribed their principal parts; but their conſtruction was not clearly known till very lately from the experiments of thoſe celebrated anatomiſts, Geoffroy the Elder, Vicq d'Azyr, Camper, Monro, and Scarpa. We ſhall firſt deſcribe theſe organs in the cartilaginous tribes. The organ of hearing, like that of ſight, is double The two ears are contained in the cavity of the ſkull, lying on each ſide at the angles moſt diſtant from the muzzle; and are ſeparated only by a membrane from that portion of the cavity which contains the brain. The firſt thing obſervable in the ear of many of theſe animals, is an opening formed by an elaſtic membrane, or by a little cartilage, very ſimilar to the *feneſtra ovalis* in man and quadrupeds. Next is perceived a veſtibulum, which is filled with a watery liquor; and joining to this are three canals compoſed of a membrane firm and thick, yet tranſparent; they are called ſemicircular canals, though they form nearly a complete circle; and are very ſimilar to the three membranous tubes in man and quadrupeds. (See Scarpa on the Senſes of Animals.) Theſe tubes are encloſed in a cavity which is only a continuation of the veſtibulum, and which they divide ſo as to produce a ſort of labyrinth; they are larger in proportion than the correſponding tube in men and quadrupeds; being filled with a peculiar humour, they ſwell out into the ſhape of phials, receiving the thin pulp of the acouſtic ramifications, and muſt be conſidered among the real organs of hearing. Beſides theſe three canals, the veſtibulum contains three ſmall ſacs, unequal in ſize, conſiſting of a thin but firm and elaſtic membrane, filled with a kind of thickened jelly or lymph, and each containing one or two ſmall cartilaginous bodies full of very minute nervous ramifications, which may be conſidered as the ſeat of ſonorous ſenſation.

The bony tribe, and ſome of the cartilaginous, have no feneſtra ovalis; but then their ſemicircular canals are longer, wider, and cloſer together. They have only one membranous ſac inſtead of three; but this one, which contains one or two bodies of a bony or cretaceous ſubſtance, is larger, and fuller of gelatinous matter; and in the cavity where the ſemicircular canals meet, a ſubſtance is commonly met with ſimilar to what is found in the little ſacs. The ear of fiſhes, therefore, as well as of man, quadrupeds, birds, and reptiles, has ſeveral receptacles or ſeats of ſound; but only one ſenſation can be excited at once, becauſe all theſe receptacles are only emanations from a branch of the fifth pair of nerves, which in fiſhes is the real acouſtic nerve.

As the tongue is generally fixed, and both that and the palate often filled up with cloſe and numerous rows of teeth, it cannot be ſuppoſed that their *taſte* is very exquiſite; but this is ſupplied by the ſmell, to which it ſeems to be transferred.

The principal ſeat of the *feeling* ſeems to be the lower part of the belly and the extremity of the ſnout. Theſe two organs indeed cannot receive very laſting or correct impreſſions, becauſe they can apply the belly or ſnout only to certain parts of the external ſurfaces of bodies; yet theſe organs are ſufficient to give very lively impreſſion, and ſtrongly to warn the animal againſt the preſence of any thing noxious. Beſides, thoſe whoſe lengthened bodies bring them to a nearer reſemblance with the ſerpent-tribe, and which have no viſible ſcales, can make ſeveral convolutions round an object; in that caſe, the impreſſions communicated by an increaſed ſurface muſt be more diſtinct. We may hence conclude, that the ſenſe of feeling in fiſhes is not ſo imperfect as it has been generally ſuppoſed; and that there is no part of their body but is more or leſs endued with this faculty: for who has not ſeen them dart like lightning from the hand which had touched or was near touching them?

From what has been ſaid, and from what will appear in deſcribing the different genera and ſpecies of fiſh, it is manifeſt that they poſſeſs their ſenſitive faculties in the following order: 1. ſmell; 2. ſight; 3. hearing; 4. feeling; 5. taſte. No one can doubt but their principal ſenſe is ſmell: by this inſtinct they make immenſe journeys, attracted by the odour of the prey they purſue, or repelled by that of the enemies they would avoid. This may be called the lantern or eye of fiſhes; it guides them amid the thickeſt clouds of darkneſs, againſt winds and waves, in the boſom of the moſt troubled waters, and leaſt permeable to the rays of light. We know indeed that objects may be diſcerned on a white chalky bottom at the depth of 30 or 35 fathoms; but then the ſea muſt be very calm; and what are 30 fathoms in compariſon to the immenſe depth of ſome parts of the ocean, of that vaſt abyſs which fiſhes travel through, where ſcarcely any ſolar ray can pierce, and ſtill leſs when the waves are agitated violently by tempeſts? If the ſenſe of ſmelling therefore were not very perfect, how could they, in many ſituations, ſeek their food, and avoid danger.

Yet the *ſight*, though ſecond to the ſmell, is by no means imperfect in fiſhes. Leſs perfect than that of many other animals it muſt be from the denſity of the fluid it lives in compared with atmoſpherical air; yet let it be obſerved, that the cryſtalline humour in fiſhes is much more convex than in birds, quadrupeds, and man; it is nearly ſpherical; the rays therefore from any object muſt form a more acute angle on its ſurface; they are more collected in an image, and their refraction is the greater as the angle of incidence is ſmaller; beſides, the cryſtalline in fiſhes is denſer than in more perfect animals, which ſtill increaſes refraction; and further, it is now aſcertained, that the more inflammable any tranſparent ſubſtance is, the more ſtrongly it refracts the rays of light; and the cryſtalline humour of fiſhes, being impregnated with oily matter, is more combuſtible than that of moſt other animals, and thus refraction muſt be ſtill farther increaſed. The fibres of the retina, that is, the ſmalleſt branches of the optic nerve, are in many fiſhes 1,666,400 times ſmaller than a hair. Though fiſhes have no eyelids to defend them from the conſtant action of the ſun's rays, yet many ſpecies have the faculty of drawing the eye to the bottom of the orbit, and ſo conceal it in part under the rim of the aperture, which thus forms a kind of immoveable eyelid; and it muſt not be forgotten, that fiſhes can rapidly ſink to ſuch a depth, even in rivers, as may prevent inconvenience from the brightneſs of the ſolar ray; and in the boſom of the ocean they can lie, where no rays of light whatever can reach them. It muſt be acknowledged, that ſome ſpecies, eſpecially thoſe which reſemble ſerpents in ſhape, have their eyes conſtantly veiled with an immoveable membrane; ſo that in theſe the ſenſe of ſight muſt be weaker than that of hearing, and even of touch; but in general the order of the ſenſes will rank as we have ſet them down. For ſome farther particulars relating to the conformation of fiſhes, and eſpecially to the abſorbent ſyſtem, ſee COMPARATIVE ANATOMY, vol. i. p. 667-670.

Upon the whole, the ſenſitive powers of fiſhes appear to be ſuch as will place them almoſt at an equal diſtance between the extremes of man and the loweſt of animals. But in beauty and brightneſs of colour, fiſhes yield to no animals whatever. We ſhall endeavour to explain how theſe ſtriking tints are produced, which are ſo admirably contraſted, often diſtributed with ſo much ſymmetry, and ſometimes ſo fugitive. Theſe lively colours muſt either reſide in the teguments more or leſs ſoft, and in the body itſelf; or they are produced by the modifications of light paſſing through the tranſparent ſcales; or they muſt depend entirely upon the ſcales, whether tranſparent or opaque.

The ſoft parts of fiſhes may of themſelves exhibit all the colours. According as the arterial ramifications, which run amidſt the muſcles and approach the external ſurface, are more or leſs numerous, ſtronger, or weaker, the ſoft parts of the animal will be white or red. The various nutritive juices which circulate in the abſorbent veſſels, or pervade the cellular texture, may impart the yellow or green colour with which theſe juices commonly abound. The veins diſſeminated in theſe very parts may add all the ſhades of blue, purple, and violet; and theſe ſhades of blue and violet, when mixed with yellow, will produce all the various tints of green. And thus theſe ſeven colours may decorate the bodies of fiſhes, and be diſſeminated in ſpots, bands, ſtripes, or dots, according to the place occupied by the various matters from which they ariſe; and all this without taking ſcales at all into the queſtion.

But, if laminæ very tranſparent, and as it were colourleſs, ſhould be ſpread over theſe tints, it will not change their nature; it will only, like a light varniſh, increaſe their brightneſs; it gives them the brilliancy of poliſhed metals when ſilvered or gilt. And, if theſe laminæ, or ſcales, have other tints peculiar to themſelves, ſuch tints neceſſarily mix with thoſe which ſhine through thoſe diaphanous laminæ, and either produce new colours, or increaſe the effect of the former ones. From the union of theſe cauſes ariſe thoſe beautiful colours which are obſerved on a vaſt number of fiſh. No claſs of animals has been ſo favoured in this reſpect; none has received a clothing more elegant, more varied, or more rich. Let thoſe, for example, who have ſeen the dorados, the chetodons, or the gilt-heads, ſwimming near the ſurface of a ſtill water, and reflecting the bright rays of the ſun, ſay if the ſhining plumes of the peacock or humming-bird, the brilliancy of the diamond, the ſplendour of gold, or the reflection of precious ſtones, can exceed the ſpectacle they preſent. But the ſcales are not always colourleſs or tranſparent; nor are they confined to one colour upon each ſcale; for every kind of ſcale may have ſpots, ſtripes, or bands, upon a diſtinct ground. Farther, when the ſcales lie flat upon the ſkin, it will be readily conceived that they may reflect the colours through the ſkin, or exhibit them as mixed with their own; but, when the ſcale is faſtened to the ſkin only by a ſmall part of its circumference, and goes ſhelving upwards, as often happens, it can then exhibit its own colours only. And this brings us to ſpeak of the action of light in brightening the colours of fiſh.

We know, that, in organiſed bodies, particular colours varying from white are not produced without the preſence of light in combination with the principles of ſuch bodies. We ſee this in plants, which become white when deprived of light; we obſerve it in quadrupeds, birds, and reptiles, in which the lower parts of the body, as leſs expoſed to the rays of the ſun, are always diſtinguiſhed by paler tints. We ſee it in fiſhes, of which the under ſurface, leaſt expoſed to the rays of light, is never painted with ſuch rich colours as the upper parts; and we may obſerve the ſame thing, for the moſt part, in every particular ſcale. When the ſcales ſhelve over each other like tiles upon a houſe, that part of the ſcale which is concealed is never adorned with the ſame tints exhibited by the part expoſed to the light. To produce beautiful colours, it is neceſſary that a certain quantity of luminous fluid ſhould unite and give life to the colouring matters originating from within.

But, in whatever manner, or in whatever part of the body, the matter is elaborated which forms and maintains the ſcales, we cannot doubt but its principles are modified by the nature of the aliment which the fiſh feeds upon. It is particularly obſerved, that almoſt all thoſe ſpecies which feed upon ſhell-fiſh exhibit very vivid colours; and thus theſe cruſtaceous animals, whoſe juices tinge their ſolid covering with ſuch bright tints, ſeem to preſerve enough of their properties after death to impart thoſe tints to the rudiments of the ſcales they are deſtined to give birth to.

The reader will readily conclude, from what we have urged, that, in thoſe countries where a great quantity of light pervades the boſom of the waters, the fiſhes will be moſt richly coloured. And in fact thoſe which rival in brilliancy the moſt highly poliſhed metals, or the moſt precious gems, are generally found between the tropics, where the ſurface of the ſea is ſo frequently pervaded by the rays of an unclouded ſun. With almoſt equal beauty are thoſe ſpecies decorated which live amid the polar ſeas, where mountains of ice and eternal ſnows ſolidified by cold, infinitely reflect from multiplied ſurfaces the dazzling light of the ſun during the long days, and of the moon and aurora borealis during the long nights, of theſe hyperborean regions.

Theſe beautiful colours, however, can only be ſuppoſed to exiſt in perfection while the fiſh are in the element ſo analogous to their nature, and where, enjoying all their faculties, theſe colours are kept up and renewed by continual ſprings from within; for there, the oily varniſh which is prepared by their organs is rendered more beautiful and tranſparent by that liquid through which we regard them. When taken out of the water, their powers are diminiſhed, their ſtrength declines, their motions grow languid, their colours fade, the viſcous juice dries away; the ſcales, no longer ſoftened by that oily matter, nor refreſhed by the water, are preſently changed; the veſſels deſtined for their reparation are obſtructed from the ſame cauſes; the brighteſt colours of the ſcales or of the body change, and often diſappear altogether, without leaving any traces of what once they were.

Fiſhes, having a compact ſolid body, are heavier than the element in which they live: conſequently they would always remain at the bottom, had not Providence given them ſeveral organs peculiarly conſtructed to enable them to perform rapid motions in every direction in that element. The principal of theſe organs is the *ſwimming-bladder*, which is found in moſt fiſh except thoſe which have an extremely flat body, as the rays and ſoles; the inferior organs, but no leſs eſſential, are the fins. The ſwimming-bladder is membranous, and varies in ſhape according to the ſpecies. It is always of a lengthened form; but ſometimes the extremities are ſharp, ſometimes rounded; ſometimes the front part divides into two prolongations; ſometimes is parted tranſverſely into two hollow lobes communicating with each other; ſometimes the two lobes are longitudinal, ſide by ſide; and in ſome ſpecies it has three, and even four, cavities. This bladder communicates with the front part of the ſtomach, ſometimes, though rarely, with the hinder part, by a little canal called the air-tube, which goes out from the middle of the bladder, or that extremity which is neareſt the head, when the bladder is ſingle, but from the hinder lobe if there is one behind another. This conduit brings to the ſwimming-bladder (called alſo the *air-bladder*) a certain gas, which ſwells it, extends it, and renders it much lighter than water, thus giving the animal the faculty of riſing amidſt that liquid. When, on the contrary, the fiſh wants to ſink, it compreſſes this bladder by means of the muſcles which ſurround it; the gas eſcapes through the air-tube into the ſtomach; gets out of the body by the throat, the gills, or the anus; and the weight of the ſolid and ſoft parts of the body carry the fiſh with greater or leſs rapidity to the bottom of the water.

This effect of the air-bladder in raiſing or ſinking fiſhes is little doubted; but it may be eaſily proved by any perſon who will pierce the air-bladder of a live fiſh, which afterwards will never be able to riſe to the ſurface of the water, unleſs in ſome ſpecies whoſe muſcles are very ſtrong and their fins very broad. In ſome countries, where certain fiſh are to be preſerved with great care in reſervoirs, they mutilate them in this manner to keep them from overleaping their boundaries.

Some controverſy has been maintained as to the nature of the gas contained in the air-bladder. Fourcroy found azot in the air-bladder of a carp; Dr. Prieſtley found oxygen mixed with a gas whoſe nature he does not deſcribe; Dr. Broadbelt, of Jamaica, found nothing but pure oxygen in a ſword-fiſh which he examined. The air-bladder of ſeveral tench, examined by La Cepede, contained hydrogen gas, which he very reaſonably ſuppoſes to be the material that organ is moſt commonly filled with. He conceives that water is decompoſed in the gills, (it is well known that water is a compound of hydrogen gas and oxygen;) this furniſhes to the blood the oxygen neceſſary for that fluid; and then, if the animal does not ſeek to ſwell out the air-bladder, the hydrogen ſet at liberty is either diſſipated at the branchial apertures or through the mouth, or combines with the various parts of their bodies, which by analyſis are known to furniſh much of this gas; but when, on the contrary, the fiſh would diſtend that organ, then the hydrogen gas, inſtead of diſſipating or combining, ruſhes through the air-tube into the ſwimming-bladder. Without this continual decompoſition of water, how can a fiſh, who expands and contracts this bladder ſeveral times in a minute, find on the inſtant the quantity of gas it inſpires and rejects? and how can it have at command, in the unfathomable depths of the ocean, the quantity of oxygen needful for reſpiration? This decompoſition, which is well known to modern chemiſtry as operated in vegetables, cannot be ſuppoſed more difficult in living animals, though cold-blooded animals. Hence Cepede concludes, that, when it is neceſſary to break the ice of a pond to preſerve the fiſh from death, it is rather to clear the water from the miaſmata produced by emanations from their own bodies, or from putrid animal and vegetable ſubſtances, than to procure them atmoſpherical air, of which they have no need. This theory was hinted at by our countryman John Mayow as long ago as the year 1698; who indeed foretold ſeveral of the ſtriking diſcoveries of modern chemiſtry.

Moreover, ſeveral ſpecies of fiſh, as the baliſtes and tetrodons, have another remarkable property, by which they can riſe or ſink in the water with extreme facility. They can quickly ſwell up the lower part of their belly by introducing a gas lighter than water, and thus, by greatly increaſing their ſize, leſſen their ſpecific weight. See the article Tetrodon.

But it is not ſufficient that fiſhes can riſe and ſink in the water; they muſt be able to move forward and in every direction. This is effected by means of the fins, but principally by the tail. This part moves on the hinder portion of the body as on a pivot, and according as it is longer or ſhorter, more or leſs elaſtic, or fortified with muſcles more or leſs ſtrong, impels the fiſh forward with greater or leſs velocity. A tail much flattened on the ſides acts on a larger ſurface of water, and impels the fiſh with increaſed force. And the fin which terminates the tail, being placed vertically, if it be very broad, ſo much the more increaſes the ſtrength of a lever which it lengthens, &c. The action of the tail is aſſiſted by the pectoral fins; theſe, being moveable in different directions, and more or leſs expanded, enable the animal to move to right or left, and even backwards. The play and effect of the pectoral fins is very ſimilar to the palmated feet of geeſe, ducks, and other water-fowl. The ſame may be ſaid of the lower fins, but in a leſs degree, as they do not preſent in general ſo broad a ſurface. The principal uſe of the anal fins is to lower the centre of gravity, and keep the fiſh in a certain poſition. When they reach to the caudal fin, they increaſe the ſurface of the tail, and conſequently accelerate the motion; they alſo, by alternate contraction and dilatation, operate in changing the direction of the fiſh's courſe. The dorſal fins, when placed over the tail, have the ſame effect in directing the courſe and increaſing its velocity as the anal; alſo, in contrary currents, they counterbalance the effect of the anal fins, and keep the animal in equilibrio; but very frequently they would only tend to deſtroy that equilibrium, and to turn the fiſh over, if the animal had not the power of contracting all or any of the rays of thoſe fins, and of laying them flat on his back, either wholly or in part; and ſome ſpecies have a furrow on the back, into which they may be drawn quite out of ſight.

It is eaſy to conceive that the action of the tail and fins may very much aſſiſt the fiſh in riſing or ſinking in the water, independent of any ſwelling-up of the belly, or dilatation of the ſwimming-bladder; accordingly ſeveral flat fiſh, as the rays and ſoles, are totally unprovided with this organ. The principal organ for ſwiftneſs or ſwimming is the tail; and the chief impediments are the length of the head and prolongations of the jaws or ſnout; ſo that the accelerating powers lie in the poſterior parts, the obſtructions in the anterior; and according to the proportions of theſe will the fiſh be enabled to move with more or leſs velocity. On this proportion will conſequently depend a greater or leſs facility in ſeeking their food. Some content themſelves with ſea-weed; others ſeek in the mud for the remnants of organiſed ſubſtances, and theſe have been ſuppoſed to feed upon ſlime; ſome are very fond of the ſeeds and other parts of vegetables, either watery or earthy; but the greater number prefer inſects and worms of various kinds, the ſpawn or young fry of their own females, and in general all thoſe animals which they can ſeize and devour in their courſe without too much danger of reſiſtance.

The powers of aſſimulation in fiſhes ſeem to increaſe with the quantity of food with which they are ſupplied. A pike, ſparingly fed, can be habituated to ſubſiſt on very little nouriſhment; if fully ſupplied, it acquires the power of devouring a hundred roaches in three days. Some exceptions to the extraordinary voracity of fiſhes are produced by naturaliſts, which, if fully examined, will perhaps appear more ſpecious than real. Some are ſaid to ſubſiſt on pure water alone; an aſſertion, which is ſuppoſed to be proved by numberleſs inſtances of their living, for ſeveral months, in ponds conſtructed of hewn ſtone, where they had been ſupplied with no food. It is alleged too, that thoſe which are carried from a diſtance to the markets of London and Paris in perforated veſſels, muſt ſubſiſt upon water alone. The element of water, however, is ſeldom found pure and unmixed. The very epithets of ſalt, bitter, and ſweet, imply a compoſition and mixture, perceptible even to the taſte. The particles of the earth upon which it runs, neceſſarily enter into it, and vitiate its purity. Theſe ſubſtances, together with myriads of animalcules with which it teems, may ſupply, for a while, a ſcanty ſubſiſtence, and ſupport the life of the animal. In the mean time, it will readily be allowed, that fiſhes, though for ever hungry and prowling, can endure the want of food for a long time. In them, habits ſeem to be formed by the circumſtances in which they are placed. Want produces abſtinence; from abundance they learn voracity. A pike, one of the moſt gluttonous of fiſhes, will live, and even thrive, in a pond where there is none but itſelf; and the gold and ſilver fiſhes, which we confine in glaſs vaſes, ſubſiſt, frequently for years, without any viſible ſupport but water. Rondeletius mentions one that was kept at his houſe, in this manner, for three years, which grew to ſuch a ſize, that the vaſe could ſcarcely contain it, nor could it be brought out at the ſame paſſage by which it was introduced into the veſſel. It would appear, therefore, that, in certain ſituations, fiſhes are as remarkable for abſtinence, as, in others, they are diſtinguiſhed for voracity; and that nature, in compaſſion to the want which they muſt often ſuffer, has indulged them with a power of accommodating their appetite to ſcarcity of food, as well as to abundance.

Water, then, is of more importance by far to fiſhes than food; for very few can live long out of that balmy element; it undergoes ſuch decompoſitions in their interior organs as to become a real nutriment, when other food is wanting. Yet the larger and voracious ſpecies require more copious and ſolid aliment, which leads them to a continued ſtate of warfare; and, according to their ſize, they are by turns tyrants and victims, converting the vaſt expanſe of the waters into fields of carnage.

We have already ſpoken of the arms offenſive and defenſive of theſe animals. Some few, as the torpedo, electrical eel, &c. have the extraordinary faculty of wounding at a diſtance, of ſtriking with the rapidity of lightning, of putting in motion that electric fire, which, excited by art, ſparkles, ſhines, and beats down, in the laboratory, and which, in the hands of nature, ſhines amid the darkneſs, and hurls thunder through the air. See GYMNOTUS, vol. ix. p. 138. and the article RAJA.

It has been ſaid, that ſeveral fiſhes, inſtead of an electric power, poſſeſſed the fatal property of containing and tranſmitting an active poiſon: but it does not appear, from a minute examination of their teeth or ſpines, that there is any cavity or bag whence a venomous liquor could be tranſmitted by a bite or wound; nor does there appear in the other parts of the body any matter of a corroſive or deleterious nature; and we are well aſſured, that, when any fatal conſequences have followed a wound from a fiſh, they muſt be attributed to the nature of the wound and the ſtate of the patient's blood. It has been pretended, with more appearance of reaſon, that ſome are dangerous to eat. It may happen, that certain fiſhes in very hot countries may contain poiſonous aliment, poiſonous to thoſe who may eat the fiſh without proper cleanſing, but not hurtful to the fiſh itſelf, an animal impregnated with oil, and furniſhed with digeſtive juices of a peculiar kind: this aliment may conſiſt, for example, of the fruit of the mancinella, or other poiſonous vegetables, or the remains of certain ſea-worms, whoſe juices have been long known to be poiſonous. Nay, it is probable that long feeding upon ſuch aliment may ſo change the nature of a fiſh, as to make all its juices and muſcles partake of the ſame poiſonous nature, ſo as to become deadly food to man, though prepared and cleanſed with the utmoſt caution. But it is eaſy to prove, that fiſhes of themſelves never naturally contain any poiſon.

But there are ſtill other modes of attack and defence. Some fiſhes, not calculated for open war, are contented with lying in wait, and practiſing ſtratagems to attract inſects and ſmall fiſh. Several ſpecies, whoſe heads are furniſhed with thoſe filaments called barbles, conceal themſelves in the mud, between ſtones or clefts in the rocks, or among the ſea-weed, letting their barbles only be ſeen, which they put in motion, ſo as to appear like live worms; theſe attract certain unwary animals, which perhaps they could not otherwiſe catch without a tireſome chace. Some, by means of their mouth (as the petromyzons), their tail (as ſome muræna), their lower fins claſped (as the cyclopterus), or with a particular organ upon the head (as the echeneis), faſten themſelves to rocks, floating trees, veſſels, or larger fiſh, urged by the deſire of obtaining food, or for ſafety from danger. Others, as the eel, dig holes in the bottom, with great art, not ſo much to guard themſelves from cold, as to eſcape from their enemies; they have another mode of eſcape, which is by crawling upon the land, which their ſerpent-ſhape enables them to do, and where they find abundance of that food which is moſt agreeable to them. Laſtly, ſome have the pectoral fins ſo broad and long, that they can uſe them as wings, and thus eſcape their purſuers, for a time at leaſt, by ſoaring into the air.

Thus it is not only in the boſom of the waters, but on the earth and in the air, that fiſhes reſort for ſome moments of ſafety. But how ſhort is that ſafety! how inferior to the modes of attack are thoſe of defence! what devaſtation takes place without ceaſing in ſeas and in rivers! how many embryos that never ſee the light! how many individuals deſtroyed! and how many ſpecies muſt entirely have diſappeared, had not moſt of them have been endowed with ſuch extraordinary fecundity, that a ſingle female, being capable of giving life to millions, has the means of preventing the annihilation of her ſpecies!

But it is not always by a limited courſe that fiſhes procure their prey or eſcape from their enemies. They often make long journeys. Driven by fear, or excited by appetite, drawn on by the deſire of more plentiful or ſubſtantial food, driven by tempeſts, carried by currents, or in ſearch of more temperate climes, they traverſe vaſt ſeas; they paſs from one continent to another, and travel in every direction through that immenſe extent in which nature has placed them. But theſe migrations have no more regularity than the changeable cauſes which produce them; they are not performed in regular order; they belong not to the ſpecies; they are the act of individuals. But this is not the caſe with that periodical concourſe towards the ſhore which takes place for ſpawning and fecundation; nor with that regular aſſent which takes place annually, and which fills rivers, lakes, and ſtreams, at certain ſeaſons, with fiſh which all the reſt of the year inhabit the main ocean, which ariſes from the ſame and other cauſes. Theſe return as regularly to the places whence they came; and this is the act of entire ſpecies. But we muſt not confound among theſe periodical journeys other appearances of a different nature; ſuch are the migrations ſuppoſed to take place in the mackarels and herrings. They have been deſcribed as coming in cloſe columns, in order of battle as it were, and headed by chiefs or leaders. The fact is nothing more than this: the mackarels and herrings live for the greater part of the year in the depths of the main ocean, and at certain ſeaſons they riſe to the ſurface, and approach the ſhores that are neareſt to their abodes, and beſt ſuited to their purpoſes and deſires.

Theſe journeys, whether periodical or accidental, are executed with great celerity and with little reſt. Some have been known to accompany ſhips in long voyages, e. g. from America to Europe; have kept up with them conſtantly in ſpite of winds and ſtorms; ſometimes getting before them, ſporting about and then returning; then, after a ſhort repoſe, fetch up their loſt time, and arrive on the coaſts of Europe with the ſhips. It is ſaid that the ſalmon can ſwim in calm weather at the rate of near twelve miles an hour.

Yet fiſhes have need of reſt, and even of ſleep. When beginning to be ſleepy, their ſwimming-bladder is ſwelled out, and filled with a very light gas; they can glide without effort in the middle of the water, and enjoy a peaceful ſlumber undiſturbed by a gentle and involuntary motion. Yet their muſcles are too irritable to permit them to ſleep ſoundly unleſs reſting on a ſolid ſubſtance, during the ſtillneſs of night, or in a dark retreat, far below the ſurface of the water, and where ſcarcely any rays of light may reach their eyes, which are always open.

The inſtinct of fiſhes is ſtronger than generally ſuppoſed, if it be true, as many authors affirm, that they can be tamed and rendered familiar. It is well known, ſays La Cepede, that, in the gardens of the Thuilleries, fiſh have been kept in reſervoirs for more than a hundred years, which would come when called, and eſpecially if called by the name they had been accuſtomed to; and in the ponds of Germany they have been taught to come at the ſound of a bell to take their food. It is obſerved that thoſe ſpecies which could not otherwiſe get the nouriſhment they prefer in thoſe ponds, are moſt eaſily tamed.

Fiſhes form the fourth claſs of animals in the Linnæan ſyſtem. They are arranged into ſix orders; the four firſt of which are diſtinguiſhed by the poſition of the ventral fins, and by having bony rays to the gills; the two laſt have cartilaginous rays to the gills. As to the number of genera, Gmelin, in his edition of Linnæus, has given us 66, and 834 ſpecies. Bloch has 81 genera; but, as he only deſcribed thoſe he was able to give figures of, his ſpecies amount to only 523. Cepede has ſo ſubdivided the whole genera, beſides adding new ones, that his five volumes contain 223 genera, and 1463 ſpecies, independently of the cetaceous fiſhes, which he has deſcribed in a ſeparate volume. The generic characters are taken from the ſhape of the body, covering, ſtructure, figure and parts of the head, but principally from the branchioſtegous membrane. The ſpecific characters are taken from the cirrhi, jaws, fins, ſpines, lateral line, digitated appendages, tail, and colour.

## ORDERS AND GENERA.

I. Apodes. The characters of this order are, gills with bony rays, and no ventral fins. The genera are thirteen:

| | |
|---|---|
| Muræna. - - - | Aperture of the gills at the ſides of the thorax. |
| Synbranchus. - | A ſingle branchial aperture under the throat. |
| Sphagebranchus. - | A double branchial aperture under the throat. |
| Gymnotus. - - | Dorſal fin none. |
| Leptocephalus. - | Pectoral fin none; body thin, much compreſſed. |
| Trichiurus. - - | Caudal fin none; body enſiform. |
| Anarhichas. - | Teeth rounded. |
| Ammodytes. - | Head narrower than the body. |
| Ophidium. - - | Body enſiform. |
| Xiphias. - - | Snout enſiform. |
| Stromateus. - | Body oval, ſcaly; breaſt ſimple. |
| Sternoptyx. - | Body oval, naked; breaſt folded. |
| Stylephorus. - | Eyes placed on a ſhort cylindrical peduncle. |

II. Jugulares. The characters of this order are, bony rays to the gills; the ventral fins placed at the throat, nearer to the mouth than the pectoral fins. There are ſix genera:

| | |
|---|---|
| Callionymus. - | Aperture of the gills on the nape. |
| Uranoſcopus. - | Head large, rough, depreſſed. |
| Trachinus. - - | Vent near the breaſt. |
| Gadus. - - - | Pectoral fins tapering to a point. |
| Blennius. - - | Ventral fins of two united rays. |
| Kurtus. - - | Back elevated. |

III. Thoracici. The characters of this order are, bony rays to the gills; ventral fins directly under the pectorals. This is the moſt conſiderable order, containing twenty-four genera:

| | |
|---|---|
| Cepola. - - - | Body enſiform, no viſible ſcales. |
| Gymnetrus. - | Anal fin none. |
| Echeneis. - - | Back of the head flat, tranſverſely furrowed. |
| Coryphæna. - | Head ſloping ſuddenly downwards. |
| Gobius. - - | Ventral fins united into an oval fin. |
| Cottus. - - | Head broader than the body. |
| Scorpæna. - | Head armed with prickles. |
| Zeus. - - - | Upper lip arched by a tranſverſe membrane. |
| Pleuronectes. - | Eyes both on one ſide of the head. |
| Chætodon. - - | Teeth ſetaceous, flexile, crowded. |
| Sparus. - - | Teeth ſtrong, obtuſe; lips double. |
| Bodianus. - - | Opercula not ſerrated, but armed with ſcales and ſpines. |
| Holocentrus. - | Opercula ſerrated, and armed with ſcales and ſpines. |
| Lutjanus. - - | Opercula ſcaly, ſerrated, but not armed with ſpines. |
| Scarus. - - | Teeth none; jaws crenate at the edges. |
| Labrus. - - | Dorſal fin with a ſlender ſkin beyond the end of each ray. |
| Sciæna. - - | Head and gill-coverts with ſtrongly fixed ſcales. |
| Perca. - - - | Gill-coverts three-leaved, the upper ſerrate. |
| Gaſteroſteus. - | Tail carinate at the ſides. |
| Scomber. - - | Tail carinate at the ſides; ſeveral ſpurious fins between the dorſal fin and tail. |
| Centrogaſter. - | Tail carinate at the ſides; ventral fins connected by a membrane, the firſt four rays ſpinous, the other ſix unarmed. |
| Mullus. - - | Body and gill-coverts with large lax ſcales. |
| Trigla. - - - | Diſtinct appendages near the pectoral fins. |
| Ophicephalus. - | Head flat, ſcales of a varied ſhape. |

IV. Abdominales. The characters of this order are, bony rays to the gills; the ventral fins farther back than the pectorals, but before the anal. This order contains ſeventeen genera:

| | |
|---|---|
| Cobitis. - - | Body hardly decreaſing towards the tail. |
| Amia. - - - | Head naked, bony, rough. |
| Silurus. - - | Firſt ray of the dorſal or pectoral fins toothed. |
| Teuthis. - - | Head truncate on the fore-part. |

| | |
|---|---|
| Loricaria. | Body mailed with a bony coat. |
| Salmo. | Hindmoſt dorſal fin fleſhy. |
| Notacanthus. | Spines in place of the dorſal fin. |
| Fiſtularia. | Snout cylindrical with a cover at the end. |
| Eſox. | Upper jaw much ſhorter than the lower. |
| Elops. | Branchioſtegous membrane double, the outer leſs. |
| Argentina. | Vent near the tail. |
| Atherina. | Body with a lateral ſilvery ſtripe. |
| Mugil. | Lower jaw carinate inwards. |
| Exocœtus. | Pectoral fins as long as the body. |
| Polynemus. | Diſtinct appendages near the pectoral fins. |
| Clupea. | Belly carinate, ſerrate. |
| Cyprinus. | Gill membrane three-rayed. |

V. Branchiostegi. This is the firſt diviſion of cartilaginous fiſhes; having gills deſtitute of bony rays. No regard is paid to the ſituation of the ventral fins in this and the following order. This order contains ten genera:

| | |
|---|---|
| Mormyrus. | Teethed notched; ſcales imbricate. |
| Oſtracion. | Ventral fins none; body covered with a bony coat. |
| Tetrodon. | Ventral fins none; belly prickly. |
| Diodon. | Body covered with ſpines. |
| Syngnathus. | Ventral fins none; body covered with a ſtrong cruſt. |
| Baliſtes. | Ventral fins ſolitary, placed like a keel. |
| Centriſcus. | Ventral fins united; head ending in a narrow ſnout. |
| Pegaſus. | Ventral fins two; ſnout ciliate-toothed. |
| Cyclopterus. | Ventral fins two, united into an oval concavity. |
| Lophius. | Ventral fins two, more or leſs reſembling feet. |

VI. Chondropterygii. This order is no otherwiſe diſtinguiſhed than by having cartilaginous gills. It contains ſix genera:

| | |
|---|---|
| Acipenſer. | Ventral fins two; mouth beneath without teeth. |
| Chimæra. | Spiracle ſolitary, quadrifid. |
| Gaſtrobranchus. | Spiracles two, ventral. |
| Squalus. | Spiracles five, lateral. |
| Raia. | Spiracles five, beneath. |
| Petromyzon. | Spiracles ſeven, lateral. |

The upper part of the annexed Engraving will exemplify the above claſſification.

Fig. 1, is an apodal fiſh, or one having no ventral fins; it is the Muræna conger, or conger-eel; and at *a* is ſhown the union of the dorſal, anal, and tail, fins.

Fig. 2, is a jugular fiſh; having the ventral fins, *b*, placed more forward than the pectorals, *a*. This is the Gadus æglefinus, or haddock; and may be taken as an example to illuſtrate the poſition of the fins, &c. in general. *a* is a pectoral fin, and *b* a ventral fin, as juſt obſerved; *cc*, anal fins; *d*, caudal or tail fin; *eee*, dorſal or back fins; *f*, bony gill-coverts; *g*, branchioſtegous rays and their membranes; *h*, lateral or ſide line.

Fig. 3, is a thoracic fiſh; having the ventral fins, *a*, placed directly under the pectorals, *b*. It is the Cottus ſcorpius, or father-laſher; having digitated appendages at *c*.

Fig. 4, is an abdominal fiſh; having the ventral fins, *a*, placed behind or farther back than the pectorals, *b*. This is a ſpecies of Cyprinus; having cirrhi, or bearded appendages at *c*.

Fig. 5, is a chondropterygious fiſh, moſt of the genera of which order breathe through lateral apertures, or ſpiracles, as at *a*. It is the Squalus acanthias, or picked dog-fiſh.

## GENERATION of FISHES.

The principles of generation in general are covered with a dark cloud; but more eſpecially among fiſhes, where it is perfected out of the womb, and in a cold and moiſt element. It is aſtoniſhing that animals ſo extremely tender and delicate do not periſh in greater numbers, eſpecially in deep waters, where the ſtream is very rapid, and where a vaſt number of fiſhes depoſit their eggs. The manner in which theſe eggs are hatched is not leſs wonderful. After the long ſleep which fiſhes enjoy during winter, the milt begins to increaſe, to ſwell, to preſs the inteſtines, and diſtend the exterior parts of the lower belly; this cauſes a pain, of which the male ſtrives to eaſe himſelf, like the female, by rubbing againſt weeds or ſtones. As the ſwell is greater in the females, they are the firſt who aim at relief by ſeeking a proper place to depoſit their eggs. Theſe eggs, which are covered with a viſcous matter, will ſtick to plants, ſtones, and other hard ſubſtances, and are then fecundated by the male in the manner which will be preſently deſcribed. This gluey matter ſeems to be ſecreted for the expreſs purpoſe of facilitating the paſſage of the eggs out of the body, as it is not to be perceived on thoſe which are prematurely forced out by preſſing the belly of the female.

The ſpawn or eggs of fiſhes are very ſmall in compariſon with thoſe of other animals; thoſe of the trout and ſalmon do not exceed the ſize of a pea; and in a ſilurus, or ſheat-fiſh, which weighed above a hundred pounds, they were found not to be larger than a grain of millet. But in quantity the fiſhes ſurpaſs all other animals; every year they lay a great number: 100,000 have been counted in a fiſh not weighing half a pound, and one cod-fiſh has been aſcertained to contain 9,000,000. Here we have to admire the wiſe diſpenſations of Providence, in adverting the manner in which thoſe eggs are hatched, and the continual dangers to which they are expoſed, whether by inundations and tempeſts, or by voracious animals who are fond of devouring the eggs and young fry. The eggs of fiſhes in general are not fecundated, like thoſe of other animals, in the belly of the mother; when the female has voided them, the male follows in order to ſhed upon them a ſeminal liquor which is ſecreted in what is called the *milt*: but, as only a ſmall part of them receive this liquor, the greater part remain barren. Beſides, fiſhes void their ova on all kinds of ſubſtances, which often being carried by tempeſts or the waves over the banks of the water, the ſpawn is left on the ſhores, and the eggs or young are ſure to periſh when the waves retire. Sudden cold often hinders the female from caſting her ſpawn, or freezes the blood of the young juſt hatched. Part of the eggs become the prey of the eel, ſtickleback, and other voracious fiſh: water-fowl alſo eat the ſame food occaſionally. A want of heat alſo often cauſes a part of the eggs to remain at the bottom of the water unhatched. In general it is found, that among fiſhes the voracious kinds are not only more numerous than among land-animals and birds, but that they are alſo more greedy and inſatiable, not ſparing even their own ſpecies, which other animals will not deſtroy unleſs driven by the moſt preſſing hunger. Add to this, the various means which man has contrived to take or deſtroy fiſh; and it will appear, that a race expoſed to ſo many dangers, muſt have been exterminated long ſince, had not Providence endowed the females with this extraordinary fecundity

The eggs of fiſhes are encloſed in a membrane or bag, and in moſt ſpecies in a double one, called *ovaries*, placed before the air-bladder; and near the anus is an aperture called the navel, through which they paſs. The ſeminal veſſel, or milt, of the male, is always double. If you put on a bit of glaſs as much of it as you can take on the point of a needle, and then, after diluting it with a drop of water, examine it with a microſcope, you will perceive a number of little organiſed bodies. The ſeminal liquor of the female is alſo emitted by the navel.

As moſt fiſh approach the ſhores and ſhallows to ſpawn, that is the time when fiſhing in general is moſt productive; for theſe animals are heavy and inactive from the irritating and voluptuous pain which is cauſed by the preſſure of the ſpawn within their bodies, and their anx-

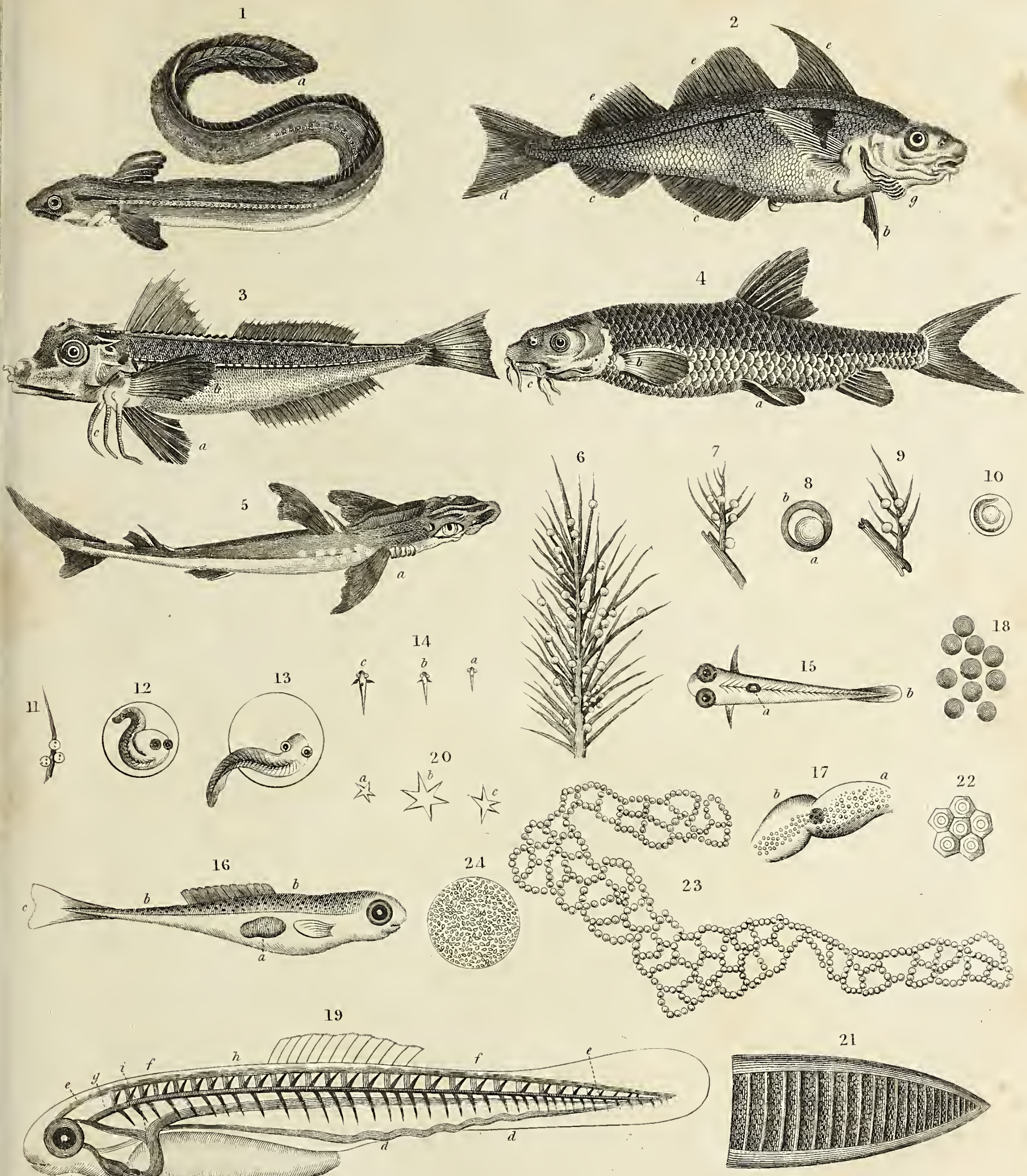

*Fig 1-5, Orders of Fishes. 6-24, Generation of Fishes.*

London, Published as the Act directs Feb. 11. [illegible]

iety to rid themſelves of this burthen throws them off their guard: they leave their ſecure and deep hiding-places, and run as it were into the mouth of their greateſt enemy, man, by coming towards the ſhores and into the ſhallows in ſearch of thoſe ſituations where they may unburthen themſelves in the moſt convenient manner, or where they may meet with thoſe ſubſtances againſt which to rub their bellies when their internal efforts are not ſufficient to eject the ova, or the ſeminal liquor which is to fecundate it.

It is ſaid that ſeveral females, and the ſalmon in particular, are inſtinctively led to depoſit their eggs in a kind of neſts, or places little expoſed to danger. Certain it is, that they rub their bellies in different directions againſt the bottom of the water, moving away ſoft and greaſy ſubſtances, and leaving only gravel, and ſtones well cleanſed by theſe motions, and that therein they depoſit their ſpawn as in a neſt. But in all probability it is rather from the relief they find in rubbing againſt the gravel, than any intention of preſerving their eggs, that they are led to this mode of proceeding; for the greater part of the females abandon their eggs the moment they are free from them. Being now unconſtrained in their motions, they return to their favorite haunts to recover themſelves, and to repair their ſtrength. Some females are ſo far exhauſted at this time for want of food, that they will immediately devour a part of the ſpawn they have juſt emitted, while it floats on the water; this has given riſe to another popular error, as if ſome fiſhes were ſo careful of their eggs as to hatch them in their gullet. Others devour with avidity the ſeminal liquor of the males, which has occaſioned another erroneous idea, into which ſome eminent naturaliſts have fallen, that females might be fecundated by the mouth.

When the females have excluded and abandoned their eggs, the males arrive preſently after, attracted by the ſmell, which reaches them at a great diſtance. They are not brought thither by affection for the females, who are already abſent; but drawn by inſtinct towards the eggs which they are to fecundate. Sometimes indeed they feed upon them, inſtead of giving them life; but moſt frequently their inſtinct leads them to eject their ſeminal liquor over them. But the odour of theſe ova ſo ſtrongly affects their organs of ſmell, which we have before obſerved to be very exquiſite, that they are led to follow the females while the ſpawn is yet within their bodies. Then they are ſeen mingled with the females before ſpawning; and, preſſing their bellies in the ſame manner againſt ſtones and gravel, they aſſiſt each other in the work of generation, though ſexual attachment has no ſhare in their inſtinct.

Nor does the agitation of the waves prevent the fecundation of the eggs ſo often as has been ſuppoſed; for a ſmall drop of the whitiſh liquor is ſufficient to impart the principle of animation to a great number of eggs; and ſeveral males are ſeen occupied in the ſame manner near the ſame ſpot; farther, Bloch ſays, that the number of males is double that of the females.

Several eminent naturaliſts, and particularly Rondeletius, have fallen into an error in ſuppoſing that water alone was capable of generating fiſhes, becauſe they have been found in ponds and ditches where no fiſh had been thrown, nor any ſpawn, and which had no communication with ſea, lake, or river. It is eaſy to ſuppoſe, that in ſuch caſes, which are not very frequent, the fecundated ova of fiſhes may have accidentally ſtuck to the feet or belly of certain birds who are known to feed thereon, and ſo be dropped in thoſe places. And this leads us to repeat the remarks of a very accurate obſerver, J. L. Jacobi, that the eggs of fiſhes reſiſt corruption and putrefaction longer than moſt of the ſoft parts; they will remain unchanged four or five days in the belly of a dead female; the ripe ſpawn of a female trout which had been dead four days, and already ſtank, was ſprinkled with the milty liquor of a living male, and produced young trouts. The ſame naturaliſt is of opinion, that the ſeminal fluid of the dead male will continue prolific as long as it preſerves its fluidity. See farther under the articles Muræna and Rana.

But ſome fiſhes have a different mode of generation and reproduction. The female rays, ſharks, ſome of the blennies, and ſome of the ſilures, do not lay eggs; the ova are fecundated, nouriſhed, and hatched, in the belly of the female; and the young are brought forth perfectly formed. Theſe have been called *viviparous* animals; but the term is not correct, as La Cepede obſerves, for that word ſhould be confined to ſuch animals as draw their nouriſhment, or life, immediately from the body of the mother, which theſe animals do not, being incloſed in an egg which precludes any communication with the body of the mother, whether the egg be hatched by heat within the body or previouſly excluded; and he propoſes the epithet of *viparous* to diſtinguiſh them, which he ſays cannot but bring to mind the production of vipers, which is effected in the ſame manner.

The eggs of the *viparous* fiſhes, then, are much larger in ſize, but in ſmaller number, as may be reaſonably ſuppoſed, ſince they are to attain their full ſize and be hatched in the body of the mother; in fact, they ſeldom exceed fifty. But, if theſe eggs, continually remaining in the belly of the female, contain living embryos, they muſt have been fecundated in that place; the prolific fluid of the male muſt have penetrated to the ovaries. Thus the males of theſe ſpecies muſt form an intimate and cloſe union with their females; there muſt be a real contact, which muſt continue till the ſeminal liquor is emitted; and in fact it is known, that in ſome ſpecies, as the rays, ſharks, chimera, &c. the male has a kind of hooks or claſpers, with which he ſeizes the female, confines her in the proper poſition, and prevents her eſcape till the end is accompliſhed.

In ſome ſpecies, as the Syngnathus and Silurus aſcitus, the eggs as ſoon as formed are excluded out of the body, and remain attached under the belly or under the tail, and are hatched in that poſition. Theſe fiſhes therefore muſt couple like the rays and ſharks, ſince the eggs muſt be fecundated either within the body, or while attached to it.

With a view to aſcertain more correctly and ſatisfactorily the progreſs of generation in the finny tribes, that ingenious ichthyologiſt, Elieſer Bloch, procured the ſpawn of different fiſhes from the ſides of rivers and lakes; and, having no pond or piece of water at his command, he contrived, by artificial means, in his own houſe, to make the following experiments, which we ſhall preſent to the reader in his own words.

"I procured from the river Spree ſome aquatic plants, whereon the eggs or ſpawn of the perch, bream, carp, trout, &c. had been voided. I brought them home in a little water; I then put them into a veſſel full of river-water, which was changed every day; and at the end of ſeven days had the pleaſure to ſee the water enlivened by ſome millions of ſmall fiſh. As the veſſel had ſtood in a room expoſed to the rays of the ſun, and as every piece of water may not have that advantage, I made the following experiments. I put ſome weeds whereon eggs had been voided into four tubs; one I expoſed to the mid-day ſun, another to the morning ſun, a third to the evening ſun, and the fourth I placed where the ſun could not reach it at all. On the ſeventh day I ſaw little fiſhes in the firſt; in the ſecond and third they appeared on the eighth day; and in the fourth on the ninth. I have remarked before, that all the eggs are not fecundated by the male; and it happened ſometimes that of a hundred eggs which were on a weed not one would be hatched; whereas one little branch, which I put in a cup, furniſhed about ſixty young fry. But by means of a magnifying-glaſs, I could determine whether the eggs are fecundated or not; in the former caſe, they always appear more tranſparent and yellow, which marks become more viſible after the ſecond or third day; ſo that, ſome days after, the difference may be diſcerned by the naked eye; thoſe that are not fecundated become every day darker and thicker; they loſe their brilliancy, and look like a hail-ſtone juſt ready to melt. All the phenomena relative to the generation of fiſhes are exhibited in the lower part of the annexed Engraving; of which the following is an explanation.

Fig. 6. An aquatic plant with fecundated eggs attached to it. Fig. 7. A plant with eggs not fecundated. Fig. 8. An egg as ſeen through a microſcope: *a*, the yellow, or yolk; *b*, the white. Fig. 9. The egg on the fourth day, when motion may be perceived in the embryo. Fig. 10. The ſame egg magnified, to ſhow that the ſpine of the back is already formed. Fig. 11. Egg on the ſeventh day, wherein the eyes are perceptible. Fig. 12. The ſame egg magnified. Fig. 13. Egg with the tail of the embryo put forth. Fig. 14. *a*, a bream juſt emerged from the egg, of the natural ſize; *b*, the ſame eight hours after birth; *c*, the ſame three weeks old. Fig. 15. A bream one day old lying on its belly, as ſeen through a microſcope: *a*, the ſtomach. Fig. 16. The ſame, two days old, lying on its ſide, and magnified: *a*, the ſtomach; *b*, *b*, the ſcales. Fig. 17. *a*, the heart; *b*, the arterial bag. Fig. 18. Eggs of the trout. Fig. 19. A bream of four days old, lying on its ſide, as it appeared under the microſcope: *a*, the heart; *b*, the arterial bag; *c*, the aorta; *d*, *d*, the anterior artery; *e*, *e*, the poſterior artery; *f*, *f*, the intercoſtal arteries; *g*, the vena cava inferior: *h*, the vena cava ſuperior; *i*, union of theſe veins; *k*, air-bladder. Fig. 20. Scales magnified: *a*, of the head; *b*, of the back; *c*, of the ſide. Fig. 21. A piece of the ovary of a ſalmon, where the eggs lie in furrows in particular membranes one over the other in folds. Fig. 22. Six eggs of the perch attached to each other, forming a ſix-ſided figure, as ſeen under the microſcope. Fig. 23. Eggs or roe of the perch, as caſt forth by the female. Fig. 24. Spermatic animalcules of the carp.

"The eggs of fiſhes are uniformly round; the yellow and the white are perfectly diſcernible; between which appears a vacant ſpace in the form of a half-moon. The yellow, which is uſually ſurrounded with white, is not in the middle, but rather towards one ſide, fig. 8, *a*. All this may likewiſe be remarked in the eggs which are not fecundated; the difference is, that the yellow is not of ſo deep a colour. The ſeminal liquor or milt runs along the ſpine of the back, ſometimes incloſed in one membrane, ſometimes in two. It is white, and in ſpawning-time becomes as white as milk, and ſpirts out at the navel if the fiſh be ſqueezed ever ſo little. I took ſome of this ſubſtance on the point of a needle, and put it on a bit of glaſs, and, having diluted it with clear water, I examined it with a microſcope, and it exhibited a multitude of little filaments, of various ſhapes and ſizes, fig. 25. called by ſome authors *ſpermatic animalcules*, and by Buffon organic particles. Soon after the death of the fiſh, all motion ceaſed in the ſperm or roe." On the ſubject ſpermatic animalcules, ſee the article ANIMALCULE, vol. i. p. 727-729.

"The unfolding of the fiſh in the egg is very curious. I ſhall ſpeak of it in few words. I before remarked on the ſtate of the egg the firſt day. On the ſecond, that part in the form of a half-moon exhibits a ſmall ſpot which moves, and there is a diminution of the tranſparency before obſerved in that part. On the third day a larger ſpot is obſerved in that place, which is on one ſide ſtrongly attached to the yolk of the egg, and on the other ſide is free; fig. 10, 12. at the end of that part which joins the yolk is ſeen the outline of the heart, which increaſes in motion, and the whole maſs, or embryo, moves from time to time at that end where it is free, that is, the tail. On the fourth day, the beating of the pulſe increaſes, as well as the motion of the whole body. On the fifth day, by the poſitions which the fiſh takes in its various motions, the circulation of the humours in the veſſels may be ſeen. On the ſixth day the ſpine of the back, and the ribs which ſpring from it, may be diſtinguiſhed. On the ſeventh you may ſee with the naked eye two black ſpots, fig. 11, 12, which are the eyes; and now the whole ſhape of the fiſh is perceptible; and the vertebræ and ribs are ſo diſtinct, that they may eaſily be counted by the help of a common magnifier. Though the yolk of the egg diminiſhes in proportion to the growth of the embryo, the young fiſh as yet has not room enough to lie ſtraight, but the tail is bent upwards, as ſeen at fig. 12. The motions are now ſo quick, that, as it turns from ſide to ſide, the yolk moves with it; and theſe motions increaſe as the birth approaches, which happens between the ſeventh and ninth day. The continued ſtrokes of the tail againſt the egg-ſhell render it ſo thin, that it breaks at laſt, and the fiſh comes out tail foremoſt, as ſhown at fig. 13, ſtruggling to diſengage its head, which is attached to the yolk. It ſoon after ſeems to enjoy its new exiſtence, and moves very quickly about in the water. As fiſhes are hatched by the heat of the ſun, and as the rays are not always equally ſtrong, the appearances we have mentioned may happen a day ſooner or later, according to circumſtances.

"Beſides the fiſhes above-mentioned, I have alſo hatched the eggs of others, and have made the ſame obſervations. It is a curious remark, that even in the egg the difference is perceptible between the bream and the bley, becauſe in the latter the yellow iris may be actually diſcerned in the egg. It is a pleaſing ſpectacle to ſee ſo many little animals of this kind moving in the water with great celerity, as ſhown in fig. 14, *a*.

"Though the fiſh grows but ſlowly, yet in eight hours he is ſenſibly bigger; within that time he ſuddenly attains the ſize marked fig. 14, *b*. But after this his growth is ſo imperceptible, that at the end of three weeks he is no bigger than appears in fig. 14, *c*. On the ninth day, beſides the two black ſpots, a third may be ſeen by the help of the microſcope, which is the ſtomach and the food it contains, fig. 15, *a*. On the ſame day the pulſe may be diſcerned to beat ſixty ſtrokes in a minute; whereas the heart of the embryo made but thirty articulations in the ſame ſpace of time. The little globules are red while in the heart; but in the other veſſels they aſſume a white colour. On the ſecond day thoſe of the heart are redder, and thoſe of the veſſels yellow. On the third day they are entirely of a clear red; in the veins they are of a pale red, and then form the liquid called *blood*. Beſides this, the pectoral fins may be diſcerned on the firſt day; but the other fins are inviſible, as well as the inteſtines; becauſe, being extremely delicate, they ſuffer the rays of light to paſs through them. On the third day the fin of the tail is perceptible, which as yet is ſtraight, fig. 17, *b*. The dorſal fin appears on the fifth day; the ventral and oval fins may be ſeen with a microſcope on the eighth. About this time a good microſcope will ſhow on the body ſome black ſpots, fig. 16, *b*, *b*. ſome round, others lengthened, as they appear fig. 20, *a*, *b*, *c*, being the firſt outline of the ſcales. Thoſe upon the head are the ſmalleſt, thoſe of the back the largeſt, and thoſe on the ſides are of a ſize between the two. The tail ſoon begins to take a curved form, as ſhown at fig. 16, *c*. It now becomes curious to obſerve the circulation of the blood, and other humours. In one place are fountains of a red colour, compoſed of the moſt delicate little globules. Near the head the heart is placed, conſiſting of a membranous bag, fig. 19, *a*. which drives the blood through an artery of the ſame form, called *ſaccus arterioſus*, fig. 17, *b*. fig. 19, *b*. which artery compreſſes itſelf to drive it into the *aorta*, fig. 19, *c*. While the artery is conſtricted, the vena cava carries the blood to the heart, which was till then at reſt, fig. 19, *i*. and now the heart drives it into the veins, which till then alſo were at reſt.

"As fiſhes have a very ſhort breaſt, and no neck, they have no carotid arteries, but the aorta paſſes immediately to the gills, which are very near; and thence into the other parts of the body. As in young fiſhes the gills are not yet viſible, I have ſeen the arteries go directly to the head, return behind the eye, and then follow the direc-
tion

tion of the ſpine of the back, fig. 19, *e*. I obſerved alſo another artery in front, which paſſed along the belly to the tail, fig. 19, *d, d.* which began near the head, and took its origin from aorta. From the firſt branches off, in a right angle, at each vertebra, an artery, fig. 19, *ff.* which takes its direction along the ſide. The blood of the arteries, which are extremely delicate, is partly collected in the aſcending vena cava, fig. 19, *g.* partly in the deſcending, fig. 19, *h.* Theſe two veins form an obtuſe angle, fig. 19, *i.* behind the air-bladder, and drive the new blood towards the heart. In new-born fiſhes, the head is ſmall in compariſon to other animals, and the air-bladder is large; this keeps the animal balanced when in an upright poſition.

"Means ſhould be taken to keep off water-flies, if poſſible, when you would hatch the eggs of fiſh, becauſe they devour young fry. I had thirty little fiſh in a tub, with ſome plants whereon were worms and other aquatic inſects; but at the end of a few days the fiſh diſappeared entirely, not the leaſt veſtige of their bodies remaining. Having afterwards found a little ſnail in the throat of one of thoſe inſects called *phryganea grandis* by Linnæus, I concluded that this inſect had eaten my fiſh.

"From theſe few experiments I draw the following, I hope uſeful, concluſions on the ſubject of economy and phyſiology.

1. That lakes and ponds may be ſtocked with fiſh at a very cheap rate, by obſerving the exact time of ſpawning in each ſpecies; and, as fiſh even of the ſame ſpecies do not all ſpawn at once, but at three different periods according to their ſize, and as there is a diſtance of nine days between each, and as the eggs remain eight or nine days more before they open, there is plenty of time to provide the plants whereon the eggs are depoſited.

2. That by theſe experiments a queſtion long agitated is decided with certainty, though the philoſophers of our own days are yet divided upon it, namely, Whether the mixture of the male and female ſemen be neceſſary for generation? For it is certain that this does not take place within the bodies of fiſhes at leaſt.

3. It appears that the female furniſhes the germ or ſubſtance of the animal, and that the male gives it life and motion; for the tranſparent part or embryo appears in the unfecundated egg, but it is the ſemen of the male which communicates motion to the heart. I ſhall leave it to others to examine, whether that ſeminal vapour, (*aura ſeminalis,*) which diſcovers itſelf in moſt animals by a diſagreeable ſmell, paſſes from the milt into the egg, to give motion to the heart; or whether the ſpermatic animalcules penetrate there, and give it life by their rapid movements. The laſt opinion ſeems to me moſt reaſonable, as I never obſerved the leaſt odour in the milt of fiſhes. The volatile particles which cauſe that ſmell ſeem more proper to other animals who propagate their ſpecies in the uſual way. Neither have I remarked any odour in the ſeed of birds; but, as the roes of fiſhes ſmell and cauſe a diſagreeable ſenſation at the approach of ſpawning-time, ſo do the teſticles of birds ſwell at a certain period, ſo that, from being ſcarcely viſible, they become full as big as a hazel-nut.

4. It is hereby eaſily underſtood why there appears not among male fiſhes the leaſt jealouſy in their amours; for many males together may be ſeen following the females. And, among the females, there appears not the leaſt ſign by which they excite the male to fulfil the work of fecundation or generation.

5. That the motion of the heart dilates the blood-veſſels, and thereby infuſes life into the fœtus.

6. That the ſemen and embryo ariſing from it are encloſed in a common membrane with the yolk of the egg; and they are ſo cloſely united by means of the viſcera of the fiſh and the veſſels of the yolk, that they are not ſeparated even when the fiſh is half-way out of the egg.

7. Fiſhes do not come into the world head-foremoſt like other animals, but by the tail.

8. The period neceſſary for the formation and birth of fiſhes is not fixed, as in other animals, but may be accelerated or retarded by greater or leſs degree of heat.

9. The yolk of the egg, which diminiſhes as the embryo increaſes in bulk, is deſtined for the nouriſhment of that embryo; the white, on the other hand, has free motion like the liquor contained in the matrices of viviparous animals.

10. It is evident that the germ, or embryo, pre-exiſts in the egg; and all the hypotheſes againſt this pre-exiſtence fall to the ground.

11. The animalcules in the ſemen of fiſhes are different from thoſe in the ſeed of other animals.

12. It requires no longer time to hatch the eggs of large fiſhes than of the ſmall ones; for thoſe of the bream and of the bleak hatched on the ſame day; whereas among birds and quadrupeds the time of geſtation is in proportion to the ſize of the animal.

13. In proportion as the developement of the embryo in the egg is quick, ſo is its growth after the birth ſlow. In two days after fecundation I have ſeen the heart move, and the body has been alſo in motion on the third; yet this fiſh, at two years old, was not more than four or five inches long.

14. The pectoral fins, which are the principal inſtruments for ſwimming, are the firſt formed; therefore all fiſhes muſt have them.

15. The circulation of the blood is ſlower in the fœtus than in the fiſh after birth.

16. The circulation of the blood is ſlower in fiſhes than in the young of other animals.

17. The heart does not throw the blood directly into the arteries; they receive it by a compreſſed motion of the arterial bladder; and there is between theſe two an alternate and reciprocal motion of compreſſion and dilatation.

18. The globules of the blood appearing of a red colour on the third day in the heart, and of a white colour in the other veſſels, proves that this colour in the blood ariſes from the compreſſion of the heart, which, being now completely formed, has of courſe more tenſion. From this remark ſome uſeful hints may be drawn relative to medicine. When, on bleeding, the blood is of a clear full red, it is a ſign of too great tenſion of the ſolids, and the preſcription ſhould then be emollients, as a repetition of bleeding, diluting drinks, bathing, &c. When, on the other hand, the blood is whitiſh, it ſhows that the ſolids are relaxed, and a contrary method muſt then be purſued. Hence appears alſo the connection between natural hiſtory and medicine."

Fiſhes are ſubject to ſome diſeaſes. Numbers of them are tormented by inſects and worms in the inteſtines, or which faſten on their gills. Bad food diſorders them. The water is ſometimes too cold for them, ariſing from a rapid melting of ſnow, or from the ſtream running off and being renewed too quickly. When the water is frozen over, the parts where they lie may become charged with putrid miaſmata; and thus bring on diſeaſes, ſometimes mortal, which appear in puſtules or excreſcences. Ulcers are occaſionally found on the liver and other interior parts; and laſtly old age is itſelf an incurable diſorder. But ſtill their longevity is far ſuperior to that of other animals. We have already ſeen what ample proviſion is made for ſupplying them with food, by multiplying the inhabitants of the ſea: they are, therefore, in little danger of periſhing from want; and, ſince fiſhes reſide in an element but little ſubject to change, theirs is an uniform exiſtence; their movements are without effort, and their life without labour. Their bones alſo, which are united by cartilages, admit of indefinite extenſion; and the different ſizes of animals of the ſame kind among fiſhes is very various. They ſtill keep growing; their bodies, inſtead of ſuffering the rigidity of age, which is the cauſe of natural decay in land-animals, ſtill continue increaſing with freſh ſupplies; and, as the body grows, the conduits of life furniſh their ſtores in greater abundance. How long a fiſh, that ſeems to have ſcarcely any bounds put to its growth, continues to live, is not aſcertained. Some ſpecies of the German carp have been known to live two or three hundred years; thoſe ſpecies, however, with which we are beſt acquainted, ſeem not to enjoy ſo great a degree of longevity. The ſalmon takes only ſix years to reach its full ſize; if we allow four or five times that ſpace for the period of its life, it will not exceed thirty years. But Leeuwenhoek is of opinion, that the growth of fiſhes is not ſubject to the ſame rule as that of other animals: "I am perſuaded (ſays he), that all fiſhes which have a conſtant ſupply of food do daily increaſe in ſize, and this without ever ceaſing to grow; ſo that any real definite ſize cannot be aſſigned to them, as it can to terreſtrial animals, ſome of which arrive ſooner, and others later, to their full and perfect ſtature, which they never afterwards exceed, although they continue to live many years. The reaſon of which, I am convinced, is this: that terreſtrial animals continue growing as long as their nutritive juices have force ſufficient to protrude or thruſt themſelves through the cavities of the bones, and ſo to increaſe the ſize of them, as well in length as in thickneſs; but, when the bones of theſe animals, by being expoſed to the air, are become ſo rigid and hard, that they cannot be any more diſtended, their farther growth muſt neceſſarily ceaſe, and any freſh ſupplies of nutritive juices can only tend to increaſe the animal's fatneſs. Now the bones of fiſhes are for the moſt part deſtitute of marrow, and they cannot be rendered rigid by expoſure to the air, conſequently the very ſmall tubuli or pipes of which they are compoſed, are exceedingly ſoft in compariſon with thoſe of other animals. All which conſidered, there ſeems no reaſon to exiſt, why the bones of fiſhes ſhould not continue always growing ſo long as the animals do not want for food. In the lakes with us, where are many fiſheries, pike have been caught of the length of 56 inches, and 36 or 38 pounds weight. Perch alſo 28 inches long; and who can tell to what ſize theſe fiſhes might arrived, if they could have longer eſcaped the nets?"

Different methods have been deviſed for aſcertaining the age of fiſhes, ſome of which will, perhaps, pretty accurately determine this matter. The ingenious Mr. Hidoſtroam, a Swede, attempted to compute their ages by the number of concentric circles obſerved in a tranſverſe ſection of the vertebræ of the back; and it was found, that each circle, like that in the ſection of a tree, correſponds to a year of the animal's life. In confirmation of this fact, experiments have been made on different individuals of various ſizes, but of the ſame age, whoſe concentric circles have always been of an equal number; whereas a young fiſh differs from an older one of the ſame ſpecies, by having a ſmaller number of theſe circles. By this method of computation, ſeveral fiſh were found from fifteen to twenty years, but none gave indications of a greater age. Another method of computing the age of fiſhes, practiſed by the comte de Buffon, is by numbering the concentric circles upon their ſcales; but, as this requires a more minute examination, it is, of conſequence, liable to greater uncertainty. On examining the ſcale of a fiſh through a microſcope, it exhibits a number of circles, one within another, reſembling thoſe in the vertebræ of the back; and, like them, every circle repreſents a year of the fiſh's life. A ſcale of a carp, thus examined, announced the animal to be no leſs than a hundred years; a longevity leſs incredible, becauſe confirmed by the teſtimony of ſeveral different authors, ſome of whom have aſſerted, that this fiſh lives thrice that period.

M. Leeuwenhoek, the Dutch naturaliſt, has ſome very curious particulars relating to the ſcales of fiſhes, and the mode of diſcovering the age of fiſhes by an examination of them; and we ſhall avail ourſelves of his tranſlator's permiſſion, not only to tranſcribe a part of the matter reſpecting that ſubject, but to copy the accompanying figures in illuſtration. M. Leeuwenhoek began with the ſcales of the eel, Muræna anguilla, for the following reaſons:

"It is the opinion of the Jews that they are forbidden by their law to uſe the eel as food, becauſe that fiſh is ſaid to be without ſcales; and in the book of Deuteronomy, chap. xiv. ver. 10, it is written, *Whatſoever hath not fins and ſcales, ye may not eat, it is unclean unto you*; and in Leviticus, xi. 12, are theſe words, (which they apply to the ſame ſpecies of fiſh;) *Whatſoever hath no fins nor ſcales in the waters, that ſhall be an abomination unto you.* But, when I examined this kind of fiſh by the microſcope, after I had cleared away that viſcous or ſlimy matter which adheres to them, I found their ſkins to be as completely covered with ſcales as thoſe of any other river-fiſh, which ſcales (though very ſmall and thin) lie as cloſe together and are placed one on another in as regular order as can be obſerved in any other fiſh whatever, whether of freſh or ſalt water. Moreover, this ſpecies of fiſh is provided with fins equally as others, namely, one at the head; and one above, and another below, the tail. And, becauſe I apprehend that this diſcovery of mine is new, at leaſt to perſons of the Jewiſh nation, (for to this day they deem this delicate fiſh to be unclean, and hold it as an abomination to them,) I determined to give a figure of one of theſe ſcales, (taken from the belly of the fiſh, where they are the ſmalleſt,) as it appeared through the microſcope. Plate II. fig. 1, A B C D, exhibits this ſcale; it was taken from the belly of a large eel, which, next the head, was of the thickneſs of ſeven fingers or thereabouts: on the back and ſides of this fiſh the ſcales are larger. The greateſt part of this ſcale, A D C, was covered by two others. The part B was placed towards the tail, and in this poſition were all the ſcales; they were all principally compoſed of a kind of globules or little balls, which were very tranſparent, though ſome more than others; again, ſome had in them a dark ſpot. Theſe opaque globules, lying in rows contiguous to each other, produced the appearance of divers circles or rings on the face of the ſcale. And, although I did not obſerve theſe ſcales to be exactly alike, yet the circles or rings ſeemed to me to be of the ſame number in all of them, whence I was led to conclude, that the ſcale had been every year augmented by the addition of one circle, and conſequently, that, as there were ſeven circles in this ſcale, this eel was probably ſeven years old. Theſe circles are marked in fig. 1 by the letters E F G H I K L, and at X the ſcale is repreſented of the ſame ſize as it appeared to the naked eye.

"Having examined the ſcales on the body of a very large eel, I perceived that thoſe on the back and belly of the fiſh were placed in regular and even courſes behind each other, but that thoſe between the back and the belly were many of them laid obliquely, ſome towards the belly and others towards the back, but all ſo diſpoſed as to cover the ſkin exactly in every part. After this, I examined the matter or ſubſtance with which theſe ſcales are covered, which, as well as the ſcales, has been generally deemed nothing more than ſlime, and is by moſt perſons thought to be an excrementitious matter adhering to this ſpecies of fiſh; but I am now convinced by experience, and the cleareſt ocular demonſtration, that this ſuppoſed ſlime does not collect on the animal's body from without, but is really part of the body itſelf; foraſmuch as this ſubſtance, although it appears to the naked eye, and very often through the microſcope, no otherwiſe than like a cryſtalline or pellucid humour or ſubſtance, yet in fact it is no other than a congeries or collection of veins or veſſels, which in their exquiſite fineneſs or ſlenderneſs do almoſt exceed belief, ſpreading themſelves one among another in ſuch an incomprehenſible and immenſe number of branches, that I could not contemplate them without the greateſt admiration. Indeed, many were ſo thin and ſlender, that I could not diſcover them without the moſt careful attention; and I thought it probable that there might be others ſtill more minute, ſo as entirely to eſcape the

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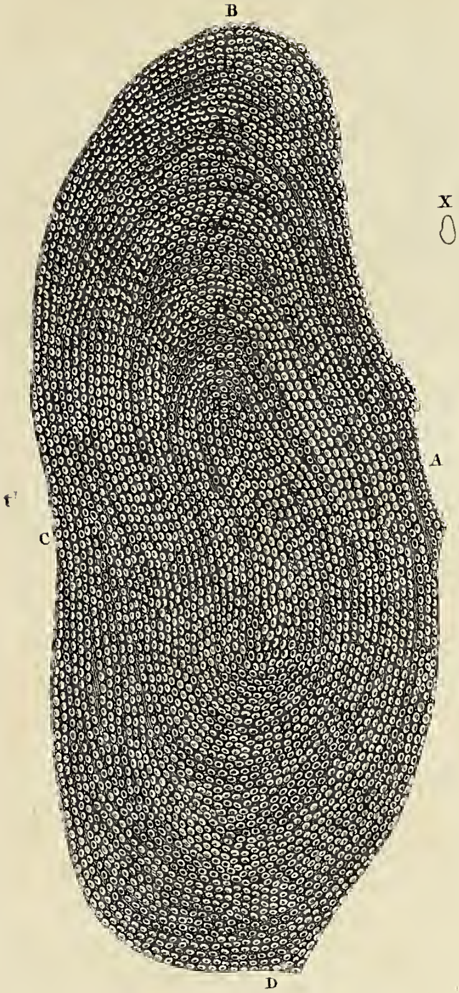

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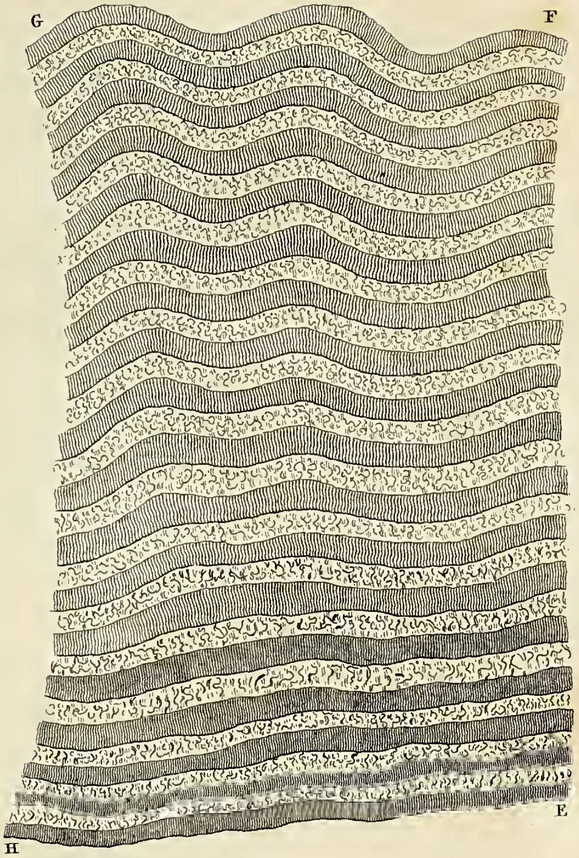

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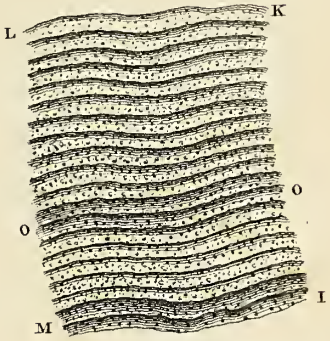

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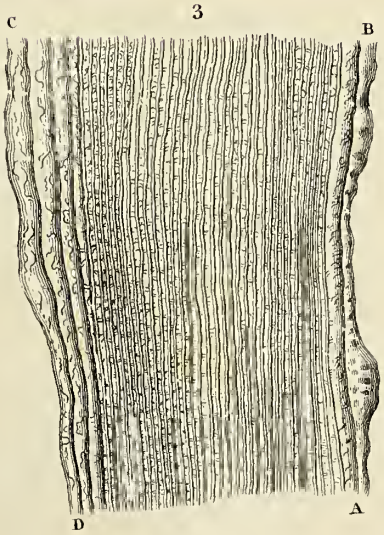

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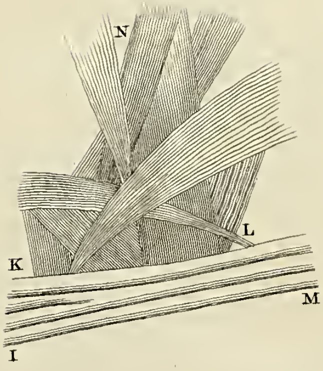

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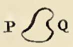


*Scales of Fishes.*

J. Paſs ſc.

London, Publish'd as the Act directs, Feb. 26. 1812.

the ſight. Such of theſe veſſels as I could diſtinctly perceive, I judged to be ſo ſmall (meaſuring them by my eye) that if one of the globules of blood from whence its redneſs proceeds, were to be divided into a thouſand parts, not one of thoſe parts could paſs through theſe wonderfully thin and ſlender veſſels. From theſe obſervations I concluded, that this ſubſtance only anſwers the purpoſe of a membrane or ſkin lying next to the ſcales; and that, when an eel is creeping through a narrow paſſage or hole, a part of this membrane or cuticle, which we call ſlime, is rubbed off in the paſſage; and that when eels are kept in any kind of veſſel without water, and in their motion wear off this cuticle, they cannot long ſurvive; and, upon my talking over this ſubject with a fiſhmonger, who was a very intelligent man in his buſineſs, he confirmed all that I have here mentioned. Further, I imagined that this cuticle or ſkin ſo covering the ſcales of eels, and in ſome ſort proceeding from the ſcales themſelves, and the veſſels which in a great meaſure compoſe that ſkin which we may imagine to be ſlime, extend ſo far and wide, that the veſſels proceeding from one ſcale ſpread over more than twenty-five others, and that this is the reaſon why this ſlimy matter covering the ſcales is ſo thick and tough. But, not yet ſatisfied with theſe obſervations, I endeavoured to find out the veſſels in the ſcales from whence theſe ſlimy excrementitious veſſels were formed; and, in order to exhibit more plainly the rough or wrinkled make of the ſcales, I have cauſed an exceeding ſmall particle of one to be delineated, the appearance of which, by the microſcope, was that of a lucid or bright cryſtal, both within and without. This is ſhown at fig. 2, IKLM, wherein the ſide IM repreſents that part which was fixed or rooted in the fiſh, being about the length of two common grains of ſand. I have ſometimes divided the ſcales of this fiſh into ſmall parts, and I always found that, though the wrinkles in them appeared very pellucid, they were compoſed of nothing but thoſe inconceivably-ſlender ſtreaks, or rather veſſels, mixed and twiſted one within another, as is in ſome ſort repreſented in this figure by the letters KLN.

"Some years after the preceding obſervations were publiſhed, I received from a perſon of ſome note in this city, a parcel of ſcales taken from a very large carp which had been kept in his fiſh-pond, and was ſo tame that it would take food out of a perſon's hand. But in the time of a ſevere froſt, the gardener being employed in breaking the ice with a hatchet, to give freſh air to the fiſh in the pond, this carp came to the hole, and unfortunately received a wound from the hatchet, which occaſioned its death. This fiſh was in length 42 inches, and in circumference at the thickeſt part of its body 33¼ inches. In order more eaſily to cut one of theſe ſcales in pieces, I ſteeped it in warm water, and then I cut off a ſlice from it, paſſing through that part where the firſt formation of the ſcale appeared, which original ſcale was very minute; and I then obſerved forty rows of ſcales lying one on another, or, in other words, this ſingle ſcale was a cluſter of forty other ſcales lying on one another. *For every year a new ſcale, ſomewhat larger than that immediately preceding it, is added to the number, and is as it were glued to the former ones; therefore as many of theſe ſcales as are found thus joined together, ſo many are the years of the fiſh's age.* This aſſertion of mine is however violently contradicted, becauſe many people think that I cannot by any means prove what I affirm. I determined therefore, to cut off a ſlice from this ſcale very obliquely, whereby the rows of the component ſcales might be more clearly diſcerned, and I cauſed a drawing of this to be made from the microſcope, which is ſhown at fig. 3, ABCD; the part reaching from A to B, or from D to C, denotes the difference in ſize by which each newly-formed ſcale exceeds that of the preceding year; the whole thickneſs of the ſcale, as it appeared through the microſcope, is the ſpace between B and C, but in fact, the real thickneſs, as ſeen by the naked eye, is no more than that of a hog's briſtle.

Another piece of the ſame ſcale, cut ſtill more obliquely, I placed before another microſcope, a drawing of which is given at fig. 4, EFGH. The ſpace between E and F is the thickneſs of the ſcale; and as many diviſions or rows as are there pictured, ſo many of the ſmall component ſcales lie heaped one on another, (at leaſt as far as the limner was able to obſerve them,) and ſo many years had elapſed between the formation of the firſt ſcale and all the others which were added to it.

"This cutting or ſlicing off pieces from the ſcales, does not ſucceed equally well in all, for ſometimes their thinneſs cauſes it to fail; but, if the extremity of each ſcale can but be perceived, the age of the fiſh may be gathered from it with little danger of miſtake. In order to ſhow this irregular kind of ſection, I cauſed a ſmall piece of that deſcription to be drawn from the microſcope, and this is ſhown in fig. 5, IKLM; here the additional ſcales produced every year, ſometimes appear of a darker ſhade than they are in reality, and therefore the yearly increaſe in ſize ſeems repreſented at IO and MO, but the addition of three years' growth appears at IOK. At fig. 6, between P and Q, is ſhown the natural ſize of the ſlice or piece of ſcale repreſented, when magnified, at fig. 4.

"Since we now find that the ſcales of fiſhes are every year augmented in the way I have been deſcribing, we may form a pretty good judgment as to the time when this augmentation is made, by analogy to what we obſerve in the other productions of nature; and thence we ſhall conclude, that the additional ſcales are completed at that ſeaſon when the further growth of the fiſh is ſuſpended. For this is evident in trees, at leaſt ſuch as grow in theſe regions. The like alſo is the caſe in regard to cows, for between certain ſpaces of time, when their growth is intermitted or ceaſes, and when it again returns, it is ſhown in the horns; whence we gather, that, as many knots or rings as are found on the cow's horn, ſo many years of age is the animal. And, though this may not appear exactly in the ſame manner in all creatures, yet we muſt allow that ſuch a diſtinguiſhing circumſtance exiſts; and this is proved in the falling off of the hair from animals, and the ſhedding of feathers by birds, at certain regular periods."

The dietetical uſes of fiſhes are to us the moſt important article of their hiſtory, a part that is happily free from that uncertainty and darkneſs in which many other circumſtances relating to their manners and economy are ſtill involved. All fiſh whatever, and particularly thoſe without the tropics, are capable of being converted into wholeſome food. Every European fiſh, while in ſeaſon, is nutritive; the various methods of preparing and dreſſing them are detailed by the authors to whom that province belongs. Such diſquiſitions conſtitute the hiſtory of an art, but they are not the objects of ſcience. See the article FISHERY, vol. vii. p. 406.

Fiſhes, in general, when out of ſeaſon, are unwholeſome, and even pernicious; and this is more eſpecially the caſe with the oily kinds; ſuch as the herring, the mackarel, the eel, and the ſalmon. So little is this fact attended to, that the eating of the latter of theſe fiſhes, at an improper ſeaſon, has been the immediate cauſe of an epidemic fever. Some of the fiſhes that frequent the ſhores of the Weſt-India iſlands, are alſo pernicious in certain circumſtances.

Fiſh being a very conſiderable article of food, and conſequently of commerce, it may be worth while to enquire into the practicability of tranſporting certain ſpecies of them into places where they do not naturally breed. And firſt it is to be remarked, that fiſhes are leſs ſenſible of a change of climate than quadrupeds and birds. For example, if you bring a fiſh from a warm country, where the water never freezes, into a cold one where the ſtream is covered with ice, it will partly avoid the inconveniences of the change by remaining at the bottom; and all countries furniſh, in certain ſeaſons, warmth enough for the purpoſes of emitting the ſpawn of fiſhes and bringing it to perfection; an advantage which nature has not granted to ſome birds and beaſts, which will not breed out of their own climes.

We have already had inſtances of fiſh being conveyed from one river to another, or from a river to a lake, and *vice verſa.* This method has been employed with ſucceſs in Germany in regard to the ſhad, with which ponds and pieces of ſtagnant but clear water, with a bottom of ſand and gravel, preferred by the ſhad to all other, have been ſtocked. In the year 1779, Dr. Bloch wrote from Berlin that this experiment had been attended with complete ſucceſs. It is not above fifty years ago that Mr. Copland conveyed perch into the Ken-loch and the river Urr, where they have thriven remarkably well; and has been the caſe with the trout, taken from the river Leven and depoſited into Loch Long, in the county of Renfrew. The carp, which is a fiſh peculiar to warm climates, has been ſucceſsfully introduced into the rivers and ponds of Pruſſia, Denmark, and England. Linnæus ſays poſitively that this fiſh formerly was not known in Sweden; and it is ſtill unknown in Livonia, unleſs it has been conveyed thither within theſe few years. The freſh-water gourami in the Iſle of France, where it has multiplied prodigiouſly, came originally from Bengal. It was M. Poivre, that philoſophic adminiſtrator, who had the honour of enriching the rivers of this iſland with a fiſh which in goodneſs and ſhape may be compared to the ſhad. That ſmall fiſh, the brilliant gold and ſilver colours of which all admire, the Chineſe dorado, was brought to Europe from the northern part of China. If ſo much was done for a uſeleſs fiſh, valued merely on account of its ſhining ſcales, by making it traverſe the ſeas to embelliſh, in compliance with faſhion, our halls and our cabinets, why ſhould we not do the ſame to obtain fiſh uſeful to man, which would recompenſe our troubles and our ſacrifices? The Romans, ſated with victories and triumphs, received from tributary Aſia the rareſt ſpecies of fiſh to make a figure on their tables at their feaſts. What the Romans did for the luxury of the rich, let us do for the general good, for the utility of the poor; and let us diſtribute to every river the beneficent germs of a new fecundity, which will double their productions and their produce.

A ſecond method of multiplying the number and quantity of the natural productions of rivers, would be, to convey into the freſh waters thoſe fiſh produced in ſalt water. Nature herſelf gives us examples, and we have nothing to fear if we take her as our guide. Fiſh originally produced in ſalt water, have voluntarily eſtabliſhed themſelves in freſh, where they have loſt all remembrance of the tumult of the waves amidſt which thoſe of their ſpecies play and ſport. Several lakes of Scotland poſſeſs ſalmon, which, abandoning their erratic ſtate for a calm and ſettled life, have there become gradually naturalized. The ſalmon of the rivers Cluden and Nith, as well as thoſe of the Dee, are evidently indigenous, as is proved by their external form. The ſturgeon, the ſterlet, and different kinds of ſalmon, which Pallas obſerved in the Kama, reſide there, according to this naturaliſt, without interruption, and never deſcend to the Caſpian ſea. This celebrated traveller found the ſea-dog in the lake of Baikal, though it is never caught in the Eniſſei nor in the lower Angora. He ſuppoſes, indeed, that it has been conveyed into that lake in conſequence of ſome conſiderable variation in the level of the globe, or by ſome other extraordinary event. On one hand, we ſee the *foudre*, a ſalt-water fiſh, inhabit at preſent the Seine, and loſe itſelf in the banks of Tournidoes, twenty-four miles above Rouen: on the other, Liancourt found the herring in the Elk, Potowmack, Hudſon's river, and the Delaware, rivers of North America; and, according to Twiſs, the ſame fiſh is caught in the freſh-water lakes of Ireland; it is found in prodigious ſhoals in the baſons of Loch Lomond and Loch Eck, in Scotland: it aſcends alſo the river Forth along with the ſalmon, and even to a very great diſtance from the ſea. In Pruſſia, it has been ſeen in the Oder, in the environs of Stettin, at the diſtance of more than ninety miles from the mouth of that river; and we are told by the fiſhers of Mark and Enckhuyſen, that the herring is found in the river Vollenhoven on the other ſide of the Zuyder Zee, eſpecially towards the end of the fiſhing ſeaſon. There is no doubt, that theſe different ſalt-water fiſh might be eaſily naturalized in freſh water; and that the caſe would be the ſame in regard to many other ſpecies, if proper care were taken, after their removal, to beſtow on them that attention neceſſary to enſure ſucceſs to the experiment. We have a proof of this in the ponds of Eaſt Frieſland. The large plaice, tranſported thither from the North Sea, have multiplied by myriads; and they now people thoſe pieces of water which before were totally unproductive. While encouraged by thoſe examples, is there any reaſon to doubt of ſucceſs? "Every man who catches a fiſh," ſays Dr. Franklin, "draws from the water a piece of money." Let not the maxims and example of this philoſopher be loſt to poſterity; let them rather produce fruit, like ſtrong and vigorous ſeed ſown in a fertile ſoil. The method uſed ſucceſsfully by the doctor for making herrings frequent a place they had never been in before has been mentioned under the article CLUPEA, vol. iv. p. 689. But the herring is not the only fiſh that might be naturalized in freſh water; we might add ſeveral ſpecies of the Pleuronectes, ſuch as the brill, the barbel, and other flat-fiſh, which, poſſeſſing traits of the flounder family, have alſo ſimilar wants and habits: alſo the mullet, the goby, the whiting, the gar-fiſh, and perhaps one or two ſpecies of the gurnet. See the article FISHERY, vol. vii. p. 406.

But to ſucceed in tranſporting or conveying fiſh, attention muſt be paid to whether they love briſk or ſtill waters; whether they are uſed to a bottom of marl, ſtone, clay, or weeds. In general, moſt fiſh delight in great depth of water, where there are ſprings or running waters in different directions, and where the bottom is diverſified with ſand, clay, and weeds. Lakes or ponds with ſteep ſhores or banks are not ſo proper to receive fiſh newly brought as thoſe where the ſhore is ſhallow and even; for the height of the banks prevents the rays of the ſun from reaching the bottom with ſufficient force to hatch the eggs. But they may even be put into ſuch lakes as theſe, provided you conſtruct reſervoirs of wood near the banks; theſe ſhould be large, flat, and uncovered; the ſide-planks ſhould be ſo fixed that they may be removed after ſpawning time; the ſides and bottom ſhould be furniſhed with branches of fir or deal, againſt which the fiſhes may rub themſelves and depoſit their eggs.

The moſt favourable time for tranſporting fiſh is juſt as they are ready to ſpawn. If you would breed ſeveral ſpecies at the ſame time, each ſpecies ſhould have a particular reſervoir, where they ſhould have room in proportion to their ſize and number. After ſpawning take the fiſh out of the pond with a net, and put them elſewhere. Then alſo the branches of trees are to be taken away, to expoſe the eggs or ſpawn as much as poſſible to the ſun. By this means uſeful or ſcarce fiſh of diſtant countries may be propagated in great numbers.

There is yet another method of attaining this object. Soon after ſpawning-time, gather up the weeds, plants, and ſtones, on which the fiſh have depoſited their eggs, and take them elſewhere to be hatched: fiſh have even been brought to life in a room by theſe means. See p. 745.

It is not only in deep ponds with ſmooth ſhores that newly-tranſported fiſh may be put; thick and troubled waters will anſwer very well for tench and carp. Regard muſt alſo be had to the ſeaſon in tranſporting fiſh: ſpring and autumn are the beſt; in ſummer the heat, as well as ſtorms that may ariſe, often kill them. It is alſo to be conſidered what ſpecies of fiſh you would tranſport, and the nature of them: thoſe that are hardy and tenacious of life, as the eel, the bream, and the carp, require not much care, of courſe, nor ſo many precautions, as others that will die ſoon after being taken out of the water, e. g. the perch, the ſmelt, and the bleak; ſome, as the trout and loche, have ſo little life, that they die if put into ſtill water; therefore the veſſels in which theſe latter are tranſported muſt be kept always in motion, even when the carriage ſtops; it is beſt alſo, when the weather is very warm, to travel only at night. Another precaution very neceſſary to be obſerved is, not to fill the caſks in which they are carried, leſt they ſtrike their heads in darting to the top of the water. In long journeys, the water muſt be changed from time to time, eſpecially for trout and tench. In ſummer the caſks ſhould not contain above half the quantity of fiſh that might be put into them in winter, as in hot weather they greatly delight in freſh cool air; and indeed in all ſeaſons there ſhould be a free current of air let into the caſks. Yet, in leaving the bung-hole open, care ſhould be taken that the motion of the vehicle does not make the water ſplaſh out too violently, nor cauſe too much agitation within, as thereby the fiſh, driven one againſt the other, may be wounded or killed; a wiſp of ſtraw or ſome bits of thin board inſide the caſk, will in ſome meaſure prevent this.

It is hardly neceſſary to ſay, that, in catching fiſh for theſe purpoſes, great care ſhould be taken not to hurt or bruiſe them. Fiſh of a full ſize ſhould alſo be choſen, of three or four years old; fiſh of a year old are too young. When you want to breed the voracious fiſh, you ſhould put in with them ſuch as uſually ſerve them for food; and of theſe, for economy-ſake, we would ſacrifice ſuch as are of leaſt value for the table.

It is remarkable that ſo few ſpecies of this claſs of the animal kingdom have been tranſlated from their primitive haunts, and made ſubſervient to man by domeſtication. Only three kinds have been tranſported from foreign parts into Britain; the carp, the tench, and the gold-fiſh. Double that number are domeſticated with ſucceſs upon the continent; but even this, in all probability, is but few to what might be rendered ſubſervient to the ſame purpoſe, by the induſtry of man. There can at leaſt be entertained no doubt that thoſe domeſticated upon the continent would thrive equally in Britain. The Cyprinus caraſſius is found indigenous in many of the rivers in England, where it is called the rudd. It is reckoned a ſuperior fiſh to the carp in many reſpects, yet it has never been domeſticated in its native country, though reared with great advantage in the fiſh-ponds of Sweden. The Cobitis foſſilis is a fiſh unknown in this country; but is domeſticated, with profit, in the ponds at Stockholm, and might, with equal propriety, be tranſlated into thoſe of Scotland. In the ſame manner the Cobitis barbatula, which was introduced into Sweden by Frederic I. might be made an inhabitant of our artificial ponds. The Salmo thymallis of Linnæus, known in England by the name of grayling, is one of the beſt fiſhes both for ſport and the table, and might eaſily be tranſported here from the ſtreams of Derbyſhire, its native reſidence. Both eels and charr might be rendered uſeful pond-fiſh; as neither are too delicate for tranſportation; and, from experiments already made, the certainty of their thriving is fully eſtabliſhed.

Sea-fiſh may be brought to live and breed in rivers; for it is to be obſerved, that the oxygen and hydrogen drawn by the new chemiſtry from ſalt water have exactly the ſame properties as when extracted from freſh; ſo that, if by decompoſition the oxygen of the water helps to preſerve the circulation of the blood, or its hydrogen be taken for nouriſhment into the inteſtinal canal, the ſuſtentation the fiſh receives is equal whether the water be freſh or ſalt. In proof of this, a vaſt number of fiſh ſpend one half of the year in the ſeas, and the remainder in rivers and ſtreams; and theſe are found to have the ſame conformation and organization as thoſe which never quit their native place, whether ſalt water or freſh.

As for temperature, deep waters are nearly alike in every country; but moſt animals can endure an increaſe of cold rather than of heat; therefore bring fiſhes from the ſouth into lakes and rivers of the north, rather than the contrary. And even ſhould theſe northern waters be liable to be frozen over, ſtill the fiſhes from the ſouth will not be deſtroyed. They will lie at the bottom during the winter; and, ſhould ſufficient air be prevented from reaching them, or ſhould the cold ſeize them too ſuddenly, will only be thrown into that torpor which preſerves life by ſuſpending its chief functions, which the return of a more favourable ſeaſon will not fail to reſtore.

Fiſhes that have been taken out of the ſea, or from the mouths of rivers or briſk ſtreams, muſt not be put into ſmall ponds or ſtagnant waters, as that will affect them much more than a change of climate; it muſt be contrived to have a continued ſtream of renewed water paſſing through the place they are put in; and large ſtones may be ſo placed as to increaſe the roughneſs and agitation of the water, and at the ſame time perhaps to ſupply the place of the rocks and inequalities in their native ſtreams, againſt which they will rub themſelves and caſt their ſpawn. The males are generally more numerous than the females; in ſome ſpecies nearly double; yet one male is ſufficient to fecundate the ſpawn of many females. Therefore, in order to preſerve and increaſe the breed, throw back the largeſt and heavieſt females when caught, and keep the males for food; the females are generally biggeſt, and may eaſily be diſtinguiſhed by other marks, as colour, &c. which we ſhall more particularly point out in treating of the different genera and ſpecies under their proper heads.

It is well known, that the ſame ſpecies of fiſh are not equally good in all places. Even in the ſame river, the fiſh will be of a good flavour in that part which lies above a town, or any place where a dirty ſtream runs into it; but below a populous town, where much naſtineſs is thrown in, the fiſh of the ſame river will be very ſtrong and ill-taſted. This has been remarked by many writers, particularly Rondeletius; and ſhould not be diſregarded by thoſe who would improve the breed of fiſh. See farther under the word FISHPOND, vol. vii. p. 430.

There are various modes, by no means expenſive, of fattening fiſhes in a ſhort time, eſpecially carp; they ſoon increaſe in ſize if fed with a paſte or bread made of hemp-ſeed, or peaſe and beans boiled, or by throwing dung into the ponds, particularly ſheep's dung. With ſuch helps they grow much quicker, and are ſooner in a ſtate of ſpawning, and the males are capable of fecundating a vaſt number of eggs for a great many years. But, if repoſe be added to nouriſhing food, they may be fatted ſtill ſooner for the table; thus ſome have contrived to pierce the air-bladder of fiſhes, to abridge their activity, and keep them in a ſtate of reſt. Carps may be ſuſpended out of water, ſo as to allow no motion whatever to their fins; then wrap them in a thick covering of weeds or graſs, which keep continually wetted, and they will ſoon grow fat and of a delicate flavour. Another mode is to deprive them of the means of procreating, like oxen, ſheep, &c. It is found, by experiment, that fiſhes, eſpecially the pike, may be cut open, and the ovary or milt-veſſel taken out, with little preſent inconvenience; and that ſuch fiſhes afterwards become very fat, as the nouriſhment which would go to the propagation of the ſpecies now helps to increaſe the ſize and flavour of the mutilated animal. This was firſt practiſed by Mr. Tull, in order to prevent the exceſſive increaſe of fiſh in ſome of his ponds, where the numbers did not permit any of them to grow to an advantageous ſize. But he afterwards found, that the caſtrated fiſh grew much larger than their uſual ſize, were more fat, and always in ſeaſon. This operation may be performed both on male and female fiſh; and the moſt eligible time for it is when the ovaries of the female have their ova in them, and when the veſſels of the male analogous to theſe have their ſeminal matter in them; becauſe at this time theſe veſſels are more eaſily diſtinguiſhed from the ureters, which convey the urine from the kidneys into the bladder, and are ſituated near the ſeminal veſſels on each ſide of the ſpine; which, without attention, may be miſtaken for the ovaries, eſpecially when theſe laſt are empty. The time leaſt proper for this operation is juſt after they have ſpawned, becauſe the fiſh are then too weak and languid to bear with ſucceſs, ſo ſevere an operation; however, with ſkill and care, it may be performed almoſt at any time. When a fiſh is to be caſtrated, it muſt be held in a wet cloth, with its belly upwards; then with a ſharp penknife, having its point bent backwards, the operator cuts through the integuments of the rim of the belly, taking care not to wound any of the inteſtines. As ſoon as a ſmall aperture is made, he carefully inſerts a hooked penknife, and with this dilates the aperture from between the two fore-fins almoſt to the anus. He then, with two ſmall blunt ſilver-hooks, five or ſix inches long, and of this form Γ, by the help of an aſſiſtant, holds open the belly of the fiſh; and, with a ſpoon or ſpatula, removes carefully the inteſtines from one ſide. When theſe are removed, yon ſee the ureter, a ſmall veſſel, nearly in the direction of the ſpine; and alſo the ovary, a larger veſſel, lying before it, nearer the integuments of the belly. This laſt veſſel is taken up with a hook of the ſame kind with thoſe before mentioned, and, after detaching it from the ſide far enough for the purpoſe, divided tranſverſely with a pair of ſharp ſciſſars, care being taken that the inteſtines are not wounded or injured. After one of the ovaries has been divided, the operator proceeds to divide the other in the ſame manner; and then the divided integuments of the belly are ſewed with ſilk, the ſtitches being inſerted at a ſmall diſtance from one another. When the fiſh are caſtrated, they are put into the water where they are intended to continue; and they take their chance in common with other fiſh, as though they were not caſtrated. With tolerable care, few die of the operation. Phil. Tranſ. vol. xlviii. Part. 2. art. 106. Although we could not properly avoid inſerting the above detail, it is preſumed that few will be pleaſed with the invention. The operation is peculiarly cruel, and the purpoſe of it only a piece of Apician refinement.

Another method of improving the breed of fiſhes ſhould not be omitted, which is by croſſing the genera or ſpecies; it is well known, that the lamb, the bull, the horſe, and the aſs, have been ameliorated and brought to their preſent ſtate of perfection by ſuch means. Thus we fecundate the ſpawn of one ſet of females with the milt of a different kind of males; the mules or mongrels thus produced will be of a better ſort than either of the tribes employed, as in chemiſtry the intimate combination of two ſubſtances will produce a maſs that ſhall exceed in weight the two bodies taken together in their natural ſtate. But this muſt not, in either caſe, be taken for a general rule; every intermixture cannot be expected to ſucceed. Many precautions muſt be uſed: and therefore we ſhall purſue this curious ſubject a little farther.

The mules produced from different *genera* cannot be expected to be fruitful; but, by only croſſing the breed of the *ſpecies*, we may greatly improve them in ſize and other qualities, which will become permanent, and be tranſmitted to future generations; they will be, properly ſpeaking, new ſpecies, ſuch as nature accidentally produces. In coupling the different ſpecies of fiſhes, we have none of thoſe difficulties to encouter which impede our endeavours in pairing of birds or beaſts. Fix upon the two ſpecies which ſpawn about the ſame time, or where the ſpawning of the one ends when the other's begins. If the ſeminal liquor of the males is not eaſily to be procured at the proper time, collect the ſpawn of the females, and place it at a proper depth in the water frequented by the males with which you mean to croſs the breed. Lay it ſo that its odour may attract thoſe males, and in ſuch a poſition as may invite them to caſt their milt in that place. Sometimes it will be neceſſary previouſly to deſtroy or remove the ſpawn of their own females in that quarter. Compoſitions or paſtes to attract them might be contrived after a few experiments. The carp and the crucian are often naturally croſſed in the breed; and many other ſpecies of the Cyprinus might be improved by care and attention. This gives riſe to an important reflection on the generation of fiſhes, and indeed of moſt animals.

Authors of great celebrity have aſſerted, that, in the production of fiſhes, the female had ſuch an undivided influence, that the fœtus was entirely formed in the egg before the emiſſion of the male's fecundating liquor; ſo that this liquor could only be conſidered as a ſtimulus to give motion and life to the pre-exiſting embryo. But this hypotheſis, which has been ſo extended as to become a general theory in the generation of animals, and even of man, is quite overturned by the actual production of mules in various animals, which have accidental reſemblances both to male and female. The experiment of croſſing breeds may be made on a ſmall ſcale in a pond, by only catching a male full of milt, and gently ſtroking his belly ſo as to preſs out the ſeminal liquor upon the ſpawn previouſly ſhed by your females; even if the male ſhould be dead, provided he be opened directly, the ſeed may be taken out and ſpread upon the water; and it will ſtill be found fruitful.

Thoſe who buy fiſh for the table ſhould be aware, that there is a method of *blowing fiſh*, a practice ſimilar to that of blowing fleſh, poultry, and pigs, and adopted for the ſame deceitful purpoſes. The method of blowing fiſh, eſpecially cod and whitings, is by placing the end of a quill or tobacco-pipe at the vent, and pricking a hole with a pin under the fin which is next the gill; thereby making the fiſh appear to the eye large and full, which when dreſſed will be flabby, and little elſe than ſkin and bones. But this impoſition may be diſcovered by placing the finger and thumb on each ſide of the vent, and ſqueezing it hard; the wind may be perceived to go out, the ſkin will fall in, and the fiſh appear lank, and of little value.

In the poſthumous papers of Mr. Hooke, a method is deſcribed of *gilding* live craw-fiſh, carps, &c. without injuring the fiſh. The cement for this purpoſe is prepared, by putting ſome burgundy-pitch into a new earthen pot, and warming the veſſel till it receives ſo much of the pitch as will ſtick round it; then ſtrewing ſome finely-powdered amber over the pitch when growing cold, adding a mixture of three pounds of linſeed oil and one of oil of turpentine, covering the veſſel, and boiling them for an hour over a gentle fire, and grinding the mixture as it is wanted, with ſo much pumice-ſtone in fine powder as will reduce it to the conſiſtence of paint. The fiſh being wiped dry, the mixture is ſpread upon it; and the gold-leaf being then laid on, and gently preſſed down, the fiſh may be immediately put into the water again, without any danger of the gold coming off, for the matter quickly grows firm in water.

For a view of the great importance of fiſheries to the proſperity of a country, ſee the article FISHERY, vol. vii. p. 406-419; for inſtructions in angling, ſee FISHING; and for the moſt approved methods of breeding fiſh, ſee FISH-POND, in the ſame volume.

ICHTHYOM'ANCY, *ſ.* [of ιχθυς, a fiſh, and μαντεια, Gr. divination.] Divination by the entrails of fiſhes; for which Tireſias is ſaid to have been famous.

ICHTHYOME'THIA, *ſ.* in botany. See PISCIDIA.

ICHTHYOPH'AGI, *ſ.* [from ιχθυς, fiſh, and φαγειν, to eat.] FISH-EATERS, a name given to a people, or rather to ſeveral different people, who lived wholly on fiſh. The Ichthyophagi ſpoken of by Ptolemy are placed by Sanſon in the provinces of Nanquin and Xantong. Agatharcides calls all the inhabitants between Carmania and Gedroſia by the name of *Ichthyophagi*. From the accounts given us of the Ichthyophagi by Herodotus, Strabo, Solinus, Plutarch, &c. it appears indeed that they had cattle, but that they made no uſe of them, excepting to feed their fiſh withal. They made their houſes of large fiſh-bones, the ribs of whales ſerving them for their beams. The jaws of theſe animals ſerved them for doors; and the mortars wherein they pounded their fiſh, and baked it at the ſun, were nothing elſe but their vertebræ.

ICTHYOPH'AGIST, *ſ.* [of ιχθυς, a fiſh, and *φαγω*, Gr. to eat.] A fiſh-eater.

ICHTHYOPH'AGY, *ſ.* Diet of fiſh; the practice of eating fiſh.

ICHTHYO'SIS, *ſ.* [from ιχθυα, Gr. the ſcale of a fiſh, which it reſembles.] A harſh, dry, ſcaly, and almoſt horny, texture of the ſkin, differing from leproſy by its not falling off in branny ſcales. Above and below the elbow and knee, Dr. Willan obſerves, that the ſcales are ſmall, rounded, and papillary, of a black colour; the papillæ have ſhort narrow necks, with broad irregular tops. On the reſt of the body they are large and imbricated, ſometimes divided by whitiſh furrows. The inner part of the wriſts and hams, the inſide of the elbow, and the furrow along each ſide of the ſpine, the inner and upper part of the thigh, are uſually free. The diſeaſe appears to be conſtitutional, not hereditary. Two caſes of a horny ichthyoſis impeding the motion of the muſcles, are deſcribed in the 68th volume of the Philoſophical Tranſactions.

ICHTHYPE'RIA, *ſ.* in natural hiſtory, a name given by Dr. Hill to the bony palates and mouths of fiſhes, uſually met with either foſſile, in ſingle pieces, or in fragments. They are of the ſame ſubſtance with the bufonitæ; and are of very various figures, ſome broad and ſhort, others longer and ſlender; ſome very gibboſe, and others plainly arched. They are likewiſe of various ſizes, from the tenth of an inch to two inches in length, and an inch in breadth.

ICH'THYS, *ſ.* in antiquity, the celebrated acroſtic of the Erythræan Sibyl, ſo called from its initials.

ICHU'A TOWN, in the Geneſſee country in the ſtate of New York, is an Indian village at the mouth of Ichua Creek, a north-eaſtern head-water of Alleghany river. It is ſixty miles eaſterly of Fort Erie, and ſixty-ſeven ſouth-weſt-by-ſouth of Hartford, on Geneſſee river.

I'CICLE, *ſ.* A ſhoot of ice commonly hanging down from the upper part.—If diſtilled vinegar or aqua-fortis be poured into the powder of loadſtone, the ſubſiding powder, dried, retains ſome magnetical virtue; but if the menſtruum be evaporated to a conſiſtence, and afterwards doth ſhoot into *icicles*, or cryſtals, the loadſtone hath no power upon them. *Brown.*

From locks uncomb'd, and from the frozen beard,
Long *icicles* depend, and cracking ſounds are heard. *Dryd.*

I'CINESS, *ſ.* The ſtate of generating ice.

ICK'ENILD-STREET, an old Roman highway, denominated from the Icenians, which extended from Yarmouth in Norfolk, the eaſt part of the kingdom of the Iceni, to Barley in Hertfordſhire, giving name in the way to ſeveral villages, as Ickworth, Icklingham, and Ickleton, in that kingdom. From Barley to Royſton it divides the counties of Cambridge and Hertford. From Ickleford it runs by Tring, croſſes Bucks and Oxfordſhire, paſſes the Thames at Goring, and extends to the weſt part of England.

ICK'ER or Jecker, a river of Germany, which runs into the Meuſe near Maeſtricht.

ICOLMKILL'. See Iona.

I'CON, *ſ.* [Greek.] A picture or repreſentation.—Boyſardus, in his tract of divination, hath ſet forth the *icons* of theſe ten, yet added two others. *Brown.*

ICO'NIUM, at preſent Cogni, formerly the capital city of Lycaonia in Aſia Minor. St. Paul, coming to Iconium (Acts xiii. 51. xiv. 1. &c.) in the year of Chriſt 45, converted many Jews and Gentiles there. It is believed that, in his firſt journey to this city, he converted St. Thecla, ſo celebrated in the writings of the ancient fathers. But ſome incredulous Jews excited the Gentiles to riſe againſt Paul and Barnabas, ſo that they were upon the point of offering violence to them, which obliged St. Paul and St. Barnabas to fly for ſecurity to the neighbouring cities St. Paul undertook a ſecond journey to Iconium in the year 51; but we know no particulars of his journey which relate peculiarly to Iconium.

ICON'OCLAST, *ſ.* [from εικων, an image, and κλαςειν, to break.] A breaker of images; a name which the church of Rome gives to all who reject the uſe of images in religious matters. In this ſenſe, not only the reformed, but ſome of the eaſtern churches, are called *iconoclaſts*, and eſteemed by them heretics, as oppoſing the worſhip of the images of God and the ſaints, and breaking their figures and repreſentations in churches.

The oppoſition to images began in Greece under the reign of Bardanes, who was created emperor of the Greeks a little after the commencement of the eighth century, when the worſhip of them became common. But the tumults occaſioned by it were quelled by a revolution, which, in 713, deprived Bardanes of the imperial throne. The diſpute, however, broke out with redoubled fury under Leo the Iſaurian, who iſſued out an edict in the year 726, abrogating, as ſome ſay, the worſhip of images, and ordering all the images, except that of Chriſt's crucifixion, to be removed out of the churches; but according to others, this edict only prohibited the paying to them any kind of adoration or worſhip. This edict occaſioned a civil war, which broke out in the iſlands of the Archipelago, and by the ſuggeſtions of the prieſts and monks, ravaged a part of Aſia, and afterwards reached Italy. The civil commotions and inſurrections in Italy were chiefly promoted by the Roman pontiffs, Gregory I. and II. Leo was excommunicated, and his ſubjects in the Italian provinces violated their allegiance, and, riſing in arms, either maſſacred or baniſhed all the emperor's deputies and officers. In conſequence of theſe proceedings, Leo aſſembled a council at Conſtantinople in 730, which degraded Germanus, the biſhop of that city, who was a patron of images; and he ordered all the images to be publicly burnt, and inflicted a variety of ſevere puniſhments upon ſuch as were attached to that idolatrous worſhip. Hence aroſe two factions: one of which adopted the adoration and worſhip of images, and on that account were called *iconoduli* or *iconolatræ*; and the other maintained that ſuch worſhip was unlawful, and that nothing was more worthy the zeal of Chriſtians than to demoliſh and deſtroy thoſe ſtatues and pictures which were the occaſions of this groſs idolatry; and hence they were diſtinguiſhed by the titles of *iconomachi* (from εικων, image, and *μαχω*, I contend) and *iconoclaſtæ*. The zeal of Gregory II. in favour of image-worſhip was not only imitated, but even ſurpaſſed, by his ſucceſſor Gregory III. in conſequence of which the Italian provinces were torn from the Grecian empire.

Conſtantine, called Copronymus, (from κοπρος, dung, and ονομα, name, becauſe he was ſaid to have defiled the ſacred font at his baptiſm,) ſucceeded his father Leo in 741, and in 754 convened a council at Conſtantinople, regarded by the Greeks as the ſeventh œcumenical council, which ſolemnly condemned the worſhip and uſe of images. Thoſe who, notwithſtanding this decree of the council, raiſed commotions in the ſtate, were ſeverely puniſhed; and new laws were enacted, to ſet bounds to the violence of monaſtic rage. Leo IV. who was declared emperor in 775, purſued the ſame meaſures, and had recourſe to the coercive influence of penal laws, in order to extirpate idolatry out of the Chriſtian church. Irene, the wife of Leo, poiſoned her huſband in 789; aſſumed the reins of empire during the minority of her ſon Conſtantine; and in 786 ſummoned a council at Nice in Bithynia, known by the name of the *ſecond Nicene council*, which abrogated the laws and decrees againſt the new idolatry, reſtored the worſhip of images and of the croſs, and denounced ſevere puniſhments againſt thoſe who maintained that God was the only object of religious adoration. In this conteſt, the Britons, Germans, and Gauls, were of opinion, that images might be lawfully continued in churches, but they conſidered the worſhip of them as highly injurious and offenſive to the Supreme Being. Charlemagne diſtinguiſhed himſelf as a mediator in this controverſy: he ordered four books concerning images to be compoſed, refuting the reaſons urged by the Nicene biſhops to juſtify the worſhip of images, which he ſent to Adrian the Roman pontiff in 790, in order to engage him to withdraw his approbation of the decrees of the laſt council of Nice. Adrian wrote an anſwer; and in 794, a council of three hundred biſhops, aſſembled by Charlemagne at Frankfort on the Maine, confirmed the opinion contained in the four books, and ſolemnly condemned the worſhip of images.

In the Greek church, after the baniſhment of Irene, the controverſy concerning images broke out anew, and was carried on by the contending parties, during the half of the ninth century, with various and uncertain ſucceſs. The emperor Nicephorus appears upon the whole to have been an enemy to this worſhip. His ſucceſſor, Michael Curopalates, ſurnamed Rhangabe, patronized and encouraged it. But the ſcene changed on the acceſſion of Leo the Armenian to the empire; who aſſembled a council at Conſtantinople in 814, that aboliſhed the decrees of the Nicene council. His ſucceſſor Michael, ſurnamed Balbus, diſapproved the worſhip of images, and his ſon Theophilus treated them with great ſeverity. However, the empreſs Theodora, after his death, and during the minority of her ſon, aſſembled a council at Conſtantinople in 842, which reinſtated the decrees of the ſecond Nicene council, and encouraged image-worſhip by a law. The council held at the ſame place under Photius, in 879, and reckoned by the Greeks the eighth general council, confirmed and renewed the Nicene decrees. In commemoration of this council, a feſtival was inſtituted by the ſuperſtitious Greeks, called by them the *feaſt of orthodoxy*.

The Latins were generally of opinion, that images might be ſuffered as the means of aiding the memory of the faithful, and of calling to their remembrance the pious exploits and virtuous actions of the perſons whom they repreſented; but they deteſted all thoughts of paying them the leaſt mark of religious homage or adoration. The council of Paris, aſſembled in 824 by Louis the Meek, reſolved to allow the uſe of images in the churches, but ſeverely prohibited rendering them religious worſhip. Nevertheleſs, towards the concluſion of this century, the Gallican clergy began to pay a kind of religious homage to the images of ſaints, and their example was followed by the Germans and other nations. However, the iconoclaſts ſtill had their adherents among the Latins; the moſt eminent of whom was Claudius biſhop of Turin, who, in 823, ordered all images, and even the croſs, to be caſt out of the churches, and committed to the flames; and he wrote a treatiſe, in which he declared both againſt the uſe and worſhip of them. He condemned relics, pilgrimages to the Holy Land, and all voyages to the tombs of ſaints; and to his writings and labours it was owing, that the city of Turin, and the adjacent country, was, for a long time after his death, much leſs infected with ſuperſtition than the other parts of Europe.

The controverſy concerning the ſanctity of images was again revived by Leo biſhop of Chalcedon, in the 11th century, on occaſion of the emperor Alexius's converting the figures of ſilver that adorned the portals of the churches into money, in order to ſupply the exigencies of the ſtate. The biſhop obſtinately maintained that he had been guilty of ſacrilege; and publiſhed a treatiſe, in which he affirmed, that *in theſe images there reſided an inherent ſanctity, and that the adoration of Chriſtians ought not to be confined to the perſons repreſented by theſe images, but extended to the images themſelves.* The emperor aſſembled a council at Conſtantinople, which determined, that the images of Chriſt and of the ſaints were to be honoured only with a relative worſhip; and that invocation and worſhip were to be addreſſed to the ſaints only as the ſervants of Chriſt, and on account of their relation to him, as their maſter. Leo, diſſatisfied even with theſe abſurd and ſuperſtitious deciſions, was ſent into baniſhment. In the weſtern church, the worſhip of images was diſapproved and oppoſed by ſeveral conſiderable parties, as the Petrobruſſians, Albigenſes, Waldenſes, &c. till at length this idolatrous practice was entirely aboliſhed in many parts of the Chriſtian world by the reformation.

ICONOG'RAPHY, *ſ.* The deſcription of images or ancient ſtatues of marble and copper; alſo of buſts and ſemi-buſts, penates, paintings in freſco, moſaic works, and ancient pieces of miniature.

ICONOL'ATER, *ſ.* [of εικων, an image, and λατρευω, Gr. to worſhip.] A worſhipper of images. The great ſtruggle in the Greek church between the oppoſers of image-worſhip and its votaries, held, according to Mede, from A.C. 720 till after 840, i.e. for about 120 years. It was eſtabliſhed by a packed council (as he calls it) at Nice, under the empreſs Irene; and was at the ſame time (or rather long before) moſt ſtrenuouſly eſpouſed by the biſhops of Rome. We ſaid long before, for Bale, our countryman relates, that about the year 712, one Egwin of Worceſter publiſhed certain revelations, or viſions he had ſeen, wherein he was enjoined to ſet up in his dioceſe of Worceſter the image of the bleſſed Virgin for the people to worſhip; which pope Conſtantine I. having made him confirm by oath, not only ratified by his bull, but cauſed Brithwald, the archbiſhop, to hold a council of the whole clergy at London to commend them to the people: "And thus you ſee," ſays Mede, (after having told us how the invocation of ſaints was introduced by St. Baſil and the two Gregories about the year 370,) "you ſee, how the firſt-born and moſt ancient part of the doctrine of dæmons, i. e. the deifying of ſaints and martyrs, was advanced by the hypocriſy of liars [alluding to that prediction of St. Paul, 1 Tim. iv. 1, 2, &c.] The ſame you ſhall find to be verified alſo in the advancing of the next-born dæmonalatry, image-worſhip; and of the third, the idolatry of the maſs-god; all brought in and eſtabliſhed by the means and ways afore-named." *Mede's Works*, p. 684–687.

ICONOL'OGY, *ſ.* The doctrine of picture or repreſentation.

ICOSAHE'DRON, *ſ.* in geometry, a regular ſolid, conſiſting of twenty triangular pyramids, whoſe vertexes meet in the centre of a ſphere ſuppoſed to circumſcribe it, and therefore have their height and baſes equal; wherefore the ſolidity of one of theſe pyramids multiplied by 20, the number of baſes, gives the ſolid contents of the icoſahedron.

ICOSAND'RIA, *ſ.* [εικοσι, twenty, and ανηρ, a huſband.] The name of the twelfth claſs in the Linnæan ſyſtem; comprehending thoſe plants which have hermaphrodite flowers, with twenty or more ſtamens growing on the inſide of the calyx, not on the receptacle. The ſituation, and not the number, of the ſtamens, is here to be attended to. The calyx alſo is monophyllous and concave in this claſs; and the claws of the petals are fixed into the inſide of the calyx. See the article BOTANY, vol. iii. p. 257, 270, and Plate X. and XII.

ICTER'ICAL, *ſ.* [*icterique*, Fr. *icterus*, Lat.] Afflicted with the jaundice.—In the jaundice the choler is wanting, and the *icterical* have a great ſourneſs, and gripes with windineſs. *Floyer.*

ICTER'ICAL, *adj.* Good againſt the jaundice.

IC'TERUS, *ſ.* [from ικτερος, Gr. the golden thruſh, the complexion of the patient reſembling in colour the plumage of that bird.] The JAUNDICE. It is owing to an obſtruction of the diſcharge of the bile into the bowels, and its return into the blood by the abſorbents. For the cauſe and cure, ſee the article PATHOLOGY.

ICTI'NUS, a celebrated Greek architect who lived about 430 B. C. built ſeveral magnificent temples, and among others that of Minerva at Athens.

IC'TUS, *ſ.* [Latin.] A ſtroke or blow. Biting or ſtinging. A blaſt, puff, &c.

IC'TUS CÆCUS, or ICTUS ORBIS, in old writers a bruiſe or ſwelling; any ſort of maim or hurt without breaking the ſkin, as diſtinguiſhed from a wound.

ICULIS'MA, in ancient geography, a town of Gaul, now *Angouleſme*, on the Charente.

ICUNA'DA DE BARRUGAN', a town on the river Plata, in South America.

ICY, *adj.* Full of ice; covered with ice; made of ice; cold; froſty.—He relates the exceſſive coldneſs of the water they met with in ſummer in that *icy* region, where they were forced to winter. *Boyle.*

Bear Britain's thunder, and her croſs diſplay,
To the bright regions of the riſing day;
Tempt *icy* ſeas, where ſcarce the waters roll,
Where clearer flames glow round the frozen pole. *Pope.*

Cold: free from paſſion:

Thou would'ſt have never learn'd
The *icy* precepts of reſpect. *Shakeſpeare.*

Frigid; backward:

If thou do'ſt find him tractable to us,
Encourage him, and tell him all our reaſons;
If he be leaden, *icy*, cold, unwilling,
Be thou ſo too. *Shakeſpeare.*

ICY CAPE, the north-weſternmoſt headland of North America, ſituated in the Northern Ocean. Between this cape and Cape North in Aſia, is the opening into Behring's Straits, which lead from the Northern into the Pacific Ocean.

ICY-PEARL'ED, *adj.* Studded with pearls of ice:

So mounting up in *icy-pearled* car,
Through middle empire of the freezing air
He wander'd long. *Milton.*

I'D. Contracted for *I would.*

I'DA, a nymph of Crete who went into Phrygia, where ſhe gave her name to a mountain of that country. *Virg.*—A celebrated mountain, or more properly a ridge of mountains, in Troas, chiefly in the neighbourhood of Troy. The abundance of its waters became the ſource of many rivers, and particularly of the Simois, Scamander, Eſepus, Granicus, &c. It was on Mount Ida that the ſhepherd Paris adjudged the prize of beauty to the goddeſs Venus. It was covered with green wood, and the elevation of its top opened a fine extenſive view of the Helleſpont and the adjacent countries, from which reaſon the poets ſay that it was frequented by the gods during the Trojan war.—A mountain of Crete, the higheſt in the iſland, where it is reported that Jupiter was educated by the Corybantes, who, on that account, were called Idæi.

IDÆ'A, a ſurname of Cybele, becauſe ſhe was worſhipped on Mount Ida.

IDÆ'US, a ſurname of Jupiter.

IDÆI DAC'TYLI, the ancient inhabitants of Crete, who had their original from Mount Ida in Phrygia, and were called *Dactyli*, from their being ten in number, according to that of the fingers. They carried their rites and myſteries into Samothracia; and being believed to have found out the uſe of fire, to have diſcovered the nature and uſe of braſs, iron, and other metals, and to have invented many other things of great ſervice and advantage to mankind, were therefore reputed as gods or dæmons.

IDA'CIUS, or ITACIUS, an ancient chronicler, was a native of Lamego in Spain, and flouriſhed in the fifth century. He was biſhop of Chaves in Portugal, and lived under Valentinian III. and to the reign of Leo. He compoſed a Chronicle, beginning with the firſt year of Theodoſius, where the Euſebian chronicle of Jerome ceaſes, and bringing it down to the 11th year of Leo, A. D. 467. To him alſo are attributed a table of Faſti Conſulares, often publiſhed. Father Sirmond publiſhed the Chronicle and Faſti of Idacius, with notes, Paris, 8vo. 1619.

ID'ALAH, [Hebrew.] The name of a city.

IDA'LIS, the country round Mount Ida.

IDA'LIUM, in ancient geography, a promontory on the eaſt ſide of Cyprus; now *Capo di Griego*; with a high rugged eminence riſing over it, in the form of a table. It was ſacred to Venus; and hence the epithet *Idalia* given her by the poets. The eminence was covered with a grove; and in the grove was a little town, in Pliny's time extinct. *Idalia*, according to Bochart, denotes the place or ſpot ſacred to the goddeſs.

IDAN'HA NO'VA, a town of Portugal, in the province of Beira: four miles ſouth-weſt of Idanha Velha.

IDAN'HA VEL'HA, a town of Portugal, in the province of Beira, near the Spaniſh Eſtremadura. This town was taken by the Spaniards, under the duke of Anjou, in the year 1704, after a brave reſiſtance: ſeven leagues and a half ſouth-ſouth-weſt of Alfayates, and ſix eaſt of Caſtel Branca. Lat. 39. 50. N. lon. 11. 47. E. Ferro.

IDANTHYR'SUS, a powerful king of Scythia, who refuſed to give his daughter in marriage to Darius king of Perſia. This refuſal was the cauſe of a war between the two nations, and Darius marched againſt Idanthryſus at the head of 700,000 men. He was defeated, and retired to Perſia after an inglorious campaign.

I'DAS, a ſon of Aphareus and Arane, famous for his valour and military glory. He was among the Argonauts, and married Marpeſſa, the daughter of Evenus king of Ætolia. Marpeſſa was carried away by Apollo, and Idas purſued his wife's raviſher with bows and arrows, and obliged him to reſtore her. According to Apollodorus, Idas with his brother Lynceus aſſociated with Pollux and Caſtor to carry away ſome flocks; but, when they had obtained a ſufficient quantity of plunder, they refuſed to divide it into equal ſhares. This provoked the ſons of Leda: Lynceus was killed by Caſtor; and Idas, to revenge his brother's death, immediately killed Caſtor, and in his turn periſhed by the hand of Pollux. According to Ovid and Pauſanias, the quarrel between the ſons of Leda and thoſe of Aphareus aroſe from a more tender cauſe: Idas and Lynceus, as they ſay, were going to celebrate their nuptials with Phœbe and Hilaira, the two daughters of Leucippus; but Caſtor and Pollux, who had been invited to partake the common feſtivity, offered violence to the brides, and carried them away. Idas and Lynceus fell in the attempt to recover their wives.

ID'BASH, [Hebrew.] A man's name.

ID'DO, [Heb. power.] A man's name.

IDE'A, *ſ.* [Greek.] The reflex perception of objects, after the original perception or impreſſion has been felt by the mind. See METAPHYSICS, and LOGIC.—Whatſoever the mind perceives in itſelf, or is the immediate object of perfection, thought, or underſtanding, that I call *idea*. *Locke.*—The form under which theſe things appear to the mind, or the reſult of our apprehenſion, is called an *idea*. *Watts.*—Our Saviour himſelf, being to ſet down the perfect *idea* of that which we are to pray and wiſh for on earth, did not teach to pray or wiſh for more than only that here it might be with us, as with them it is in heaven. *Hooker.*

If Chaucer by the beſt *idea* wrought,
The faireſt nymph before his eyes he ſet. *Dryden.*

IDE'AL, *adj.* [from *idea.*] Mental; intellectual; not perceived by the ſenſes.—There is a two-fold knowledge of material things; one real, when the thing, and real impreſſion of things on our ſenſes, is perceived; the other *ideal*, when the image or idea of a thing, abſent in itſelf, is repreſented to and conſidered on the imagination. *Cheyne.*

IDE'ALLY, *adv.* Intellectually; mentally.—A tranſmiſſion is made materially from ſome parts, and *ideally* from every one. *Brown.*

IDEN'TIC, or IDENTICAL, *adj.* The ſame; implying the ſame thing; compriſing the ſame idea.—Thoſe ridiculous *identical* propoſitions, that faith is faith, and rule is rule, are firſt principles in this controverſy of the rule of faith, without which nothing can be ſolidly concluded either about rule or faith. *Tillotſon.*

The beard's th' *identic* beard you knew,
The ſame numerically true. *Hudibras.*

IDEN'TICALLY, *adv.* With ſameneſs; in an identical manner.

IDEN'TICALNESS, *ſ.* Sameneſs.

IDENTITA'TE NOMINIS, Identity of Name, an ancient, and now obſolete, writ, that lay for one taken and arreſted in any perſonal action, and committed to priſon, for another man of the ſame name; which writ was in nature of a commiſſion to enquire, whether he were the ſame perſon againſt whom the action was brought; and, if not, then to diſcharge him. *Reg. Orig.* 194. *F. N. B.* 267. Where one perſon is by miſtake arreſted for another, the perſon ſo arreſted may maintain an action for falſe impriſonment againſt the officer to recover damages, though he ſue this writ for immediate relief from the impriſonment. See Arrest.

IDEN'TITY, *ſ.* [*identité*, Fr. *identitas*, ſchool Lat.] Sameneſs; not diverſity.—Conſidering any thing as exiſting at any determined time and place, we compare it with ſelf-exiſting at another time, and thereon form the ideas of *identity* and diverſity.

Identity of Person. Where a perſon, convicted of or outlawed for a criminal offence, being aſked what he hath to allege why execution ſhould not be awarded againſt him, pleads diverſity of perſon, a jury ſhall be impannelled to try this collateral iſſue, viz. the identity of the perſon. 4 *Comm.* 396.

ID'EOT, *ſ.* See Idiot.

IDES, *ſ.* [*idi*, Ital. *idus*, Lat. ſo called of *iduo*, in the old Tuſcan language, to divide; becauſe they divided the months, as it were, into two parts.] In the ancient Roman calendar, were eight days in each month; the firſt of which fell on the 15th of March, May, July, and October; and on the 13th day of the other months. The ides came between the kalends and the nones; and were reckoned backwards. Thus they called the 14th day of March, May, July, and October, and the 12th of the other months, the *pridie idus*, or the day before the ides; the next preceding day they called the *tertia idus*; and ſo on, reckoning always backwards till they came to the nones. This method of reckoning time is ſtill retained in the chancery of Rome, and in the calendar of the breviary. The ides of May were conſecrated to Mercury; the ides of March were ever eſteemed unhappy after Cæſar's murder on that day; the time after the ides of June was reckoned fortunate for thoſe who entered into matrimony; the ides of Auguſt were conſecrated to Diana, and were obſerved as a feaſt-day by the ſlaves. On the ides of September, auguries were taken for appointing the magiſtrates, who formerly entered into their offices on the ides of May, afterwards on thoſe of March.

I'DEX, a ſmall river of Italy, now *Idice*, near Bononia.

ID'JE, or Sec'ja, a province of Japan.

IDIOC'RACY, *ſ.* [*idiocraſe*, Fr. ιδιος, and κρασις, Gr.] Peculiarity of conſtitution.

IDIOCRAT'ICAL, *adj.* Peculiar in conſtitution.

ID'IOCY, *ſ.* [ιδιωτια, Gr.] Want of underſtanding.—I ſtand not upon their *idiocy* in thinking that horſes did eat their bits. *Bacon.*

The law relating to perſons labouring under the infirmities of idiocy and lunacy, being in many reſpects the ſame, and in all caſes depending on ſimilar reaſoning, is here reduced to one head.

An Idiot, or natural fool, is one that hath had no unſtanding from his nativity, and therefore is by law preſumed never likely to attain any. For which reaſon the cuſtody of him and his lands were formerly veſted in the lord of the fee. *Flet. c.* 11. 10. And therefore ſtill, by ſpecial cuſtom in ſome manors, the lord ſhall have the ordering of idiot and lunatic copyholders. *Dy.* 302. *Hutt.* 17. *Noy.* 27. But, by reaſon of the manifold abuſes of this power by ſubjects, it was at laſt provided by common conſent, that it ſhould be given to the king, as the general conſervator of his people; in order to prevent the idiot from waſting his eſtate, and reducing himſelf and his heirs to poverty and diſtreſs. *F. N. B.* 232.

A man is not an idiot if he hath any glimmering of reaſon, ſo that he can tell his parents, his age, or the like common matters. *F. N. B.* 233. But a man who is born deaf, dumb, and blind, is looked upon by the law as in the ſame ſtate with an idiot; he being ſuppoſed incapable of any underſtanding, as wanting all thoſe ſenſes which furniſh the human mind with ideas. *Co. Lit.* 42. *Fleta, l.* 6. *c.* 40.

A Lunatic, or *non compos mentis*, is one who hath had underſtanding, but by diſeaſe, grief, or other accident, hath loſt the uſe of his reaſon. A lunatic is, indeed, properly one that hath lucid intervals, ſometimes enjoying his ſenſes, and ſometimes not; and that frequently depending upon the change of the moon. But under the general name of *non compos mentis*, and which is the moſt legal term, are compriſed not only lunatics, but perſons under phrenzies, or who loſe their intellects by diſeaſe; thoſe that *grow* deaf, dumb, and blind, not being *born* ſo, or ſuch in ſhort as are judged by the Court of Chancery incapable of conducting their affairs. To theſe alſo, as well as idiots, the king is guardian, but to a very different purpoſe. For the law always imagines that theſe accidental misfortunes may be removed; and therefore only conſtitutes the crown a truſtee for the unfortunate perſons, to protect their property, and to account to them for all profits received if they recover, or after their deceaſe to their repreſentatives. And therefore it is declared by ſtat. 17 Edw. II. c. 10, that the king ſhall provide for the cuſtody and ſuſtentation of lunatics, and preſerve their lands and the profits of them for their own uſe when they come to their right mind: and the king ſhall take nothing to his own uſe; and, if the parties die in that ſtate, the reſidue ſhall be diſtributed for their ſouls by the advice of the ordinary; and of courſe, by the ſubſequent amendments of the law of adminiſtration, ſhall now go to their executors or adminiſtrators. 1 *Comm.* 304.

The diſtinction, eſtabliſhed by this ſtatute, between the king's intereſt in the lands of an *idiot* and thoſe of a *lunatic*, is laid down and admitted in all the books which ſpeak of this matter; and on this foundation it hath been reſolved, that the king may grant the cuſtody of an *idiot* and his lands to a perſon, his heirs and executors, and that he had the ſame intereſt in ſuch a one as he had in his *ward* by the common law.

There are, ſays Coke, four kinds of men who may be ſaid to be *non compos*: 1. An idiot who is *non compos* from his nativity. 2. One made ſuch by ſickneſs. 3. A lunatic, who is *non compos* only for the time that he wants underſtanding. 4. One that is drunk; which laſt is ſo far from coming within the protection of the law, that his drunkenneſs is an aggravation of whatever he does amiſs. Yet if a perſon by the unſkilfulneſs of his phyſician, or by the contrivance of his enemies, eat or drink ſuch a thing as cauſeth phrenzy, this puts him in the ſame condition with any other phrenzy, and equally excuſeth him; alſo if by one or more ſuch practices an habitual or fixed phrenzy be cauſed, though this madneſs was contracted by the vice and will of the party, yet this habitual and fixed phrenzy thereby cauſed puts the man in the ſame condition as if the ſame was contracted involuntarily at firſt. *Plowd.* 19. *a. Co. Lit.* 247. 1 *Hale's Hiſt. P. C.* 23.

But, though this ſubject of madneſs may be branched into ſeveral kinds and degrees, yet it appears that the prevailing diſtinction in law is between *idiocy* and *lunacy*: the firſt a fatuity *à nativitate, vel dementia naturalis*; the other accidental or adventitious madneſs, which, whether permanent and fixed, or with lucid intervals, goes under the general name of lunacy.

Every perſon of the age of diſcretion is in law preſumed to be of ſound mind and memory, unleſs the contrary appear; and this rule holds as well in civil as criminal caſes. 1 *Hale's Hiſt. P. C.* 33.

By the old common law there is a writ *de idiotâ inquirendo*, to enquire whether a man be an idiot or not; which muſt be tried by a jury of twelve men; and, if they find him *merus idiota*, the profits of his lands, and the cuſtody of his perſon, may be granted by the king to ſome ſubject who has intereſt enough to obtain them. *F. N. B.* 232. This branch of the royal revenue hath been long conſidered as a hardſhip upon private families; and ſo long ago as 8 *Jac.* I. it was under the conſideration of parliament, to veſt this cuſtody in the relations of the party, and to ſettle an equivalent on the crown in lieu of it; it being then propoſed to ſhare the ſame fate with the feudal tenures which have been ſince aboliſhed. 4 *Inſt.* 203. *Com. Journ.* 610. Yet few inſtances can be given of the oppreſſive exertion of it, ſince it ſeldom happens that a jury finds a man an idiot *à nativitate*, but only *non compos mentis* from ſome particular time; which has an operation very different in point of law. 1 *Comm.* 304.

The method of proving a perſon *non compos* is very ſimilar to that of proving him an idiot. The lord chancellor, to whom, by ſpecial authority from the king, the cuſtody of idiots and lunatics is entruſted, upon petition or information grants a commiſſion in nature of the writ *de idiota inquirendo*, to enquire into the party's ſtate of mind; and, if he be found *non compos*, the chancellor uſually commits the care of his perſon, with a ſuitable allowance for his maintenance, to ſome friend, who is then called his commit*tee*.

If a man be found by a jury an idiot *à nativitate*, he may come in perſon into the chancery before the chancellor, or be brought there by his friends, to be inſpected and examined whether idiot or not; and, if upon ſuch view and enquiry it appears he is not ſo, the verdict of the jury, and all the proceedings thereon, are utterly void and inſtantly of no effect. 9 *Rep.* 30, 1. 4 *Co.* 126. In caſe of the lunatic's recovery, he muſt petition the chancellor to ſuperſede the commiſſion; upon the hearing of which, the lunatic muſt attend in perſon, that he may be inſpected by the chancellor; it is alſo uſual for the phyſician to attend, and to make an affidavit that the lunatic is perfectly recovered. *Fonblanque Treat. Eq. c.* 2, §. 3. *in not.*

On the firſt attack of lunacy, or other occaſional inſanity, while there may be hopes of a ſpeedy reſtitution of reaſon, it is uſual to confine the unhappy objects in private cuſtody under the direction of their neareſt friends and relations; who by law may beat or uſe ſuch other methods as are neceſſary for their cure. 2 *Ro. Ab.* 546. And the legiſlature, to prevent all abuſes incident to ſuch private cuſtody, hath thought proper to interpoſe its authority, by ſtat. 14 Geo. III. c. 49, continued by 19 Geo. III. c. 15, and made perpetual by 26 Geo. III. c. 91, for regulating private mad-houſes. By theſe acts, no perſon ſhall confine more than one lunatic in a houſe kept for the reception of lunatics, without an annual licence from commiſſioners appointed by the college of phyſicians, or the juſtices in ſeſſions, under a penalty of 500l. and if the keeper of a licenſed houſe receive any perſon as lunatic without a certificate from a phyſician, ſurgeon, or apothecary, that he is a fit perſon to be received as a lunatic, he ſhall forfeit 100l. No perſon to keep two houſes; commiſſioners to viſit houſes once a-year, or when required by the chancellor or either chief juſtice, or when they think fit, and examine perſons confined.

But when the diſorder is grown permanent, and the circumſtances of the party will bear ſuch additional expence, it is proper to apply to the royal authority, as delegated to the chancellor, to warrant a laſting confinement. 1 *Comm.* 305.

In the caſe of abſolute madmen, as they are not anſwerable for their actions, they ſhould not be permitted the liberty of acting, unleſs under proper controul; and in particular they ought not to be ſuffered to go looſe, to the terror of the king's ſubjects. It was the doctrine of our ancient law, that perſons deprived of their reaſon might be confined till they recovered their ſenſes, without waiting for the forms of a commiſſion, or other ſpecial authority from the crown; and now by the vagrant acts a method is directed to be purſued for impriſoning, chaining, and ſending them to their proper houſes. 4 *Comm.* 25. *ſtat.* 17 *Geo.* II. *c.* 5. §. 20, 21.

Although the ſtatutes reſpecting idiots and lunatics, ſtat. 17 Edw. III. c. 9, 10, refer only to the lands of the idiot or lunatic, yet it ſeems that the prerogative extends to the cuſtody of his perſon, goods, and chattels. *Beverley's caſe*, 4 *Co.* 126. *F. N. B.* 232. As to the manner in which this branch of the prerogative is veſted in the chancellor, before the court of wards was erected, the juriſdiction, both as to idiots and lunatics, was in chancery, and therefore all ſuch commiſſions were taken out and returned in chancery; and after the court of wards was aboliſhed by act of parliament, it reverted back to the court of chancery, and the ſign manual is a ſtanding warrant to the lord chancellor to grant the cuſtody of lunatics, and is a beneficial one in caſe of idiocy, becauſe the king could not only grant the cuſtody of idiots, but alſo the rents and profits of their lands. 2 *Atk.* 553. And the power of the chancellor extends to making grants from time to time of the idiot's and lunatic's eſtates. 3 *Atk.* 635. And as this power is derived under the ſign manual, in virtue of the prerogative of the crown, the chancellor, who is uſually inveſted with it, is reſponſible to the crown alone for the right exerciſe of it; and therefore an appeal will not lie to the houſe of lords, from an order made in lunacy, but muſt be made to the king in council. 3 *P. Wms.* 107. *Rochfort* v. *Ely*, *Bro. P. C.*

Though in ſtrictneſs the guardianſhip of the king may be ſaid to be determined by the death of the lunatic, yet it has been held, that the chancellor may make an order in a lunatic's affairs, after the death of the lunatic. *Amb.* 706. 3 *Bro. C. R.* 238.

The cuſtody of lunatics being a branch of the prerogative, the appointment of the committees muſt neceſſarily be in the diſcretion of the perſon to whom that branch of the prerogative is intruſted; but in the exerciſe of this diſcretion, certain rules have been regarded, as beſt calculated to protect the perſon and intereſts of the unfortunate lunatic. To prevent ſiniſter practices, the next heir is ſeldom permitted to be the committee of the perſon of a lunatic, becauſe it is his intereſt that the party ſhould die; but it hath been ſaid there lies not the ſame objection againſt his next of kin, provided he be not his heir; for it is his intereſt to preſerve the lunatic's life, in order to increaſe the perſonal eſtate, by ſavings (out of the rents and profits of the real) which he or his family may hereafter be entitled to enjoy. 2 *P. Wms.* 638. The heir is generally made the manager or committee of the eſtate, it being clearly his intereſt, by good management, to keep it in condition: accountable however to the court of chancery, and to the *non compos* himſelf if he recovers, or otherwiſe to his adminiſtrators. 1 *Comm.* 305.

With reſpect to the powers with which the committee of a lunatic is intruſted, they are neceſſarily reſtrained by the object of the truſt; and as a diſcretionary power might, in ſome inſtances, endanger that object, the committee cannot make leaſes, nor incumber the lunatic's eſtate, without ſpecial order of the court, though the profits be not ſufficient to maintain the lunatic; therefore, where the lunatic when ſane had mortgaged his eſtate for 50l. and the committee had afterwards taken up more upon it, the court refuſed to allow the mortgage to ſtand, as a ſecurity for more than the 50l. or to charge the heir of the lunatic with the improvements made by the committee. 1 *Vern.* 262.

The court, however, will allow the committee of a real eſtate of a lunatic to exerciſe the ſame power over it, in regard to cutting timber for repairs, as any diſcreet perſon who was the abſolute owner of it might do. 2 *Atk.* 407. Though it has been ſtated as a rule never departed from, not to vary or change the property of a lunatic, ſo as to effect any alteration as to the ſucceſſion to it; it has been decreed, that incumbrances paid off in the life-time of the lunatic, out of ſavings of the eſtate, ſhould be aſſigned to attend the inheritance, and not in truſt for the next of kin; the ruling principle in the management of a lunatic's eſtate, being conſidered to be the doing of that which is moſt beneficial to the lunatic. And it is upon this principle, that the court will order part of the lunatic's perſonal eſtate to be laid out in repairs, or even upon improvements of his real eſtate, if the intereſt of the lunatic requires it, and the next of kin cannot ſhow good cauſe againſt it. *Amb.* 81, 702. 2 *Atk.* 416.

An idiot, or perſon *non compos*, may inherit; becauſe the law, in compaſſion to their natural infirmities, preſumes them capable of property. *Co. Lit.* 2, 8.

It was formerly adjudged, that the iſſue of an idiot was legitimate, and conſequently that his marriage was valid. A ſtrange determination! ſince conſent is abſolutely requiſite to matrimony, and neither idiots nor lunatics are capable of conſenting to any thing; and therefore the civil law judged more ſenſibly when it made ſuch deprivations of reaſon a previous impediment; though not a cauſe of divorce if they happened after marriage. And modern reſolutions have adhered to the reaſon of the civil law, by determining that the marriage of a lunatic, not being in a lucid interval, was abſolutely void. But, as it might be difficult to prove the exact ſtate of the party's mind at the actual celebration of the nuptials, the ſtat. 15 Geo. II. c. 30, has therefore provided, that the marriage of lunatics and perſons under phrenzies, (if found lunatics under a commiſſion, or committed to the care of truſtees by any act of parliament,) before they are declared of ſound mind by the lord chancellor, or majority of ſuch truſtees, ſhall be totally void. 1 *Comm.* 438. A perſon *non compos*, being lord of a copyhold manor, may make grants of copyhold eſtates, for ſuch eſtates do not take their perfection from any power or intereſt in the lord, but from the cuſtom of the manor, by which they have been demiſed and demiſable time out of mind. 4 *Co.* 23. *b*, *Co. Copyholder*, 79, 107.

Idiots and lunatics are, both by the civil law and likewiſe by the common law, incapable of being executors or adminiſtrators; for theſe diſabilities render them not only incapable of executing the truſt repoſed in them, but alſo by their inſanity, and want of underſtanding, they are incapable of determining whether they will take upon them the execution of the truſt or not. *Godolph. Orph. Leg.* 86. Therefore it hath been agreed, that, if an executor become *non compos*, the ſpiritual court may (on account of this natural diſability) commit adminiſtration to another. 1 *Salk.* 36.

An *idiot* can have no executor; for, being *non compos à nativitate*, he could at no time make a will; but a *lunatic* may have an executor, for lunacy is not a revocation of a will made when *compos*. 4 *Co.* 61. *b*.

Courts of equity will not only ſuſtain contracts completed by a lunatic while ſane; but, under certain circumſtances, will enforce performance of ſuch as were entered into before, but were not completed at the time of the lunacy; for the change of the condition of a perſon entering into an agreement, by becoming lunatic, will not alter the rights of the parties, which will be the ſame as before, provided they can come at the remedy; as, if the legal eſtate be veſted in truſtees, a court of equity ought to decree a performance; but, if the legal eſtate be veſted in the lunatic himſelf, that may prevent the remedy in equity, and leave it at law. 1 *Vez.* 82.

As to the effect of a defendant becoming inſane after an arreſt at law, it ſeems to be now ſettled, that ſuch circumſtance is not a reaſon for diſcharging him out of cuſtody, on filing common bail. 2 *Term Rep.* 390. Nor will a court of law interpoſe, though the party be inſane at the time of arreſt. 4 *Term Rep.* 121.

Both idiocy and lunacy excuſe from the guilt of crimes; for the rule of law as to lunatics, which alſo may be eaſily adapted to idiots, is, that *furioſus furore ſolum punitur.* In criminal caſes, therefore, idiots and lunatics are not chargeable for their own acts, if committed when under theſe incapacities; no, not even for treaſon itſelf. Alſo, if a man in his ſound memory commits a capital offence, and before arraignment for it he becomes mad, he ought not to be arraigned for it; becauſe he is not able to plead to it with that advice and caution that he ought. And if, after he has pleaded, the priſoner becomes mad, he ſhall not be tried; for how can he make his defence? If, after he be tried and found guilty, he loſes his ſenſes before judgment, judgment ſhall not be pronounced; and if, after judgment, he becomes of non-ſane memory, execution ſhall be ſtayed; for, peradventure, ſays the humanity of the Engliſh law, had the priſoner been of ſound memory, he might have alleged ſomething in ſtay of judgment or execution. Indeed, in the bloody reign of Henry VIII. a ſtatute was made, which enacted, that if a perſon, being *compos mentis*, ſhould commit high treaſon, and after fall into madneſs, he might be tried in his abſence, and ſhould ſuffer death, as if he were of perfect memory. But this ſavage and inhuman law was repealed by ſtat. 1 & 2 Ph. & M. c. 10. For, as is obſerved by ſir Edward Coke, "the execution of an offender is for example, *ut pœna ad paucos, metus ad omnes perveniat*: but ſo it is not when a madman is executed; but ſhould be a miſerable ſpectacle, both againſt law, and of extreme inhumanity and cruelty, and can be no example to others." But, if there be any doubt whether the party be *compos* or not, this ſhall be tried by a jury. And, if he be ſo found, a total idiocy, or abſolute inſanity, excuſes from the guilt, and of courſe from the puniſhment, of any criminal action committed under ſuch deprivation of the ſenſes; but, if a lunatic hath lucid intervals of underſtanding, he ſhall anſwer for what he does in thoſe intervals, as if he had no deficiency.

It is laid down as a general rule, that idiots and lunatics being, by reaſon of their natural diſabilities, incapable of judging between good and evil, are puniſhable by no criminal proſecution whatſoever. 1 *Hawk. P. C.* 2. And therefore a perſon who loſes his memory by ſickneſs, infirmity, or accident, and kills himſelf, is no *felo de ſe*. 3 *Inſt.* 54. So if a man give himſelf a mortal ſtroke while he is *non compos*, and recovers his underſtanding, and then dies, he is not *felo de ſe*; for, though the death complete the homicide, the act muſt be that which makes the offence. But it is not every melancholy or hypochondriacal diſtemper that denominates a man *non compos*, for there are few who commit this offence but are under ſuch infirmities; but it muſt be ſuch an alienation of mind as renders them madmen, or frantic, or deſtitute of the uſe of reaſon. 1 *Hal. P. C.* 412.

And as a perſon *non compos* cannot be a *felo de ſe* by killing himſelf; ſo neither can he be guilty of *homicide* in killing another, nor of *petit treaſon*. 1 *Hawk. P. C.* 2. The great difficulty in theſe caſes is, to determine where a perſon ſhall be ſaid to be ſo far deprived of his ſenſe and memory, as not to have any of his actions imputed to him; or where, notwithſtanding ſome defects of this kind, he ſtill appears to have ſo much reaſon and underſtanding as will make him accountable for his actions, which lord Hale diſtinguiſhes between, and calls by the name of total and partial inſanity; and, though it be difficult to define the indiviſible line that ſeparates perfect and partial inſanity, yet, ſays he, it muſt reſt upon circumſtances, duly to be weighed and conſidered both by the judge and jury; leſt on the one ſide there be a kind of inhumanity towards the defects of human nature, or, on the other ſide, too great an indulgence given to great crimes; and the beſt meaſure he can think of is this: ſuch a perſon as, labouring under melancholy diſtempers, hath yet ordinarily as great underſtanding as a child of fourteen years commonly hath, is ſuch a perſon as may be guilty of treaſon or felony. 1 *Hale Hiſt. P. C.* 30.

He who incites a madman to do a murder, or other crime, is a principal offender, and as much puniſhable as if he had done it himſelf. *Kelw.* 53. *Dalt.* 95. 1 *Hawk. P. C.* And here we muſt obſerve a difference the law makes between civil ſuits, that are terminated *in compenſationem damni illatæ*, and criminal ſuits or proſecutions that are *ad pœ-*

*nam & in vindictam criminis commiſſi*; and therefore it is clearly agreed, that if one who wants diſcretion commits a treſpaſs againſt the perſon or poſſeſſion of another, he ſhall be compelled in a civil action to give ſatisfaction for the damage. 2 *Roll. Abr.* 547. *Hob.* 134. *Co. Lit.* 247. 1 *Hawk. P. C.* 2.

As to idiocy, lunacy, or madneſs, (the latter of which is defined by Hale to be a total alienation of the mind,) which excuſes in capital caſes, it is not neceſſary that it was found by inquiſition that the party was a madman, idiot, or lunatic, previous to the commitment of the fact; for, if he was actually mad at the time of the fact committed, this ſhall excuſe; and this regularly is to be tried by an inqueſt of office to be returned by the ſheriff of the county wherein the court ſits for the trial of the offence; and, if it be found that he was actually mad, he ſhall be diſcharged without any other trial; but if they find that the party only feigns himſelf mad, and he refuſes to anſwer or plead, he ſhall be dealt with as one who ſtands mute. But theſe defects, whether permanent or temporary, muſt be unequivocal and plain; not an idle frantic humour or unaccountable mode of action, but an abſolute diſpoſſeſſion of the free and natural agency of the human mind. 1 *Hal. P. C. c.* 4. 1 *Hawk. P. C. c.* 1.

ID'IOM, *ſ.* [ιδιωμα, Gr. propriety; of ιδιος, proper, own.] A mode of ſpeaking peculiar to a language or dialect; the particular caſt of a tongue; a phraſe; phraſeology.—He did romanize our tongue, leaving the words tranſlated as much Latin as he found them; wherein he followed their language, but did not comply with the *idiom* of ours. *Dryden.*

Some that with care true eloquence ſhall teach,
And to juſt *idioms* fix our doubtful ſpeech. *Prior.*

IDIOMAT'IC, or IDIOMATICAL, *adj.* Peculiar to a tongue; phraſeological.—Since phraſes uſed in converſation contract meanneſs by paſſing through the mouths of the vulgar, a poet ſhould guard himſelf againſt *idiomatic* ways of ſpeaking. *Spectator.*

IDIOMAT'ICALLY, *adv.* In the manner of an idiom.

IDIOPATHET'ICAL, *adj.* [from *idiopathy.*] Primary; peculiar to itſelf.

IDIOP'ATHY, *ſ.* [*idiopathie*, Fr. from ιδιος, proper, and παθος, a diſeaſe.] A primary diſeaſe that neither depends on nor proceeds from another. *Quincy.*

IDIOSYN'CRASY, *ſ.* [from the Greek, ιδιος, peculiar, and συνκασις, a conſtitution.] A peculiar temper or diſpoſition of body not common to another. *Quincy.*—Whether quails, from any *idioſyncraſy* or peculiarity of conſtitution, do innocuouſly feed upon hellebore, or rather ſometimes but medicinally uſe the ſame. *Brown.*—The underſtanding alſo hath its *idioſyncraſies*, as well as other faculties. *Glanville.*

IDIOSYNCRAT'IC, *adj.* Peculiar in temper or conſtitution.

ID'IOT, or IDEOT, *ſ.* in our laws, denotes a natural fool, or a fool from his birth. See IDIOCY. The word is originally Greek, ιδιωτης, which primarily imports a *private perſon*, or one who leads a private life, without any ſhare or concern in the government of affairs.—What elſe doth he herein, than by a kind of circumlocution tell his humble ſuppliants that he holds them *ideots*, or baſe wretches, not able to get relief? *Raleigh.*—Many *ideots* will believe that they ſee what they only hear. *Dennis.*

By idle boys and *ideots* vilify'd,
Who me and my calamities deride. *Sandys.*

ID'IOTISM, *ſ.* [*idiotiſme*, Fr. from ιδιωτισμος, Gr.] Peculiarity of expreſſion; mode of expreſſion peculiar to a language.—Scholars ſometimes in common ſpeech, or writing, in their native language, give terminations and *idiotiſms* ſuitable to their native language unto words newly invented. *Hale.*—Folly; natural imbecility of mind.

IDISTAVI'SUS, a plain, now *Haſtenback*, where Germanicus defeated Arminius; near Oldendorp, on the Weſer, in Weſtphalia.

I'DLE, *adj.* [ẏðel, Sax.] Lazy; averſe from labour.—For ſhame! ſo much to do, and yet *idle. Bull.*—Not engaged; affording leiſure.—For often have you writ to her; and ſhe in modeſty, or elſe for want of *idle* time, could not again reply. *Shakeſpeare.*—Unactive; not employed.—Children generally hate to be *idle*; all the care then is, that their buſy humour ſhould be conſtantly employed in ſomething of uſe to them. *Locke.*

No war or battle's ſound
Was heard the world around,
The *idle* ſpear and ſhield were high up hung. *Milton.*

Uſeleſs; vain; ineffectual:

Why ſlept the lightning and the thunderbolts,
Or bent their *idle* rage on fields and trees,
When vengeance call'd 'em here? *Dryden.*

Unfruitful; barren; not productive of good:

Crown'd with rank fumiter and furrow weeds,
Darnel, and all the *idle* weeds that grow
In our ſuſtaining corn. *Shakeſpeare.*

Trifling; of no importance; as, an *idle* ſtory.—They are not, in our eſtimation, *idle* reproofs, when the authors of needleſs innovations are oppoſed with ſuch negatives. How are theſe new deviſes brought in, which our fathers never knew? *Hooker.*

His friend ſmil'd ſcornful, and, with proud contempt,
Rejects as *idle* what his fellow dreamt. *Dryden.*

*To* I'DLE, *v. n.* To loſe time in lazineſs and inactivity:

Yet free from this poetic madneſs,
Next page he ſays, in ſober ſadneſs,
That ſhe, and all her fellow-gods,
Sit *idling* in their high abodes. *Prior.*

*To* I'DLE, *v. a.* To waſte idly.—If you have but an hour, will you improve that hour inſtead of *idling* it away? *Cheſterfield.*

I'DLE, a river of England, which riſes near Mansfield, in the county of Nottingham, and joins the Trent, a few miles before its conflux with the Ouſe.

I'DLE-HEADED, *adj.* Fooliſh; unreaſonable.—Theſe *idle-headed* ſeekers reſort thither. *Carew.*—Delirious; infatuated.—Upon this loſs ſhe fell *idle-headed*, and to this very day ſtands near the place ſtill. *L'Eſtrange.*

I'DLENESS, *ſ.* Lazineſs; ſloth; ſluggiſhneſs; averſion from labour.—Nor is exceſs the only thing by which ſin breaks men in their health, and the comfortable enjoyment of themſelves; but many are alſo brought to a very ill and languiſhing habit of body by mere *idleneſs*, and *idleneſs* is both itſelf a great ſin, and the cauſe of many more. *South.*—Abſence of employment.—All which yet could not make us accuſe her, though it made us pine away for ſpite, to loſe any of our time in ſo troubleſome an *idleneſs*. *Sidney.*

He, fearing *idleneſs*, the nurſe of ill,
In ſculpture exercis'd his happy ſkill. *Dryden.*

Omiſſion of buſineſs:

Ten thouſand harms, more than the ills I know,
My *idleneſs* doth hatch. *Shakeſpeare.*

Unimportance; trivialneſs:

To the Engliſh court aſſemble now,
From ev'ry region, apes of *idleneſs*. *Shakeſpeare.*

Inefficacy; uſeleſſneſs. Barrenneſs; worthleſſneſs. Unreaſonableneſs; want of judgment; fooliſhneſs; madneſs. —There is no heat of affection, but is joined with ſome *idleneſs* of brain. *Bacon.*

Idleneſs in any perſon whatſoever is a high offence againſt the public economy. In China it is a maxim, that if there be a man who does not work, or a woman that is idle, in the empire, ſomebody muſt ſuffer cold or hunger; the produce of the lands not being more than ſufficient, with culture, to maintain the inhabitants; and therefore, though the idle perſon may ſhift off the want from himſelf,

ſelf, yet it muſt in the end fall ſomewhere. The court alſo of Areopagus at Athens puniſhed idleneſs, and exerted a right of examining every citizen in what manner he ſpent his time; the intention of which was, that the Athenians, knowing they were to give an account of their occupations, ſhould follow only ſuch as were laudable, and that there might be no room left for ſuch as lived by unlawful arts. The civil law expelled all ſturdy vagrants from the city; and, in our own law, all idle perſons or vagabonds, whom our ancient ſtatutes deſcribe to be "ſuch as wake on the night, and ſleep on the day, and haunt cuſtomable taverns and ale-houſes, and rout about; and no man wot from whence they come, ne whether they go;" or ſuch as are more particularly deſcribed by ſtatute 17 Geo. II. c. 5. and divided into three claſſes, idle and diſorderly perſons, rogues and vagabonds, and incorrigible rogues; all theſe are offenders againſt the good order, and blemiſhes in the government, of any kingdom. They are therefore all puniſhed by the ſtatute laſt mentioned; that is to ſay, idle and diſorderly perſons, with one month's impriſonment in the houſe of correction; rogues and vagabonds, with whipping, and impriſonment not exceeding ſix months; and incorrigible rogues, with the like diſcipline, and confinement not exceeding two years; the breach and eſcape from which confinement in one of an inferior claſs, ranks him among incorrigible rogues; and in a rogue (before incorrigible) makes him a felon, and liable to be tranſported for ſeven years. Perſons harbouring vagrants are liable to a fine of forty ſhillings, and to pay all expences brought upon the pariſh thereby; in the ſame manner as, by our ancient laws, whoever harboured any ſtranger for more than two nights, was anſwerable to the public for any offence that ſuch his inmate might commit.

Rouſſeau and Helvetius are very ſevere upon the higher orders, who claim a privilege to be idle: "No father (ſays Rouſſeau) can tranſmit to his ſon the right of being uſeleſs to his fellow-creatures. In a ſtate of ſociety, where every man muſt be neceſſarily maintained at the expence of the community, he certainly owes the ſtate ſo much labour as will pay for his ſubſiſtence, and this without exception of rank or perſons; rich or poor, ſtrong or weak, every idle citizen is a knave. The man who earns not his ſubſiſtence, but eats the bread of idleneſs, is no better than a thief; and a penſioner, who is paid by the ſtate for doing nothing, differs little from a robber who is ſupported by the plunder he makes on the highway." Helvetius ſays, "In the hive of human ſociety, to preſerve order and juſtice, and to baniſh vice and corruption, it is neceſſary that all the individuals be equally employed, and obliged to concur equally in the general good; and that the labour be equally divided among them. If there be any, whoſe riches and birth exempt them from all employment, there will be diviſions and unhappineſs in the hive. Their idleneſs is deſtructive to the general welfare."

I'DLER, *ſ.* A lazy perſon; a ſluggard.—Many of theſe poor fiſhermen and *idlers*, that are commonly preſented to his majeſty's ſhips, are ſo ignorant in ſea-ſervice, as that they know not the name of a rope. *Raleigh.*

I'DLING, *ſ.* The act of waſting time in idleneſs.

I'DLY, *adj.* Lazily; without employment:

I will ſlay myſelf,
For living *idly* here in pomp and eaſe. *Shakeſpeare.*

Fooliſhly; in a trifling manner:

And modern Aſgil, whoſe capricious thought
Is yet with ſtores of wilder notions fraught,
Too ſoon convinc'd, ſhall yield that fleeting breath,
Which play'd ſo *idly* with the darts of death. *Prior.*

Careleſsly; without attention:

But ſhall we take the muſe abroad,
To drop her *idly* on the road?
And leave our ſubject in the middle,
As Butler did his bear and fiddle? *Prior.*

Ineffectually; vainly.—Let this and other allegations, ſuitable unto it, ceaſe to bark any longer *idly* againſt the truth, the courſe and paſſage whereof it is not in them to hinder. *Hooker.*

ID'MON, in fabulous hiſtory, the ſon of Apollo and Aſteria, was the prophet of the Argonauts. He was killed in hunting a wild boar in Bithynia, where his body received a magnificent funeral. He had predicted the time and manner of his death.

I'DOL, *ſ.* [*idole*, Fr. from *idolum*, Lat.] An image worſhipped as God.—They did ſacrifice upon the *idol*-altar, which was upon the altar of God. 1 *Mac.* i. 59.

A nation from one faithful man to ſpring,
Him on this ſide Euphrates yet reſiding,
Bred up in *idol*-worſhip. *Milton.*

A counterfeit.—Woe to the *idol*-ſhepherd that leaveth the flock. *Zech.* ii. 17.—An image:

Never did art ſo well with nature ſtrive,
Nor ever *idol* ſeem'd ſo much alive;
So like the man, ſo golden to the ſight;
So baſe within, ſo counterfeit and light. *Dryden.*

A repreſentation. *Not in uſe*:

Men, beholding ſo great excellence
And rare perfection in mortality,
Do her adore with ſacred reverence,
As th' *idol* of her maker's great magnificence. *Fairy Queen.*

One loved or honoured to adoration:

He's honoured and lov'd by all;
The ſoldier's god, and people's *idol.* *Denham.*

IDOL'ATER, *ſ.* One who pays divine honours to images; one who worſhips for God that which is not God.—The ſtate of *idolaters* is two ways miſerable; firſt, in that which they worſhip they find no ſuccour; and ſecondly, at his hands, whom they ought to ſerve, there is no other thing to be looked for but the effects of moſt juſt diſpleaſure, the withdrawing of grace, dereliction in this world, and, in the world to come, confuſion. *Hooker.*

IDOL'ATRESS, *ſ.* A female who worſhips idols:

Whoſe heart, though large,
Beguil'd by fair *idolatreſſes*, fell
To idols foul. *Milton.*

*To* IDOL'ATRIZE, *v. a.* To worſhip idols. *Ainſworth.* —To pay idolatrous worſhip.—The Perſians did *idolatrize* unto the ſunne. *Brown.*

IDOL'ATROUS, *adj.* Tending to idolatry; compriſing idolatry, or the worſhip of falſe gods.—Neither may the pictures of our Saviour, the apoſtles and martyrs of the church, be drawn to an *idolatrous* uſe, or be ſet up in churches to be worſhipped. *Peacham.*

IDOL'ATROUSLY, *adv.* In an idolatrous manner. Not therefore whatſoever idolaters have either thought or done; but let whatſoever they have either thought or done *idolatrouſly*, be ſo far forth abhorred. *Hooker.*

IDOL'ATRY, *ſ.* The worſhip of images; the worſhip of any thing as God which is not God.—*Idolatry* is not only an accounting or worſhipping that for God which is not God, but it is alſo a worſhipping the true God in a way unſuitable to his nature; and particularly by the mediation of images and corporeal reſemblances. *South.*

Thou ſhalt be worſhipp'd, kiſs'd, lov'd, and ador'd;
And, were there ſenſe in his *idolatry*,
My ſubſtance ſhould be ſtatued in thy ſtead. *Shakeſpeare.*

The ſtars were the firſt objects of idolatrous worſhip, on account of their beauty, their influence on the productions of the earth, and the regularity of their motions, particularly the ſun and moon, which are conſidered as the moſt glorious and reſplendent images of the deity; afterwards, as their ſentiments became more corrupted, they began to form images, and to entertain the opinion, that, by virtue of conſecration, the gods were called down to inhabit or dwell in their ſtatues. Hence Arnobius takes occaſion to rally the pagans for guarding ſo carefully the ſtatues of their gods, who, if they were really preſent in their images, might ſave their worſhippers the trouble of ſecuring them from thieves and robbers.

As to the adoration which the ancient pagans paid to the ſtatues of their gods, it is certain, that the wiſer and more ſenſible heathens conſidered them only as ſimple repreſentations or figures deſigned to recal to their minds the memory of their gods. This was the opinion of Varro and Seneca; and the ſame ſentiment is clearly laid down in Plato, who maintains, that images are inanimate, and that all the honour paid to them has reſpect to the gods whom they repreſent. But, as to the vulgar, they were ſtupid enough to believe the ſtatues themſelves to be gods, and to pay divine worſhip to ſtocks and ſtones.

Soon after the flood, idolatry ſeems to have been the prevailing religion of all the world: for, wherever we caſt our eyes at the time of Abraham, we ſcarcely ſee any thing but falſe worſhip and idolatry. And it appears from Scripture, that Abraham's forefathers, and even Abraham himſelf, were for a time idolaters. The Hebrews were indeed expreſsly forbidden to make any repreſentation of God; they were not ſo much as to look upon an idol; and, from the time of the Maccabees to the deſtruction of Jeruſalem, the Jews extended this precept to the making the figure of any man; by the law of Moſes, they were obliged to deſtroy all the images they found, and were forbidden to apply any of the gold or ſilver to their own uſe, that no one might receive the leaſt profit from any thing belonging to an idol. Of this the Jews, after they had ſmarted for their idolatry, were ſo ſenſible, that they thought it unlawful to uſe any veſſel that had been employed in ſacrificing to a falſe god, to warm themſelves with the wood of a grove after it was cut down, or to ſhelter themſelves under its ſhade. But the preaching of the Chriſtian religion, wherever it prevailed, entirely rooted out idolatry; as did alſo that of Mahomet, which is built on the worſhip of one God. It muſt not, however, be forgotten, that the Proteſtant Chriſtians charge thoſe of the church of Rome with paying an idolatrous kind of worſhip to the pictures or images of ſaints and martyrs; before theſe, they burn lamps and wax-candles; before theſe, they burn incenſe, and, kneeling, offer up their vows and petitions; they, like the pagans, believe that the ſaint to whom the image is dedicated, preſides in a particular manner about its ſhrine, and works miracles by the intervention of its image; and that, if the image was deſtroyed or taken away, the ſaint would no longer perform any miracle in that place. See ICONOCLAST, p. 754.

I'DOLET, *ſ.* A little idol. *Not much uſed.*

I'DOLISM, *ſ.* The worſhip of idols:

How wilt thou reaſon with them, how refute
Their *idoliſms?* *Milton.*

I'DOLIST, *ſ.* A worſhipper of images. *A poetical word:*

I to God have brought
Diſhonour, obloquy, and op'd the mouths
Of *idoliſts* and atheiſts. *Milton.*

*To* I'DOLIZE, *v. a.* To love or reverence to adoration.—Parties, with the greateſt violation of Chriſtian unity, denominate themſelves, not from the grand author and finiſher of our faith, but from the firſt broacher of their *idolized* opinions. *Decay of Piety.*

Thoſe who are generous, humble, juſt, and wiſe,
Who not their gold nor themſelves *idolize.* *Denham.*

I'DOLIZING, *ſ.* The act of making an idol of any thing.

IDOL'KA, a town of Lithuania, in the palatinate of Troki: twenty miles ſouth-weſt of Troki.

I'DOLSBERG, a village of Germany, in the archduchy of Auſtria: ten miles north-weſt of Crems.

IDOMENE'US, in fabulous hiſtory, ſucceeded his father Deucalion on the throne of Crete. He accompanied the Greeks to the Trojan war with a fleet of ninety ſhips. During this celebrated war he rendered himſelf famous by his valour, and ſlaughtered many of the enemy. At his return from the Trojan war, he made a vow to Neptune in a dangerous tempeſt, that, if he eſcaped from the fury of the ſeas and ſtorms, he would offer to the god whatever living creature firſt preſented itſelf to his eye on the Cretan ſhore. This was no other than his ſon, who came to congratulate his father upon his ſafe return. Idomeneus performed his promiſe to the god; and the inhumanity and raſhneſs of this ſacrifice rendered him ſo odious in the eyes of his ſubjects, that he left Crete, and migrated in queſt of a ſettlement. He came to Italy, and founded a city on the coaſt of Calabria, which he called *Salentum.* He died in an extreme old age, after he had had the ſatisfaction of ſeeing his new kingdom flouriſh, and his ſubjects happy. According to the Greek ſcholiaſt of Lycophron, Idomeneus, during his abſence in the Trojan war, entruſted the management of his kingdom to Leucos, to whom he promiſed his daughter Cliſithere in marriage at his return. Leucos at firſt governed with moderation, but he was perſuaded by Nauplius king of Eubœa to put to death Meda the wife of his maſter, with her daughter Cliſithere, and to ſeize the kingdom. After theſe violent meaſures he ſtrengthened himſelf on the throne of Crete, and Idomeneus at his return found it impoſſible to expel the uſurper.

IDOM'ENI, a town of European Turkey, in the province of Macedonia: twenty-ſix miles north-north-eaſt of Edeſſa.

IDO'NEOUS, *adj.* [*idoneus*, Lat.] Fit; proper; convenient; adequate.—You entangle, and ſo fix their ſaline part, by making them corrode ſome *idoneous* body. *Boyle.*—An eccleſiaſtical benefice is ſometimes void *de jure & facto*, and then it ought to be conferred on an *idoneous* perſon. *Ayliffe.*

ID'RIA, a town of Germany, in the county of Goritz, celebrated for its mines of quickſilver: eighteen miles north-eaſt of Goritz.

IDRIÆ'US, the ſon of Euromus of Caria, brother to Artemiſia, who ſucceeded to Mauſolus, and invaded Cyprus.

ID'STEIN, a town of Germany, twelve miles north of Mentz, and twenty-two ſouth-weſt of Wetzlar. Lat. 50. 10. N. lon. 25. 50. E. Ferro.

ID'SU, a province of Japan.

ID'SU, or TOOSJU, a province of Japan.

IDSU'ME, or FUCHIMI, a province of Japan.

IDSU'MI, or SANSJU, a province of Japan.

IDSU'MO, or UNSJU, a province of Japan.

IDU'ME, or IDUME'A, a country of Syria, famous for palm-trees. Gaza is its capital, where Cambyſes depoſited his riches, as he was going to Egypt. See EDOM, vol. vi. p. 252.

IDUME'AN, *adj.* [from *Idumea.*] Belonging to Idumea.

IDUME'AN, *ſ.* A native of Idumea.

IDY'IA, one of the Oceanides, who married Æetes king of Colchis, by whom ſhe had Medea, &c.

I'DYL, *ſ.* in ancient poetry, is only a diminutive of the word ειδος, and properly ſignifies any poem of moderate extent, without conſidering the ſubject. But, as the collection of Theocritus's poems were called *Idylia*, and the paſtoral pieces being by far the beſt in that collection, the term *idyl* ſeems to be now appropriated to paſtoral pieces.

I. E. for *id eſt*, or that is.—That which raiſes the natural intereſt of money, is the ſame that raiſes the rent of land, *i. e.* its aptneſs to bring in yearly, to him that manages it, a greater overplus of income above his rent, as a reward to his labour. *Locke.*

JEAL'OUS, *adj.* [*jaloux*, Fr.] Suſpicious in love.—Miſtreſs Ford, the honeſt woman, the virtuous creature, that hath the *jealous* fool to her huſband! *Shakeſpeare.*

A *jealous* empreſs lies within your arms,
Too haughty to endure neglected charms. *Dryden.*

Emulous; full of competition.—I could not, without extreme reluctance, reſign the theme of your beauty to another hand: give me leave to acquaint the world that I am *jealous* of this ſubject. *Dryden.*—Zealouſly cautious againſt diſhonour.—I have been very *jealous* for the Lord God of hoſts. 1 *Kings.*—Suſpiciouſly vigilant.—I am *jealous* over you with godly jealouſy. 2 *Cor.* ii. 2.—Suſpiciouſly careful.—Although he were a prince in military virtue approved, and *jealous* of the honour of the Engliſh nation, yet his cruelties and parricides weighed down his virtues. *Bacon.*—Suſpiciouſly fearful.—While the people are ſo *jealous* of the clergy's ambition, I do not ſee any other method left for them to reform the world, than by uſing all honeſt arts to make themſelves acceptable to the laity. *Swift.*

'Tis doing wrong creates ſuch doubts as theſe;
Renders us *jealous*, and deſtroys your peace. *Waller.*

JEAL'OUSLY, *adv* Suſpiciouſly; emulouſly; with ſuſpicious fear, vigilance, or caution.

JEAL'OUSNESS, *ſ.* The ſtate of being jealous; rivalry; ſuſpicion; ſuſpicious vigilance.—Nor is it hard for thee to preſerve me amidſt the unjuſt hatred and *jealouſneſs* of too many, which thou haſt ſuffered to prevail upon me. *King Charles.*

JEAL'OUSY, *ſ.* [*jalouſie*, Fr.] Suſpicion in love:

Small *jealouſies*, 'tis true, inflame deſire;
Too great, not fan, but quite blow out, the fire. *Dryden.*

Suſpicious fear.—The obſtinacy of Eſſex, in refuſing to treat with the king, proceeded only from his *jealouſy*, that when the king had got him into his hands he would take revenge upon him. *Clarendon.*—Suſpicious caution, vigilance, or rivalry.—*Jealouſy* is the fear or apprehenſion of ſuperiority. *Shenſtone.*

O how haſt thou with *jealouſy* infected
The ſweetneſs of affiance! *Shakeſpeare.*

JEAN, a woman's name.

JEAN DE BAR'RE, an iſland of Africa, in the kingdom of Senegal, about five leagues in circumference.

JEAN RABEL', a town on the north-weſt part of the north peninſula of the iſland of Domingo, in lat. 19. 55. N. and in lon. 75. 42. W. from Paris. It is four leagues eaſt of the Mole, and thirty-two weſt of Cape François. Jean Rabel Point forms the anchorage of that name, which is good, ſafe, and eaſy to fetch. The landing-place is a very good one, even if there ſhould be a ſwell; it is under the fort, which is exceedingly well placed, and makes it a very good retreat from an enemy.

JEANNIN' (Peter), a very able and honeſt miniſter of ſtate, born in 1540, was brought up to the law, and firſt acted in quality of an advocate in the parliament of Burgundy, where he ſoon diſtinguiſhed himſelf by his eloquence and force of argument. The ſtates of Burgundy appointed him agent for the affairs of the province. In this ſituation he diſplayed his worth and humanity by reſiſting, with all his power, the order for perpetrating at Dijon the ſame horrid maſſacre of the proteſtants on St. Bartholomew's-day, which took place at Paris and in other cities, proteſting that it was impoſſible that the king could perſiſt in ſuch a cruel purpoſe; and a courier arrived a few days after to revoke it. This was the more meritorious in him, as he was a zealous catholic; inſomuch that he was induced, by the zeal which the leaguers affected for religion and the good of the ſtate, to join their party. Eventually this circumſtance was highly ſerviceable to the kingdom; for, being deputed by the duke of Mayenne to negociate with Philip II. of Spain, the declared protector of the league, he ſoon diſcovered that the real deſign of that prince in ſupporting the civil war in France was to gain poſſeſſion of ſome of its beſt provinces. He therefore, on his return, exerted his influence with the duke to detach him from the Spaniards, and diſpoſe him to acknowledge his lawful ſovereign. After Mayenne had returned to his duty, Henry IV. was deſirous to engage Jeannin in his ſervice; and, when the latter honeſtly objected that it was not fit that his majeſty ſhould prefer an old leaguer to ſo many perſons of undeviating fidelity, Henry replied "that he who had been faithful to a duke would never be otherwiſe to a king." From that time he was one of Henry's principal adviſers and confidents, and was choſen for the management of the moſt delicate negociations. He had a great ſhare in effecting an agreement between the king of Spain and the United Provinces, and obtained the applauſe of both parties for his conduct. Henry, having once diſcovered that a ſecret of ſtate had been revealed, complained of it at the council-board, ſaying, at the ſame time, while he took the preſident Jeannin by the hand, "I anſwer for this good man; the reſt of you muſt examine one another." After the death of that great king, Jeannin was entruſted by the queen-mother with the management of the greateſt affairs, eſpecially the adminiſtration of the finances; and the moderate fortune he left was a proof of his integrity in this department. He poſſeſſed an elevated mind, and knew his own value. When once aſked, by a prince who meant to diſconcert him, whoſe ſon he was; he replied, "The ſon of my virtues." This reſpectable miniſter, who had witneſſed the ſucceſſion of ſeven kings to the throne of France, died in 1622, at the age of eighty-two. His Memoirs and Negociations were publiſhed in 1659, folio, Paris; and in 1695, four volumes 12mo. They are accounted excellent guides for the management of important and difficult concerns, and were much ſtudied by cardinal Richelieu.

JEAR, or GEER, *ſ.* in the ſea-language, an aſſemblage of tackles, by which the lower yards of a ſhip are hoiſted along the maſt to their uſual ſtation, or lowered from thence as occaſion requires; the former of which operations is called *ſwaying*, and the latter *ſtriking*.

JE'AR-BLOCK, *ſ.* A ſea term; a block faſtened at the maſt head, a block laſhed to the yard.

JE'AR-ROPE, *ſ.* A ſea term; the rope by which the jear-blocks are laſhed.

JEATERA'I, [Hebrew.] The name of a man.

JEBB (Samuel, M. D.) a man of learning, and editor of ſeveral works, was a native of Nottingham. He became a member of Peter-houſe, Cambridge, and, imbibing the ſentiments of the non-jurors, accepted the office of librarian to Jeremy Collier. While at Peter-houſe he printed a tranſlation of Martin's Anſwers to Emlyn, 1718; and in the following year publiſhed an edition of Juſtin Martyr. On leaving the univerſity, he married the daughter of an eminent apothecary in London, from whom he took inſtructions in pharmacy. He however, continued his literary purſuits; and was the editor, in 1722, of a periodical work, entitled, *Bibliotheca Literaria*, which only reached ten numbers, though enriched with the contributions of ſeveral eminent ſcholars. Mr. Jebb, at what period we do not learn, took the degree of M. D. and ſettled at Stratford, Eſſex, where he continued to practiſe till late in life. He finally retired with a moderate fortune into Derbyſhire, where he died in 1772. One of his ſons was ſir Richard Jebb, M. D. mentioned in the following article.

JEBB (John), an eminent ſcholar, divine, and phyſician, was the eldeſt ſon of the Rev. John Jebb, dean of Caſhell, of a Nottinghamſhire family. He was born at London in 1736, and received his early education in various ſchools in Ireland and England. In 1753 he was entered a penſioner of Trinity college, Dublin, which he quitted the next year for St. Peter's college, Cambridge. He took there the degree of B. A. in 1757, and immediately engaged in the office of a private tutor, which, with his other ſtudies, he purſued with ſingular diligence and aſſiduity. In 1760 he was admitted probationer-fellow of St. Peter's college, and in the enſuing year he proceeded to the degree of M. A. and was confirmed fellow. In

1762 he received deacon's orders, and in 1763 prieſt's orders, from Dr. Green, biſhop of Lincoln. He was elected by the univerſity to the rectory of Ovington in Norfolk in 1764. In conjunction with two friends, the Rev. Robert Thorpe and the Rev. George Woollaſton, he publiſhed, in 1765, a work entitled *Excerpta quædam e Newtoni Principiis Philoſophiæ Naturalis, cum Notis variorum,* 4to. the value of which is teſtified by its general uſe at Cambridge in the courſe of academical education.

It would be tedious and unintereſting to trace the ſteps of Mr. Jebb in his clerical removals; but his return to Cambridge in the end of 1766 was an important era in his life. He reſumed his office of private tutor, read occaſional lectures, acted repeatedly as moderator, and warmly intereſted himſelf in the concerns of the univerſity. He began in November, 1768, a courſe of lectures on the Greek Teſtament; in which, as well as in other theological diſcuſſions, he expreſſed opinions which decidedly ranked him among thoſe who were deſirous of carrying the reformation of religion further than it had been left at the time of the ſettlement of the church. He alſo, by his conduct on occaſions in which the univerſity acted as a political body, with equal deciſion took the popular or oppoſition ſide; and his determination on theſe two leading points formed the grand principle of his public life till its final cloſe. He became, in ſhort, one of the moſt zealous, intrepid, and indefatigable, ſupporters of civil and religious liberty, and of public reform, in the kingdom. In 1769 he was preſented by William Adair, eſq. to the vicarage of Flixton, near Bungay, and to the united rectories of Homersfield and St. Croſs, two contiguous pariſhes; and was alſo nominated chaplain to his wife's relation, the earl of Harborough. From this time he divided his reſidence for ſome years between Bungay and Cambridge. His theological lectures having excited much obloquy againſt him, he printed a "Short Account" of them in 1770, which he re-edited with large additions in 1772. When a deſign was formed by ſome of the clergy of applying to parliament for relief in the matter of eccleſiaſtical ſubſcription, Mr. Jebb was early acquainted with it, and engaged in it with all the ardour of his character. He aſſiſted in drawing up various papers on the buſineſs; and a ſeries of letters on the ſubject, which he printed in the Whitehall Evening Poſt, under the ſignature of *Paulinus,* were publiſhed together in a pamphlet in 1772.

The direction which Mr. Jebb's theological opinions had taken was ſo adverſe to the ſyſtem of the church to which he belonged, that it was manifeſt one of his zeal and integrity could not permanently continue to officiate as one of its miniſters. In proportion as compliances with its forms became more burthenſome to him, he withdrew from its functions; and he finally reſigned all his livings in September 1775. His motives for this ſacrifice were made public in a "Short Statement of Reaſons, &c." He remained at Cambridge ſome time longer, ſtill occupying himſelf with his favourite ſchemes for the reformation of diſcipline; but finding a determined oppoſition, together with perſonal hoſtilities, which cut off his proſpects of ſupport from private tuition, he finally left the place in September 1776.

He was now, at the age of forty, to look out for ſome new way of life; and by the advice of his relation ſir Richard Jebb, a phyſician of eminence, he determined upon the medical profeſſion. His general learning and habits of ſtudy rendered the acquiſition of a new ſcience no formidable taſk. Taking up his abode in the metropolis, he aſſiduouſly attended the lectures of medical teachers and the practice of the hoſpitals; and in 1777 he received a diploma of M. D. from St. Andrew's, and was admitted a licentiate of the London College. He did not commence practice till February 1778, when he had completed two years of profeſſional ſtudies; and he ſtill ſought improvement from lectures and hoſpital caſes. In November 1778, he was elected a fellow of the Royal Society. His character of a party-man was injurious to him profeſſionally, as appeared in the failure of his attempts to obtain the place of an hoſpital-phyſician; yet he had many warm friends who were zealous to ſerve him, and his practice increaſed as long as his health permitted him to follow it regularly. A publication in 1782, relating "Select Caſes of the Diſorder commonly termed the Paralyſis of the Lower Extremities; to which is added, a Caſe of Catalepſy;" teſtified the accuracy with which he contemplated diſeaſes, and his fitneſs for thoſe inveſtigations which lead to the moſt effectual methods of cure. The practice of Mr. Pott in applying cauſtics to the tumour of the ſpine in the paralyſis above-mentioned, is that which Dr. Jebb's caſes tend to ſupport. His own health, however, injured by fatigues and anxieties, began to give way ſoon after he became entruſted with the care of that of others. His mind ſeems to have worn out his body, and he fell into a ſtate of debility, from which nothing could raiſe him; ſunk under his indiſpoſition, and expired on March 2, 1786, in the fifty-firſt year of his age. His works were publiſhed collectively, in 3 vols. large 8vo. 1787. They conſiſt of his Plan of Theological Lectures, and a Harmony of the Goſpels; of letters on the ſubject of ſubſcription; of ſermons and theological tracts; of papers relative to the ſtate of public education at Cambridge; of medical caſes; and of political and miſcellaneous papers.

JE'BUN, a tribe of Gentoos, deſcended from a woman of the Bice and a man of the Dewol caſt.

JE'BUS, [Heb. a contemner.] The ancient name of Jeruſalem.

JEBUSÆ'I, one of the ſeven ancient people of Canaan, deſcendants of Jebuſi, Canaan's ſon; ſo warlike and brave, as to have ſtood their ground, eſpecially in Jebus, afterwards called *Jeruſalem,* down to the time of David. *Judges* i. 21. 1 *Sam.* v. 6.

JEB'USI, [Hebrew.] The name of a place.

JEB'USITE, *ſ.* [from *Jebus.*] An inhabitant of Jebus, a native of Jebus.

JECAMI'AH, [Hebrew.] The name of a man.

JECOLI'AH, [Hebrew.] The name of a man.

JECONI'AH, [Heb. the faithfulneſs of God.] A man's name.

JECTIGA'TION, *ſ.* [from *jacto,* Lat. to toſs.] With phyſicians, the trembling of the pulſe which in ſome diſorders indicates a convulſion of the brain. *Scott. Not much uſed.*

JE'CUR, *ſ.* [Latin.] In anatomy, the liver.

JED, a river of Scotland, which runs into the Tiviot two miles north of Jedburgh.

JEDAI'A, or JEDAI'AH, [Hebrew.] The name of a man.

JED'BURGH, a town of Scotland, in the county of Roxburgh, on the river Jed, containing near 2000 inhabitants, and about 800 in the environs belonging to the pariſh: twenty-five miles ſouth-weſt of Berwick, and thirty-four ſouth-eaſt of Edinburgh. Lat. 55. 30. N.

JED'DO, the capital town or city of the iſlands of Japan, where the emperor reſides. It is open on all ſides, having neither walls nor ramparts; and the houſes are built with earth, and boarded on the outſide to prevent the rain from deſtroying the walls. In every ſtreet there is an iron gate, which is ſhut up in the night; and a kind of cuſtom-houſe or magazine, to put merchandiſes in. It is a large place, being nine miles in length and ſix in breadth, and contains 1,000,000 of inhabitants. A fire happened in 1658, which, in the ſpace of forty-eight hours, burnt down 100,000 houſes, and in which a vaſt number of inhabitants periſhed. The emperor's palace and all the reſt were reduced to aſhes; but they are all rebuilt. The royal palace is in the middle of the town; and is defended with walls, ditches, towers, and baſtions. Where the emperor reſides there are three towers nine ſtories high, each covered with plates of gold; and the hall of audience is ſaid to be ſupported by pillars of maſſy gold. Near the palace are ſeveral others, where the relations of the emperor live. The empreſs has a palace of her own; and there are twenty ſmall ones for the concubines. Beſides, all the vaſſal kings have each a palace in the city, with a handſome garden and ſtables for two thouſand horſes. The houſes of the common ſort are nothing but a ground-floor, and the rooms are parted by folding-ſcreens; ſo that they can make the rooms larger or ſmaller at pleaſure. It is ſeated in an agreeable plain at the bottom of a fine bay, and the river which croſſes it is divided into ſeveral canals. Lat. 35. 32. N. lon. 140. 0. E.

JEDEI'AH, [Hebrew.] The name of a man.

JEDI'AEL, [Hebrew.] The name of a man.

JEDI'DAH, [Heb. amiable.] The name of a woman.

JEDIDI'AH, [Heb. beloved of the Lord.] A name given to Solomon.

JED'JER, *ſ.* A petty zemindary; the jaghire of a prince.

JEDLIN'SKI, a town of Poland, in the palatinate of Sandomerz: eight miles ſouth-ſouth-weſt of Radom.

JEDNIT'ZA, a town of Hungary, in the borders of Moravia: thirty miles north of Topoltzan.

JED'SO. See Jeso.

JEDU'THUN, *ſ.* [Heb. one that praiſes.] A man's name.

JEE, *ſ.* A title of reſpect much uſed in Hindooſtan; as ſir, maſter, worſhip.

*To* JEER, *v. n.* [of uncertain etymology.] To ſcoff; to flout; to make mock:

The merry world did on a day
With his trainbands and mates agree
To meet together where I lay,
And all in ſport to *jeer* at me. *Herbert.*

*To* JEER, *v. a.* To treat with ſcoffs.—My children abroad are driven to diſavow me, for fear of being *jeered. Howel.*

JEER, *ſ.* Scoff; taunt; biting jeſt; flout; jibe; mock:

Midas, expos'd to all their *jeers*,
Had loſt his art, and kept his ears. *Swift.*

They tipt the forehead in a *jeer*,
As who ſhould ſay—She wants it here;
She may be handſome, young, and rich:
But none will burn her for a witch. *Swift.*

JEER'ER, *ſ.* A ſcoffer; a ſcorner; a mocker.

JEER'ET, *ſ.* A ſort of combat on horſeback; an exerciſe in Turkey.

JEER'ING, *ſ.* The act of ſcoffing.—Abſtain from diſſolute laughter, petulant uncomely jeſts, loud talking, and *jeering*, which are called indecencies and incivilities. *Taylor.*

JEER'INGLY, *adv.* Scornfully; contemptuouſly; in mock; in ſcoff.—He *jeeringly* demandeth, whether the ſonorous rays are refracted? *Derham.*

JE'EZER, [Hebrew.] A man's name.

JE'EZERITE, [from *Jeezer.*] A deſcendant of Jeezer.

JEFF, a contraction of Jeffery.

JEF'FERSON, a fort in the north-weſt territory of the United States of America, is ſituated on a ſmall ſtream which falls into the Great Miami; contains about one hundred men: twenty-one miles north of Fort St. Clair. Lat. 40. 4. N.

JEF'FERSON, a fort on the eaſt bank of the Miſſiſſippi, in Kentucky, near the line of the ſtate of Tenneſſee.

JEF'FERSON, a town of Virginia, ſituated on the north ſide of Roanoke river, nineteen miles below the Oeconeachey iſlands. Lat. 36. 32. N.

JEF'FERSON, a county of Kentucky, bounded north and weſt by Ohio river, ſouth by Nelſon county, and ſouth-eaſt-and-eaſt by Shelby. It contains 4565 inhabitants; of whom 876 are ſlaves. Chief town, Louiſville, at the Rapids of Ohio.—Drinnon's Lick, in this county, lies on the ſouth-weſt ſide of Kentucky river, about fifteen miles from its mouth; and is ſeparated from the famous medicinal ſpring by a ſmall rivulet.

JEF'FERSON, a county in Tenneſſee, and in Hamilton diſtrict, which contained, by the ſtate cenſus of 1795, 7840 inhabitants, of whom 776 were ſlaves.

JEF'FERSON, a new county of Georgia, erected in 1796, from the counties of Burke and Warren, bordering on Ogeechee river, and Briar and Big creeks. Courts and elections are held at Louiſville for this county, a court-houſe not being yet erected.

JEFFERSO'NIA, *ſ.* A plant lately diſcovered in Georgia by Dr. Brickel of Savannah, and ſo named by him in compliment to the preſident of the United States. It is a genus of the claſs pentandria, order monogynia. The generic characters are—Calyx: below, compoſed of five ſhort oval imbricated leaves. Corolla: monophyllous, funnel-ſhaped, on the receptacle, ſub-pentangular, bearing the filaments near the baſe, its margin hypocrateriform, divided into five round ducts nearly equal; ſtyle filiform, ſhorter than the petal, but longer than the ſtamens; ſtigma, quadrifid; anthers, erect, linear, ſagittated. Fruit; two univalved, carinated, polyſpermous capſules, united at the baſe, opening on their tops and contiguous ſides, having flat ſeeds, with a marginal wing.

Jefferſonia ſempervirens; the only ſpecies as yet diſcovered. It is a ſhrub with round poliſhed twining ſtems, which climb up on buſhes and ſmall trees; the petioles ſhort, oppoſite; leaves oblong, narrow, entire, evergreen, acute; flowers axillary, yellow, having a ſweet odour. The woods are full of this delightful ſhrub, which is covered with bloſſoms for many months in the year.

JEF'FERY, the name of a man.

JEF'FERY (Thomas), an Engliſh proteſtant diſſenting divine, memorable for his excellent defences of Chriſtianity, was the ſon of a reſpectable merchant at Exeter, in Devonſhire, where he was born at the cloſe of the ſeventeenth or the beginning of the eighteenth century. In the year 1726 he ſettled at Little-Baddow, in Eſſex; but did not continue there longer than till the year 1728, when he returned to his native city. At this time, by the publications which he produced, he had afforded evidence of talents and diligence in ſtudy which would have reflected credit on advanced age, and were wonderful in a young man. Great expectations were conſequently formed of the advantages which the world would derive from his future labours; but they were unhappily fruſtrated by his premature death, which appears to have taken place ſoon after his return to Exeter. His publications met with the approbation and applauſe of the learned and judicious, and even extorted high encomiums from Mr. Anthony Collins, againſt whoſe works they were principally directed. Dr. Kennicott, who was an excellent judge of whatever relates to the queſtion concerning the predictions of the Old Teſtament, highly approved of our author's anſwers to Collins; and Dr. Doddridge, who repeatedly refers to and quotes him in his Family Expoſitor, ſpeaks of him as having treated the ſubject of prophecy, and the application of it in the New Teſtament, more ſtudiouſly, perhaps, than any one ſince the time when Euſebius wrote his Demonſtratio Evangelica.

JEF'FERY of MON'MOUTH. See Geoffrey, vol. viii. p. 339.

JEF'FREYS (Sir George), Baron Wem, commonly called *Judge Jeffreys*, was the ſixth ſon of John Jeffreys, eſq. of Acton in Denbighſhire; and was educated at Weſtminſter-ſchool, whence he removed to the Inner Temple, where he applied himſelf to the ſtudy of the law. Alderman Jeffreys, who was probably related to him, introduced him among the citizens of London; and, being a merry bottle-companion, he ſoon came into great buſineſs, and was choſen recorder. He was afterwards choſen ſolicitor to the duke of York; and in 1680 was knighted, and made chief-juſtice of Cheſter. At length, reſigning the recorderſhip, he obtained the poſt of chief-juſtice of the king's-bench, and, ſoon after the acceſſion of James II. the great ſeal. During the reign of king Charles II. he ſhowed himſelf a bitter enemy to thoſe diſſenting miniſters who, in that time of perſecution, were tried by him. He was one of the greateſt adviſers and promoters of all the oppreſſions and arbitrary meaſures carried on in the reign of James II. and his ſanguinary and inhuman proceedings againſt Monmouth's unhappy adherents in the weſt will ever render his name infamous. Whenever the priſoner was of a different party, or he could pleaſe the court by condemning him, inſtead of appearing, according to the duty of his office, as his counſel, he would ſcarcely allow him to ſpeak for himſelf; but would load him with the groſſeſt and moſt vulgar abuſe, browbeat, inſult, and turn to ridicule, the witneſſes that ſpoke in his behalf; and even threaten the jury with fines and impriſonment if they made the leaſt heſitation about bringing in the priſoner guilty. Yet it is ſaid, that when he was in temper, and matters perfectly indifferent came before him, no one became a ſeat of juſtice better. Nay, it even appears, that when he was under no ſtate-influence, he was ſometimes inclined to protect the natural and civil rights of mankind, of which the following inſtance has been given: The mayor and aldermen of Briſtol had been uſed to tranſport convicted criminals to the American plantations, and ſell them by way of trade. This turning to good account, when any pilferers or petty rogues were brought before them, they threatened them with hanging; and then ſome officers who attended, earneſtly perſuaded the ignorant intimidated creatures to beg for tranſportation, as the only way to ſave them; and in general their advice was followed. Then, without more form, each alderman in courſe took one, and ſold him for his own benefit; and ſometimes warm diſputes aroſe between them about the next turn. This infamous trade, which had been carried on many years, coming to the knowledge of the lord chief-juſtice, he made the mayor deſcend from the bench, and ſtand at the bar with his ſcarlet and fur, with his guilty brethren the aldermen, and plead as common criminals. He then obliged them to give ſecurities to anſwer informations; but the proceedings were ſtopped by the revolution. He was then committed to the Tower, where he died in 1689. It is remarkable, that the late counteſs of Pomfret met with very rude inſults from the populace on the weſtern road, only becauſe ſhe was grand-daughter of the inhuman Jeffreys.

JE'GAR-SAHADU'THA, [Heb. the houſe of witneſs.] The name given to a place. *Gen.* xxxi.

JEG'GET, *ſ.* A kind of ſauſage. *Ainſworth.*

JEG'NI BASAR', a town of Aſiatic Turkey, in the province of Natolia: twenty-eight miles north of Mogla.

JEG'NI-KE'VI, a town of Aſiatic Turkey, in the province of Natolia: twenty-four miles north-north-weſt of Degnizlu.

JEG'NI-KE'VI, a town of European Turkey, in the province of Romania: forty-four miles weſt-ſouth-weſt of Burgas.

JEG'NI-PANGO'LA, a town of European Turkey, in Bulgaria: ſeventy miles eaſt-ſouth-eaſt of Driſtra.

JEG'NI-SHE'HR, a town of Aſiatic Turkey, in the province of Natolia: twenty-eight miles weſt of Degnizlu.

JEG'NI-SHE'HR, a town of Aſiatic Turkey, in the province of Natolia: thirty-two miles eaſt of Burſa.

JE'GUN, a town of France, in the department of the Gers, and chief place of a canton, in the diſtrict of Auch: two leagues and three quarters north-north-weſt of Auch, and four and a quarter ſouth of Condom. Lat. 43.45. N. lon. 18. 7. E. Ferro.

JEHANDAR', [Ind. the poſſeſſor of the world.] The name of a prince.

JE'HAN GEER, [conqueror of the world.] The name of an emperor of Delhi.

JE'HAN SHAH, [king of the world.] A king of Delhi. See the article HINDOOSTAN.

JEHAZI'EL, [Hebrew.] The name of a man.

JEHDEI'AH, [Hebrew.] The name of a man.

JEHERECHI'AH, [Hebrew.] The name of a man.

JEHEZ'EKEL, [Hebrew.] The name of a man.

JEHI'AH, [Hebrew.] The name of a man.

JEHI'EL, [Hebrew.] The name of a man.

JEHIE'LI, [Hebrew.] The name of a man.

JEHISKI'AH, [Hebrew.] The name of a man.

JEHOAD'DAN, [Hebrew.] The name of a woman.

JEHO'AHAZ, [Heb. the prize.] King of Iſrael, was the ſon of Jehu, and ſucceeded his father at the period when Hazael king of Syria had ſubjugated that part of the kingdom of Iſrael which was beyond Jordan. As Jehoahaz was a man of might, he courageouſly diſputed the further progreſs of the conqueror; but, ſince the ſevere puniſhments which had been inflicted upon his country had not the effect of reclaiming him from that idolatry which proved the ruin of the houſe of Jeroboam and many of his ſucceſſors, Providence did not favour his enterpriſes. In repeated unſucceſsful engagements againſt the Syrians, his ſtrength was ſo much reduced, that he had remaining only fifty horſe, ten chariots, and ten thouſand foot; and was obliged to ſubmit to the cruel exactions and oppreſſions of his chaſtiſing foe. At length, his ſon Jehoaſh, or Joaſh, whom he aſſociated with himſelf in the ſovereignty, became the inſtrument of emancipating his country; but it is not certain that this favourable change took place during the life-time of Jehoahaz. This prince died, after a reign of ſeventeen years, in the year 839 B.C. See 2 Kings xiii.

JEHO'AHAZ, [Heb. the prize.] The ſon and ſucceſſor of Joſiah, king of Judah, gave early proofs that he intended to reign as wickedly as ſome of his predeceſſors had done; on which account the prophet Jeremiah expoſtulated with him, and exhorted him to repentance and reformation, declaring that, if the king perſiſted in his impieties, he ſhould be carried into captivity, and die in a ſtrange land. As the prophet's remonſtrances were diſregarded by the king, when he was only in the third month of his reign he was depoſed by Pharaoh Necho, king of Egypt, who carried him away captive into that country, where he died. He was deprived of his crown in the year 608 B.C. See 2 Kings xxiii. Jeremiah xxii.

JEHO'ASH. See JOASH.

JEHOHAN'AN, [Hebrew.] The name of a man.

JEHOI'ACHIN, [Heb. the ſtrength of the Lord.] King of Judah, called alſo *Jechoniah*, and by way of contempt *Coniah*, was the ſon of Jehoiakim, and upon his father's death ſucceeded to the crown, when he was but eighteen years of age. Whether he had aſſumed the regal dignity without Nebuchadnezzar's permiſſion, or had expreſſed an intention of ſhaking off his yoke, we are not informed; but that monarch was his determined enemy. The ſacred text ſays, that "he did that which was evil in the ſight of the Lord, according to all that his father had done." His career of wickedneſs, however, was but of very ſhort duration; for before he had reigned three months Nebuchadnezzar advanced with his army againſt Jeruſalem, and laid ſiege to it. Jehoiachin does not ſeem to have been in a capacity to make any reſiſtance, and therefore came out of the city and threw himſelf on the monarch's mercy, accompanied by his mother and his whole court; but they found him inexorably reſentful againſt them, and were all ſent away captives to Babylon, and died there, as Jeremiah had foretold. On this occaſion Nebuchadnezzar ranſacked Jeruſalem and the whole kingdom of Judea a ſecond time, and carried into captivity the moſt famous men for valour or wiſdom, and the moſt expert artificers, leaving behind ſcarcely any but the very common people, to cultivate the land. See 2 Kings xxiv.

JEHOI'ADA, [Heb. the knowledge of the Lord.] A man's name.

JEHOI'AKIM, [Heb. the confirmation of the Lord.] King of Judah, was the ſon of Joſiah, and originally called *Eliakim*. Upon the depoſition of his brother Jehoahaz, Pharoah Necho raiſed him to the throne, changing his name into that of Jehoiakim, and impoſing on him a yearly tribute. Notwithſtanding the puniſhment which his brother's impieties had drawn down on his head, he did not take warning from the awful example, but imitated and ſurpaſſed him in wickedneſs, and was cloſely followed by the Jewiſh people. On this account Jeremiah was directed by God to denounce his ſevere judgments againſt them, unleſs they repented. This he did in the court of the Temple, at the feaſt of tabernacles, and, among other things, threatened them with the deſtruction of the city and temple. The fury of the king and people would have ſacrificed the prophet on this occaſion, had not the nobles and other perſons of influence found means to protect him. When the prophet was afterwards ſhut up in priſon, and had commiſſioned Baruch, who was his ſcribe, to write down his predictions of the deſtruction of Jeruſalem, and of the Temple, and alſo of the Babyloniſh captivity under Nebuchadnezzar, which Baruch was ordered to read to the people who were aſſembled in the temple upon ſome ſolemn faſt, Jehoiakim's miniſters ſeized the roll in which they were contained, and brought it to the king. Inſtead of being ſeriouſly affected by the dreadful denunciations, the profligate prince cut the roll in pieces and threw it into the fire; and would have wreaked his vengeance on Jeremiah and his meſſenger, had they not been kept out of his reach. Beſides the practice of idolatry, and a contempt of God's worſhip, Jehoiakim was guilty of the moſt oppreſſive tyranny, in a variety of forms, of rapine, cruelty, and bloodſhed; on account of which Jeremiah predicted that he ſhould be given up into the hands of his moſt dreaded enemy Nebuchadnezzar, and die unpitied and unlamented, and that his carcaſe ſhould rot upon the ground. In the fourth year of his reign this prediction began to be accompliſhed, when Nebuchadnezzar marched againſt Jeruſalem, and took it, rifling the temple of its moſt precious furniture, and the royal palace of its moſt beautiful young princes to be made eunuchs in his own court, according to Iſaiah's prophecy to Hezekiah, and alſo carrying away the choiceſt youths of the city into captivity to Babylon. Jehoiakim himſelf was at firſt put into bonds, and deſigned to be ſent away with the reſt; but the conqueror was afterwards induced to accept of his homage as his vaſſal, and, upon the promiſe of a yearly tribute, to leave him as his viceroy over the kingdom. After a ſubjection of three years, while Nebuchadnezzar was taken up with other conqueſts, Jehoiakim ventured to rebel againſt him, and for about three years continued to withhold the annual tribute. This conduct ſo highly exaſperated Nebuchadnezzar, that he ſent a powerful army into Judea, which laid waſte the whole kingdom, carried away a multitude of priſoners, put Jehoiakim to death, and dragged his carcaſe out of the city gates, where it was left unburied, according to Jeremiah's prediction. His death took place in the eleventh year of his reign, or 598 B.C. See 2 Kings xxiii. xxiv. 2 Chron. xxxvi. Jerem. xxvi. xxxvi.

JEHOI'ARIB, [Hebrew.] The name of a man.

JE'HOL, the emperor of China's Tartar reſidence.

JEHON'ATHAN, [Hebrew.] The name of a man.

JEHO'RAM. See JORAM.

JEHOSH'ABAD, [Hebrew.] The name of a man.

JEHOSH'APHAT, [Heb. the judgment of the Lord.] King of Judah, was the ſon of Aſa, whom he ſucceeded at the age of thirty-five, in the year 914 B.C. He was an excellent and pious prince, and diſtinguiſhed for the extraordinary zeal and activity which he diſplayed in rooting out idolatry, and promoting the pure worſhip of God throughout his kingdom. He commenced his reign with deſtroying all the monuments of ſuperſtition, and groves conſecrated to the impure rites of idol-worſhip, which his father had not been able to demoliſh; and, in the third year of it, he ſent ſome of the chief officers of his court, attended by a ſufficient number of prieſts and Levites, with copies of the law of Moſes, to inſtruct the people in every part of his kingdom. Theſe pious labours were productive of the greateſt proſperity, both to himſelf and his people. He alſo fortified all the conſiderable cities in the land, and put garriſons into them; and could call out into the field more numerous armies than any of his predeceſſors, amounting to above eleven hundred thouſand fighting men. As he was thus powerful, none of the enemies of Judah ventured to moleſt him; the Philiſtines and Arabians paid him tribute; and his wealth increaſed in proportion to his power. While he was in theſe flouriſhing circumſtances, he was ſo imprudent as to contract affinity with Ahab, king of Iſrael, by ſuffering his ſon Joram to marry Athaliah, the daughter of that idolatrous prince, who afterwards proved the cauſe of great miſchiefs to Judah. Three years after this event, Jehoſhaphat paid a viſit to Ahab at Samaria, who entertained him and his attendants with the greateſt ſplendour, and perſuaded him to become his ally in an expedition which he had projected for the re-capture of Ramoth-Gilead from the Syrians. Before they ſet out on it, however, Jehoſhaphat deſired that the prophets who were in Iſrael might be conſulted, whether God approved of their deſign, and would give them ſucceſs in it. Upon this, Ahab immediately collected together four hundred of his prophets, who, upon their being aſked by him "Shall I go up againſt Ramoth-Gilead to battle, or ſhall I forbear?" all joined in aſſuring him that he ſhould ſucceed in his enterpriſe. When Jehoſhaphat requeſted that, if there was any other prophet of the Lord, he alſo might be ſent for and conſulted, Ahab replied, that there was indeed ſuch a perſon, named Micaiah, whom he hated, becauſe he always predicted evil, and never good, concerning him. However, out of complaiſance to Jehoſhaphat, he ordered him to be ſent for; and Micaiah, in anſwer to the ſame queſtion which had been put to the other prophets, at firſt replied that the expedition could not fail of ſucceſs. There was ſomething, notwithſtanding, in the manner in which he ſpake, that led Ahab to ſuſpect that he had not delivered his ſerious opinion, and he therefore ſolemnly adjured him to tell him the truth in the name of God. Upon this Micaiah informed the king, that if he marched to attack the Syrians he would certainly loſe the day, and his life; and that God has ſuffered his prophets to be poſſeſſed with a ſpirit of deluſion, that he might go and meet his death where he expected a victory. Regardleſs of this prophet's declaration, the infatuated Ahab advanced to battle, and was killed; and Jehoſhaphat narrowly eſcaped the ſame fate. Upon his return towards Jeruſalem, he was met by the prophet Jehu, who ſeverely reproved him for having entered into a confederacy with the idolatrous Ahab: and the king, becoming ſenſible of his error, endeavoured to retrieve it, by an aſſiduous application to ſuch meaſures of government as might promote the intereſts of true religion, and contribute to the happineſs of his ſubjects. In ſubſerviency to theſe grand objects, he made a progreſs through his dominions, diligently examining how the prieſts inſtructed the people and the judges and magiſtrates exerciſed their offices, and zealouſly exhorting them every where to the faithful diſcharge of their duties.

Towards the latter end of this good king's reign, the kingdom of Judah was unexpectedly invaded by an immenſe army of Ammonites, Moabites, and a mixed multitude of other nations, concerning whoſe hoſtile deſigns and movements Jehoſhaphat did not receive any information before they had approached within thirty-ſix miles of his capital. In this emergency the pious king proclaimed a ſolemn faſt, and went at the head of his people, who were aſſembled at Jeruſalem, to the temple, to implore the divine aſſiſtance. Here he was aſſured by a prophet, that God would ſpeedily deliver him from thoſe invaders in ſo extraordinary a manner, that he ſhould have nothing to do but to ſeize upon their ſpoil. This aſſurance was verified on the following morning, when Jehoſhaphat, as the prophet directed, advanced towards his enemies with a ſmall army, whom he encouraged as they went on, to rely wholly upon God. Upon their arrival within ſight of the hoſtile camp, they found that the confederates had become the inſtruments of their own deſtruction; for, falling into confuſion among themſelves, and one nation miſtaking the other for enemies, they were ſeized with a frenzy which led them furiouſly to ſlaughter one another, each party imagining that they were deſtroying the Jews, till they were all cut off by their own ſwords. After this ſignal interpoſition of Providence in their favour, Jehoſhaphat and his army employed themſelves for three days in collecting the richeſt of the ſpoils which they found amongſt the ſlain, and on the fourth day united with the whole body of the people in a ſolemn thankſgiving to God for their deliverance. Jehoſhaphat ſpent the reſt of his days in peace, and died in the ſixtieth year of his age, or in the year 889 B.C. He had reigned over Judah twenty-five years. See 1 Kings xxii. and 2 Chron. xvii.–xxi.

JEHOSH'EBA, or JEHOSHEBE'ATH, [Hebrew.] The name of a man.

JEHOSH'UAH, [Hebrew.] The name of a man.

JEHO'VAH, one of the ſcripture-names of God, ſignifying "the Being who is ſelf-exiſtent, and gives exiſtence to others." So great a veneration had the Jews for this name, that they left off the cuſtom of pronouncing it, whereby its true pronunciation was forgotten. They call it *tetragrammaton*, or "the name with four letters;" and believe, that whoever knows the true pronunciation of it cannot fail to be heard by God.

JEHO'VAH JI'REH, [Heb. the Lord will ſee.] The name given to a place. *Gen.* xxii.

JEHO'VAH NIS'SI, [Heb. the Lord is my banner.] The name given to an altar. *Exod.* xvii.

JEHO'VAH SHA'LOM, [Heb. the Lord ſend peace.] The name given to an altar. *Judg.* vi.

JEHO'VAH SHAM'MAH, [Heb. the Lord is there.] The name given to a city. *Ezek.* xlviii.

JEHO'VAH TSID'KENU, [Heb. the Lord our righteouſneſs.] A name given to the Meſſiah. *Jer.* xxiii.

JEHOZ'ABAD, [Hebrew.] The name of a man.

JEHOZ'ADAH, [Hebrew.] The name of a man.

JE'HU, [Heb. one who exiſts.] King of Iſrael, and the inſtrument ſelected by God to exterminate the idolatrous houſe of Ahab and the worſhippers of Baal, commenced his reign in the year 884 B.C. He was a general in the ſervice of Joram, the ſon and ſucceſſor of Ahab, and appears to have been left by that prince commander-in-chief of his army at Ramoth-Gilead, when he retired to Jezreel to be cured of the wounds which he had received in battle againſt the Syrians. Soon after the departure of Joram, the prophet Eliſha ſent one of the ſons of the prophets to Ramoth-Gilead, with inſtructions privately to anoint Jehu king of Iſrael. This meſſenger upon his arrival found Jehu ſitting in council with the principal officers of the army, and demanded a private audience with him. When they were by themſelves, the prophet informed Jehu, that God had choſen him to be king over Iſrael, and to be the executioner of the divine vengeance againſt the whole race of Ahab, whom he was to put to the ſword, and not to ſpare the impious Jezebel, whoſe carcaſe ſhould ſhortly be devoured by dogs. The prophet then poured upon Jehu's head a box of oil, with which he had been furniſhed by Eliſha, and immediately fled, to avoid any danger to which he might be expoſed by the diſcovery of his buſineſs. When Jehu returned to the officers, they aſked him what was the purport of that madman's meſſage; ſince they knew, by the peculiarity of his dreſs and manner, that he belonged to the ſchool of the prophets, and ſuſpected that his buſineſs was of an extraordinary nature. No ſooner were they informed of the prophet's errand, than they immediately acknowledged Jehu for their king, and proclaimed him in the uſual form, with the ſound of the trumpet. After having taken the neceſſary precautions to prevent any perſon from quitting Ramoth-Gilead, for the purpoſe of conveying information of what had taken place to Jezreel, Jehu ſet out for that city with all ſpeed, at the head of a body of troops. When he was at no great diſtance from Jezreel, he was ſeen by the watchmen in the neareſt tower, who gave notice of the approach of armed men. Upon this Joram ſent out ſucceſſively two horſemen to enquire whether they came peaceably or not, both of whom were detained by Jehu, who was now known by the watchman from the furiouſneſs of his driving. When theſe circumſtances were mentioned to the king, he gave notice of them to Ahaziah king of Judah, who was come to viſit him; and they both went out in their chariots to meet Jehu. When they came within hearing, Joram called out "Is it peace, Jehu?" and upon the latter's immediately upbraiding him with his and his mother Jezebel's murders and idolatries, and aſſuming a hoſtile poſture, Joram cried out to Ahaziah that they were betrayed. Before, however, he could turn his chariot and eſcape, Jehu pierced his heart with an arrow, and ordered his body to be thrown into Naboth's field, there to be devoured, according to the prediction of Elijah to his father Ahab. Jehu alſo ordered a party after Ahaziah, who endeavoured by flight to avoid the fate of Joram, but was mortally wounded by his purſuers. In the mean time he marched towards the royal palace of Jezreel, where the queen-mother Jezebel, expecting probably that her ſex would prove her ſecurity, was prepared haughtily to reproach him for conſpiring againſt and killing his ſovereign. She was looking out of a window when Jehu entered the palace, and ſhe cried out to him, "Had Zimri peace, who ſlew his maſter?" thereby intimating, that he muſt not expect a more fortunate iſſue to his rebellion than had been the lot of his predeceſſor Zimri, who by the murder of Elah had obtained the poſſeſſion of the crown for ſeven days only, and then miſerably periſhed. Without giving her any anſwer, Jehu ordered ſome eunuchs who attended upon her to throw her out of the window; and ſhe was ſoon trampled to death by the horſes of his retinue.

In the next place Jehu took meaſures for cutting off ſeventy ſons, or male deſcendants, of Ahab, who reſided at Samaria. With this view he addreſſed letters to the magiſtrates of that city, and the chief noblemen of the kingdom who had fled thither for ſafety, in which he challenged them to raiſe the braveſt of Ahab's ſons to the throne, and like men of ſpirit to come forward in ſupport of his claim. Jehu's ſucceſsful valour, however, had inſpired them with ſuch terror, that they not only deſerted the cauſe of thoſe princes, but ſignified their readineſs to obey his commands, whatever they might be. Upon this he ſent them an order to put all the young princes to death, and to bring him their heads in baſkets by the next day; which was punctually complied with. Afterwards Jehu put to the ſword all the kinſmen, counſellors, and prieſts, of Ahab, and the other inſtruments and abettors of his crimes, who were in Jezreel; and then ſet out for Samaria, to proſecute the ſame work in that city. On his road thither, he met with forty-two princes of the houſe of Judah, who were ignorant of the events which had juſt taken place, and were proceeding to pay a viſit to the princes of the houſe of Iſrael; and, as they were related to the houſe of Ahab by the mother's ſide, he put them all to death on the ſpot. At Samaria, Jehu rooted out every remaining branch of Ahab's family; and then deviſed a ſcheme for collecting together all the worſhippers of Baal throughout the kingdom, that he might exterminate them at once. For this purpoſe he pretended to a much greater zeal for that deity than any of his predeceſſors had ſhown, and proclaimed a ſolemn feſtival to be obſerved in its honour. He then ſent meſſengers to every part of the kingdom, to ſummon all the prieſts, prophets, and worſhippers, of Baal, to be preſent at that feſtival, on pain of death. When on the appointed day they were all aſſembled together in the temple of that deity, and had commenced their idolatrous rites, Jehu commanded a body of men whom he had prepared for the purpoſe to go in, and to put them all to the ſword, without ſparing an individual. Afterwards he demoliſhed all the idols and ornaments conſecrated to the worſhip of Baal, burning them before the temple, which building he razed to the ground, and turned the ſpot on which it had ſtood into a common jakes. He purſued ſimilar meaſures wherever any temples or altars were erected in honour of that deity, throughout the whole kingdom, till he had entirely cleared it of all memorials of ſuch an abominable ſuperſtition. The zeal and diligence which he had thus diſplayed in executing the divine vengeance on the impious houſe of Ahab, and in aboliſhing the worſhip of Baal, met with ſuch acceptance from the Divine Being, that a prophet was commiſſioned to aſſure Jehu, that the kingdom of Iſrael ſhould remain in his poſterity till the fourth generation. It would have been happy for him and his people, if this promiſe had engaged him "to walk in the law of the Lord God of Iſrael with all his heart;" but falſe policy prevailed in his mind over a pure regard to the intereſts of religion, and induced him to continue the old idolatry of worſhipping the golden calves of Dan and Bethel. On this account God was pleaſed to make uſe of Hazael, king of Syria, as his inſtrument to puniſh Jehu and the Iſraelites, who ſubjugated that part of the kingdom which was beyond Jordan, committing wherever he came the greateſt devaſtations and moſt inhuman barbarities. Jehu died in the twenty-eighth year of his reign, or B.C. 856. See 2 Kings ix. x.

JEHUB'BAH, [Hebrew.] The name of a man.

JEHU'CAL, [Hebrew.] The name of a man.

JE'HUD, [Hebrew.] The name of a place.

JEHU'DI, [Hebrew.] The name of a man.

JE'HUSH, [Hebrew.] The name of a man.

JEI'EL, [Hebrew.] A man's name.

JEJU'NE, *adj.* [*jejunus*, Lat.] Wanting; empty; vacant.—Gold is the only ſubſtance which hath nothing in it volatile, and yet melteth without much difficulty; the melting ſheweth that it is not *jejune*, or ſcarce in ſpirit. *Bacon.*—Hungry; not ſaturated.—In groſs and turbid ſtreams there might be contained nutriment, and not in *jejune* or limpid water. *Brown.*—Dry; unaffecting; deficient in matter.—You may look upon an inquiry made up of mere narratives, as ſomewhat *jejune. Boyle.*

JEJU'NENESS, *ſ.* Penury; poverty.—Cauſes of fixation are, the even ſpreading both parts, and the *jejuneneſs*, or extreme comminution of ſpirits. *Bacon.*—Dryneſs; want of matter that can engage the attention.

JEJU'NUM, *ſ.* The ſecond of the ſmall guts; thus called from the Latin *jejunus*, hungry; becauſe often found empty. See Anatomy, vol. i.

JEKAB'ZEEL, [Hebrew.] The name of a place.

JEKAMI'AH, [Hebrew.] The name of a man.

JEKAMI'AM, [Hebrew.] The name of a man.

JEKUTHI'EL, [Hebrew.] The name of a man.

JE'KYL SOUND, in the mouth of the river Alatamaha, in Georgia, which will afford ſafe riding for a dozen ſhips of forty guns.

JEL'ENY, a town of Bohemia, in Konigingratz: fourteen miles ſouth-ſouth-eaſt of Konigingratz.

JELLASUR', a town of Hindooſtan, ſituated in the Dooab, in the Jaut territories.

JEL'LIED, *adj.* [ſee Gelly.] Glutinous; brought to a ſtate of viſcoſity:

The kiſs that ſips
The *jellied* philtre of her lips. *Cleaveland.*

JEL'LING, a town of Denmark, in North Jutland, formerly a city, and the reſidence of kings: fourteen miles north of Colding.

JELLOU'LAH, a town of Africa, in the kingdom of Tunis.

JEL'LY, *ſ.* [*gelatinum*, Lat. See Gelly, which is the proper orthography.] Any thing brought to a ſtate of glutinouſneſs and viſcoſity:

They, diſtill'd
Almoſt to *jelly* with th' effect of fear,
Stand dumb, and ſpeak not to him. *Shakeſpeare.*

Sweetmeat made by boiling ſugar in the jelly.—The deſſert came on, and *jellies* brought. *King.*

That *jelly*'s rich, this malmſey healing;
Pray dip your whiſkers. *Pope.*

JEL'NA, a town of Lithuania, in the palatinate of Wilna: ten miles ſouth-eaſt of Lida.

JEL'SO, a town of Norway, in the dioceſe of Bergen: twenty-two miles north-north-eaſt of Stavanger.

JELVA'DI, a town of Aſiatic Turkey, in the province of Natolia: twenty-two miles eaſt of Iſbarteh.

JEM, a contraction of James.

JEMAP'PE. See Gemappe, and the article France.

JEMAR'ROW, a kingdom of Africa, on the ſouth ſide of the river Gambia, about forty leagues from the ſea. The inhabitants are chiefly Mahometans.

JEMIDAR', *ſ.* A black officer, who has the ſame rank as a lieutenant of the Eaſt-India company's forces.

JEMI'MA, the name of a woman.

JEM'ME, a town of Africa, in the kingdom of Tunis, in which are found ſome broken ſtatues of marble, and other antiquities, particularly an amphitheatre: it was anciently called *Tiſdra*, or *Tiſdrus*; and the emperor Gordianus was crowned at this town: ninety miles ſouth of Tunis.

JEM'MINGHEN, or Jem'gum, a town of Germany, in Weſtphalia, and county of Eaſt Frieſland, where Louis of Naſſau, brother to the prince of Orange, was defeated with great loſs by the duke of Alva, in the year 1568: eight miles ſouth-eaſt of Emden.

JEM'MY, the diminutive of James.

JEMP'TERLAND, a province of Sweden, bounded on the north by Angermania, on the eaſt by Medalpadia, on the ſouth by Helſingia, and on the weſt by Norway. It is full of mountains; and the principal towns are Reſſundt, Lich, and Docra.

JEM'SEG, a town of New Brunſwick: twenty-five miles eaſt-ſouth-eaſt of Frederic Town. Lat. 45. 55. N. lon. 66. 13. W. Greenwich.

JEM'SERUM, a town of Sweden, in the province of Smaland: forty-five miles north of Calmar.

JEM'UEL, [Hebrew.] The name of a man.

JE'NA, a town of Germany, in Upper Saxony, near the Saale, which waſhes it on the eaſt and ſouth ſides, in a pleaſant valley, among riſing hills, which produce great quantities of wine. It forms an oblong ſquare, and is ſurrounded with walls, ditches, and towers; there is an univerſity, founded in the year 1548. Ten miles eaſt of Weimar, and forty-nine eaſt of Eiſenach. Lat. 50. 51. N. lon. 29. 5. E. Ferro. On the 14th of October, 1809, a deciſive battle was fought here between the king of Pruſſia and Bonaparte; the Pruſſians were totally defeated, and the French ſoon after took poſſeſſion of Berlin. The duke of Brunſwick, whoſe forces fought on the ſide of the Pruſſians, was killed, and his whole country was confiſcated by the French.

JE'NAUB, a river, and a city built on the river by Alexander the Great.

JENCAPO'RE, a town of Aſia, in Hindooſtan, and in the dominions of the Great Mogul, capital of a territory of the ſame name. It is ſeated on the river Chaul, in lat. 30. 30. N. lon. 76. 25. E.

JEN'COPING, a town of Sweden, in the province of Smaland, ſeated on the ſouth ſide of the lake Werter, with a ſtrong citadel. The houſes are all built with wood. Lat. 57. 22. N. lon. 14. 20. E.

JENDRZCIOV', a town of Poland, in the palatinate of Saudomirz: ten miles ſouth-weſt of Malogocz.

JE-NE-SÇAI-QUOI, *ſ.* [Fr. I know not what.] A French phraſe, now uſed collectively to ſignify ſomething which cannot be explained; ſomething we feel, but cannot expreſs.

JEN'GHIZ KHAN', a renowned Mogul conqueror. See Gengiskan; and the article Hindoostan, vol. x. p. 16–25.

JEN'HAT, a province of Hindooſtan, between the rivers Behat and Chenab.

JE'NI-BA'SAR, or No'vi-Ba'sar, a town of European Turkey, in Bulgaria, on a branch of the river Ibar, containing about three hundred houſes, inhabited by Chriſtians and Turks; anciently the capital of the Raſcians: 175 miles weſt of Nicopoli, and eighty-three north-eaſt of Raguſa.

JENICO'RO, or Platamo'ne, a river of European Turkey, which runs into the Gulf of Saloniki at Platamone.

JENI'SA, a river of the Ruſſian empire, that runs from north to ſouth through Siberia, and falls into the Frozen Ocean.

JENIS'KOI, a town of the Ruſſian empire, in Siberia, ſeated on the river Jeniſa. It is large, populous, and pretty ſtrong; and there are villages for ſeveral miles round it. It is ſubject to the Tunguſians, who are pagans, and chiefly live on the above river. They pay a tribute to the emperor for every bow, reckoning a man and a woman for one. The climate is extremely cold; and no other fruits grow there but black and red currants, ſtrawberries, and gooſeberries. Corn, butchers' meat, and wild fowls, are very cheap. Lat. 58.40. N. lon. 86. 25. E.

JE'NITZ, a town of Germany, in Upper Saxony, and principality of Anhalt Deſſau, on the Mulda: two miles north-eaſt of Deſſau.

JENIT'ZA, a town of European Turkey, in Macedonia, ſituated on a lake which communicates with the Gulf of Saloniki, by means of a canal about twelves miles long. It is little better than a heap of ruins: twenty-four miles weſt-north-weſt of Saloniki, and twenty eaſt of Edeſſa.

JEN'KIN (Robert), a learned Engliſh divine in the eighteenth century, was bred at Cambridge, became maſter of St. John's college, and wrote ſeveral books much eſteemed, viz. 1. An Hiſtorical Examination of the Authority of General Councils, 4to. 2. The Reaſonableneſs and Certainty of the Chriſtian Religion, 2 vols. 8vo. 3. *Defenſio S. Auguſtini.* This book is written againſt M. Le Clerc. 4. Remarks on ſome Books lately publiſhed, viz. Mr. Whiſton's Eight Sermons, Locke's Paraphraſe, &c. 5. A tranſlation from the French of the Life of Apollonius Tyaneus.

JEN'KIN, [the diminutive of *John.*] A man's name.

JEN'KINS (Henry), of Bolton in Yorkſhire, deſerves notice on account of the great age to which he attained, which is pretty well authenticated. Being produced at the York aſſizes as a witneſs to prove a way over a man's ground, he declared, contrary to the depoſitions of other witneſſes, that there had formerly been a common path over that ground. The judge cautioned him to beware of what he ſwore, becauſe there were two men in court, who were each more than eighty years of age, who had ſworn they remembered no ſuch way, or path. Jenkins replied, that thoſe men were boys to him; and the men, upon being queſtioned, confeſſed that when they were boys Jenkins was reckoned a very old man. It was about this time that Dr. Robinſon put ſeveral queſtions to this Jenkins when he came to aſk alms, for he ſeems to have been always a beggar, or at leaſt a very poor man, and had never learned to read. Dr. R. firſt demanded how old he was? he ſaid, About a hundred and ſixty-two or three.—What king he remembered? he ſaid, Henry VIII.—What public thing he could longeſt remember? he ſaid, The fight at Flodden-field.—Whether the king was there? he ſaid, No, the king was in France, and the earl of Surrey was general.—How old was he then? he ſaid, About twelve; and that he had the care of a horſe loaded with arrows.—The doctor looked into a chronicle he had by him, and found that the battle of Flodden was a hundred and fifty-two years before; that the earl he had named was general; and that the king was then at Tournay. There are other teſtimonies to the great age of this man, for which ſee the Phil. Tranſ. He died on the 8th of December, 1670, at Ellerton upon Swale, aged 169 years.

JEN'KINS (Sir Leoline), a learned civilian and able ſtateſman, born in Glamorganſhire about the year 1623. Being rendered obnoxious to the parliament during the civil war by adhering to the king's cauſe, he conſulted his ſafety by flight; but, returning on the reſtoration, he was admitted an advocate in the court of arches, and ſucceeded Dr. Exton as judge. When the queen-mother Henrietta died in 1669 at Paris, her whole eſtate, real and perſonal, was claimed by her nephew Louis XIV. upon which, Dr. Jenkins's opinion being called for and approved, he went to Paris, with three others joined with him in a commiſſion, and recovered her effects; for which he received the honour of knighthood. He officiated as one of the mediators at the treaty of Nimeguen, in which tedious negociation he was engaged about four years and a half; and was afterwards made a privy counſellor and ſecretary of ſtate. He died in 1685; and, as he never married, bequeathed his whole eſtate to charitable uſes: he was ſo great a benefactor to Jeſus college, Oxford, that he is generally looked on as the ſecond founder. All his letters and papers were collected and printed in 1724, in 2 vols. folio.

JEN'KINTOWN, a village in Montgomery county, Pennſylvania: ten miles north of Philadelphia.

JENKS, [from *Jenkins.*] A man's name.

JEN'LIS, a town of France, in the department of the Côte-d'Or, and chief place of a canton, in the diſtrict of Dijon: three leagues ſouth-eaſt of Dijon.

JEN'NE, a town of Japan, in the province of Kaga.

JEN'NET, the name of a woman.

JEN'NET, *ſ.* [See Genet.] A Spaniſh horſe:

> The Spaniſh king preſents a *jennet*,
> To ſhow his love. *Prior.*

JEN'NETING, *ſ.* [corrupted from *Juneting*, an apple ripe in June.] A ſpecies of apple ſoon ripe, and of a pleaſant taſte. *Mortimer.*

JEN'NINGS (David), a learned Engliſh non-conformiſt divine and eminent tutor in the ſeventeenth century, was the ſon of the Rev. John Jennings who had been ejected from the rectory of Hartley-Waſphill in Hampſhire, under the act of uniformity; and born at Kibworth in Leiceſterſhire, in the year 1691. He preached his firſt ſermon in the year 1714. In the following year he was appointed one of the preachers at an evening lecture then carried on at Rotherhithe; and in 1716 was choſen aſſiſtant to Mr. Foxon, paſtor of the congregation at Haberdaſhers'-hall. Two years after this he accepted of an invitation to become paſtor to the congregational or independent church in Old Gravel-lane, Wapping, with which he maintained that relation during forty-four years, equally uſeful and reſpected. After he had been ſettled at Gravel-lane about twelve years, he publiſhed a ſmall volume of ſermons addreſſed to young people on New-year's-days, entitled, The Beauty and Benefit of early Piety, 1730, 12mo. In 1733, our author was invited by Mr. Coward to be one of the preachers of a courſe of ſermons on the principal heads of the Chriſtian religion, at Berry-ſtreet, in connection with Dr. Watts, and others. Theſe ſermons were publiſhed in 1735, in 2 vols. 8vo. and our author's proportion of them does not conſtitute the leaſt valuable part of the work. In the year 1736, Mr. Jennings publiſhed a tranſlation of profeſſor Auguſtus-Herman Francke's Letter to a Friend, concerning the moſt uſeful way of preaching; to which is prefixed a hiſtory of the profeſſor's extraordinary exertions in the cauſe of humanity and good morals, of which we have given an account in his life, vol. viii. p. 5. Mr. Jennings's next publication was a ſermon preached to the ſocieties for the reformation of manners, in 1737; and he afterwards printed ſeveral ſingle ſermons, and an ordination charge. In the year 1740, Mr. Jennings entered the liſts againſt Dr. John Taylor, of Norwich, in the controverſy concerning the doctrine of original ſin. His treatiſe was anonymous, and entitled, "A Vindication of the Scripture Doctrine of original Sin, from Mr. Taylor's free and candid Examination of it," 8vo. In his remarks on this piece, Dr. Taylor complains, not without reaſon, of the heavy charges or inſinuations againſt him contained in it, which do not reflect credit on the author's liberality and candour. In the year 1743, Mr. Jennings was choſen a truſtee of Mr. Coward's charities, and alſo one of his lecturers at Little St. Helen's. During the following year he publiſhed, "An Abridgment of the Life of the late reverend and learned Dr. Cotton Mather, of Boſton, in New England, taken from the Account of him publiſhed by his ſon the Rev. Mr. Samuel Mather;" which was drawn up at the ſuggeſtion and deſire of Dr. Watts, and introduced to the world with a recommendatory preface from his pen. In the ſame year Mr. Jennings entered on the office of divinity-tutor in the academy then chiefly ſupported by Mr. Coward's funds, to which he was appointed on the death of Mr. Eames. As he was indefatigable in purſuing every ſtudy in which he engaged, and it was his delight to fill up all the duties of his ſtation; when he undertook the character of a tutor, he entered upon it with a vigorous application, and for ſeveral years went through a conſtant ſeries of laborious ſtudies. But it is to be lamented that, in particular inſtances, his conduct could not be reconciled with true liberality, nor conſiſtency. He who, at the beginning of life, had ranked with the advocates for religious liberty in oppoſition to human impoſitions, was afterwards, at times, tranſported by an attachment to his own views on controverſial points, and a ſolicitude to preſerve the reputation of orthodoxy to his ſeminary, into unbecoming reſentments at diſcourſes delivered in the academy, though they were not avowedly hoſtile to his own ſentiments, and into a determined oppoſition to thoſe ſtudents who deviated, or were ſuſpected to deviate, from the ſtandard of reputed orthodoxy. In one or two inſtances, he proceeded to the length of *expelling*, on this ground, young gentlemen of abilities, and of blameleſs characters.

In the year 1747, Mr. Jennings gave the public a ſpecimen of his ſcientific ſtudies, in a thin octavo volume, entitled, "An Introduction to the Uſe of the Globes, and the Orrery, as alſo the Application of Aſtronomy to Chronology, &c." which paſſed through three editions, and is entitled to rank among the moſt perſpicuous and uſeful elementary works of the ſame kind. In the year 1749, the univerſity of St. Andrew's, in Scotland, conferred upon our author the degree of doctor of divinity. The laſt of his publications, printed in his life-time, which it falls within our plan to notice, was "An Appeal to Reaſon and Common Senſe, for the Truth of the Holy Scriptures," 1755; containing a conciſe and familiar view of the evidences for revelation. Dr. Jennings enjoyed a good ſtate of health till about the year 1760, when he was attacked by a diſorder of the epileptic kind, by the frequent returns of which his ſtrength was impaired, and the conſtancy of his attendance on his public duties interrupted. It proved fatal to him on the 16th of September, 1762, when he was ſeventy-one years of age. After his death, an uſeful little treatiſe was printed from a manuſcript which he left behind him, entitled, "An Introduction to the Knowledge of Medals;" conſiſting of a courſe of lectures on the hiſtory, the nature, ſize, and ſhape, the orders into which they are to be diſtinguiſhed, the impreſſion and form, and the value and uſe of medals. From his manuſcripts alſo was publiſhed, in the year 1766, a larger and more elaborate work, edited by Dr. Philip Furneaux, who beſtowed much care and labour on it, particularly in examining the reference to authors, either for proof or illuſtration, which are very numerous. It is entitled, "Jewiſh Antiquities; or, a Courſe of Lectures on the three firſt Books of Godwin's Moſes and Aaron. To which is annexed, a Diſſertation on the Hebrew Language," in 2 vols. 8vo.

JEN'NY, [the diminutive of *Jane*.] The name of a woman.

JEN'SON, or JANSON, (Nicholas), an eminent printer of the fifteenth century, was an engraver in the mint of Paris, when he was appointed by Louis XI. to go to Mentz, and endeavour to bring away with him the newly-diſcovered art of typography. Another account aſcribes this miſſion to Charles VII. in 1458; and ſays, that Jenſon on his return, finding that king dead, went and ſettled elſewhere. It is certain that Venice was the place where he exerciſed his art, and in which he acquired a high degree of reputation in the three branches of cutting punches, founding types, and printing. He was the firſt who planned and reduced to its preſent proportions the character called Roman. The neatneſs and elegance of his types command admiration even in the modern improved ſtate of the art, and his editions are in great requeſt with the curious. The earlieſt work from Jenſon's preſs is one entitled *Decor Puellarum*, 4to. with the date 1461, but which, from internal evidence, is pronounced an error for 1471.

JENTILI'NO, a town of Italy, in the kingdom of Naples, and province of Calabria Citra: twelve miles north-north-weſt of Biſignano.

JENUCHSHADE'GA, an Indian village in Pennſylvania, ſituated on the weſt bank of Alleghany river, eight miles ſouth-ſouth-weſt from that of Teuſhanuſhſong-goghta, and fourteen ſouth-eaſt from the outlet of Chataughque Lake.

JEN'YNS (Soame), a gentleman diſtinguiſhed as a witty and elegant writer, was the only ſon of ſir Roger Jenyns, of Bottiſham-hall, Cambridgeſhire, and was born in London in 1704. He received a domeſtic education till the age of ſeventeen, when he was entered a fellow-commoner of St. John's college, Cambridge. In that univerſity he ſpent three years, laudably attentive to his ſtudies; and then entered upon the plan of life ſuited to a man of independent fortune. In his younger days, Mr. Jenyns, with a delicate and diminutive perſon, ſuſtained the character of a beau; and his polite attention to the ladies was diſplayed in his firſt performance, a poem on the Art of Dancing, publiſhed in 1728, and inſcribed to lady Fanny Fielding. He continued occaſionally to make himſelf known by pieces in verſe, which were ſufficiently numerous to be collected into a volume in 1752. His father's death leaving him maſter of a conſiderable eſtate, he entered, in 1741, into public life as a repreſentative for the county of Cambridge; and began his career by ſupporting ſir Robert Walpole; this conduct was at length rewarded by the place of one of the lords of trade, which he held from 1755 through every change till its abolition in 1780; when he retired from parliamentary buſineſs. As a country gentleman, Mr. Jenyns maintained a very reſpectable character. He was a conſtant ſummer-reſident at his eſtate in Cambridgeſhire, where he officiated as a magiſtrate, and exerciſed charity and hoſpitality among his neighbours. He was twice married, but died without iſſue, in December 1787, at the age of eighty-three.

We are now to conſider Soame Jenyns as a writer, in which capacity he attained no ſmall ſhare of temporary celebrity. His poems, beſides that already mentioned, conſiſt of a variety of miſcellaneous pieces; as, The Squire and Parſon, The Modern Fine Lady and Gentleman, Imitations of Horace, Epiſtles, Songs, a tranſlation of Hawkins Brown's Latin Poem on the Immortality of the Soul, &c. of which the lighter are eaſy, ſatirical, humorous, and ſome of them licentious; the graver ſmooth, and tolerably elegant; but none marked with the higher qualities of poetical genius. His proſe-works are, in point of ſtyle, of a ſuperior degree of excellence; and perhaps no writer, of his time or ſince, has afforded an example of purer and more perſpicuous language, at the ſame time animated with wit and embelliſhed with eloquence. He was one of the faſhionable contributors to The World, firſt publiſhed in 1753, and his five papers in this periodical work are diſtinguiſhed by humour and vivacity. His enquiries took a wide and free range. He publiſhed, in 1757, A Free Inquiry into the Origin of Evil, 8vo.

This work engaged a conſiderable ſhare of the public attention, and produced ſeveral replies: a very ſevere and maſterly critique of it was made by Dr. Johnſon in the Literary Magazine, which the author appears never to have forgotten or forgiven. A pamphlet in 1756 in favour of a national militia, one in 1767 entitled Thoughts on the Cauſes and Conſequences of the high Price of Proviſions, and other occaſional pieces on political ſubjects, proved his attention to topics of that claſs. He reſumed, in 1776, his theological diſcuſſions by a work of great temporary fame, A View of the internal Evidence of the Chriſtian Religion, 12mo. He was ſuppoſed to have paſſed from early fanaticiſm to deiſm or ſcepticiſm; and he now declared to the world a full conviction of the truth of Chriſtianity, and diſplayed the arguments moſt proper in his opinion to ſupport that belief. From the clergy he received an abundance of thoſe compliments, which a layman of the ſuperior claſſes never fails to obtain when appearing as a volunteer in the cauſe of revelation. On the other hand, it met with ſevere ſtrictures from ſeveral of the friends of rational religion, who deprecated a defence which ſeemed calculated to make an irreparable breach between faith and reaſon. The book, however, from its admirable ſtyle and moderate bulk, was very generally read, and many of its obſervations were acknowledged to be equally juſt and impreſſive. In 1782 appeared his Diſquiſitions on various Subjects, 8vo. Theſe are marked with the author's characteriſtics of ſprightly wit and ſhrewd obſervation, but are vague, fanciful, and declamatory. The pre-exiſtent ſtate of mankind is a doctrine which he ſupports for the purpoſe of accounting for the miſeries to which they are expoſed in this world. His faculties remained entire to advanced age, and he wrote verſes in the laſt year of his life. His works were printed complete in four volumes octavo, 1790.

JE'OFAILE, (compounded of the French words *J'ay failli*, I have failed,) a term in law, uſed for an overſight in pleading or other proceedings at law.

The ſhowing of theſe defects or overſights was formerly often practiſed by the counſel; and, when the jury came into court in order to try the iſſue, they ſaid, This inqueſt you ought not to take: and after verdict they would ſay to the court, To judgment you ought not to go. But ſeveral ſtatutes have been made to avoid the delays occaſioned by ſuch ſuggeſtions; and a judgment is not to be ſtayed after verdict for miſtaking the Chriſtian or ſurname of either of the parties, or in a ſum of money, or in the day, month, years, &c. where the ſame are rightly named in any preceding record. See AMENDMENT, vol. i.

JEOJ'ERY, a town of Africa, in the kingdom of Jagra.

*To* JEOP'ARD, *v. a.* To hazard; to put in danger. *Obſolete.*—He had been accuſed of Judaiſm, and did boldly *jeopard* his body and life for the religion of the Jews. 2 *Macc.*

JEOP'ARDOUS. *adj.* Hazardous; dangerous.

JEOP'ARDOUSNESS, *ſ.* Hazardouſneſs. *Scott.*

JEOP'ARDY, *ſ.* [This word is ſuppoſed to be derived from *j'ai perdu*, or *jeu perdu. Skinner* and *Junius.*] Hazard; danger; peril. *A word not now in uſe.*—We may impute to all excellencies in compoſitions a kind of poverty, or at leaſt a caſualty or *jeopardy. Bacon.*

And, would ye not poor fellowſhip expel,
Myſelf would offer you t' accompany
In this adventure's chanceful *jeopardy.* *Hubberd.*

JEOU'ASET, a town of Aſiatic Turkey, in the Arabian Irak, on the Tigris: 110 miles north-weſt of Baſſora.

JEPH'THAH, a judge of Iſrael, and ſucceſſor to Jair in the government of the people, was a native of Miſpeh, and the ſon of one Gilead by a harlot. This Gilead having married a lawful wife, and had children by her, theſe children drove Jephthah from his father's houſe, ſaying, that he ſhould not be heir with them. Jephthah retired into the land of Tob, and there he became captain of a band of thieves and ſuch other people as he had got together. At that time, the Iſraelites beyond Jordan, ſeeing themſelves preſſed by the Ammonites, came to deſire aſſiſtance from Jephthah; and that he would take upon him the command of them. Jephthah at firſt reproached them with the injuſtice which they had done him, or at leaſt which they had not prevented, when he was forced from his father's houſe. But, as theſe people were very earneſt in their requeſt, he told them, that he would ſuccour them, provided that at the end of the war they would acknowledge him for their prince. This they conſented to, and promiſed with an oath. Judges xi. 1-11.

Jephthah, in the year of the world 2817, having been acknowledged the prince of the Iſraelites in an aſſembly of the people, was filled with the ſpirit of God, (ver. 29.) and began to get his troops together; to that end, he went over all the land which the children of Iſrael poſſeſſed beyond Jordan. At the ſame time he made a vow to the Lord, that, if he were ſucceſsful againſt the Ammonites, he would offer up for a burnt-offering whatever ſhould firſt come out of his houſe to meet him. The battle being fought, Jephthah remained conqueror, and ravaged all the land of Ammon. But, as he returned to his houſe, his only daughter came out to meet him with timbrels and with dances; whereupon Jephthah tore his clothes, and ſaid, *Alas, my daughter, thou haſt brought me very low: for I have opened my mouth unto the Lord, and I cannot go back.* His daughter anſwered, *My father, if thou haſt made a vow unto the Lord, do to me as thou haſt promiſed; grant me only that I may be at liberty to go up to the mountains, and there for two months bewail my virginity with my companions.* Jephthah granted her this liberty; and, at the end of two months, he offered up his daughter, who died a virgin, a burnt-offering, agreeable to his vow, according to the opinion of moſt commentators. In the mean time, the Ephraimites, jealous of the victory obtained by Jephthah over the Ammonites, paſſed the river Jordan in a tumultuous manner, came and complained to Jephthah that he had not invited them to this war, and threatened to ſet fire to his houſe. Jephthah anſwered them, that he had ſent to deſire their aſſiſtance; but, obſerving that they did not come, he put his life in his hands, and hazarded a battle. The Ephraimites not being ſatisfied with theſe reaſons, Jephthah aſſembled the people of Gilead, gave them battle, and defeated them; ſo that there were two and forty thouſand men of the tribe of Ephraim killed that day. We know nothing more in particular concerning the life of Jephthah, only that he judged Iſrael ſix years, and was buried in a city of Gilead. Judges xi–xii. 7.

St. Paul (Heb. xi. 32.) places Jephthah among the ſaints of the Old Teſtament, the merit of whoſe faith diſtinguiſhed them. But it muſt be obſerved, that there is ſomething ſo extraordinary in Jephthah's vow, that, notwithſtanding the Scripture ſpeaks of it in very plain and clear terms, yet ſuch difficulties ariſe concerning it as perplex the commentators. Some maintain, that this daughter of Jephthah was not ſacrificed, as that would have been a violation of the law of Moſes; and eſpecially, when by the ſame law he might have redeemed his daughter for ten ſhekels of ſilver; therefore they contend, that it was ſomething elſe Jephthah did to his daughter, ſuch as devoting her to a ſtate of celibacy, or dedicating her to the ſervice of God. On the other hand, thoſe who maintain the affirmative, or that Jephthah's daughter was actually ſacrificed, urge, that the times wherein Jephthah lived were ſadly addicted to idolatry; alſo the manner wherein he lived before he was called to the aſſiſtance of his country; but above all, the clear, evident, and expreſs, meaning of the text. They obſerve, that vows of perpetual virginity are inſtitutions of a modern date; and, had there been no more in it, there would have been little occaſion for rending his clothes, and bemoaning himſelf as he did; beſides, the bitter lamentations made by herſelf, and by all the daughters of Iſrael in ſucceeding times. But, if ſhe was ſacrificed, we may ſafely and confidently aver with Joſephus, that this ſacrifice was neither lawful nor acceptable to God; but, on the contrary, an abominable crime, that might, notwithſtanding, have proceeded from a miſtaken principle of religion.

JEPHUN'NAH, [Heb. one that beholds.] A man's name.

JERAA'DO, a town of Africa, in the kingdom of Tunis, remarkable only for the ruins of an aqueduct, ciſterns, &c. twenty-ſix miles ſouth of Tunis.

JERAAN', a town of Perſia, in the province of Segeſtan: forty leagues weſt of Zareng.

JER'AMEEL, [Hebrew.] The name of a man.

JE'RAH, [Heb. a mouth.] A man's name.

JERAHMEEL'ITE, ſ. A deſcendant of Jerahmeel.

JERBO'A, ſ. See Dipus, vol. v. p. 853.

JERBOSA'JA, a town of Africa, in the country of Quoja.

JER'DECKER, a river of Hindooſtan, which runs into the Burhampooter River twenty-eight miles ſouth-weſt of Rangamatty.

JE'RE MOUN'TAINS, mountains of United America, in the Tennaſſee government.

JE'RED, [Hebrew.] A man's name.

JERE'JA, a town of Africa, in the kingdom of Fonia.

JEREMA'I, [Hebrew.] The name of a man.

JER'EMEEL, [Heb. the mercy of God.] A man's name.

JEREMI'AH. This divine writer was of the race of the prieſts, the ſon of Hilkiah of Anathoth, of the tribe of Benjamin. He was called to the prophetic office when very young, about the 13th year of Joſiah, and continued in the diſcharge of it about forty years. He was not carried captive to Babylon with the other Jews, but remained in Judea to lament the deſolation of his country. He was afterwards a priſoner in Egypt with his diſciple Baruch, where it is ſuppoſed he died in a very advanced age. Some of the Chriſtian fathers tell us he was ſtoned to death by the Jews, for preaching againſt their idolatry; and ſome ſay he was put to death by Pharaoh Hophrah, becauſe of his prophecy againſt him. Part of the prophecy of Jeremiah relates to the time after the captivity of Iſrael, and before that of Judah, from the firſt chapter to the 44th; and part of it was in the time of the latter captivity, from the 44th chapter to the end. The prophet lays open the ſins of Judah with great freedom and boldneſs, and reminds them of the ſevere judgments which had befallen the ten tribes for the ſame offences. He paſſionately laments their misfortune, and recommends a ſpeedy reformation to them. Afterwards he predicts the grievous calamities that were approaching, particularly the ſeventy years captivity in Chaldea. He likewiſe foretels their deliverance and happy return, and the recompence which Babylon, Moab, and other enemies of the Jews, ſhould meet with in due time. There are likewiſe ſeveral intimations in this prophecy concerning the kingdom of the Meſſiah; alſo many remarkable viſions, and types, and hiſtorical paſſages, relating to thoſe times. The 52d chapter does not belong to the prophecy of Jeremiah, which probably was added by Ezra, and contains a narrative of the taking of Jeruſalem, and of what happened during the captivity of the Jews, to the death of Jechonias. St. Jerome has obſerved upon this prophet, that his ſtyle is more eaſy than that of Iſaiah and Hoſea; that he retains ſomething of the ruſticity of the village where he was born; but that he is very learned and majeſtic, and equal to thoſe two prophets in the ſenſe of his prophecy.

JEREMI'E, a juriſdiction, town, and cape, within the bite or bay of Leogane, and on the ſouthern peninſula of the iſland of St. Domingo. This is the weſternmoſt juriſdiction of the iſland, contains two pariſhes, and is celebrated for the excellency of its ſoil, but particularly for the culture of coffee. Its exports from January 1, 1789, to December 31, of the ſame year, were as follow: 1420lb. white ſugar, 247,760lb. brown ſugar, 5,440,646lb. coffee, 54,786lb. cotton, 598lb. indigo; and various articles to the value of 297,000 livres. The exportation-duty on theſe productions amounted to 13,328 dollars ſix cents. The town ſtands on the weſt ſide of the bay and at the mouth of a brook, a league ſouth by weſt of Point Jeremie, eleven due north of Port a Piment on the ſouth ſide of the peninſula, and nearly eight leagues eaſt of Cape Dame Marie: Point Jeremie lies in lat. 18. 42. 30. N. lon. 76. 32. W. from Paris.

JER'EMOTH, [Hebrew.] The name of a man.

JER'EMY, a man's name.

JEREMYSQUAM', an iſland of the American States, in Lincoln county, diſtrict of Maine, which, with Folly Iſland, form the mouth of Sheepſcott river in Wiſcaſſet Bay.

JERF, a town of Norwegian Lapland: 200 miles weſt-ſouth-weſt of Wardhuys.

JER'GUER, or Jerquer, ſ. An officer of the cuſtom-houſe who ſuperintends the waiters. *Phillips.*

JERI'AH, [Hebrew.] The name of a man.

JERIBA'I, [Hebrew.] The name of a man.

JER'ICHO, an ancient town of Aſia, in Paleſtine; formerly celebrated for the number of palm-trees growing near it, and on that account called the City of Palms: many palms are yet growing there, though the town now conſiſts of only a ſquare tower, ſurrounded with huts, or tents, of the Arabians: about five miles from the river Jordan, and eighteen north-eaſt of Jeruſalem.

JER'ICHO, a town of Germany, in Lower Saxony, ſituated on the Elbe: thirty-two miles north-north-eaſt of Magdeburg.

JER'ICHO, a townſhip of the American States, in Chittenden county, Vermont, lies ſouth-eaſt of Eſſex, and north-eaſt of Williſton, and ſeparated from the latter by Onion river: it contains 381 inhabitants.

JER'ICHO, a poſt-town of New York, ſituated in Tioga county, between Chenengo river and the eaſt branch of Suſquehannah.

JERI'EL, [Hebrew.] The name of a man.

JERI'JAH, [Hebrew.] The name of a man.

JE'RIM, a town of Arabia, in the province of Yemen, the ſeat of a dola, containing about 2000 houſes: eighty miles north-eaſt of Mocha. Lat. 14. 17. N. lon. 44. 22. E. Greenwich.

JER'IMOTH, [Heb. eminences.] A man's name.

JER'IOTH, [Hebrew.] The name of a man.

*To* JERK, *v. a.* [ȝeꞃeccan, Sax.] To ſtrike with a quick ſmart blow; to laſh. It is ſometimes written *yerk*:

Baſtings heavy, dry, obtuſe,
Only dulneſs can produce;
While a little gentle *jerking*
Sets the ſpirits all a-working. *Swift.*

*To* JERK, *v. n.* To ſtrike up; to accoſt eagerly. This ſeems to be the meaning in this place, but is mere cant:

Nor bluſh, ſhould he ſome grave acquaintance meet;
But, proud of being known, will *jerk* and greet. *Dryden.*

JERK, ſ. A ſmart quick laſh.—Wit is not the *jerk* or ſting of an epigram, nor the ſeeming contradiction of a poor antitheſis; neither is it ſo much the morality of a grave ſentence, affected by Lucan, but more ſparingly uſed by Virgil. *Dryden.*—A ſudden ſpring; a quick jolt that ſhocks or ſtarts.—Lobſters uſe their tails as fins, wherewith they commonly ſwim backwards by *jerks*, or ſprings, reaching ten yards at once. *Grew.*

Well run Tawney, the abbot's churl;
His jade gave him a *jerk*,
As he would have his rider hurl
His hood after the kirk. *Ben Jonſon.*

JERK'IN, ſ. [cyꞃtelkin, Sax.] A jacket; a ſhort coat; a cloſe waiſtcoat.—Unleſs we ſhould expect that nature ſhould make *jerkins* and ſtockings grow out of the ground, what could ſhe do better than afford us wool? *More.*

Then ſtrip thee of thy carnal *jerkin*,
And give thy outward fellow a firking. *Hudibras.*

JER'KIN, ſ. A kind of hawk. *Ainſworth.*—This ſhould be written *gyrkin.*

JER'KING, ſ. The act of throwing with a ſudden motion.

IER'NE, a name of Ireland. *Strabo.*

JERO'AM, [Hebrew.] The name of a man.

JEROBO'AM, [Heb. a rejector of the people.] A man's name.

JEROBO'AM I. king of Iſrael, and the firſt ſovereign of that people after the defection of the ten tribes from the houſe of David, was the ſon of Nebat, of the tribe of Ephraim. His accompliſhments, and capacity for buſineſs, recommended him to the notice of king Solomon, who appointed him ſuperintendant of the finances and public works in his own tribe and that of Manaſſeh. As that monarch had, in his old age, ſuffered himſelf to be ſeduced by his foreign wives into the idolatry of their different countries, God was pleaſed to inform him that, as a puniſhment for his crime, his kingdom after his death ſhould be divided, and that a perſon who was only his ſervant ſhould reign over ten of the Iſraelitiſh tribes. Soon afterwards the prophet Abijah was directed to communicate this divine determination to Jeroboam, and to announce to him, that he was the perſon ſelected to be the ſovereign of the future confederacy; at the ſame time aſſuring him of the continuance of the regal dignity in his family, provided that he adhered to the worſhip and obedience of the true God. Whether Jeroboam diſcloſed this ſecret, or the prophet, we are not informed; but it appears to have reached the ears of Solomon; and Jeroboam, in order to avoid the king's deſigns againſt his life, was obliged to fly into Egypt. Here he continued until the death of that prince, and then returned into Judea, before Rehoboam, the ſucceſſor of Solomon, had received the public homage of the tribes. At the time fixed for that ceremony, when the heads of the tribes, and among them Jeroboam, were aſſembled at Schechem, before they acknowledged Rehoboam as their king, they required a redreſs of grievances which they had ſuffered under Solomon's adminiſtration, and a promiſe that the public burdens ſhould be leſſened. Rehoboam took three days to conſider of an anſwer; and then, inſtead of following the advice of his father's experienced counſellors, and ſoothing the people with condeſcending language and fair promiſes, he was weakly perſuaded by his hot-headed young courtiers to aſſume a haughty tone, and to terrify them into obedience by threatening to govern them with greater ſeverity than ever his father had ſhown. "My father," ſaid he, "made your yoke heavy, and I will add to your yoke; my father alſo chaſtiſed you with whips, but I will chaſtiſe you with ſcorpions." This inconſiderate and tyrannical language ſo exaſperated the heads of tribes, that they diſclaimed all further allegiance to the houſe of David; and the king's friends found it neceſſary to convey him with all ſpeed to Jeruſalem, to prevent his being inſulted by the revolters. The tribes of Judah and Benjamin only adhered to Rehoboam; and the other ten tribes, in a general aſſembly which was immediately convened, choſe Jeroboam to be their king.

This diviſion of the Hebrews into the two kingdoms of Judah and Iſrael, took place in the year 975 B. C. Rehoboam immediately raiſed a numerous army, with the deſign of reducing the revolted tribes to obedience; but, upon being warned by the prophet Shemaiah againſt engaging in war with the Iſraelites, ſince their defection came from God, he relinquiſhed that purpoſe, and diſmiſſed his troops. Jeroboam took advantage of his peaceable poſſeſſion of the new-gotten kingdom, to ſtrengthen himſelf at Shechem, which he made the principal place of his reſidence; but there was one thing that he apprehended might contribute in time to reconcile the ten tribes to the houſe of David, which was the obligation on all the people of Iſrael to go to worſhip at Jeruſalem during the three great annual feſtivals. He therefore determined to ſacrifice religion to policy, and ſet up two golden calves, one at Dan, and the other at Bethel, to which places he commanded the people to repair for the worſhip of God, without going up to Jeruſalem. Thus he eſtabliſhed idolatry in his kingdom, to which his people appear to have been ready converts; building temples and altars in the high places, and making prieſts from the loweſt orders, having expelled all the Levites, and ſeized their cities and lands, becauſe they would not ſerve him in his impiety. The firſt feſtival which Jeroboam proclaimed, was deſigned to be an imitation of the Moſaic feaſt of tabernacles; and, when a great concourſe of people was aſſembled to obſerve it at Bethel, and Jeroboam was ſtanding by the altar which he had erected there, ready to offer incenſe upon it, an event took place which, if his heart had not been hardened againſt conviction, would have ſtopped him in his criminal career. A prophet preſented himſelf, who publicly declared the new altar and the worſhip performed there to be idolatrous, and denounced its deſtruction by a future king of Judah, named Joſiah. When Jeroboam heard the prophet's threatening, he ſtretched out his hand, ordering him to be apprehended; but his hand became withered in an inſtant, ſo that he entirely loſt the uſe of it. Upon the king's humble ſupplication, however, the prophet prayed to God, and the diſordered limb was immediately cured.

Notwithſtanding theſe prodigies, Jeroboam perſiſted in debauching the Iſraelites from the worſhip of God, till he drew down a divine denunciation of deſtruction to his whole family. This was ſolemnly delivered by the prophet Abijah, when, upon the ſickneſs of his own ſon of that name, Jeroboam ſent his wife in diſguiſe to enquire of the prophet whether he would recover. Though Abijah was blind with age, he knew who it was that approached him, and, calling her by her name, bade her go and inform her huſband, that ſince he had been ſo ungrateful and wicked as to deſert the only true God, and to fill Iſrael with idolatry, not only this child ſhould die, but all his poſterity be afterwards cut off by a new king whom God would raiſe to the throne of Iſrael, and their carcaſes be devoured by dogs and birds of prey. Even this dreadful prediction did not reclaim Jeroboam, who continued during the remainder of his life to exert both his authority and example in maintaining the worſhip of his falſe deities. When Jeroboam had reigned eighteen years, Abijam, who had lately ſucceeded to the crown of Judah, aſſembled a large army, with which he made an incurſion into the Iſraelitiſh territories. He was ſoon met by Jeroboam with a much more numerous army, and a moſt deſtructive conflict enſued, which terminated in the defeat of Jeroboam, who never could recover his ſtrength again, nor prevent the conqueror from ſubduing Bethel and other conſiderable places. Jeroboam died in the year 954 B. C. and about two years afterwards the prophet's prediction of the total deſtruction of his poſterity was accompliſhed. See 1 Kings xi.-xv. 2 Chron. x.-xiii.

JEROBO'AM II. king of Iſrael, ſucceeded his father Joaſh in the year 823 B. C. He was a prince of great bravery and military ſkill, and ſucceſsfully followed his father's example in reſcuing his kingdom from the Syrian yoke. In his enterpriſes he was encouraged by the prophets Hoſea and Jonah, who were contemporaries with him, and foretold that he ſhould complete the deliverance of Iſrael, which his father had begun. Accordingly, he conquered the Syrian capital Damaſcus, and Hamath, with all their territories, both which had formerly belonged to Judah; and all the country on the other ſide Jordan, from Hamath to the Dead Sea. But, though his reign was glorious with reſpect to conqueſts, it was diſgraced by the ſame idolatries as had prevailed in the times of his predeceſſors, as well as by injuſtice, luxury, rapine, and other immoralities. The prophets Hoſea and Amos preſent to us dreadful pictures of the diſorders and debauchery which prevailed in Samaria and in Iſrael during his government, and were ſent to predict the total ruin which their crimes would ſhortly bring upon the whole kingdom. Amos, in particular, was ſent from Judah, to announce the total diſperſion of Iſrael; for propheſying which, Jeroboam obliged him to return to his own country. This prince died in the forty-firſt year of his reign, or the year 783 B. C. See 2 Kings xiv.

IEROM'ANCY, *ſ.* [ιερος, Gr. ſacred, and μαντεια.] A divination by ſacrifice.

JER'OME, a very eminent father of the church, and ſaint, was born at Strido, a town ſituated on the confines of Dalmatia and Pannonia, moſt probably about the year 342. His father Euſebius, who was a Chriſtian, and a perſon of rank and opulence, determined to beſtow upon him the advantages of an excellent education; for which purpoſe, after taking care to have him well grounded in the elements of learning in his native country, he ſent him to Rome, where he was placed under the tuition of the ableſt maſters in all the branches of literature. Jerome continued his ſtudies at Rome till he was of adult age, when he was baptized; after which he ſet out on his travels to foreign countries for the ſake of further improvement. He firſt of all viſited every part of Gaul, cultivating an acquaintance with the literary characters in that country, and diligently examining all the libraries wherever he came. He made ſo long a ſtay at Treves, that he had time to tranſcribe with his own hand the Commentary of Hilary of Poitiers upon the Pſalms, and alſo that author's large work concerning ſynods. From Treves he went to Aquileia, where he contracted an intimate friendſhip with Ruffinus, a preſbyter in that city; and returned thence to Rome. At this time he appears to have collected a valuable library, by which he was deſirous of profiting in a life of ſtudious retirement. For proſecuting ſuch a deſign he conſidered Rome to be an improper place, on account of the inceſſant buſtle and noiſe of that city; and to a ſettlement in his native country he had ſtrong objections, ariſing partly from the character of the inhabitants, whom he repreſents as entirely ſunk in ſenſuality and luxury, and partly from the irregular manner in which the biſhop Lupicinus conducted himſelf. After conſulting, therefore, with his friends, he determined to withdraw to ſome diſtant ſcene; and accordingly, relinquiſhing his parents and his worldly proſpects, and reſerving nothing but his books and a ſufficient ſum of money to defray the expences of his journey, he left Italy, and ſet out for the eaſtern part of the world, in company with Evagrius a rich citizen of Antioch, and Heliodorus who had been his fellow-ſtudent. After paſſing through Dalmatia, Thrace, and various provinces of Aſia Minor, he arrived at Antioch; whence he ſoon proceeded to Jeruſalem, for the purpoſe of viſiting the holy places, from motives of well-meaning but miſtaken piety. After ſome ſtay at Jeruſalem he returned to Antioch, where he was attacked by a dangerous illneſs, which the hoſpitable and friendly attention of Evagrius enabled him to ſurvive.

Scarcely was Jerome's health re-eſtabliſhed, before he devoted himſelf to the ſeverities of the monaſtic life; and, after paſſing through different countries, and making trial of different ſituations for ſecluſion, with which he became ſucceſſively diſſatisfied on account of his diſlike to the manners of the neighbouring people, he retired into the frightful deſerts of Syria, which were uninhabited excepting by wild beaſts and a few ſolitary monks. He was thirty years of age when he entered on this recluſe life; and, being ſupplied by Evagrius with the few neceſſaries which he wanted, he ſpent his whole time in ſtudy, devotion, and the practice of the moſt rigorous auſterities. He particularly made it his buſineſs to become intimately converſant with the ſacred Scriptures, and to gain that inſight into the oriental languages which was neceſſary in order to his underſtanding their true ſenſe and meaning. In theſe employments he ſpent four years, with ſuch intenſeneſs of application, and ſuch unremitting ſeverity of aſcetic diſcipline, that his health became greatly impaired, and he was obliged to quit his ſolitude, and to return to Antioch in order to recruit his ſtrength. At this time the church of Antioch was divided by the contending factions of Meletius, Paulinus, and Vitalis, each of whom aſſumed the title of biſhop of that city. In theſe circumſtances, Jerome would not eſpouſe the party of either of the rivals, till he had aſcertained who was acknowledged in that character by the church of Rome, into which he had been received by baptiſm. For this purpoſe he wrote a letter to Damaſus, the biſhop of Rome, to enquire whom he was to conſider as the lawful biſhop of Antioch; and, having received an anſwer in favour of Paulinus, he immediately embraced the intereſts of that prelate. He was ordained a preſbyter by Paulinus in 378, when he was about thirty-ſix years of age; but he would not accept of that office excepting upon the expreſs condition that his ſervices ſhould not be confined to any one church, and that he ſhould not be drawn from his monaſtic ſtudious courſe of life. Soon after his ordination he went to Bethlehem, which he appears to have fixed upon from this time as his favourite place of final ſettlement; but his preſent ſtay there was only for a ſhort time, as he had projected a viſit to Conſtantinople. His deſign in taking this excurſion was to avail hinſelf of the advice and inſtructions of Gregory Nazianzen; on whom he diligently attended for a conſiderable time, whom he calls his maſter, and profeſſes that from him he learned the right method of expounding the holy Scriptures.

In the year 382, his friend Paulinus biſhop of Antioch, and Epiphanius biſhop of Salamis in the iſland of Cyprus, being cited by imperial letters to attend at Rome, on the ſubject of their conteſts with other eaſtern prelates, Jerome attended them to that city, whither the fame of his piety and learning had for ſome time preceded him. Here his merit ſoon gained him the eſteem and confidence of Damaſus, who made him his ſecretary, and availed himſelf of his talents and zeal for the Catholic faith, in anſwering the difficult queſtions which were propoſed to him from all parts, and in carrying on his negociations for extending the authority of the papal power. He was alſo conſtituted by Damaſus the ſpiritual director of thoſe Roman ladies who had renounced the world and devoted themſelves to the religious life. During his reſidence at Rome he lodged in the houſe of a matron of this deſcription, named Paula, who was a woman of rank and fortune, and afterwards followed him with her daughters into the eaſt. In the employments above-mentioned Jerome acquitted himſelf to the ſatisfaction of the pope; but not without expoſing himſelf to the merited cenſures of the relations and friends of the weak females, whom he encouraged in their fanatical deſertion of the duties of their proper ſtations, and in the miſapplication of their wealth to the ſupport of uſeleſs and pernicious inſtitutions. He is alſo ſaid to have created many enemies, by the freedom with which he reproved the corrupt manners of the clergy, and the vices of the people. Another circumſtance which muſt have contributed to render his ſituation at Rome leſs pleaſing to him, was his being involved in diſputes with the followers of Origen in that city. For, though in the earlier part of his life he had tranſlated many works of Origen into Latin, and frequently commended him, calling him the greateſt doctor of the churches ſince the times of the apoſtles; yet now his eſteem for him had conſiderably abated, and he oppoſed his peculiar opinions as heretical. This exaſperated the principal Origeniſts againſt him; and they are repreſented as having propagated ſcandalous reports concerning his connection with Paula, which we doubt not were without foundation, notwithſtanding his indiſcretion in perſuading her and others of her ſex to abandon their domeſtic and ſocial relations. He therefore determined to quit Rome, and to return to the eaſt. After the death of Damaſus, Jerome haſtened to execute this determination, and in the year 385 embarked on-board a ſhip, accompanied by a number of monks, and females whom he had perſuaded to embrace the monaſtic life. Having in the courſe of his voyage arrived at Cyprus, he paid a viſit to Epiphanius; and afterwards he proceeded to Antioch, where his friend Paulinus gave him a welcome reception. From Antioch he went to Jeruſalem, where he pretends to have been witneſs to a number of miracles, for which neither the Proteſtant nor the moſt reſpectable Catholic eccleſiaſtical hiſtorians conſider him to be a ſufficient voucher. In the following year he took a journey into Egypt, where he attended the lectures of the learned Didymus, preſident of the celebrated catechetical ſchool at Alexandria; and afterwards viſited the monaſteries in the deſert of Nitria. Finding, however, the monks zealouſly attached to the principles of Origen, his growing hatred to the memory of that great man led him ſoon to take his leave of thoſe ſolitaries, and to return into Paleſtine. Having ſettled at Bethlehem, he was ſoon joined there by Paula, and the other ladies who had followed him from Rome, with the reſolution of embracing the monaſtic life; and the fame of his great piety and learning ſpeedily attracted to the ſame place crowds of both ſexes, from all parts, to ſubmit to his inſtructions in the aſcetic diſcipline. In order that they might be properly accommodated, Paula founded at Bethlehem a church, and four monaſteries, one for men, which was committed to the care of Jerome, and three for women, over which ſhe herſelf preſided. Jerome was now placed in a ſituation which entirely accorded with his wiſhes; where, beſides exerciſing great diligence in the government and inſtruction of his monks, as well as in the pious and literary education of numerous young men of rank who were placed under his direction, he purſued his ſtudies with aſtoniſhing ardour, and wrote a variety of learned and uſeful works, among which were the greateſt part of his tranſlations and expoſitions of the Scriptures. In theſe occupations he might have peacefully cloſed his days, had not his deteſtation of the opinions of Origen induced him warmly to attack thoſe who maintained and defended them. This ſpirit of oppoſition againſt what he conceived to be hereſy, involved him in acrimonious conteſts, which laſted many years, with John biſhop of Jeruſalem, and Ruffinus of Aquileia. With the latter, as we have already ſeen, he had formerly lived in habits of intimacy and friendſhip; but upon the removal of Ruffinus into the neighbourhood of Jeruſalem, and his enliſting among the Origeniſts, the union between the two friends was diſſolved, and their attachment was changed into the moſt bitter animoſity. Jerome was alſo engaged in controverſies with Pelagius, Helvidius, Jovinian, Vigilantius, and others; of which accounts may be ſeen in all eccleſiaſtical hiſtorians. In the year 410, when the Goths ravaged Italy and beſieged Rome, Jerome afforded an aſylum in his monaſtery to many of the fugitives who fled to the Holy Land; but, as he himſelf informs us, he carefully excluded from this hoſpitality all thoſe who were favourers of Origen's opinions, or tinctured in any degree with what he conſidered to be hereſy. He died at Bethlehem in the year 420, about the age of ſeventy-eight.

St. Jerome is allowed, by the moſt judicious modern critics, to have been, on the whole, the moſt learned of all the Latin fathers. He was well ſkilled in philological learning, eccleſiaſtical and profane hiſtory, and philoſophy; and he has adorned his writings with the fineſt ſtrokes of the Greek and Latin poets, hiſtorians, orators, and philoſophers. His ſtyle, however, is more declamatory than argumentative; and, while reading him, we are led rather to admire his eloquence and ingenuity, than the ſolidity of his judgment, or the perſpicuity and accuracy of his reaſoning. But what principally diſgraces him as a writer, is the virulence, acrimony, and total want of candour, which appears in his controverſial productions. That he would not have contented himſelf with merely pouring abuſe and invective on his opponents, had he been poſſeſſed of power, may be fairly concluded from the approbation which he expreſſed of the perſecutions practiſed on the adherents to Origen's opinions in Egypt, by Theophilus biſhop of Alexandria, and his exhortations to that prelate to proceed with firmneſs and ſpirit in extirpating hereſy. Of Jerome's ſuperſtitious turn of mind, his aſcetic diſcipline, and the enthuſiaſtic encomiums which he laviſhed on the monaſtic ſtate, afford ſufficient evidence; and of his abundant credulity, his Lives, or, as Jortin more properly calls them, his Romances, of Paul the Hermit, and of Hilarion, furniſh us with ſtriking proofs. The author juſt mentioned, when adverting to the degree of credit to which he is entitled, obſerves, that Tillemont has made two extraordinary conceſſions concerning him: that he was more diſpoſed to augment than to diminiſh miracles; and that exactneſs was no part of his character. And Dupin acknowledges, that his Life of Paul contains things which have little claim on our belief. But, notwithſtanding all Jerome's defects and faults, he, by his learned labours, has rendered ſuch ſervices to the cauſe of revelation, as will hand down his name with honour to the lateſt poſterity. Without being chargeable with vanity, he might bear that teſtimony to himſelf which Lardner has collected in his own words from different parts of his writings: That he had been from the beginning diligent and inquiſitive; that all his days he had been employed in the ſchools of rhetoricians and philoſophers, or in reading the Scriptures of the Old and New Teſtament; that he did not rely upon his own judgment and underſtanding in interpreting the Scriptures, but conſulted other commentators, and was willing to improve by their labours; that he never thought himſelf too old to learn, but embraced all opportunities of increaſing in knowledge; and that he was not employed, as many monks were, in making baſkets of ruſhes, and ſkreens of palm-leaves, to get a livelihood, but in ſtudying the Scriptures, and publiſhing correct editions of them. The moſt uſeful of his productions are, his interpretations of the ſacred Scriptures, and thoſe of his letters which contain critical remarks and diſſertations on particular texts and expreſſions in the Bible. They will furniſh the reader with more fragments of the ancient Greek tranſlators of the Bible than are to be met with in the works of any other father; and it is no little recommendation of them, that they preſent us with the opinions entertained by the Jews of his time of the ſignification of many Hebrew words, and with the ſenſe and meaning which they put upon many paſſages in the Old Teſtament. For a particular enumeration of the works attributed to St. Jerome, and the marks by which ſuch as are genuine may be diſtinguiſhed from the ſuppoſititious, we refer to Cave or Dupin; obſerving only, that the principal of them conſiſt of, 1. A new Latin verſion of the whole Old Teſtament, from the Hebrew, accompanied with a corrected edition of the ancient Latin verſion of the New Teſtament; which met at firſt with much oppoſition, but was afterwards adopted by the catholic church, and is commonly known by the name of *the Vulgate*. 2. Commentaries on moſt of the books of the Old and New Teſtament. 3. A Treatiſe on the Lives and Writings of eccleſiaſtical Authors. 4. A Continuation of the Chronicle of Euſebius, moral, critical, hiſtorical, and miſcellaneous. 5. Letters, &c. The firſt printed edition of them appeared at Baſil, under the care of Eraſmus, 1516–1526, in 6 vols. folio; which was followed, at different periods, by impreſſions at Lyons, Rome, Paris, and Antwerp. The moſt correct of all the editions which have been given is that publiſhed at Paris, by father Martianay, a benedictine monk of the congregation of St. Maur, 1693–1706, in 5 vols. folio.

JER'OME, a fort on the ſouth ſide of the iſland of St. Domingo, on the ſea-ſide, and near the road from the city of St. Domingo, and in the canton of Jayna.

JER'OME of PRAGUE, ſo called from the place of his birth, in Bohemia. He was neither a monk nor a clergyman, but had a learned education. Having embraced the opinions of John Huſs, he began to propagate them in the year 1410. In the mean time the council of Nice kept a watchful eye over him; and, conſidering him as a dangerous perſon, cited him to appear before them and give an account of his faith. In obedience to this citation, he went to Conſtance; but on his arrival, in 1415, finding Huſs in priſon, he ſet out for his own country. Being ſeized however on the way, impriſoned, and examined, he was ſo intimidated, that he retracted, and pretended to approve of the condemnation of Wickliff's and Huſs's opinions; but on the 26th of May, 1416, he condemned that recantation in theſe terms: "I am not aſhamed to confeſs here publicly my weakneſs. Yes, with horror I confeſs my baſe cowardice. It was only the dread of the puniſhment by fire which drew me to conſent, againſt my conſcience, to the condemnation of the doctrine of Wickliff and Huſs." Accordingly ſentence was paſſed on him; in purſuance of which he was delivered to the ſecular arm, and burnt in 1416. He was a perſon of great parts, learning, and elocution.

JER'OME DE SANTA FE, a learned Spaniſh Jew in the fifteenth century, whoſe original name was *Joſhua Larchi.* After a careful examination of the Old-Teſtament prophecies relating to the Meſſiah, he became a convert to Chriſtianity, and upon his baptiſm changed his Jewiſh name for that under which he is deſcribed above. He was phyſician to Peter de Luna, who was choſen pope by the cardinals at Avignon, in oppoſition to Boniface IX. and took the name of Benedict XIII. When that pontiff was in Spain, in the year 1412, he ordered a public conference to be held in his preſence, at Tortoſa, between ſome learned Chriſtians and the moſt celebrated Jewiſh rabbis in Arragon and Catalonia, on the ſubject of the Meſſiah's character, and the evidence brought forward to prove that Jeſus was that perſon; in which Jerome acquitted himſelf with credit to his own learning and abilities, and to the new faith which he had embraced. In the year 1413, he preſented to the pope a treatiſe in confutation of the errors of the Jews, and another againſt the Talmud; which are ſaid to have produced ſuch an impreſſion upon the Jews, that the reading of them induced more than five thouſand of that people to become Chriſtians. They were both publiſhed at Frankfort, under the title of *Hebræo-maſtigis*, 1602, 8vo. and are inſerted in the twenty-ſixth volume of the Bibl. Patr. The author's treatiſe againſt the Talmud had been printed before at Zurich, in 1552; and a folio impreſſion of his other piece had alſo been publiſhed before the appearance of the Frankfort edition, without any mention of the place where, or the time when, it was printed.

IEROMONAR'CHES, *ſ.* [ιερος, Gr. ſacred, and *μοναρχης*, a chief.] The regular prieſts among the Greeks.

JERON'YMITES, or HIERONYMITES, *ſ.* A denomination given to divers orders or congregations of religious; otherwiſe called *Hermits of St. Jerome.*

IEROS'COPIST, *ſ.* [ιερος, Gr. ſacred, and *σκοπεω*, to view.] The prieſt who was to obſerve any evil omen that might occur at the time of ſacrificing, and pray that the misfortune portended might fall on the head of the victim.

JERRABALLI'SA, a town of Africa, in the country of Quoja.

JER'RAND, a town of France, in the department of the Puy-de-Dôme: two leagues eaſt of Clermont, and two and a half north-weſt of Billom.

JER'RY, a contraction of Jeremiah or Jeremy.

JER'SEY, an iſland in the Engliſh channel, believed to be the iſland called in the Itinerary *Cæſarea*, in ſucceeding times *Augia*, by us *Gerſey*, more frequently *Jerſey*. It is ſituated eighteen miles to the weſt of Normandy, and eighty-four to the ſouth of Portland in Dorſetſhire; and is not above twelve miles in length, nor much above ſix where broadeſt, which is at the two extremities. It is defended by rocks and dangerous quickſands. On the north ſide the cliffs riſe forty or fifty fathoms high, which render it inacceſſible on that ſide; but on the ſouth the ſhore is almoſt level with the water. In the weſt part of the iſland is a large tract of land once cultivated and very fertile, but now a barren deſert, cauſed by the weſterly winds throwing up ſand from the bottom to the top of the higheſt cliffs. The higher lands are diverſified by gritty, gravelly, ſtony, and fine, mould; the lower by a deep, rich, and heavy, ſoil. The middle part of the iſland is ſomewhat mountainous, and ſo thick planted with trees, that at a diſtance it reſembles one entire foreſt, though in walking through it there is hardly a thicket or any other thing to be ſeen but hedge-rows and orchards of apple-trees. The valleys under the hills are finely watered by brooks, and have plenty of cattle and ſmall ſheep, with very fine wool, and very ſweet meat, which is aſcribed to the ſhortneſs of the graſs. The horſes are good for draught; but few fit for the ſaddle. The iſland produces variety of trees, roots, and herbs; but not corn enough for the inhabitants, who therefore ſend for it to England and France, and ſometimes to Dantzic. The fields are incloſed by great mounds of earth, raiſed from ſix to eight or ten feet high, proportionably thick and ſolid, planted with quickſets and trees.

As the air of this iſland is very healthy, thoſe of the inhabitants who are temperate live to a great age; but the coaſt is very ſubject to ſtorms by weſterly winds, from which they have no land to ſhelter them nearer than North America; and there is a vaſt chain of rocks about the iſland, among which the tides and currents are ſo ſtrong and rapid, that the navigation is dangerous to thoſe who are not perfectly acquainted with the coaſt. The buildings are generally of rag-ſtone; but ſome of the wealthy inhabitants have their houſes fronted with a reddiſh-white ſtone, capable of being poliſhed like marble, and of which there is a rich quarry on a hill called Montmado. The ordinary dwellings are thatched. The churches are very plain buildings, moſt of them ſquare ſteeples; and the communion-table is not at the eaſt end, as in the Engliſh churches, but juſt under the pulpit. The ſtaple manufacture is knit ſtockings and caps, many thouſand pair of which are weekly ſold at St. Helier to the merchants; alſo cider, of which 25,000 hogſheads have been made here in one year. Their principal foreign trade is to Newfoundland; whither, particularly in 1732, they ſent twenty-four ſhips; theſe proceed from thence to the Mediterranean to diſpoſe of their fiſh.

On the ſouth ſide of the iſland the ſea ſeems to have encroached upon the land, (which, as we have before obſerved, declines on that ſide,) and to have ſwallowed upwards of nine ſquare miles, making a very beautiful bay of about three miles broad, and near the ſame in depth. In the eaſt corner of this bay ſtands the town of St. Helier, which is very happily ſituated; but the principal haven is in the weſtern corner of the bay, which receives its name from it, being called St. Aubin's. There are, beſides theſe, ſeveral other havens of leſs note; as, St. Brelade's bay, at the back of St. Aubin's; the great bay of St. Ouen, which takes in the greateſt part of the weſt ſide of the iſland, where the largeſt ſhips may ride in twelve and fifteen fathoms, ſafe from all but eaſt winds. La Crevaſſe is a port only for boats; Greve de Lecq and Port St. John are alſo ſmall havens on the north ſide, where is likewiſe Bonnuit. On the eaſt there is the bay of St. Catharine, and the harbour of Roſel. To the ſouth-weſt lies the haven de la Chauſſée. The laſt we ſhall mention is the port de Pas, a very little to the eaſtward of St. Aubin's bay.

The towns of St. Helier and St. Aubin, which, as already mentioned, ſtand both in the ſame bay called St. Aubin's Bay, opening to the ſouth, are about three miles aſunder. St. Helier took its name from Elerius or Helier, a holy man, who lived in this iſland many centuries ago, and was ſlain by the pagan Normans at their coming hither. He is mentioned among the martyrs in the martyrology of Coutance. His little cell, with the ſtone bed, is ſtill ſhown among the rocks; and in memory of him a noble abbey of canons regular was founded in the little iſland in this bay, and annexed to Cherburg-abbey in Normandy in the reign of Henry I. and ſuppreſſed as an alien-priory. The town of St. Helier ſtands at the foot of a long and high rocky hill at the eaſt end. It is a well-built and populous place; greatly improved and enlarged within the laſt century; and contains about 400 houſes, moſtly ſhops, and near 2000 inhabitants. The market-place in the centre is ſpacious, ſurrounded with handſome houſes, among which is the Cohue Royale, or court of juſtice. At the top of the market-place is a ſtatue of George II. of bronze gilt. The market is held on Saturday, and much frequented. St. Aubin at the weſt end of the bay is principally inhabited by merchants and maſters of ſhips, whom the neighbourhood of the port has invited hither. It is not more than half the ſize of the other town, though greatly increaſed within theſe hundred years; and has a good ſtone pier carried far into the ſea, where ſhips of conſiderable burden lie ſafe under the guns of the adjoining port. The iſle of St. Helier, more to the eaſt in the ſame bay, is in circuit near a mile, ſurrounded by the ſea at or about every half-flood. On the ſcite of the abbey before mentioned is now Elizabeth Caſtle, one of the largeſt and ſtrongeſt fortreſſes in Britain. Queen Elizabeth began it, and gave it her name. Charles I. enlarged it, and Charles II. who was twice here, completed it. It was the laſt fortreſs that held out for the king. It is the reſidence of the governor and garriſon, and occupies the whole iſle, from whence at low water is a paſſage called the *bridge*, half a mile long, formed of ſand and ſtones. Mount Orgeuil caſtle, called alſo Gourray from the neighbouring village of that name, lies to the ſouth of Roſel harbour in the bay of St. Catharine. It was a place of ſtrength before Henry V'th's time, and bade defiance to the attempts of the French under the conſtable Du Gueſclin in 1374, at the end of the reign of Edward III. It was repaired by queen Elizabeth, but is now neglected, yet preſerves an air of grandeur anſwering its name even in ruins. The aſcent to its top is by near two hundred ſteps; and from thence by a teleſcope may be ſeen the two front towers of the cathedral of Coutance in France. The famous William Prynne was confined in it three years. The iſland is divided into twelve pariſhes, which are ſo laid, that each has a communication with the ſea; theſe are ſubdivided into fifty-two *vintaines*, ſo called from the number of twenty houſes, which each is ſuppoſed to have formerly contained, juſt as in England ten houſes anciently made a tithing. The whole number of inhabitants is computed at about 20,000, of which 3000 are able to bear arms, and are formed into regiments.

The chief officer is the governor, who has the cuſtody of his majeſty's caſtles, with the command of the garriſons and militia. The civil government is adminiſtered by a bailiff, aſſiſted by twelve jurats. They have here alſo what they call an aſſembly of the ſtates: theſe are convened by the governor or his deputy, the bailiff: they conſiſt of himſelf and the jurats, the dean and clergy, and the twelve high conſtables.

There were formerly many druidical temples and altars in Jerſey, ſome remains of which are ſtill to be ſeen. The cromlechs are here called *pouquelays*, and there are ſome tumuli and keeps. Roman coins have alſo been dug up in this iſland; and there are the remains of a Roman camp in the manor of Dilamant. Chriſtianity was firſt planted here in the middle of the ſixth century, and the iſland made part of the ſee of Dol in Bretagne, and it is now governed by a dean. Beſides the abbey of St. Helier, here were four priories, Noirmont, St. Clement, Bonnuit, and le Leek; and above twenty chapels, now moſtly in ruins.

During the American war, this iſland, together with that of Guernſey, became an object of deſire to France, whoſe vanity, no leſs than her intereſt, was concerned in depriving Britain of thoſe laſt remnants of her continental poſſeſſions. The firſt attempt to achieve this conqueſt took place in the year 1779. A force of five or ſix thouſand men was embarked in flat-bottomed boats, and endeavoured to land in the bay of St. Ouen, on the firſt of May. In this attempt they were ſupported by five frigates and other armed veſſels; but met with ſuch a vigorous reſiſtance from the militia of the iſland, aſſiſted by a body of regulars, (the 78th regiment,) that they were compelled to retire without landing a ſingle perſon. Much diſcontent and mutual recrimination took place among the French naval and military officers on this failure; and, though the expedition was repreſented by many as ill concerted, and deſtitute of every hope of ſucceſs, another attempt was reſolved on. Both the troops and ſeamen that had been employed in the former expedition were equally deſirous of retrieving their honour; but they were for ſome time prevented from making any attempt of this kind by bad weather: and, before another opportunity offered, the ſquadron which was deſigned to cover their deſcent was attacked by ſir James Wallace, who drove them aſhore on the coaſt of Normandy, ſilenced a battery under whoſe guns they had taken ſhelter, captured a frigate of 34 guns, with two rich prizes, burnt two other large frigates, and a conſiderable number of ſmaller veſſels. Thus the ſcheme of invading the iſland of Jerſey was totally diſconcerted, and laid aſide for that time; but was reſumed in the year 1781. The conduct of this ſecond expedition was given to the baron de Rullecourt, who had been ſecond in command when the former attempt was made. He was a man of courage, but fierce and violent in his diſpoſition, and ſeems to have been very deficient in the prudence and conduct neceſſary for bringing any military enterpriſe to a ſucceſsful iſſue. The force entruſted to him on the preſent occaſion conſiſted of 2000 men; with whom he embarked in very tempeſtuous weather, hoping that he might thus be able to ſurpriſe the garriſon. Many of his tranſports, however, were diſperſed, and he himſelf, with the remainder, obliged to take ſhelter in ſome iſlands in the neighbourhood of Jerſey. As ſoon as the weather grew calmer, he ſeized the opportunity of a dark night (the 6th of January) to effect a landing at a place called Grouville, where he made priſoners of a party of militia. Hence he proceeded with the utmoſt expedition to St. Helier's, the capital of the iſland, about three miles diſtant. His arrival was ſo unexpected, that he ſeized on a party of men who guarded it, together with the commanding officer, (lieutenant-governor Corbett,) and the magiſtrates, of the iſland. Rullecourt then drew up a capitulation, the terms of which were, that the iſland ſhould be inſtantly ſurrendered to the French, and the garriſon to be ſent to England; threatening the town with immediate deſtruction in caſe of non-compliance. It was in vain repreſented to him that no act of the deputy-governor and magiſtrates could be valid while they remained in his power; but, as Rullecourt ſtill inſiſted, they were obliged to comply, leſt his menaces ſhould have been carried into execution. This point being gained, he advanced to Elizabeth Caſtle in the neighbourhood of the town, ſummoning it to ſurrender in virtue of the capitulation for the town and iſland juſt concluded. To this a peremptory refuſal was given, and followed by ſuch a vigorous diſcharge of artillery, that he was obliged to retire into the town. In the mean time the Britiſh troops ſtationed in the iſland began to aſſemble from every quarter under the command of major Pierſon, who, on being required by the French commander to ſubmit, replied, that if the French themſelves did not, within twenty minutes, lay down their arms, he would attack them. This being refuſed, an attack was inſtantly made with ſuch impetuoſity, that the French were totally routed in leſs than half an hour, and driven into the market-place, where they endeavoured to make a ſtand. Their commander, exaſperated at this unexpected turn of affairs, endeavoured to wreak his vengeance on the captive governor, whom he obliged to ſtand by his ſide during the whole time of the conflict. This, however, was quickly over; the French were broken on all ſides, the baron himſelf mortally wounded, and the next in command obliged to ſurrender himſelf and the whole party priſoners of war; while the captive governor eſcaped without a wound. This ſecond diſaſter put an end to all hopes of the French miniſtry of being able to reduce the iſland of Jerſey, and was indeed no ſmall mortification to them; 800 troops having been landed at that time, of which not one eſcaped. A monument was erected at the public expence in the church of St. Helier, to the memory of major Pierſon, to whom the deliverance of the iſland was owing; but who unhappily fell in the moment of victory, when only 24 years of age. All the landing-places and creeks round the iſland are now fortified with batteries, and ſeventeen or eighteen watch-houſes are erected on the headlands: theſe are round towers, with embraſures for ſmall cannon, and loop-holes for muſketry; the entrance by a door in the wall out of the reach of man, and to be aſcended by a ladder afterwards drawn up.

This iſland, with thoſe of Guernſey, Sark, Alderney, and their appendages, were parcel of the duchy of Normandy, and were united to the crown of England by the firſt princes of the Norman line. The language of the pulpit, and the bar, is the French, which is alſo that generally ſpoken by the people at large. They are governed by their own laws, which are for the moſt part the ducal cuſtoms of Normandy, being collected in an ancient book of cuſtoms entitled *Le grand cuſtumier*. The king's writ, or proceſs from the courts of Weſtminſter, is here of no force; but his commiſſion is. They are not bound by any common acts of our parliaments, unleſs particularly named. All cauſes are originally determined by their own officers, the bailiff and jurats of the iſlands. But an appeal lies from them to the king and council in the laſt reſort. Jerſey is an earldom in the Villiers family.

A thorough knowledge of the infinite importance of the iſlands of Jerſey, Guernſey, &c. as ſo many barriers againſt France; a well-grounded foreſight of the innumerable miſchiefs that muſt follow, on their falling under the power of the crown; and a juſt ſenſe of the intrepid and ſteady courage with which the inhabitants had ſo often defended themſelves; induced our monarchs to give them many, and ſome very extraordinary, marks of their favour, excluſive of the fortifications they raiſed for their defence, and the fleets that, from time to time, they employed for their protection. Thus king Edward III. directed a letter, not only to the bailiffs and other magiſtrates, but to the people of Jerſey in general, to thank them for the glorious ſtand they made againſt his enemies. Almoſt all our princes, after him, took a pleaſure in recapitulating their ſervices, on the renewing of their charters. Henry VII. gave them this ſanction for the erection of two free-ſchools; Elizabeth honoured them with larger and more explicit charters than any of her predeceſſors; James I. redreſſed ſeveral grievances, and ſhowed, in many caſes, an earneſt attention to their intereſt and welfare; Charles I. gave lands for endowing three fellowſhips, in as many colleges, at Oxford; Charles II. ſent a mace, with a moſt honourable inſcription, to be carried before the magiſtrates of Jerſey; king William gave all the artillery requiſite for their breaſt-works and other fortifications; and they have deſerved and received many benefits from the crown in ſucceeding reigns.

After all, theſe iſlands are not improved to the utmoſt: on the contrary, if they ſought, diſcovered, and wrought, mines, which the emery formerly brought from Guernſey, and a celebrated mineral ſpring which is in Jerſey, ſeem to ſhow they poſſeſs; if they cultivated flax, and introduced the linen or even the thread manufacture; it would produce infinite advantages to the inhabitants; and if one or two ports, capable of receiving large ſhips, were opened in the larger iſlands, it would contribute to the extending their navigation and commerce, and induce them to concur effectually in eradicating that pernicious practice of ſmuggling, which is equally inconſiſtent with good government and ſound morals. In all or in any of theſe attempts, they have a juſt right to the aſſiſtance of England; becauſe whatever acceſſion of ſtrength they can attain muſt redound to our ſecurity, and whatever augments their wealth muſt finally turn to our profit.

As a concluding remark upon Jerſey, it is to be obſerved, that the iſland very much abounds with toads, which will not live in Guernſey, though the diſtance is ſo ſmall between them: they have been frequently carried over to try the experiment, but have always died in a ſhort time. Thoſe who have lived in the Weſt Indies have remarked a like incongruity between the climates of the iſlands of Martinique and Guadaloupe; in one of which ſerpents greatly abound, while in the other, though diſtant but a very few leagues, no reptile of that nature will live four-and-twenty hours.

JER'SEY (New.) See New Jersey.

JER'SEY, *ſ.* [from the iſland of Jerſey, where much yarn is ſpun.] Fine yarn of wool.

JER'SEY, *adj.* Belonging to Jerſey; made of jerſey.

JER'SEY-COMBER, *ſ.* One who combs jerſey.

JER'SEY-WHEEL, *ſ.* The wheel with which jerſey is ſpun.

JERUBBA'AL, [Heb. a diſputer.] A man's name.

JERUB'BESHETH, [Heb. let the idol of confuſion defend itſelf.] A man's name. 2 *Sam.*

JERU'EL, [Hebrew.] The name of a place. 2 *Chron.* xx.

JERU'SALEM, a very famous and ancient city, capital of Judea or Paleſtine, now a province of Turkey in Aſia. According to Manetho, an Egyptian hiſtorian, it was founded by the ſhepherds who invaded Egypt in an unknown period of antiquity. According to Joſephus, it was the capital of Melchiſedek's kingdom, called *Salem* in the book of Geneſis; and the Arabians aſſert, that it was built in honour of Melchiſedek by twelve neighbouring kings; which when they had done, he called it *Jeruſalem*. Its firſt buildings were erected on the loweſt part of Mount Sion, that is to ſay, Mount Acra; the northern mountain, and this part, was therefore called the Lower City. The Jebuſites, a people of the land of Canaan, made themſelves maſters of it; and it was ſtill ſubject to them at the time the Hebrews were under the protection of Moſes. Theſe people afterwards built, on the higheſt part of Mount Sion, that diviſion diſtinguiſhed by the name of the Upper City, and which, by its inhabitants, was called *Jebus*; they built there, likewiſe, a fortreſs, to defend themſelves againſt the attacks of the Hebrews. When the Hebrews entered the Land of Promiſe, under the conduct of Joſhua, in the year 2584, in the diviſion of it, Jeruſalem fell to the lot of the tribe of Benjamin. After the death of Joſhua, which happened in the year 2601, the lower city was taken and burnt by the tribe of Judah; but not being able to make themſelves maſters of the upper city, to which the Jebuſites had retired for ſhelter, the latter recovered the lower city, and reſtored it to its former condition. It appears that the city of Jeruſalem belonged ſometimes to the tribe of Benjamin, and ſometimes to the tribe of Judah; but, according to the diſtribution of the Land of Promiſe made by Joſhua, it certainly, as before mentioned, fell to the lot of the tribe of Benjamin.

The glory of entirely ſubjecting the Jebuſites, however, was reſerved for David, who, in the year 2988, expelled theſe people, ſeized their fortreſs and city, and called the latter, after his own name, *The City of David.* The city then occupied two mountains, that is to ſay, Mount Sion, which formed the upper city, and Acra, which formed the lower city. Theſe David had already ſurrounded with a ſingle wall, though they were divided from each other; for the city of Sion was incloſed by a ſeparate wall, and between it and the inferior city there were valleys and two other little hills. In the year of the world 3009, Jeruſalem was poſſeſſed by Abſalom, the ſon of David; but the ſame year it again fell into the hands of David. After David's death, in the year 3021, Solomon ſurrounded Jeruſalem with much ſtronger and better walls. He erected, alſo, various new edifices in the neighbourhood of Mount Bezeta and Mount Moriah, ſo that a third city, as it were, was ſeen to ariſe; but, as they were incloſed by one wall, they were therefore called by one name. Each of theſe cities being, however, ſurrounded by its own particular wall, we may ſay that Jeruſalem was fortified by three walls. In the year of the world 3023, the fourth of the reign of Solomon, and the twenty-eighth of his age, the Temple was begun; and in the ſpace of ſeven years, that noble fabric, admired by all nations for its grandeur, magnificence, and riches, was completely finiſhed. During the whole reign of this prince, which was forty years, the city continued to increaſe in ſplendour, and to be in a very flouriſhing ſtate; but ſoon after his death its misfortunes began.

In the fourth year of the reign of Rehoboam, the ſon of Solomon, that is to ſay, in the year of the world 3046, the city of Jeruſalem was beſieged and taken by Shiſhak, or perhaps Seſoſtris, king of Egypt, who afterwards concluded a peace with Rehoboam, but carried away the treaſures of the temple, as well as thoſe of the royal palace. Joaſh, king of Iſrael, advanced to Jeruſalem, entered the city, deſtroyed part of its walls, plundered the temple and the royal palace, and returned to Samaria. About the year 3425, Pharaoh Necho II. king of Egypt, entered Jeruſalem, and captured Jehoahaz, king of Judah, who had been raiſed to the throne by the Hebrew people, in the room of his father Joſiah, who was killed the ſame year in a battle fought with the king of Egypt. Jehoahaz was carried away captive to that country, and the ſovereignty conferred upon Jehoiakim, who was obliged to pay a certain tribute impoſed on the Hebrew nation; ſo that Jeruſalem became then tributary to the king of Egypt. In the fourth year after Pharaoh Necho had given the crown of Judah to Jehoiakim, Nebuchadnezzar II. king of Babylon, beſieged Jeruſalem, which now fell under the dominion of the Chaldeans. Nebuchadnezzar reſtored it, however, to Jehoiakim, on condition of paying a certain tribute, as he had done to the king of Egypt, in order to ſhow the dependent ſtate of the city and the Hebrew people. Jehoiakim, not being able to endure this ſervitude, attempted, three years after, to free himſelf from the yoke; but the king of Chaldea ſent a powerful army againſt him, which laid waſte the country of Judea. Jehoiakim himſelf, being taken, was put to death in the year 3436, and a great number of priſoners were conducted, as ſlaves, to Babylon. The ſame year, Jehoiakim was ſucceeded by his ſon, Jehoiachin, who reigned in Jeruſalem only three months. Nebuchadnezzar, being apprehenſive that he would revenge his father's death, laid ſiege to Jeruſalem, compelled Jehoiachin to ſurrender, and carried him away captive to Babylon, together with his mother, his wife, his children, and a great many people, leaving only a very ſmall number of inhabitants in the land, which was now reduced to a very deplorable ſituation. Upon this occaſion, Nebuchadnezzar ſeized upon all the riches of the temple and royal palace, and cut in pieces thoſe golden veſſels which Solomon had cauſed to be made for the ſervice of the Lord. In the room of Jehoiachin, Nebuchadnezzar eſtabliſhed Mattaniah king of Jeruſalem, and gave him the name of Zedekiah. This prince, however, in imitation of his predeceſſors, rebelled againſt the king of Chaldea, who ſent an army againſt the city of Jeruſalem, and having made himſelf maſter of it, in the eleventh year of the reign of Zedekiah, took the king priſoner, and after putting out his eyes, carried him away as a captive. Nebuchadnezzar being then at Riblah, a city of Syria, ſent his general, Nabuzaradan, to deſtroy the city of Jeruſalem entirely. The walls of it were, therefore, razed, the royal palace and the temple demoliſhed, their riches and ornaments tranſported to Babylon, and the people (a few huſbandmen and vine-dreſſers excepted) were carried away into ſlavery. This event took place in the year of the world, 3347, an epoch memorable in the hiſtory of Jeruſalem.

Cyrus, king of Perſia, who had conquered the kingdoms of Aſſyria and Babylon, in the year of the world 3516, and the firſt of his reign, ſet the Hebrews at liberty, after they had been ſeventy years captive in Babylon; reſtored to them the ſacred veſſels carried away by Nebuchadnezzar, and gave them leave at the ſame time to rebuild the temple. The Hebrews employed twenty years in conſtructing this new edifice; for they were continually interrupted in the work by their enemies, the Samaritans. Nehemiah, one of the Hebrew captives, who afterwards became ſovereign of that people, being cup-bearer to Artaxerxes Longimanus, king of Perſia, and in great favour with the court, obtained leave to go to Jeruſalem, and rebuild the walls of that city, which, though entirely deſtroyed, he reſtored, with much labour, in the ſpace of twelve years and four months. This happened in the year of the world 3600, and in the eighty-ſecond after the Hebrew people had been ſet at liberty by Cyrus.

After Nehemiah, the city of Jeruſalem enjoyed peace till the year 3722. In this year, Alexander the Great, being engaged in the ſiege of Tyre, demanded aſſiſtance from the Jews; but the chief prieſt refuſed his requeſt, informing him at the ſame time, that he had ſworn to Darius not to take any part with his enemies. Alexander, offended at this anſwer, repaired to Jeruſalem, after he had conquered Tyre and the city of Gaza, fully reſolved to be revenged both on it and its inhabitants; but being met by a multitude of people, all dreſſed in white, the prieſts arrayed in their robes, and the high-prieſt with a garment of purple and gold, having on his head a tiara, with a plate of gold above it, upon which was inſcribed the name of the Lord, his paſſion immediately ſubſided; and, approaching the high-prieſt, he offered his adorations to God; after which he ſhowed every mark of reſpect to Jaddus, as noted under JADDUA, p. 670. Ptolemy Soter, the ſon of Ptolemy Lagus, who was one of Alexander's ſucceſſors, and who, in the diviſion of the empire, had got Egypt for his ſhare, wiſhing to extend his conqueſt in Syria and Phœnicia, turned his thoughts towards Jeruſalem. In the year 3733, therefore, he ſurpriſed the city, on the ſabbath-day, having entered it under a pretence of offering up ſacrifice; and, taking a great number of priſoners in Judea, carried them along with him to Egypt. Antiochus Epiphanes, in the year 3882, beſieged the city, plundered it of all its gold and valuable effects, put to death eighty thouſand of the inhabitants of Judea, made forty thouſand of them ſlaves, and ſold forty thouſand more. In the year 3885, the ſacrifices were interrupted; abomination entered into the houſe of the Lord; and the altar was profaned by the ſtatue of Jupiter Olympius being erected over it. This calamity happened four hundred and thirty-eight years after Jeruſalem had ſuffered under Nebuchadnezzar king of Babylon.

After the deſtruction of the city of Jeruſalem under Antiochus Epiphanes, it found a powerful defender in Judas Maccabeus, who, in the year of the world 3888, having ſucceeded his father Mattathias as high-prieſt of the Hebrews, overcame in various battles the celebrated generals of Antiochus Epiphanes, king of Syria; and, after re-eſtabliſhing the city, and purifying the temple, in the year 3889, made a dedication of the new altar. In the year 3890, Antiochus Eupator, king of Syria, ſon and ſucceſſor to Antiochus Epiphanes, laid ſiege to Jeruſalem. A peace being afterwards concluded, he was admitted into the city by Judas Maccabeus; but this faithleſs prince, breaking his oath, cauſed the wall between the temple and the citadel, which defended the former from the attacks of the Syrians, to be entirely demoliſhed. In the year 3911, Simon Maccabeus fortified Jeruſalem, by erecting ſtrong and high towers on the walls. The fort at this time was in the hands of the Syro-Macedonians; but Simon took and deſtroyed it, that it might never again fall into the poſſeſſion of the enemy. This citadel had kept Jeruſalem twenty-ſix years dependent on the king of Syria. John Hyrcanus, ſon of Simon Maccabeus, entered upon the governorſhip and high-prieſthood, after the death of his father, in 3919; and the ſame year Antiochus Sidetes, incenſed at the loſſes which he had ſuffered by Simon Maccabeus, declared war againſt Hyrcanus, and beſieged Jeruſalem, deſtroyed the walls of the city, and then retired with all his forces.

During the reign of Herod the Great, otherwiſe called the Aſcalonite, Jeruſalem received many additions and embelliſhments. In the year 4030, he conſtructed a ſuperb royal palace, a theatre, and an amphitheatre, to celebrate various kinds of games in honour of Auguſtus. Herod likewiſe conceived a deſign of rebuilding the temple, or rather of enlarging that which had been erected after the return of the Jews from the Babyloniſh captivity, and accordingly began his work, in the eighteenth year of his reign, and completed it in eighty years.

Under the emperor Tiberius, Pontius Pilate being preſident of Judea for the Romans, our Lord and Saviour Jeſus Chriſt, at the age of thirty-three was condemned to death, on the falſe accuſation of the Jews, and crucified on Mount Calvary, which was then without the walls of the city.

In the year 66 of the Chriſtian æra, and the twelfth of the reign of Nero, Geſſius Florus, the procurator of Judea, had by his injuſtice and extortion reduced that rich country to a miſerable condition; and, adding cruelty to rapine, was the principal cauſe of the Hebrews attempting to throw off the Roman yoke. Being declared rebels, they began to commit every kind of iniquity. The Romans employed the ſevereſt puniſhments to reduce theſe people to obedience, but ſtill without effect. Having attacked Ceſtius Gallus, the governor of Syria, they obliged him to retire; and this ſucceſs inſpired them with freſh hopes and courage. The flames of war being thus kindled in Judea, Nero entruſted the management of it to his general, Veſpaſian, who accompanied by his ſon Titus, and a powerful army, arrived in Syria in the year 67 of the Chriſtian æra. Veſpaſian, ſoon after being choſen emperor, ſent orders to his ſon Titus to continue the war againſt the Hebrews, and ſet out for Rome, where he arrived amidſt the acclamations of the populace, in the year 70 of the Chriſtian æra. Jeruſalem at this time was torn by different contending factions, and a prey to all the miſeries of a civil war within its own walls. Nothing was ſeen throughout the whole city but ſlaughter, tumult, and murder; while patriotiſm was made a pretence for committing every ſpecies of atrocity. In this miſerable ſtate was the city of Jeruſalem and all Judea, when, on the 14th of April, in the year 70, Titus undertook the ſiege of the former, having encamped at the diſtance of ſeven ſtadia, or a mile, from it. On the 4th of May, Titus made himſelf maſter of the firſt wall of Jeruſalem, and cauſed a great part of it towards the north to be demoliſhed. Notwithſtanding this ſucceſs, he offered very favourable terms to the beſieged, if they would ſubmit, but his offer was rejected. Five days after, he took the ſecond wall, from which he was however repulſed; but in four days more he again got into his poſſeſſion, and demoliſhed what remained of it in the northern quarter. Having failed in his attempt to batter down the third wall, he made new propoſals to the Hebrews, through the medium of Flavius Joſephus, who had been taken priſoner, and, after receiving his liberty, had attached himſelf to the Romans, and was with Titus in his encampment. The greater part of the people were inclined to accept the eaſy conditions propoſed them by Joſephus in the name of the emperor; but, being oppoſed by ſome zealots, Joſephus was treated with every mark of indignity and reproach. After this behaviour, there remained no more mercy for the Hebrews. Titus cauſed the hands of thoſe who had voluntarily ſought ſhelter in the Roman camp to be cut off, and ſent them back to the city, and others were crucified in the ſight of their countrymen. Famine, in the mean time, began to make dreadful havock among the people. Of this calamity, and the diſtreſſes it occaſioned, Joſephus gives ſuch a pathetic account as cannot fail of exciting horror. He tells us, that the effects of hunger were ſo great, that a noble lady, called Mary, devoured the fleſh of her own ſon; and that this action appeared ſo unnatural to Titus, that he ſwore that he would bury the remembrance of it under the ruins of Jeruſalem. In order to haſten the capture of the city, he cauſed all the trees which were within the diſtance of ſome miles from Jeruſalem to be cut down, and employed them in his machines and military works. Having made every neceſſary diſpoſition for continuing his operations with vigour, he applied his battering rams to the third wall, that is to ſay the wall encloſing the fortreſs, and made himſelf maſter of the tower called Antonia. The Romans, being deſirous of getting poſſeſſion of the Temple without deſtroying it, were obliged to ſuſtain a fierce conflict in it; but a ſoldier, inſtigated by ſome unknown motive, threw a burning torch into the northern part of it, where there was a great quantity of combuſtible materials, by which means it was ſet on fire. This magnificent building, therefore, was reduced to aſhes; and the Hebrews, with great grief and ſorrow, ſaw a monument deſtroyed which was the principal object that had animated their hopes, and awakened their courage. In ſhort, on the ſecond of September, in the year 71 of the Chriſtian æra, and the ſecond of the reign of Veſpaſian, the city of Jeruſalem fell entirely into the hands of Titus. It was then given up to be plundered by the ſoldiers, and moſt of its inhabitants were put to the ſword. According to the order of Titus, the city was deſtroyed to its foundations; and even the ruins of the temple were demoliſhed. Joſephus ſays, that the number of priſoners taken during the whole time of the war was ninety-ſeven thouſand; and that the number killed in the city during the ſame period amounted to eleven hundred thouſand; but Tacitus, who lived in the firſt century, in the time of Veſpaſian and Titus, heard it reported, that the number of the beſieged, including thoſe of every age and ſex, was only ſix hundred thouſand. Notwithſtanding the deſtruction of their country, a good many Jews remained in it, and even in Jeruſalem, or rather in new buildings which they erected amidſt the ruins of the city; but they now paid tribute to the Romans, and were entirely ſubject to their laws. In the year 118, they attemped to rebel, but were ſoon ovecome by Tinius Rufus, the Roman preſident in Paleſtine. On account of the turbulent diſpoſition of theſe people, Adrian, it appears, highly incenſed at their conduct, reſolved the ſame year to level the city of Jeruſalem with the ground; that is to ſay, thoſe new buildings erected by the Hebrews; to deſtroy three towers left by Titus for the convenience of the Roman garrriſon; and to ſow ſalt in the ground on which the place had ſtood. Whatever may have been the cauſe that induced Adrian to make this devaſtation, and to ſhow ſo much reſentment againſt the remains of a wretched nation, he fulfilled the prophecy of our Saviour, who foretold that neither in the city nor the temple ſhould one ſtone be left upon another. This, therefore, may be called the final deſtruction of Jeruſalem, which took place forty-ſeven years after that of Titus.

Adrian, deſirous of building a new city on the ancient ſite of Jeruſalem, began this enterpriſe in the year 119 of the Chriſtian æra, and the ſecond of his reign. It was then called *Ælia*, after his own name Ælius, and formed a Roman colony. The Chriſtians, who ever ſince the time of Jeſus Chriſt had continued to increaſe, and to inhabit Jeruſalem, and the new city of Ælia, or Ælia Capitolina, ſometimes protected and ſometimes perſecuted by the Roman emperors, began at length, in the time of Conſtantine the Great, to enjoy a little tranquillity. But this was a ſhort-lived change; ſo that, when the empreſs Helena, mother of Conſtantine the Great, came to viſit this city, ſhe found it in the moſt forlorn and ruinous ſituation. Having formed a deſign of reſtoring it to its ancient luſtre, ſhe cauſed, with a great deal of coſt and labour, all the rubbiſh that had been thrown upon thoſe places where our Saviour had ſuffered, been buried, &c. to be removed. In doing this, it is ſaid they found the croſs on which he died, as well as thoſe of the two malefactors who ſuffered with him; and, as the writers of thoſe times relate, diſcovered by a miracle that which had borne the Saviour of mankind. She then cauſed a magnificent church to be built, which incloſed as many of the ſcenes of our Saviour's ſufferings as could conveniently be done, and adorned the city with ſeveral other buildings. It is commonly ſaid, that under the reign of Conſtantine the Great, the name of Ælia Capitolina was changed, and that of Jeruſalem ſubſtituted in its room. The church of Jeruſalem enjoyed the high honour of being the moſt ancient of all, and it has therefore been called the firſt in the world; its firſt biſhop was the apoſtle St. James the Leſs, who began to govern it in the year 34; and continued to do ſo till the year 62, when he ſuffered martyrdom.

In the year 363, the emperor Julian, a declared enemy to Chriſtianity, is ſaid to have formed a deſign of rebuilding the temple of Jeruſalem, and of reſtoring the Jewiſh worſhip. This ſcheme was contrived on purpoſe to give the lie to our Saviour's prophecy concerning the temple and city of Jeruſalem: namely, that the firſt ſhould be totally deſtroyed, without one ſtone being left upon another; and that Jeruſalem ſhould be trodden down of the Gentiles till the times of the Gentiles were fulfilled. In this attempt, however, according to the accounts of the Chriſtian writers of that age, the emperor was fruſtrated by an earthquake and fiery eruption from the earth, which totally deſtroyed the work, conſumed the materials which had been collected, and killed a great number of the workmen.

This event has been the ſubject of much diſpute. Warburton, who publiſhed a treatiſe expreſsly on the truth of this fact, has collected the following teſtimonies in favour of it. The firſt is that of Ammianus Marcellinus, who tells us, "Julian, (having been already thrice conſul,) taking Salluſt, prefect of the ſeveral Gauls, for his colleague, entered a fourth time on this high magiſtracy; and, although his ſenſibility of the many and great events which this year was likely to produce made him very anxious for the future, yet he both puſhed on the various and complicated preparatives for this expedition with the utmoſt application, and, having an eye in every quarter, and being deſirous to eternize his reign by the greatneſs of his achievements, he projected to rebuild at an immenſe expence the proud and magnificent temple of Jeruſalem. He committed the conduct of this affair to Alypius of Antioch, who had formerly been lieutenant in Britain. When therefore this Alypius had ſet himſelf to the vigorous execution of his charge, in which he had all the aſſiſtance that the governor of the province could afford him, horrible balls of fire breaking out near the foundations, with frequent and reiterated attacks, rendered the place from time to time inacceſſible to the ſcorched and blaſted workmen; and the victorious element continuing, in this manner, obſtinately and reſolutely bent, as it were, to drive them to a diſtance, Alypius thought beſt to give over the enterpriſe."

The next teſtimony is that of Gregory Nazianzen. Speaking of the emperor Julian, he ſays, "After having run through a courſe of every other tyrannical experiment againſt the faith, and upon trial deſpiſing all of them as trifling and contemptible, he at laſt brought down the whole body of the Jews upon us; whom, for their ancient turn to ſeditious novelties, and an inveterate hatred of the Chriſtian name, he choſe as the fitteſt inſtrument for his machinations. Theſe, under a ſhow of great good-will, which hid his ſecret purpoſe, he endeavoured to convince from their ſacred books and traditions, which he took upon him to interpret, that now was come the time foretold, when they ſhould return to their own land, rebuild their temple, and reſtore the law to its ancient force and ſplendour. When theſe things had been thoroughly inſinuated, and heartily entertained (for deceit finds eaſy admittance when it flatters our paſſions), the Jews ſet upon the work of rebuilding with great attention, and puſhed on the project with the utmoſt labour and application. But when, now driven from their work by a violent whirlwind and a ſudden earthquake, they fled together for refuge to a certain neighbouring church, there are who ſay, the church refuſed them entrance; and that, when they came to the doors, which were wide open but a moment before, they found them on a ſudden cloſed by a ſecret and inviſible hand. This, however, is now affirmed and believed by all, that, as they ſtrove to force their way in by violence, the fire, which burſt from the foundations of the temple, met and ſtopped them. One part it burnt and deſtroyed, and another it deſperately maimed, leaving them a living monument of God's commination and wrath againſt ſinners. But the thing moſt wonderful was, a light which appeared in the heavens, of a croſs within a circle. That name and figure, which impious men before eſteemed ſo diſhonourable upon earth, was now raiſed on high, and equally objected to the common view of all men; advanced by God himſelf as the trophy of his victory over unbelievers; of all trophies the moſt exalted and ſublime. Nay further, they who were preſent, and partakers of the miracle we are now about to ſpeak of, ſhow to this very day the ſign or figure of the croſs which was then marked or impreſſed upon their garments. For at that time, as theſe men were ſhowing theſe marks, or attending to others who ſhowed them, each preſently obſerved the wonder, either on himſelf or his neighbour; having a radiant mark on his body or on his garment, in which there is ſomething that, in art and elegance, exceeded all painting or embroidery."

Notwithſtanding theſe teſtimonies, however, the fact has been ſtrenuouſly conteſted by others; and indeed it muſt be owned that the teſtimonies above-mentioned are by no means unexceptionable. In the laſt particularly, the propenſity to the marvellous is ſo exceedingly great, that every one muſt at firſt ſight be ſtruck with it. On the whole, however, it is not a matter of great conſequence whether this event happened with the circumſtances above-mentioned or not. If Julian did make any attempt to rebuild the temple, it is certain that ſomething obſtructed the attempt, becauſe the temple was never actually rebuilt. If he made no ſuch attempt, the prophecy of our Saviour ſtill holds good; and it ſurely cannot be thought to detract from the merit of a prophecy, that no body ever attempted to elude it, or prove it to be a falſehood.

In the year 378, pilgrimages to Jeruſalem, and journeys thither for the purpoſe of viſiting the holy places of that city, began to be very frequent. Many perſons celebrated for the nobility of their birth, and the fame of their ſanctity, repaired to it with that view; and the number of monks who inhabited the environs continued daily to increaſe. In the year 614, the Perſians came before Jeruſalem, which, having fallen into their hands, was ſacked and plundered. Ninety thouſand Chriſtians, of both ſexes and of all ages and conditions, were made ſlaves in this war, and ſold by the Perſians to the Jews, who, contrary to the laws of humanity, butchered them in a cruel manner. In the year 628, Jeruſalem was reſtored to the emperor Heraclius, who baniſhed all the Jews, and interdicted them from approaching within three miles of it. Jeruſalem continued in the hands of the eaſtern emperors till the reign of the caliph Omar, who reduced it under his ſubjection in 635, as related under the article ARABIA, vol. ii. p. 9. The Saracens held poſſeſſion of it till the year 1099, when it was taken by the cruſaders. They founded a new kingdom, of which Jeruſalem was the capital, which laſted eighty-eight years under nine kings. At laſt this kingdom was utterly ruined by Saladin; and, though the Chriſtians once more got poſſeſſion of the city, they were again obliged to relinquiſh it. In 1217, the Saracens were expelled by the Turks, who have ever ſince continued in poſſeſſion of it. See the article Egypt, vol. vi. p. 319, 322, 325.

The city of Jeruſalem, in its moſt flouriſhing ſtate, was divided into four parts, each incloſed with its own walls; viz. 1. The old city of Jebus, which ſtood on mount Zion, where the prophets dwelt, and where David built a magnificent caſtle and palace, which became the reſidence both of himſelf and ſucceſſors; on which account it was emphatically called, the *City of David.* 2. The lower city, called alſo the *Daughter of Zion,* being built after it; on which ſtood the two magnificent palaces which Solomon built for himſelf and his queen; that of the Maccabean princes; and the ſtately amphitheatre built by Herod, capable of containing 80,000 ſpectators; the ſtrong citadel, built by Antiochus, to command and overtop the temple, but afterwards razed by Simon the Maccabee, who recovered the city from the Syrians; and laſtly, a ſecond citadel, built by Herod, upon a high and craggy rock, and called by him *Antonia.* 3. The new city, moſtly inhabited by tradeſmen, artificers, and merchants. 4. Mount Moriah, on which was built the ſo-famed temple of Solomon, deſcribed in the ſixth and ſeventh chapters of the Second Book of Kings; and, ſince then, that rebuilt by the Jews on their return from Babylon, and afterwards built almoſt anew, and greatly adorned and enriched, by Herod.

Some idea of the magnificence of this temple may be had from the following conſiderations: That there were no leſs than 163,300 men employed in the work; and that, notwithſtanding that prodigious number of hands, it took up ſeven whole years in building. That the height of this building was 120 cubits, or 240 feet; and the courts round it about half as high. That the front, on the eaſt ſide, was ſuſtained by ramparts of ſquare ſtone, of vaſt bulk, and built up from the valley below, which laſt was 300 cubits high, and being added to that of the edifice amounted to 420 cubits; to which, if we add, the height of the principal tower above all the reſt, viz. 60, it will bring it to 480 cubits, which, reckoning at two feet to a cubit, will amount to 960 feet; but, according to the length of that meaſure, as others reckon it, viz. at two feet and a half, it will amount to 1200 feet; a prodigious height this from the ground, and ſuch as might well make Joſephus ſay, that the very deſign of it was ſufficient to have turned the brain of any but Solomon. Theſe ramparts, which were raiſed in this manner, to fill up the prodigious chaſm made by the deep valley below, and to make the area of a ſufficient breadth and length for the edifice, were 1000 cubits in length at the bottom, and 800 at the top, and the breadth of them 100 more. The huge buttreſſes which ſupported the ramparts were of the ſame height, ſquare at the top, and 50 cubits broad, and jutted out 150 cubits at the bottom. The ſtones, of which they were built, were, according to Joſephus, 40 cubits long, 12 thick, and 8 high, all of marble, and ſo exquiſitely joined, that they ſeemed one continued piece, or rather poliſhed rock. According to the ſame Jewiſh hiſtorian, there were 1453 columns of Parian marble, and twice that number of pilaſters; and of ſuch thickneſs, that three men could hardly embrace them; and their height and capitals proportionable, and of the Corinthian order. But it is likely Joſephus hath given us theſe two laſt articles from the temple of Herod, there being nothing like them mentioned by the ſacred hiſtorians, but a great deal about the prodigious cedars of Lebanon uſed in that noble edifice, the excellent workmanſhip of them adapted to their ſeveral ends and deſigns, together with their gildings and other curious ornaments. The only thing more we ſhall venture to add is, what is affirmed in Scripture, that all the materials of this ſtupendous fabric were finiſhed and adapted to their ſeveral ends before they were brought to Jeruſalem, that is, the ſtones in their quarries, and the cedars in Lebanon; ſo that there was no noiſe of axe, hammer, or any tool, heard in the rearing of it.

At preſent Jeruſalem is called by the Turks *Cudſembaric,* and *Coudſheriff*; and is reduced to a poor thinly-inhabited town, about three miles in circumference, ſituated on a rocky mountain, ſurrounded on all ſides, except the north, with ſteep aſcents and deep valleys; and theſe again environed with other hills, at ſome diſtance from them. In the neighbourhood of the city they grow ſome corn, vines, olives, &c. The ſtately church erected by the empreſs Helena, on Mount Calvary, is ſtill ſtanding. It is called the *church of the ſepulchre*; and is kept in good repair by the generous offerings of a conſtant concourſe of pilgrims, who annually reſort to it, as well as by the contributions of ſeveral Chriſtian princes. The walls of this church are of ſtone, and the roof of cedar; the eaſt end incloſes Mount Calvary, and the weſt the holy ſepulchre; the former is covered with a noble cupola, open at top, and ſupported by ſixteen maſſive columns. Over the high altar, at the eaſt end, is another ſtately dome. The nave of the church conſtitutes the choir; and in the inſide aiſles are ſhown the places where the moſt remarkable circumſtances of our Saviour's paſſion were tranſacted, together with the tombs of Godfrey and Baldwin, the two firſt Chriſtian kings of Jeruſalem. In the chapel of the crucifixion is ſhown the very hole in the rock in which the croſs is ſaid to have been fixed. The altar in this chapel has three croſſes on it; and is richly adorned, particularly with four lamps of immenſe value that hang before it, and are kept conſtantly burning. At the weſt end is that of the ſepulchre, which is hewn in that form out of the ſolid rock, and has a ſmall dome ſupported by pillars of porphyry. The cloiſter round the ſepulchre is divided into ſundry chapels, appropriated to the ſeveral ſorts of Chriſtians who reſide there; as Greeks, Armenians, Maronites, Jacobites, Copts, Abyſſines, Georgians, &c. and on the north-weſt ſide of it are the apartments of the Latins, who have the care of the church, and are forced to reſide conſtantly in it; the Turks keeping the keys of it, and not ſuffering any of them to go out, but obliging them to receive their proviſions in at a wicket. At Eaſter there are ſome grand ceremonies performed in the church, repreſenting our Lord's paſſion, crucifixion, death, and reſurrection, at which a vaſt concourſe of pilgrims commonly aſſiſt. Among other ceremonies, it is cuſtomary for the Chriſtians at Jeruſalem to perform a pilgrimage to Jericho, and to bathe in the river Jordan. A modern traveller, M. Mariti, accompanied the caravan on this expedition. His reflections on the ſcenes through which he paſſed, are ſuch as might be expected from a man of ſenſibility and rational piety, who is ſuperior to the follies of ſuperſtition. During this excurſion, he ſaw the Dead Sea, concerning which ſo many fables have been related, by both Jews and Chriſtians. We are here informed, that, inſtead of being the deſolate ſcene which ſome have repreſented, the plains around it are covered with a beautiful verdure, and interſected by clear rivulets which flow from the neighbouring mountains; the water of the lake is very clear and tranſparent, but remarkably ſalt and bitter; ſo far is it from emitting a vapour fatal to birds, that the author ſaw vaſt numbers of ſwallows ſkimming along the air cloſe to its ſurface. The bitumen which it throws up floats on the water, and is driven by the wind to its ſhores, to which it adheres; it reſembles black pitch, and, when burned, emits a ſtrong ſulphureous ſmell. On the weſtern ſhore are ſalt-pits formed by nature; the ſalt is remarkably white, and is uſed for culinary purpoſes; at ſome diſtance from the lake, is a rock of ſalt, in quality not inferior to the former; a rough unhewn ſtone was here ſhown as the pillar into which Lot's wife was tranſformed; for the natives maintain, that, to puniſh her more ſeverely for her diſobedience, ſhe was at once deprived of all reſemblance to the human form. The famous apples of Sodom were not to be found, as the reader will eaſily imagine. *Voyages dans la Paleſtine*, 1791.

We return to Jeruſalem.—On Mount Moriah, on the ſouth-eaſt part of the city, is an edifice called *Solomon's Temple*, ſtanding on or near the ſame ſpot as the ancient; but when or by whom erected is uncertain. In the midſt of it is a Turkiſh moſque, where the Jewiſh ſanctum ſanctorum is ſuppoſed to have ſtood. This building, which Dr. Pococke thinks muſt have been formerly a Chriſtian church, is held in the utmoſt veneration by the Turks.

The city is now under the government of a ſangiac, who reſides in a houſe ſaid to have been that of Pontius Pilate, over-againſt the caſtle of Antonia built by Herod the Great. Many of the churches, erected in memory of ſome remarkable goſpel-tranſaction, have been ſince converted into moſques; into ſome of which money will procure admittance, but not into others. Both the friars and other Chriſtians are kept ſo poor by the tyranny of the government, that the chief ſupport and trade of the place conſiſts in providing ſtrangers with food and other accommodations, and ſelling them beads, relics, and other trinkets, for which they are obliged to pay conſiderable ſums to the ſangiac, as well as to his officers; and theſe are ſeldom ſo well contented with their uſual duties, but they frequently extort ſome freſh ones, eſpecially from the Franciſcans, whoſe convent is the common receptacle for all pilgrims, and for which they have conſiderable allowances from the pope, and other crowned heads, beſides the preſents which ſtrangers generally make them at their departure.

The moſt remarkable antiquities in the neighbourhood of Jeruſalem are, 1. The pools of Betheſda and Gihon; the former 120 paces long, 40 broad, and at leaſt eight deep, but now without water; and the old arches which it ſtill diſcovers at the weſt end, are quite dammed up; the other, which is about a quarter of a mile without Bethlehem-gate, is a very ſtately relic, 106 paces long, and 60 broad, lined with a wall and plaſter, and ſtill well ſtored with water. 2. The tomb of the Virgin Mary, in the valley of Jehoſhaphat, into which you deſcend by a magnificent flight of forty-ſeven ſteps. On the right hand as you go down, is alſo the ſepulchre of St. Anne the mother, and on the left that of Joſeph the huſband, of the Virgin Mary; ſome add likewiſe that of Jehoiakim her father. In theſe are erected altars for prieſts of all ſorts to ſay maſs, and the whole is cut into the ſolid rock. 3. The tomb of king Jehoſhaphat, cut likewiſe into the rock, and divided into ſeveral apartments; in one of which is his tomb, which is adorned with a ſtately portico and entablature over it. 4. That commonly called *Abſalom's pillar*, or *place*, as being generally ſuppoſed to be that which he is ſaid to have erected in his life-time to perpetuate his memory, as he had no male iſſue. This place, however, both within and without, hath more the ſemblance of a ſepulchre than any thing elſe; though we do not read that he was buried there, neither do the people here affirm that he was. There is a great heap of ſtones about it, which is continually increaſing; the ſuperſtitious Jews and Turks always throwing ſome as they paſs, in token of their abhorrence of Abſalom's unnatural rebellion againſt ſo good and holy a parent. The ſtructure itſelf is about 20 cubits ſquare, and 60 high, adorned below with four columns of the Ionic order, with their capitals, entablatures, &c. to each front. From the height of 20 to 40 cubits, it is ſomewhat leſs, and quite plain, excepting a ſmall fillet at the upper end; and from 40 to the top it changes into a round, which grows gradually into a point, the whole cut out of the ſolid rock. There is a room within, conſiderably higher than the level of the ground without, on the ſides of which are niches, probably to receive coffins. 5. A little eaſtward of this is that called the *tomb of Z chariah*, the ſon of Barachiah, whom the Jews ſlew between the temple and the altar, as is commonly ſuppoſed. This fabric is all cut out of the natural rock, eighteen feet high, and as many ſquare; and adorned with Ionic columns on each front, cut out likewiſe of the ſame rock, and ſupporting a cornice. The whole ends in a pointed top, like a diamond. But the moſt curious, grand, and elaborate, pieces in this kind, are the grots without the walls of Jeruſalem, ſtyled the *royal ſepulchres*; but of what kings is not agreed on. They conſiſt of a great number of apartments, ſome of them ſpacious, all cut out of the ſolid marble rock; and may juſtly be pronounced a royal work, and one of the moſt noble, ſurpriſing, and magnificent. For a particular account of them we muſt refer the reader to Pococke's Travels. In the neighbourhood of Jeruſalem is a ſpot of ground, about thirty yards long and fifteen broad, now the burying-place of the Armenians, which is ſhown as the *Aceldama*, or Field of Blood, formerly the Potter's Field, and ſince ſtyled *Campo Sancto*, or the Holy Field, purchaſed with the price of Judas's treaſon, for the burial of ſtrangers. It is walled round, to prevent the Turks abuſing the bones of Chriſtians; and one half of it is taken up by a building in the nature of a charnel-houſe. Beſides the above, a great many other antiquities in the city and its environs are ſhown to ſtrangers; there being ſcarcely any place or tranſaction mentioned either in the Old or New Teſtament, but they ſhow the very ſpot of ground where the one ſtood, and the other was done; not only here, but all over Judea. Lat. 31. 55. N. lon. 53. 24. E. Ferro.

JERU'SALEM, a townſhip of the American States, in Ontario county, New York. The compact part of it forms a handſome town, ſituated on the weſt ſide of Seneca Lake, and contains about fifty families, the followers of Jemima Wilkinſon. It is thirty miles north-eaſt-by-north of Barth, and ſixteen ſouth-ſouth-weſt of Geneva.

JERU'SALEM, or Funks Town, a town of Maryland, ſituated in Waſhington county on Antietam-creek, about two miles and a half ſouth-weſt of Elizabeth-town. It contains about fifty dwellings, and a German church.

JERU'SALEM, a town of the duchy of Courland: forty-four miles eaſt-ſouth-eaſt of Seelburg.

JERU'SALEM, a town of Germany, in the duchy of Stiria, celebrated for its excellent wine: four miles ſouth-ſouth-eaſt of Fridaw.

JERU'SALEM, OLD. See Fallen City, vol. vii.

JERU'SALEM AR'TICHOKE. See Helianthus.

JERU'SALEM COW'SLIP. See Pulmonaria.

JERU'SALEM SA'GE. See Phlomis.

JERU'SHA, [Heb. rejected.] The name of a woman.

JERU'YO, a mountain ſituated in the valley of Urecho, in Mexico or New Spain, is a great curioſity. Before the year 1760, there was nothing of it but a ſmall hill, with a ſugar-plantation. But on the 29th of September, 1760, it burſt with furious ſhocks, and entirely ruined the ſugar-works and the neighbouring village of Guacana; and from that time has continued to emit fire and burning rocks, which have formed themſelves into three high mountains, whoſe circumference was nearly ſix miles in 1766. The aſhes at the irruption were forced to the diſtance of 150 miles. In the city of Valadolid, ſixty miles diſtant, it rained aſhes in ſuch abundance, that they were obliged to ſweep the yards of their houſes two or three times during the day.

JESAI'AH, [Hebrew.] The name of a man.

JESARDE CHEB, or Bosaraddahe'ba. See Bosaraddaheba, vol. iii.

JESBA'VA, a river of Servia, which runs into the Danube near Semendria.

JESDEGER'DIC, *adj.* [in the Perſian chronology.] Belonging to the epocha which commenced at the time when the Perſians were conquered by the Saracens, which was in the year of Chriſt 633.

JESERNI'CO, a town in the county of Friuli, belonging to Venice: twelve miles weſt of Palma la Nuova.

JESERNIT'ZA, a town of Croatia: thirty-five miles north-weſt of Bihacs.

JESHAI'AH, [Hebrew.] The name of a man.

JESHA'NAH, [Hebrew.] The name of a city.

JESHIEB'NAB, [Hebrew.] The name of a man.

JESHI'SHAI, [Hebrew.] The name of a man.

JESH'UA, [Heb. a ſaviour.] A man's name.

JESH'UA Ben SI'RACH, the author of the apocryphal book of Eccleſiaſticus, was a native of Jeruſalem, as he himſelf informs us, and appears to have lived in the time of the high-prieſt Eleazar, about three hundred years B.C. The laſt high-prieſt whom he mentions is Simeon, the ſon of Onias, whoſe immediate ſucceſſor was Eleazar, whom Jeſhua would doubtleſs have added to the reſt, had he not been living when he wrote. Some writers maintain that he was of the ſacerdotal order; but we find nothing to confirm this opinion in thoſe places of his book where he ſpeaks more particularly of himſelf. All that can be gathered concerning him from that work is, that he was a perſon whoſe great thirſt after wiſdom made him pray fervently, ſtudy hard, travel much, and expoſe himſelf to great danger on account of it; that he had been unjuſtly traduced to Antiochus; whence he is ſuppoſed to have retired into Egypt, and there compoſed his book; and that he was the laſt writer of the Jewiſh nation who treated on moral ſubjects. His book of Eccleſiaſticus contains a ſummary of the ethics received among the Jews after the period of the prophets. It was originally written in Hebrew, and St. Jerome ſays that he ſaw a copy of it in that language. It has reached modern times, however, only in a Greek verſion, which was made by the author's grandſon, at the beginning of the reign of Ptolemy Euergetes. It was formerly read by the Jews in their ſynagogues; but, after ſuffering much interpolation, it was prohibited. Paſſages extracted from it are, however, ſtill in the hands of the Jews, under the title of the Sentences of Ben Sira.

JESH'URUN, [Heb. upright.] A name given to the people of Iſrael.

JE'SI, a town of Italy, in the ſtate of the church, and marquiſate of Ancona. The ſee of a biſhop, immediately under the pope. It contains three churches, and ten convents: twenty-three miles north-eaſt of Loretto, and ſixteen weſt-ſouth-weſt of Ancona.

JESIMI'AL, [Hebrew.] The name of a man.

JES'IMON, [Heb. ſolitude.] The name of a deſert. 1 *Sam.*

JESIO'RO, a town of Poland, in the palatinate of Kiov: fifty-ſix miles ſouth-ſouth-weſt of Czerkaſy.

JESIOTROV', a town of Poland, in the palatinate of Kiov: three miles weſt-ſouth-weſt of Czerkaſyon.

JE'SO, Jed'so, or Yed'so, a large iſland in the North Pacific Ocean, governed by a prince tributary to the emperor of Japan. The inhabitants are more rude and ſavage than the Japaneſe. They live chiefly on fiſh and game. Lat. 42. N.

JESS, *ſ.* [*gecte*, Fr. *getto*, Ital.] A ſhort ſtrap of leather tied about the legs of a hawk, with which ſhe is held on the fiſt. *Hanmer.*

> If I prove her haggard,
> Though that my *jeſſes* were her dear heart-ſtrings,
> I'd whiſtle her off, and let her down the wind
> To prey at fortune. *Shakeſpeare.*

JES'SAMINE, *ſ.* A fragrant flower. See Jasminum.

> Her goodly boſom, like a ſtrawberry bed;
> Her neck, like to a bunch of cullambines;
> Her breaſt, like lillies ere their leaves be ſhed;
> Her nipples, like young bloſſom'd *jeſſamines*. *Spenſer.*

JES'SANT, *adj.* in heraldry, budding, ſhooting forth.

JES'SE, [Heb. to be.] A man's name.

JESSE, *ſ.* A large braſs candleſtick, with many ſconces, hanging down in the middle of a church or choir; which invention was firſt called *jeſſe* from the ſimilitude of the branches to thoſe of the *arbor jeſſe*. This uſeful ornament of churches was firſt brought over into this kingdom by Hugh de Flory, abbot of St. Auſtin's in Canterbury, about the year 1100. *Chron. Will. Thorn. Jacob's Law Dict.*

JES'SELMERE, a town of Hindooſtan, in the country of Agimere: ſixty miles weſt of Bickaneer, and ninety-five north-north-weſt of Joodpour.

JES'SEN, a town of Germany, in the circle of Upper Saxony, and electorate of Saxony: ten miles eaſt-ſouth-eaſt of Wittenberg.

JESSI'MA, one of the iſlands of Japan.

JESSO'RE, a town of Hindooſtan, in the country of Bengal: fifty-four miles north-eaſt of Calcutta.

JES'UA LEVI'TA, a Spaniſh rabbi in the fifteenth century, was the author of a work which will be found of great uſe to thoſe who wiſh to underſtand the Talmudical writings. It is entitled, *Halicoth Olam*, or the Ways of Eternity; and explains, with much accuracy, the ways of reaſoning by which the authors of thoſe writings drew their deciſions from the text of the written law; and may without impropriety be called *Talmudic logic.* There have been numerous editions of this piece, in rabbinical Hebrew; and Conſtantine l'Empereur publiſhed one in Hebrew and Latin, at Leyden, 1634. Another good edition of it, in Hebrew and Latin, was publiſhed by the learned Baſhuyſen, at Hanover, 1714, 4to.

*To* JEST, *v. n.* [*geſticulor*, Lat.] To divert or make merry by words or action.—*Jeſt* not with a rude man, leſt thy anceſtors be diſgraced. *Eccleſ.* viii. 4.

JEST, *ſ.* Any thing ludicrous, or meant only to raiſe laughter.—As for *jeſt*, there be certain things which ought to be privileged from it; namely, religion, matters of ſtate, and great perſons. *Bacon.*

> When you the dulleſt of dull things have ſaid,
> And then aſk pardon for the *jeſt* you made. *Young.*

The object of jeſts; laughing-ſtock.—If I ſuſpect without cauſe, why then make ſport at me; then let me be your *jeſt*; I deſerve it. *Shakeſpeare.*—Manner of doing or ſpeaking feigned, not real; ludicrous, not ſerious; game, not earneſt.—When his playfellows choſe him their king, he ſpoke and did thoſe things in *jeſt*, which would have become a king in earneſt. *Grew.*

> That high All-ſeer, which I dallied with,
> Hath turn'd my feigned prayer on my head,
> And giv'n in earneſt what I begg'd in *jeſt*. *Shakeſpeare.*

JES'TER, *ſ.* One given to merriment and pranks:

> The ſkipping king, he rambled up and down
> With ſhallow *jeſters*, and raſh bavin wits,
> Soon kindled and ſoon burnt. *Shakeſpeare.*

One given to ſarcaſm:

> Now, as a *jeſter*, I accoſt you.
> Which never yet one friend hath loſt you. *Swift.*

Buffoon; jack pudding. A licenſed ſcoffer, kept at court to the time of Charles I.—Another ſort of like looſe fellows do paſs up and down, amongſt gentlemen, by the name of *jeſters*; but are, indeed, notable rogues, and partakers not only of many ſtealths, but alſo privy to many traiterous practices. *Spenſer.*

It was formerly cuſtomary to retain in moſt of the courts of Europe, a fool, jeſter, or buffoon, who, by his puns, pleaſantries, and impertinencies, might ſerve to divert the prince.

The fool, or clown, was originally introduced into England to ſupply the want of that freedom in converſation which was unknown to the ſavage manners of our anceſtors; when half the kingdom was in a ſtate of ſlavery, under the elder Plantagenets, of the Norman race, and their immediate ſucceſſors; when vaſſalage univerſally prevailed, and Engliſhmen were ſubject to the will of a deſpotic king, and his haughty and imperious barons; the trade of war was the principal commerce of all the nations in Europe, and tilts and tournaments their almoſt only amuſement. The ſocial intercourſe, and elegant diverſions, which ſo happily employ both ſexes in this refined age, were then utterly unknown; inſtead of the entertainments of the ſtage, which we now enjoy in its almoſt perfect ſtate, the myſteries and moralities, of which ſome ſpecimens are preſerved in old writers, were the only theatrical ſpectacles exhibited from Richard the Second's days till the reign of queen Elizabeth. But nature will inſiſt upon her rights in ſome ſhape or other; and mirth is ſo congenial to man, that it muſt have a vent. A ſarcaſtic or perhaps a harmleſs jeſt, from one equal to another, in the rough days of feudal ſyſtem, would, in all likelihood, have brought about ſerious conſequences, and perhaps have ended in a ſingle combat. But kings could not live in their palaces, nor great barons in their caſtles, without ſome inſtrument to excite their merriment. They had no wits, indeed, to flatter them, but they had, what men even of the moſt refined underſtandings love better, a fool to laugh at. A fellow dreſſed in a patched coat, guarded with yellow, was hired, at a certain ſalary, to divert the great man and his gueſts. All now was ſafe; for nobody could pretend to be angry at the ſarcaſtic gibes, or ſaucy petulances, of a party-coloured hireling; one, too, who was himſelf the butt of the company. The fool treated all alike; the maſter and his gueſts were equally the objects of his ſatirical mirth; and no doubt a keen-witted fellow would ſometimes revenge the diſgrace of his ſituation on his betters, by uttering a ſevere reproach and home-truth under the cover of a joke, which no one durſt reſent, without being expoſed to the deriſion of the company. The eſteem in which theſe party-coloured gentry were held, even ſo late as the time of Henry VIII. is ſhown by the behaviour of cardinal Wolſey on the following occaſion. After the cardinal's diſgrace, he received occaſionally from the king ſome marks of favour. Once his royal maſter ſent him a ring, which he conceived to be a certain evidence of returning friendſhip and protection. "To manifeſt his gratitude," ſays the hiſtorian, "he ſent to the king, as the moſt valuable of all gifts, his fool Patch, whom he had cheriſhed as one reſerve of happineſs, or at leaſt amuſement, in his misfortunes."

Nicholas III. marquis of Eſte and Ferrara, had at his court a man of this deſcription, called Gonelli, who became very famous by his facetious humours. The following anecdote is related as an inſtance of his ready wit. Being one day attending the marquis at dinner, a queſtion was ſtarted, which was the moſt numerous profeſſion in Ferrara? The company ſeemed divided in their opinions, upon which the marquis aſked Gonelli what he thought. "My lord," ſaid the jeſter, "you may be well aſſured that phyſicians compoſe the moſt numerous body in this city." "Thou art a blockhead," anſwered the marquis, "and quite ignorant of what paſſes in this place; for, to my certain knowledge, there are not more than three or four phyſicians in it." Gonelli remained ſo poſitive in his opinion, that he provoked the prince to anſwer a conſiderable wager, which he propoſed on the matter. The next morning he appeared at court with his head wrapped in a woollen night-cap, and a folded handkerchief put over his cheek and mouth, as one who ſuffered greatly from the tooth-ach. All the courtiers aſked him what he ailed, and every one preſcribed a remedy for him; Gonelli took care to write down the names of all the pretended phyſicians, and their different remedies. The marquis himſelf pitied him on account of the pain he ſeemed to be in, and adviſed him to do ſo and ſo; Gonelli thanked him, and ſaid he would go home immediately, and do as he preſcribed. The next day he returned, as if cured, to pay his court to the marquis, and told him he had won his wager, at the ſame time preſenting him with a large liſt of all thoſe who had pointed out remedies for his tooth-ach. The marquis, taking the liſt, and ſeeing his own name at the head of it, could not help laughing, and, allowing that phyſicians were the moſt numerous profeſſion in Ferrara, and every where elſe, he ordered him to be paid the wager.

JEST'ING, *ſ.* The act of talking in order to raiſe mirth. *Eph.* v. 4.

JEST'INGLY, *adv.* In a jeſting manner.

JE'SU, the name of a man. 1 *Eſd.*

JE'SU, [from *Jeſus.*] Jeſus. *Weſley.*

JESUA'TI, *ſ.* in church hiſtory, an order of monks.

JE'SUI, [Heb. an equal.] A man's name.

JES'UIT, *ſ.* [from *Jeſus.*] In church hiſtory, one of the order of Jeſus; a member of a numerous and powerful ſociety in the Roman church, famous for equivocation, and for attachment to the intereſt of the pope.

The celebrated ſociety or order of the Jeſuits took its riſe from mere chance. Ignatus Loyola, a Spaniſh officer, wounded at the ſiege of Pampeluna, anno 1521, was brought into the town, and confined to his bed by his wounds. To amuſe his mind, books were furniſhed him: amongſt others, the Lives of the Saints. This book had ſuch an effect upon the ardent imagination of Loyola, long ſince turned to gallantry of a romantic kind, that he reſolved to dedicate himſelf to the ſervice of God, and to become a knight of the Holy Virgin Mary. Heated with his project, and aſſociating himſelf with three or four more perſons as viſionary yet more prudent and politic than himſelf, he formed that ſociety, which, according to Monteſquieu, would entirely have governed the world, had it taken place before Luther and Calvin diſtinguiſhed themſelves. They poſſeſſed indeed, particularly in latter times, two wonderful powers over the minds of mankind; the education of the nobility, and the direction of the conſciences of ſovereigns; and their inſtitutions are looked upon as models of political ſagacity. With theſe, however, the founder had nothing to do, who appears to have been a weak and honeſt enthuſiaſt, who thought that he was doing honour to God, and good to mankind, when he formed the inſtitution. The ſpirit of intrigue and of enterpriſe, which was objected to the order, was certainly not that of their founder: if his youth had its defects and irregularities, his age was a model of piety and reſignation.

The plan which this fanatic formed of its conſtitution and laws was ſuggeſted, as he gave out, and as his followers ſtill teach, by the immediate inſpiration of heaven. But, notwithſtanding this high pretenſion, his deſign met at firſt with violent oppoſition. The pope, to whom Loyola applied for the ſanction of his authority to confirm the inſtitution, referred his petition to a committee of cardinals. They repreſented the eſtabliſhment to be unneceſſary as well as dangerous, and Paul refuſed to grant his approbation of it. At laſt, Loyola removed all his ſcruples by an offer which it was impoſſible for any pope to reſiſt. He propoſed, that beſides the three vows of poverty, of chaſtity, and of monaſtic obedience, which are common to all the orders of regulars, the members of his ſociety ſhould take a fourth vow of obedience to the pope, binding themſelves to go whitherſoever he ſhould command for the ſervice of religion, and without requiring any thing from the holy ſee for their ſupport. At a time when the papal authority had received ſuch a ſhock by the revolt of ſo many nations from the Romiſh church; at a time when every part of the popiſh ſyſtem was attacked with ſo much violence and ſucceſs; the acquiſition of a body of men, thus peculiarly devoted to the ſee of Rome, and whom it might ſet in oppoſition to all its enemies, was an object of the higheſt conſequence. Paul, inſtantly perceiving this, confirmed the inſtitution of the Jeſuits by his bull, anno 1540; granted the moſt ample privileges to the members of the ſociety; and appointed Loyola to be the firſt general of the order. The event fully juſtified Paul's diſcernment, in expecting ſuch beneficial conſequences to the ſee of Rome from this inſtitution. In leſs than half a century, the ſociety obtained eſtabliſhments in every country that adhered to the Roman-catholic church;

its power and wealth increaſed amazingly; the number of its members became great; their character as well as accompliſhments were ſtill greater; and the Jeſuits were celebrated by the friends and dreaded by the enemies of the Romiſh faith as the moſt able and enterpriſing order in the church.

The conſtitution and laws of the ſociety were perfected by Laynez and Aquaviva, the two generals who ſucceeded Loyola, men far ſuperior to their maſter in abilities and in the ſcience of government. They framed that ſyſtem of profound and artful policy which ſo long diſtinguiſhed the order. The large infuſion of fanaticiſm mingled with its regulations ſhould be imputed to Loyola its founder. Many circumſtances occurred in giving a peculiarity of character to the order of Jeſuits, and in forming the members of it not only to take greater part in the affairs of the world than any other body of monks, but to acquire ſuperior influence in the conduct of them.

The primary object of almoſt all the monaſtic orders is to ſeparate men from the world, and from any concern in its affairs. In the ſolitude and ſilence of the cloiſter, the monk is called to work out his own ſalvation by extraordinary acts of mortification and piety. He is dead to the world, and ought not to mingle in its tranſactions. He can be of no benefit to mankind but by his example and by his prayers. On the contrary, the Jeſuits were taught to conſider themſelves as formed for action. They were choſen ſoldiers, bound to exert themſelves continually in the ſervice of God, and of the pope his vicar on earth. Whatever tended to inſtruct the ignorant, whatever could be of uſe to reclaim or to oppoſe the enemies of the holy ſee, was their proper object. That they might have full leiſure for this active ſervice, they were totally exempted from thoſe functions the performance of which is the chief buſineſs of other monks. They appeared in no proceſſions; they practiſed no rigorous auſterities; they did not conſume one half of their time in the repetition of tedious offices: but they were required to attend to all the tranſactions of the world, on account of the influence which theſe may have upon religion; they were directed to ſtudy the diſpoſitions of perſons in high rank, and to cultivate their friendſhip; and, by the very conſtitution as well as genius of the order, a ſpirit of action and intrigue was infuſed into all its members.

As the object of the ſociety of Jeſuits differed from that of the other monaſtic orders, the diverſity was no leſs in the form of its government. The other orders are to be conſidered as voluntary aſſociations, in which whatever affects the whole body is regulated by the common ſuffrage of all its members. The executive power is veſted in the perſons placed at the head of each convent or of the whole ſociety; the legiſlative authority reſides in the community. Affairs of moment, relating to particular convents, are determined in conventual chapters; ſuch as reſpect the whole order are conſidered in general congregations. But Loyola, full of the ideas of implicit obedience, which he had derived from his military profeſſion, appointed that the government of his order ſhould be purely monarchical. A general, choſen for life by deputies from the ſeveral provinces, poſſeſſed power that was ſupreme and independent, extending to every perſon and to every caſe. He, by his ſole authority, nominated provincials, rectors, and every other officer employed in the government of the ſociety; and could remove them at pleaſure. In him was veſted the ſovereign adminiſtration of the revenues and funds of the order. Every member belonging to it was at his diſpoſal; and by his uncontroulable mandate he could impoſe on them any taſk, or employ them in what ſervice ſoever he pleaſed. To his commands they were required to yield not only outward obedience, but to reſign up to him the inclinations of their own wills and the ſentiments of their own underſtandings. They were to liſten to his injunctions as if they had been uttered by Chriſt himſelf. Under his direction they were to be mere paſſive inſtruments, like clay in the hands of the potter, or like dead carcaſes incapable of reſiſtance. Such a ſingular form of policy could not fail to impreſs its character on all the members of the order, and to give a peculiar force to all its operations. There is not, in the annals of mankind, any example of ſuch a perfect deſpotiſm, exerciſed, not over monks ſhut up in the cells of a convent, but over men diſperſed among all the nations of the earth.

As the conſtitutions of the order veſted in the general ſuch abſolute dominion over all its members, they carefully provided for his being perfectly informed with reſpect to the character and abilities of his ſubjects. Every novice who offered himſelf as a candidate for entering into the order, was obliged to manifeſt his conſcience to the ſuperior, or a perſon appointed by him; and was required to confeſs not only his ſins and defects, but to diſcover the inclinations, the paſſions, and the bent, of his ſoul. This manifeſtation was to be renewed every ſix months. The ſociety, not ſatisfied with penetrating in this manner into the innermoſt receſſes of the heart, directed each member to obſerve the words and actions of the novices; they were conſtituted ſpies upon their conduct, and bound to diſcloſe every thing of importance concerning them to the ſuperior. In order that the ſcrutiny into their character might be as complete as poſſible, a long noviciate was to expire, during which they paſſed through the ſeveral gradations of rank in the ſociety; and they muſt have attained the full age of thirty-three years before they were admitted to take the final vows by which they became profeſſed members. By theſe various methods, the ſuperiors, under whoſe immediate inſpection novices were placed, acquired a thorough knowledge of their diſpoſitions and talents. In order that the general, who was the ſoul that animated and moved the whole ſociety, might have under his eye every thing neceſſary to inform or direct him, the provincials and heads of the ſeveral houſes were obliged to tranſmit to him regular and frequent reports concerning the members under their inſpection. In theſe they deſcended into minute details with reſpect to the character of each perſon, his abilities natural or acquired, his temper, his experience in affairs, and the particular department for which he was beſt fitted. Theſe reports, when digeſted and arranged, were entered into regiſters kept on purpoſe, that the general might, at one comprehenſive view, ſurvey the ſtate of the ſociety in every corner of the earth; obſerve the qualifications and talents of its members; and thus chooſe, with perfect information, the inſtruments which his abſolute power could employ in any ſervice for which he thought meet to deſtine them.

As it was the profeſſed intention of the order of Jeſuits to labour with unwearied zeal in promoting the ſalvation of men, this engaged them of courſe in many active functions. From their firſt inſtitution, they conſidered the education of youth as their peculiar province; they aimed at being ſpiritual guides and confeſſors; they preached frequently in order to inſtruct the people; they ſet out as miſſionaries to convert unbelieving nations. The novelty of the inſtitution, as well as the ſingularity of its objects, procured the order many admirers and patrons. The governors of the ſociety had the addreſs to avail themſelves of every circumſtance in its favour; and in a ſhort time the number as well as influence of its members increaſed wonderfully. Before the expiration of the ſixteenth century, the Jeſuits had obtained the chief direction of the education of youth in every catholic country in Europe. They had become the confeſſors of almoſt all its monarchs; a function of no ſmall importance in any reign, but, under a weak prince, ſuperior even to that of miniſter. They were the ſpiritual guides of almoſt every perſon eminent for rank or power. They poſſeſſed the higheſt degree of confidence and intereſt with the papal court, as the moſt zealous and able champions for its authority. The advantages which an active and enterpriſing body of men might derive from all theſe circumſtances are obvious. They formed the minds of men in their youth. They retained an aſcendant over them in their advanced years. They poſſeſſed, at different periods, the direction of the moſt conſiderable courts in Europe. They mingled in all affairs. They took part in every intrigue and revolution. The general, by means of the extenſive intelligence which he received, could regulate the operations of the order with the moſt perfect diſcernment; and, by means of his abſolute power, could carry them on with the utmoſt vigour and effect. Together with the power of the order, its wealth continued to increaſe. Various expedients were deviſed for eluding the obligation of the vow of poverty. The order acquired ample poſſeſſions in every catholic country; and by the number as well as magnificence of its public buildings, together with the value of its property, moveable or real, it vied with the moſt opulent of the monaſtic fraternities. Beſides the ſources of wealth common to all the regular clergy, the Jeſuits poſſeſſed one which was peculiar to themſelves. Under pretext of promoting the ſucceſs of their miſſions, and of facilitating the ſupport of their miſſionaries, they obtained a ſpecial licence from the court of Rome to trade with the nations which they laboured to convert. In conſequence of this, they engaged in an extenſive and lucrative commerce both in the Eaſt and Weſt Indies. They opened warehouſes in different parts of Europe, in which they vended their commodities. Not ſatisfied with trade alone, they imitated the example of other commercial ſocieties, and aimed at obtaining ſettlements. They acquired poſſeſſion accordingly of a large and fertile province in the ſouthern continent of America, and reigned as ſovereigns over ſome hundred thouſand ſubjects.

Unhappily for mankind, the vaſt influence which the order of Jeſuits acquired by all theſe different means, had been often exerted with the moſt pernicious effect. Such was the tendency of that diſcipline obſerved by the ſociety in forming its members, and ſuch the fundamental maxims in its conſtitution, that every Jeſuit was taught to regard the intereſt of the order as the capital object to which every conſideration was to be ſacrificed. This ſpirit of attachment to their order, the moſt ardent perhaps that ever influenced any body of men, was the characteriſtic principle of the Jeſuits, and ſerves as a key to the genius of their policy as well as the peculiarities in their ſentiments and conduct.

As it was for the honour and advantage of the ſociety that its members ſhould poſſeſs an aſcendant over perſons in high rank or of great power; the deſire of acquiring and preſerving ſuch a direction of their conduct with more facility, led the Jeſuits to propagate a ſyſtem of relaxed and pliant morality which accommodated itſelf to the paſſions of men, which juſtified their vices, which tolerated their imperfections, which authoriſed almoſt every action that the moſt audacious or crafty politician would wiſh to perpetrate.

As the proſperity of the order was intimately connected with the preſervation of the papal authority, the Jeſuits, influenced by the ſame principle of attachment to the intereſts of their ſociety, have been the moſt zealous patrons of thoſe doctrines which tend to exalt eccleſiaſtical power on the ruins of civil government. They attributed to the court of Rome a juriſdiction as extenſive and abſolute as was claimed by the moſt preſumptuous pontiffs in the dark ages. They contended for the intire independence of eccleſiaſtics on the civil magiſtrates. They publiſhed ſuch tenets concerning the duty of oppoſing princes who were enemies of the Catholic faith, as countenanced the moſt atrocious crimes, and tended to diſſolve all the ties which connect ſubjects with their rulers. As the order derived both reputation and authority from the zeal with which it ſtood forth in defence of the Romiſh church againſt the attacks of the reformers, its members, proud of this diſtinction, conſidered it as their peculiar function to combat the opinions and to check the progreſs of the Proteſtants. They made uſe of every art, and employed every weapon, againſt them. They ſet themſelves in oppoſition to every gentle or tolerating meaſure in their favour. They inceſſantly ſtirred up againſt them all the rage of eccleſiaſtical and civil perſecution. Monks of other denominations have indeed ventured to teach the ſame pernicious doctrines, and have held opinions equally inconſiſtent with the order and happineſs of civil ſociety; but they, from reaſons which are obvious, have either delivered ſuch opinions with greater reſerve, or have propagated them with leſs ſucceſs. Whoever recollects the events which have happened in Europe during two centuries, will find that the Jeſuits may juſtly be conſidered as reſponſible for moſt of the pernicious effects ariſing from that corrupt and dangerous caſuiſtry, from thoſe extravagant tenets concerning eccleſiaſtical power, and from that intolerant ſpirit, which have been the diſgrace of the church of Rome throughout that period, and which have brought ſo many calamities upon civil ſociety.

But, amidſt many bad conſequences flowing from the inſtitution of this order, mankind, it muſt be acknowledged, have derived from it ſome conſiderable advantages. As the Jeſuits made the education of youth one of their capital objects, and as their firſt attempts to eſtabliſh colleges for the reception of ſtudents were violently oppoſed by the univerſities in different countries, it became neceſſary for them, as the moſt effectual method of acquiring the public favour, to ſurpaſs their rivals in ſcience and induſtry. This prompted them to cultivate the ſtudy of ancient literature with extraordinary ardour. This put them upon various methods for facilitating the inſtruction of youth; and, by the improvements which they made in it, they contributed ſo much towards the progreſs of polite learning, that on this account they have merited well of ſociety. Nor has the order of Jeſuits been ſucceſsful only in teaching the elements of literature; it has produced likewiſe eminent maſters in many branches of ſcience, and can alone boaſt of a greater number of ingenious authors than all the other religious fraternities taken together.

But it is in the New World that the Jeſuits exhibited the moſt wonderful diſplay of their abilities, and contributed moſt effectually to the benefit of the human ſpecies. The conquerors of that unfortunate quarter of the globe had nothing in view but to plunder, to enſlave, and to exterminate, its inhabitants. The Jeſuits alone made humanity the object of their ſettling there. About the beginning of the 17th century, they obtained admiſſion into the fertile province of Paraguay, which ſtretches acroſs the ſouthern continent of America, from the bottom of the mountains of Potoſi to the confines of the Spaniſh and Portugueſe ſettlements on the banks of the river de la Plata. They found the inhabitants in a ſtate little different from that which takes place among men when they firſt begin to unite together; ſtrangers to the arts, ſubſiſting precariouſly by hunting or fiſhing, and hardly acquainted with the firſt principles of ſubordination and government. The Jeſuits ſet themſelves to inſtruct and to civilize theſe ſavages. They taught them to cultivate the ground, to rear tame animals, and to build houſes. They brought them to live together in villages. They trained them to arts and manufactures. They made them taſte the ſweets of ſociety, and accuſtomed them to the bleſſings of ſecurity and order. Theſe people became the ſubjects of their benefactors, who governed them with a tender attention, reſembling that with which a father directs his children. Reſpected and beloved almoſt to adoration, a few Jeſuits preſided over ſome hundred thouſand Indians. They maintained a perfect equality among all the members of the community. Each of them was obliged to labour, not for himſelf alone, but for the public. The produce of their fields, together with the fruits of their induſtry of every ſpecies, were depoſited in common ſtore-houſes, from which each individual received every thing neceſſary for the ſupply of his wants. By this inſtitution, almoſt all the paſſions which diſturb the peace of ſociety, and render the members of it unhappy, were extinguiſhed. A few magiſtrates, choſen by the Indians themſelves, watched over the public tranquillity, and ſecured obedience to the laws. The ſanguinary puniſhments frequent under other governments were unknown. An admonition from a Jeſuit, a ſlight mark of infamy, or, on ſome ſingular occaſion, a few laſhes with a whip, were ſufficient to maintain good order among theſe innocent and happy people.

But even in theſe meritorious efforts of the Jeſuits for the good of mankind, the genius and ſpirit of their order were mingled, and are diſcernible. They plainly aimed at eſtabliſhing in Paraguay an independent empire, ſubject to the ſociety alone, and which, by the ſuperior excellence of its conſtitution and police, could ſcarcely have failed to extend its dominion over all the ſouthern continent of America. With this view, in order to prevent the Spaniards or Portugueſe in the adjacent ſettlements from acquiring any dangerous influence over the people within the limits of the province ſubject to the ſociety, the Jeſuits endeavoured to inſpire the Indians with hatred and contempt of theſe nations. They cut off all intercourſe between their ſubjects and the Spaniſh or Portugueſe ſettlements. They prohibited any private trader of either nation from entering their territories. When they were obliged to admit any perſon in a public character from the neighbouring governments, they did not permit him to have any converſation with their ſubjects; and no Indian was allowed even to enter the houſe where theſe ſtrangers reſided, unleſs in the preſence of a Jeſuit. In order to render any communication between them as difficult as poſſible, they induſtriouſly avoided giving the Indians any knowledge of the Spaniſh or of any other European language; but encouraged the different tribes which they had civilized to acquire a certain dialect of the Indian tongue, and laboured to make that the univerſal language throughout their dominions. As all theſe precautions, without military force, would have been inſufficient to have rendered their empire ſecure and permanent, they inſtructed their ſubjects in the European arts of war. They formed them into bodies of cavalry and infantry, completely armed and regularly diſciplined. They provided a great train of artillery, as well as magazines ſtored with all the implements of war. Thus they eſtabliſhed an army ſo numerous and well-appointed, as to be formidable in a country where a few ſickly and ill-diſciplined battalions compoſed all the military force kept on foot by the Spaniards or Portugueſe.

Such were the laws, the policy, and the genius, of this formidable order; of which, however, a perfect knowledge has only been attainable of late. Europe had obſerved, for two centuries, the ambition and power of the order. But, while it felt many fatal effects of theſe, it could not fully diſcern the cauſes to which they were to be imputed. It was unacquainted with many of the ſingular regulations in the political conſtitution or government of the Jeſuits, which formed the enterpriſing ſpirit of intrigue that diſtinguiſhed its members, and elevated the body itſelf to ſuch a height of power. It was a fundamental maxim with the Jeſuits, from their firſt inſtitution, not to publiſh the rules of their order. Theſe they kept concealed as an impenetrable myſtery. They never communicated them to ſtrangers, nor even to the greater part of their own members. They refuſed to produce them when required by courts of juſtice; and, by a ſtrange ſolecism in policy, the civil power in different countries authoriſed or connived at the eſtabliſhment of an order of men, whoſe conſtitution and laws were concealed with a ſolicitude which alone was a good reaſon for having excluded them. During the proſecutions carried on againſt them in Portugal and France, the Jeſuits were ſo inconſiderate as to produce the myſterious volumes of their inſtitute. By the aid of theſe authentic records, the principles of their government may be delineated, and the ſources of their power inveſtigated with a degree of certainty and preciſion which, previous to that event, it was impoſſible to attain; and this occaſioned their entire ſuppreſſion in France.

The pernicious effects, however, of the ſpirit and conſtitution of this order, rendered it at length obnoxious to moſt of the principal powers in Europe, and gradually brought on its downfal. The emperor Charles V. ſaw it expedient to check its progreſs in his dominions; it was expelled England, by proclamation 2 James I. in 1604; Venice, in 1606; Portugal, in 1759; France, in 1764; Spain and Sicily, in 1767; and totally ſuppreſſed and aboliſhed by pope Clement XIV. in 1773.

The following ſummary of the principles of the Jeſuits is from Monſ. Villers's (Prize) Eſſay on the Reformation by Luther. Perhaps the famed ſchool of Loyola never has been better delineated, nor its leading features more accurately marked:

"It has been already ſaid, that the Jeſuits were intruſted with the greater part of the public inſtruction in the catholic ſtates. Europe had already taſted of the tree of knowledge; its light had ſpread into all parts, and had made a rapid progreſs; it had become impoſſible to oppoſe it openly. The ſafeſt expedient now was, not to combat the ſcience, but to get poſſeſſion of it, to prevent it from being injurious; not being able to ſtop the torrent, it was neceſſary to dig a channel for it where it might fertilize the ſoil of the church inſtead of deſtroying it. To well-informed adverſaries, therefore, they determined to oppoſe men as well-informed; the crafty companions of Ignatius were appointed to ſatisfy the univerſal deſire to acquire knowledge manifeſted by the age. It was here that the inconceivable talent of the new preceptors of humanity was diſplayed. Their leading maxim was to cultivate and bring to the higheſt poſſible degree of perfection, every ſpecies of knowledge from which no immediate danger could ariſe to the ſyſtem of hierarchical power, and by that means to acquire the eſtimation and celebrity of being the moſt able and moſt learned men of the Chriſtian world. Aſſiſted by this ſupremacy over opinion, it became eaſy for them either to paralyze the branches of knowledge which might bear fruit dangerous to the papacy, or to bend, direct, and graft, theſe branches at pleaſure. Thus, in inſpiring a taſte for the liberal ſciences, the Greek and Roman claſſics, profane hiſtory, mathematics, &c. they could conveniently ſtifle that of inquiring into matters of religion and taſte, the philoſophical and inveſtigating ſpirit. The philoſophy taught in their ſchools was calculated to make this ſcience repulſive and diſguſting. It was no other than the ſcholaſtic, reviſed and corrected by them, and applied to circumſtances; particularly to the polemical controverſy with the reformiſts, whoſe arguments, as may readily be ſuppoſed, were brought forward in them ſo as to be deſtroyed by the artillery of the ſchool. With reſpect to religion, the ſtudy of it was confined to the books of theology compoſed purpoſely by members of the ſociety, to Jeſuit caſuiſts and moraliſts. The ſtudy of the original books of religion was withdrawn; or, if the goſpels and other pieces appeared ſometimes in their works of devotion, (and this was very neceſſary, ſince the tranſlations, made by the reformed, were public,) it was with interpretations and even alterations conformable to the principal object of the ſociety. Their grand rallying word was the *utility* of the ſciences, and the *luſtre* of the belles lettres. As to every thing relating to a moral amelioration or to the ennobling of mankind, as well as every thing connected with the philoſophical and theological ſciences, the Jeſuits ſtrove eagerly, and in fact ſucceeded, in making them be totally forgotten; in rendering theology and philoſophy barbarous and full of difficulties, and even ridiculous, in the eyes of the bulk of mankind. Who can determine how much this Jeſuitic mode of inſtruction, which became the reigning mode in the catholic countries, and which differs ſo widely from the mode of inſtruction of the proteſtants; how much, I ſay, this procedure, obſtinately followed during ſeveral ſucceſſive generations, might have influenced the ſpecies of culture and particular turn of mind among the catholics, ſo different in general from what is ſeen among the proteſtants? It, however, reſults from all this, (and I believe this conſideration is the key to the contradictory judgments formed on the method of the Jeſuits in the culture of the ſciences,) that this ſociety has rendered immenſe ſervices to certain parts of literature, on which it has thrown light; but that, on the other hand, it has purpoſely kept certain other important parts in obſcurity; or it has ſo ſcattered the avenues with difficulties, that men were not tempted to engage in them; ſo that, taken in general, the inſtruction given in their ſchools, very brilliant on the one ſide, remained very dark on the other, was a partial and incomplete inſtruction, and put the mind in a wrong track; for, as on the one ſide all was clear and bright and on the other all was dark and myſterious, the eye naturally turned to that ſide which alone was luminous, and diſdained to reſt on the other, of which they were even habituated not to ſuſpect the exiſtence.

"To model ſcience according to the intereſts of the pontifical power, and even to render it ignorant where it was requiſite it ſhould be ignorant; to produce certain objects in open day, and to keep others in a profound night; to fertilize the reign of the memory and wit, by rendering that of the mind and reaſon barren; to form enlightened but ſubmiſſive ſpirits, ignorant only of that which might leſſen their ſubmiſſion, like thoſe valuable ſlaves of the great men of antiquity, who were grammarians, poets, rhetoricians, ſkilful dancers, and muſicians, knowing every thing, but to be free:—I do not dread being contradicted by any impartial man, in aſſerting that ſuch were the tactics of inſtruction adopted by the Jeſuits. They were profound and ſupremely calculated for their object. They could form illuſtrious and poliſhed writers, learned men, orators, good Roman catholics, nay, *Jeſuits*, but not MEN, in the extenſive acceptation of the term; whoever became a man under their regulations, became ſo independent of theſe regulations, and, I ſhall add, almoſt in deſpite of them."

JE'SUIT's BARK. See CINCHONA, vol. iv. p. 600.

JES'UITE, *ſ.* [from *Jeſui.*] A deſcendant of Jeſui.

JES'UITED, *adj.* [from *Jeſuit.*] Made like a Jeſuit, admitted into the ſociety of Jeſus. *Scott.*

JESUIT'ICAL, *adj.* [from *Jeſuit.*] Deceitful:

With no canting, no ſly *jeſuitical* arts,
Field-preaching, hypocriſy, learning, or parts. *Cambridge.*

[Moſt commonly in colloquial dialogue.] Full of prevarication.

JESUIT'ICALLY, *adv.* After the manner of the Jeſuits; equivocally.

JESUIT'ISM, *ſ.* The principles of Jeſuits.—As he ſeems to have laid the foundation of his diſcourſe on ſuch common notions as were aſſented to by all mankind, thoſe who follow the ſame method have no more regard to *jeſuitiſm* and popery, than thoſe who agree with other Jeſuits in the principles of geometry. *A. Sidney.*

JESUPOL', a town of Poland, in the palatinate of Red Ruſſia: five miles ſouth of Halitſch.

JE'SUS the Son of SIRACH, a native of Jeruſalem, compoſed, about 200 B.C. the book of Eccleſiaſticus, called by the Greeks Πανάρετος, "repleniſhed with virtue;" who alſo quote it under the title of *the Wiſdom of Solomon the ſon of Sirach.* His grandſon, who was alſo of the ſame name, and a native of Jeruſalem, tranſlated it from the Hebrew into Greek about 121 B.C. We have this Greek verſion, but the Hebrew text is loſt.

JE'SUS, [Heb. a ſaviour.] One of the names of Chriſt. See CHRIST, vol. iv.

JE'SUS, a ſmall iſland lying eight degrees due north of the New Hebrides, and 1450 leagues weſt of the coaſt of Peru, in lat. 6. 50. S. lon. 165. E. from Paris; diſcovered by Mendana, Jan. 10, 1567. Inhabited by a copper-coloured and mulatto race of men.

JET, *ſ.* [*gagates*, Lat.] See *Bitumen gagas*, under MINERALOGY.—*Jet* is a beautiful foſſil, of a firm and even ſtructure, and a ſmooth ſurface; found in maſſes, ſeldom of a great ſize, lodged in clay; of a fine deep black, having a grain reſembling that of wood. It is confounded with cannel-coal, which has no grain, and is extremely hard; and the *jet* is but moderately ſo. *Hill.*—There is more difference between thy fleſh and hers, than between *jet* and ivory. *Shakeſpeare.*

One of us in glaſs is ſet,
One of us you'll find in *jet*. *Swift.*

[*Jet*, Fr.] A ſpout or ſhoot of water:

Prodigious 'tis, that one attractive ray
Should this way bend, the next an adverſe way!
For ſhould th' unſeen magnetic *jets* deſcend
All the ſame way, they could not gain their end. *Blackmore.*

Thus the ſmall *jet*, which haſty hands unlock,
Spurts in the gard'ner's eyes who turn the cock. *Pope.*

A yard. *Obſolete:*

What orchard unrobbed eſcapes,
Or pullet dare walk in their *jet?* *Tuſſer.*

*To* JET, *v. n.* [*jetter*, Fr.] To ſhoot forward; to ſhoot out; to intrude; to jut out:

Think you not how dangerous
It is to *jet* upon a prince's right? *Shakeſpeare.*

To ſtrut; to agitate the body by a proud gait.—Contemplation makes a rare turkey-cock of him: how he *jets* under his advanced plumes. *Shakeſpeare.*—To jolt; to be ſhaken.—Upon the *jetting* of a hackney-coach ſhe was thrown out of the hinder ſeat againſt a bar of iron in the forepart. *Wiſeman.*

JET-D'EAU, a French term, frequently alſo uſed with us, for a fountain that caſts up water to a conſiderable height in the air. See *Hydroſtatics*, under MECHANICS.

JETH'ATH, [Hebrew.] The name of a man.

JE'THER, [Heb. one that excels.] A man's name.

JETH'LAH, [Hebrew.] The name of a place.

JE'THOW. See GYTHOW.

JE'THRO, [Heb. excellence.] A man's name.

JET'SAM, or JET'SON, *ſ.* [*jetter*, Fr.] Goods or other things which, having been caſt overboard in a ſtorm, or after ſhipwreck, are thrown upon the ſhore. See FLOTSAM, vol. vii. and the article WRECK.

JETSIN'GO, a province of Japan.

JETSIN'GO, or JUSJU, a province of Japan.

JETSIS'SEN, or JEATSU, a province of Japan.

JETT'STORFF, a town of Germany, in the archduchy of Auſtria: four miles eaſt of Korn Neuburg.

JET'TY, *adj.* Made of jet. Black as jet.—The people about Capo Negro, Ceſala, and Madagaſcar, are of a *jetty* black. *Brown.*

Nigrina black, and Merdamante brown,
Vied for his love in *jetty* bow'rs below. *Pope.*

JET'TY-HEAD, *ſ.* A name uſually given in the royal dock-yards to that part of a wharf which projects beyond the reſt; but more particularly the front of a wharf, whoſe ſide forms one of the cheeks of a dry or wet dock.

JE'TUR, [Heb. ſucceſſion.] A man's name.

JETZ, a town of Japan, in the province of Oomi.

JET'ZE, a river of Germany, which riſes ſix miles ſouth of Diſſdorf, and runs into the Elbe near Hitzacker, in the principality of Luneburg.

JEV'EL, [Hebrew.] The name of a man.

JE'VER, a town of Germany, in Weſtphalia, and capital of a country, called Javerland, ſituated in the north-eaſt part of Eaſt Frieſland, on the weſt ſide of the mouth of the Weſer, which belongs to the prince of Anhalt Zerbſt: twenty-eight miles north-eaſt of Emden. Lat. 53. 39. N. lon. 25. 13. E. Ferro.

JEUMAILLO'CHE, a town of France, in the department of the Indre, and chief place of a canton, in the diſtrict of Chatillon ſur Indre: four leagues eaſt of Chatillon ſur Indre, and two and a half ſouth-ſouth-eaſt of Vallençay.

JE'UR, [Hebrew.] The name of a man.

JEU'REV POL'SKAI, a town of Ruſſia, in the government of Vladimir: thirty-two miles north-north-weſt of Vladimir.

JE'USH, [Heb. aſſembled.] A man's name.

JEW, an Hebrew; one who profeſſes Judaiſm. The name is derived from the patriarch Judah, and given to the deſcendants of Abraham by his eldeſt ſon Iſaac, who for a long time poſſeſſed the land of Paleſtine in Aſia, and are now diſperſed through all nations in the world.

The hiſtory of this people, as it is the moſt ſingular, ſo is it alſo the moſt ancient, in the world; and the greateſt part, being before the beginning of profane hiſtory, depends entirely on the authenticity of the Old Teſtament, where only it is to be found. To repeat here what is ſaid in the ſacred writings would both be ſuperfluous and tedious, as thoſe writings are in every perſon's hands, and may be conſulted at pleaſure. Yet the following brief abſtract we truſt will not be unacceptable.

### History of the Jews to the Time of the Captivity.

God had promiſed to Abraham, that he would render his ſeed extremely numerous. It was long, however, before the promiſed ſeed made any remarkable appearance. Abraham's ſeed by Iſhmael, and the ſons of Keturah, indeed mightily increaſed; but neither theſe, nor the poſterity of Eſau, were the promiſed offspring. In Jacob's twelve ſons it firſt began to increaſe; and in after-times they were called *Iſrael*, or *Jacob*, from their progenitor; and in times ſtill later, were called *Jews*, ſuch of them as were known, from the name of *Judah*, the favoured tribe. In about 215 years, they increaſed in Egypt, from ſeventy, to between two and three millions, men, women, and children. While Joſeph lived, who had preſerved the Egyptian nation amidſt a terrible famine, they were kindly uſed by the Egyptian monarchs; but ſoon after were terribly oppreſſed. From a ſuſpicion that they might, in proceſs of time, become too ſtrong for the natives, they were condemned to labour in the moſt ſlaviſh and toilſome employments. The more they were oppreſſed, the more exceedingly they multiplied. The midwives and others were therefore ordered to murder every male infant at the time of birth; but the midwives avoided the horrible taſk. Every body was therefore ordered to kill the Hebrew male children wherever they were found; the females they intended to incorporate with the Egyptians. After they had been thus miſerably oppreſſed for about an hundred years, and on the very day that finiſhed the 430th year from God's firſt promiſe of a ſeed to Abraham, and about 400 years after the birth of Iſaac, God, by terrible plagues on the Egyptians, obliged them to let the Hebrews go, under the direction of Moſes and Aaron. Thus they departed peaceably, and with great wealth, and without ſo much as one of their number weak or ſickly; and a mixed multitude of heathens attended them, who were afterwards a ſnare to them. See Gen. xv. xvii. xxii. Exod. i. xiii. Acts vii. Neh. ix.

God directed the Hebrew march by a cloud, which in the day was duſky, and ſkreened them from the heat, and in the night was fiery, and gave them light. He directed them not by the neareſt way to Canaan, leſt their early encounters with the Philiſtines ſhould tempt them to return back into Egypt, but cauſed them to march towards the ſouth-eaſt, and into the ſtreights of Pihahiroth, where there were mountains on each ſide, and the Red Sea before them. Pharaoh, expecting they were now entangled, purſued them with a mighty army to bring them back. The Lord opened a paſſage through the Red Sea for the Hebrews; but the Egyptians, attempting to follow them, were drowned. The Hebrews were now in a dry and barren deſert; nor had they brought proviſion for the journey. God ſupplied them with water from a flinty rock, and with manna from heaven. Moreover, he regaled them with quails in the deſert of Sin. By means of Moſes's prayers and Joſhua's bravery, he enabled them to rout the Amalekites, who barbarouſly fell on their rear. Having got officers of thouſands, hundreds, fifties, and tens, ſet over them, they marched ſouthward along the eaſt ſide of the weſtern gulf of the Red Sea, and came to mount Sinai, about fifty days after their departure from Egypt. There God in a moſt tremendous manner, from the midſt of a terrible fire on the top of the mount, and after the moſt fearful thundering, avouched them for his peculiar people, intimated to them his laws, and confirmed the authority of Moſes as their leader. While Moſes tarried in the mount, they ſo far loſt the impreſſion of every thing they had ſeen and heard, that they formed and worſhipped a golden calf. This being deſtroyed, and 3000 of the principal idolaters cut off by the ſword of the zealous Levites, God, at the interceſſion of Moſes, ſpared them, renewed to them the tables of his law, and his tabernacle was erected among them, and Aaron and his ſons conſecrated to the prieſthood, and vaſt numbers of further ceremonies, concerning offerings, purifications, and feſtivals, preſcribed them. The numbers of their fighting men were taken, and arranged in four great diviſions, three tribes in each; and the manner of their marching and encampment was appointed; the tabernacle was dedicated by the oblations of their chief princes, on twelve ſeveral days; and the Levites were conſecrated to the ſacred ſervice of it, in room of the Hebrews firſt-born; and the paſſover was again obſerved in the firſt month of the ſecond year after they had come out of Egypt. See Exod. xiv.–xl. Lev. i.–xxvii. Numb. i.–x. Neh. ix. Pſal. lxxviii. cv. cvi. cxiv. cxxxv. cxxxvi. Ezek. xx. xvi. 4–14.

After they had continued about a year at the foot of Sinai, they marched northward, loathed the manna, and were puniſhed with a month's eating of fleſh, till a plague broke out among them. About this time ſeventy or ſeventy-two elders were ſet over them. They quickly arrived on the ſouth borders of Canaan at Kadeſh-barnea; but for their raſh belief of the ten wicked ſpies, and their contempt of the promiſed land, God would have entirely deſtroyed them, had not Moſes's prayers prevented it. They were actually condemned to wander in the deſert till the end of forty years, till that whole generation, except Caleb and Joſhua, ſhould be cut off by death. During this period, God frequently puniſhed them for their repeated rebellion, murmuring, or loathing of manna: The Canaanites made terrible havock of them at Hormah, when they attempted to enter Canaan, contrary to the will of their God. Above 140,000 of them periſhed in the matter of Korah, or for their murmuring at his and his accomplices' death. Multitudes were bitten by fiery ſerpents. Twenty-four thouſand were cut off for their idolatry and whoredom with the Midianitiſh women. But God's marvellous favours were ſtill continued: his cloudy pillar conducted and protected them; his manna from heaven ſupplied them with meat; the ſtreams iſſuing from the rock at Meribah followed their camp about thirty-nine years, whether their way was aſcending or not. Their clothes never waxed old. At Kadeſh and at Beer God anew ſupplied them with water. The intended curſe of Balaam was turned into a bleſſing in their favour. During this period, the cloud conducted them from Kadeſh-barnea, on the ſouth of Canaan, back to Ezion-geber, which is on the north-eaſt of Sinai; and then back to the ſouth border of Canaan. This journey, though of no more than a few hundred miles, took them up about thirty-eight years; and no doubt they wandered hither and thither, ſo that it is vain to pretend an accurate account of their ſtations. Nor were they yet admitted to enter the promiſed land, but conducted along the ſouth border of Idumea, by a way exceedingly rough and fatiguing. At laſt they marched to the north-eaſt, till they came to about the head of the river Arnon, and turned weſtward to the Jordan. While they tarried in theſe quarters, they took poſſeſſion of the two powerful kingdoms of Sihon and Og, on the eaſt of Canaan; and made terrible ſlaughter of the Midianites, for enticing them to uncleanneſs and idolatry. After croſſing the Jordan, miraculouſly divided, under Joſhua, the ſucceſſor of Moſes, as their general, they ſolemnly dedicated themſelves to the Lord, by circumciſion, and eating of the paſſover; and, in a war of ſix years, conquered thirty-one kingdoms. On the ſeventh, the land was divided, and the tabernacle of God ſet up among them at Shiloh; and not long after, they again dedicated themſelves to the Lord. See Num. xi.–xxxvi. Deut. i.–xxix. Joſh. i.–xxiv. Neh. ix. Pſal. lxxviii. cv. cvi. cxiv. &c. Gen. xlix. Deut. xxxiii.

On their entrance to Canaan, God, to give the Hebrews an horror of idolatry, ordered them to cut off every idolatrous Canaanite; they, however, through ſinful pity or ſloth, ſpared vaſt numbers of them, who enticed them to wickedneſs, and were ſometimes God's rod to puniſh them. For many ages, whenever the Hebrews enjoyed outward proſperity, they relapſed into idolatry, worſhipping Baalim and Aſhtaroh, &c. Micah and the Danites introduced it not long after Joſhua's death. About this time the lewdneſs of the men of Gibeah occaſioned a war of the eleven tribes againſt their brethren of Benjamin. To puniſh the tribes for their wickedneſs, and their neglecting at firſt to conſult the mind of the Lord, they, though more than fourteen to one, were twice routed by the Benjamites, and 40,000 of them ſlain. In the third, all the Benjamites were ſlain except 600. Heartily vexed for the loſs of a tribe, the other Hebrews provided wives for theſe 600, at the expence of ſlaying moſt of the inhabitants of Jabeſh-gilead, and of eluding their oath in the affair of the daughters of Shiloh. See Judg. i. ii. xvii.–xxi.

Their relapſes into idolatry, alſo brought on them repeated turns of ſlavery from the heathen among or around them. The dates of theſe, and the names of their deliverers, termed Judges, we ſhall preſently exhibit in a chronological table. From A.M. 2849 to 2889, they were oppreſſed by the Philiſtines, who were haraſſed by Samſon, and routed by Samuel, after the death of Eli. During this laſt oppreſſion, the Hebrews were almoſt ruined; the ark was taken, and for perhaps 130 years afterwards was without a ſettled abode. See Judg. i.–xxi. i. Sam. ii.–vii.

When the Hebrews had been governed by judges, divinely raiſed up, for about 340 years after the death of Joſhua, they took a fancy to have a king, like the nations around them. Saul was their firſt ſovereign. Under his reign, they had almoſt perpetual ſtruggles with the Ammonites, Moabites, and Philiſtines; and at his death the nation was left on the brink of ruin by the Philiſtines. After about ſeven years ſtruggling, between the eleven tribes that clave to Iſhboſheth the ſon of Saul, and the tribe of Judah, which erected themſelves into a kingdom under David, David became ſole monarch of Iſrael. Under him the Hebrews ſubdued their neighbours the Philiſtines, Edomites, Moabites, Ammonites, and Syrians, and took poſſeſſion of the whole dominion which had been promiſed them, from the border of Egypt to the banks of the Euphrates. Under Solomon they had almoſt no war, but employed themſelves in buildings, and maritime trade. It is plain, however, that they diſreliſhed the taxes which he laid upon them in the end of his reign. To puniſh his and their idolatry in the latter part of his reign, Rezon the Syrian, and Hadad the Edomite, haraſſed them a little; and, after Solomon's death, ten of the Hebrew tribes formed a diſtinct kingdom of Iſrael, under Jeroboam the ſon of Nebat, in oppoſition to the kingdom of Judah and Benjamin, ruled by the family of David. This diviſion, which happened about A.M. 3029, and in the 120th year of their kingdom, tended not a little to the hurt of both parties, by their mutual conteſts. The kingdom of Iſrael, or of the ten tribes, had never ſo much as one pious king; and often the royal families were deſtroyed, and others took their place. Idolatry, particularly of worſhipping the golden calves of Bethel and Dan, was always their eſtabliſhed religion, and brought miſeries unnumbered on their head. The kingdom of Judah had wicked and pious ſovereigns by turns; but their frequent relapſes into idolatry often occaſioned terrible diſtreſs to the country. To puniſh the kingdom of Judah, or the Jews, for their apoſtaſy, God delivered them into the hand of Shiſhak king of Egypt, who ravaged the country; but appears to have done no hurt to Jeroboam's kingdom, as perhaps he was in league with him. There was almoſt perpetual war between Jeroboam and Rehoboam, and Abijah his ſon. In one battle, Jeroboam had 500,000 of his forces cut off by the army of Abijah, which was but the half of his own. From A.M. 3049 to 3115, the kingdom of Judah, for the moſt part, followed the true God, reformed from their corruptions, and had conſiderable proſperity and ſucceſs againſt their enemies, the Ethiopians, Edomites, Moabites, &c. Jehoſhaphat had an army of 1,160,000 men. Meanwhile, the Iſraelites under Nadab, Baaſha, Elah, Omri, Ahab, Ahaziah, and Jehoram, were generally in a moſt wretched condition, eſpecially by Ahab's introduction of the worſhip of Baal; and by various famines, and repeated wars with the Philiſtines and Syrians; and by civil broils between Omri and Tibni. See 1 Sam. viii.–xxxi. 2 Sam. i.–xxiv. 1 Kings i.–xxii. 1 Chron. x.–xxix. 2 Chron. i.–xx.

Not only was the kingdom of Iſrael, but alſo the kingdom of Judah, the royal family of which had joined in marriage and other alliance with the wicked houſe of Ahab, brought to the very brink of ruin, after the death of Jehoſhaphat: nor indeed did his ſucceſſors, Jehoram and Ahaziah, deſerve a better fate. From A.M. 3120 to 3232, Jehu and his poſterity governed the kingdom of Iſrael; the worſhip of Baal was aboliſhed; but the idolatry of the calves was ſtill retained. To puniſh this, the kingdom was terribly ravaged, and the people murdered by the Syrians, during the reign of Jehu, and eſpecially of Jehoahaz his ſon: but Jehoaſh and Jeroboam II. his ſon reduced the Syrians, and rendered the kingdom of the ten tribes more glorious than ever it had been. In the beginning of this period, Athaliah for ſix years tyrannized over Judah. After her death, religion was a while promoted under Joaſh, by means of his uncle Jehoiada, the high-prieſt; but they quickly relapſed into idolatry; and during the reigns of Joaſh, Amaziah, Uzziah, as well as of Jotham, numbers ſacrificed in high places, but to the Lord their God. Nor did the kingdom of Judah recover its grandeur till the reign of Uzziah. Under the reign of Zachariah, Shallum, Menahem, and Pekahiah, the kingdom of the ten tribes was reduced to a moſt wretched condition, by their inteſtine broils, murder of ſovereigns, and Aſſyrian ravages. Under Pekah, they recovered part of their grandeur: but, he being murdered by Hoſhea, a civil war of nine years ſeems to have happened; at the end of which, Hoſhea found himſelf maſter of the crown. Under Jotham the kingdom of Judah was moderately happy; but under Ahaz they relapſed into idolatry, and were terribly haraſſed by the Philiſtines, Syrians, and by the ten tribes under Pekah. About A.M. 3280, the kings of the Hebrews were better than they had been ever ſince the diviſion: Hezekiah king of Judah was an eminent reformer, and Hoſhea was leſs wicked than his predeceſſors. But the abounding wickedneſs of both kingdoms had ripened them for ruin. Provoked with Hoſhea for entering into a league with So king of Egypt, Shalmaneſer king of Aſſyria invaded the kingdom of the ten tribes, beſieged and took their cities, murdered moſt of the people, ripping up the women with child, and daſhing infants to pieces; and carried almoſt all the reſt captive to Hara, Halah, and Habor, by the river Gozan, and to the cities of the Medes, on the north-eaſt of the Aſſyrian empire; and brought the Samaritans and placed them in their ſtead. Thus the kingdom of Iſrael was ruined 254 years after its erection.

Sennacherib king of Aſſyria, contrary to treaty, invaded the kingdom of Judah, and brought that nation to the brink of ruin. Hezekiah's piety and Iſaiah's prayers were a means of preventing it: but under his ſon Manaſſeh, the Jews abandoned themſelves to the moſt horrid impieties. To puniſh them, Eſarhaddon king of Aſſyria, about the 22d year of Manaſſeh's reign, invaded Judea, reduced the kingdom, and carried Manaſſeh priſoner to Babylon; he alſo tranſported the remains of the Iſraelites to Media, and the countries adjacent. What has become of them ſince, whether they removed eaſtward with the Tartars, and partly paſſed over into America, or how far they mixed with the Jews when carried to Babylon, is not known. See 2 Kings i.–xxi. 2 Chron. xxi.–xxxiii. Amos ii.–ix. Hoſ. i.–xiii. Mic. i. ii. iii. vi. vii. Iſ. i.–x. xvii. xxii. xxiv.–xxxi. xxxiii. xxxvi.–xxxix.

Manaſſeh repented, and the Lord brought him back to his kingdom, where he promoted the reformation of his ſubjects during the reſt of his reign; but his ſon Amon defaced all, and rendered matters as wicked as ever. His ſon Joſiah mightily promoted reformation, and brought it to ſuch a pitch as it had never been ſince the reign of David and Solomon; but the people were moſtly hypocritical in it; and the Lord never forgave the nation the murders and other wickedneſs of Manaſſeh, as to the external puniſhment thereof. After Joſiah was ſlain by Pharaoh-necho king of Egypt, the kingdom of Judah returned to their idolatry; and God gave them up to ſervitude, firſt to the Egyptians, and then to the Chaldeans. The fate of their kings, Jehoahaz, Jehoiakim, Jechoiachin, and Zedekiah, was unhappy; and ſo was the caſe of their ſubjects during the twenty-two years of their reigns. It is ſhocking to think what famine, peſtilence, and murder by the Chaldeans, happened among them. Provoked by Zedekiah's treachery, Nebuchadnezzar invaded the kingdom, ſacked and burnt the cities, murdered ſuch multitudes, that, of a kingdom once conſiſting of about ſix millions of people under Jehoſhaphat, no more than a few thouſands were left. Thus the kingdom of Judah was ruined, A. M. 3416, about 388 years after its diviſion from that of the ten tribes. See 1 Kings xxi. 18. to the end of that book; and 2 Chron. xxxiii. 12. to xxxvi. 21.

It will be ſeen by the foregoing abſtract, that the Iſraelites had no king of their nation till Saul. Before him, they were governed, at firſt by elders, as in Egypt; then by princes of God's appointment, as Moſes and Joſhua; then by judges, ſuch as Othniel, Ehud, Shamgar, Gideon, Jephthah, Samſon, Eli, Samuel; and laſt of all by kings, as Saul, David, Solomon, Rehoboam, &c. We ſhall therefore, by way of recapitulation, ſubjoin a liſt of the judges and kings down to the captivity, introducing ſome other particulars, in a chronological order, and beginning from the death of Joſhua. The numbers prefixed denote the years of the world.

### *Chronological Liſt of the Judges.*

2570 The death of Joſhua.
2585 The government of the elders for about fifteen years.
2592 An anarchy of about ſeven years. The hiſtory of Micah, the conqueſt of the city of Laiſh by part of the tribe of Dan, and the war undertaken by the eleven tribes againſt Benjamin, are all referred to this time.
2591 The firſt ſervitude under Cuſhan-riſhathaim king of Meſopotamia began; and laſted eight years.
2599 Othniel delivered Iſrael in the 40th year after peace eſtabliſhed in the land by Joſhua.
2662 A peace of about ſixty-two years, from the deliverance procured by Othniel, in 2599, to 2662, when the ſecond ſervitude under Eglon king of the Moabites happened. It laſted eighteen years.
2679 Ehud delivers Iſrael. After him Shamgar governed, and the land was in peace till the 80th year after the firſt deliverance procured by Othniel.
2699 The third ſervitude under the Canaanites, which laſted twenty years.
2719 Deborah and Barak deliver the Iſraelites: from the deliverance procured by Ehud to the end of Deborah and Barak's government, were forty years.
2768 Abimelech, the natural ſon of Gideon, is acknowledged king by the Shechemites. He died at the ſiege of Thebez in Paleſtine.
2772 Tola after Abimelech governs for twenty-three years.
2795 Jair ſucceeds Tola, and governs twenty-two years.
2799 The fifth ſervitude under the Philiſtines, which laſted eighteen years.
2817 Jephthah is choſen head of the Iſraelites beyond Jordan, he defeated the Ammonites, who oppreſſed them. Jephthah governed ſix years.
2823 Ibzan governs ſeven years, from 2823 to 2830.
2830 Elon ſucceeds Ibzan. He governs ten years.
2840 Abdon judges Iſrael eight years.
2848 The ſixth ſervitude, under the Philiſtines, which laſted forty years.
2848 Eli the high-prieſt, of the race of Ithamar, governed forty years, the whole time of the ſervitude under the Philiſtines.
2849 The birth of Samſon.
2887 The death of Samſon, who was judge of Iſrael during the judicature of Eli the high-prieſt.
2888 The death of Eli, and beginning of Samuel's government, who ſucceeded him.
2909 The election and anointing of Saul, firſt king of the Hebrews.

### *Liſt of the Kings of the Hebrews.*

2909 Saul, the firſt king of the Iſraelites, reigned forty years.
2949 Iſhboſheth the ſon of Saul ſucceeded him, and reigned ſix or ſeven years over part of Iſrael.
2956 David was anointed king by Samuel in the year of the world 2934, but did not enjoy the regal power till the death of Saul in 2949, and was not acknowledged king of all Iſrael till after the death of Iſhboſheth in 2956. He died in 2990 at the age of ſeventy.
2990 Solomon his ſon ſucceeded him; he had received the royal unction in the year 2989. He died in 3029. After his death, the kingdom was divided; and, the ten tribes having choſen Jeroboam for their king, Rehoboam, the ſon of Solomon, reigned only over the tribes of Judah and Benjamin. The kingdom of the Hebrews remained in an undivided ſtate only 120 years.

### *Kings of Iſrael.*

3029 Jeroboam reigned twenty-two years.
3051 Nadab, one year.
3052 Baaſha, twenty-two years.
3074 Elah, two years.
3075 Zimri, ſeven days.
3075 Omri, eleven years. He had a competitor Tibni who ſucceeded; and died in what year we know not.
3086 Ahab, twenty-one years.
3107 Ahaziah, two years.
3108 Jehoram, the ſon of Ahab, ſucceeded him in 3108. He reigned twelve years.
3120 Jehu uſurped the kingdom in 3120, and reigned twenty-eight years.
3148 Jehoahaz reigned ſeventeen years.
3165 Joaſh reigned fourteen years.
3179 Jeroboam II. reigned forty-one years.
3220 Zachariah, twelve years.
3233 Shallum, reigned a month.
3233 Menahem, ten years.
3243 Pekahiah, two years.
3245 Pekah, twenty years.
3265 Hoſhea, eighteen years, from 3265 to 3283. Here the kingdom of Iſrael had an end, after a duration of 254 years.

*Kings of Judah.*

3029 Rehoboam, the ſon and ſucceſſor of Solomon, reigned ſeventeen years.
3046 Abijam, three years.
3049 Aſa, forty-one years.
3090 Jehoſhaphat, twenty-five years.
3115 Jehoram, four years.
3119 Ahaziah, one year.
3120 Athaliah, his mother, reigned ſix years.
3126 Joaſh was ſet upon the throne by Jehoiada the high-prieſt; he reigned forty years.
3165 Amaziah, twenty-nine years.
3194 Uzziah, otherwiſe called *Azariah*, reigned twenty-ſeven years, to the year 3221: then, attempting to offer incenſe in the temple, he was ſtruck with a leproſy, and obliged to quit the government; he lived after this twenty-ſix years, and died in 3246.
3246 Jotham his ſon took upon him the government in the year of the world 3221. He reigned alone in 3246, and died in 3262.
3262 Ahaz ſucceeded Jotham; he reigned ſixteen years.
3278 Hezekiah, twenty-eight years.
3306 Manaſſeh, fifty-five years.
3361 Amon, two years.
3363 Joſiah, thirty-one years.
3394 Jehoahaz, three months.
3394 Eliakim, or Jehoiakim, eleven years.
3405 Jehoiachin, or Jeconiah, reigned three months and ten days.
3405 Mattaniah, or Zedekiah, reigned eleven years, from 3405 to 3416. In the laſt year of his reign, Jeruſalem was taken, the temple burnt, and Judah carried into captivity, beyond the Euphrates. The kingdom of Judah laſted 388 years, or, from the crowning of Saul, 506 years.

## FROM THE CAPTIVITY TO THE FINAL DESTRUCTION OF JERUSALEM.

For the hiſtory of the Jews after the captivity, we have more ample materials; ſince to the canonical books of Ezra, Nehemiah, the apocryphal hiſtory of the Maccabees, and Joſephus, we can add the coinciding teſtimony of many profane authors and hiſtorians.

The beginning of the captivity is not dated from the year of the world 3416, when, as ſtated above, Jeruſalem was burnt, and the kingdom of Judah entirely ruined; but about eighteen years before, namely, in the fourth year of the reign of Jehoiakim, A. M. 3398. This reckoning is neceſſary in order to make the edict of Cyrus for the reſtoration of the Jews, fall in the 70th year from that beginning, at which time it was predicted the captivity ſhould ceaſe. Not to enter into a diſpute about dates, we proceed to ſtate, that about the year of the world 3468, or 536 before Chriſt, Cyrus the Great, king of Perſia, having conquered Babylon and almoſt all the weſtern parts of Aſia, perceiving the deſolate and ruinous condition in which the province of Paleſtine lay, formed a deſign of reſtoring the Jews to their native country, and permitting them to rebuild Jeruſalem and re-eſtabliſh their worſhip. For this purpoſe he iſſued out a decree, in the firſt year of his reign over all thoſe countries, by which the Jews were allowed not only to return and rebuild their city, but to take with them all the ſacred veſſels which Nebuchadnezzar had brought away, and engaged to defray the expence of building the temple himſelf. This offer was gladly embraced by the more zealous Jews of the tribes of Judah, Benjamin, and Levi; who accordingly ſet out, under the direction of Sheſhbazzar, or Zerubbabel, the grandſon of king Jehoiachin, Joſhua the high-prieſt, and others, to the number of 42,360, and 7337 ſervants of heathen origin; but, as the particulars mentioned by Ezra amount but to 29,818, and thoſe by Nehemiah to 31,031, it ſeems the overplus, of about 12,000, were of the remains of the ten tribes. The liſts of Ezra and Nehemiah are different in many particulars; but the one might be the liſt of ſuch as gave in their names to return, and the other the liſt of them that actually returned; for, vaſt numbers of the Jews, who had agreeable ſettlements, remained in Babylon.

In 534 B.C. the foundations of the temple were laid, and matters ſeemed to go on proſperouſly, when the undertaking was ſuddenly obſtructed by the Samaritans. Theſe came at firſt expreſſing an earneſt deſire to aſſiſt in the work, as they worſhipped the ſame God with the Jews; but the latter refuſed their aſſiſtance, as they knew they were not true Iſraelites, but the deſcendants of thoſe heathens who had been tranſplanted into the country of the ten tribes after their captivity by Shalmanezer. This refuſal proved the ſource of all that bitter enmity which afterwards took place between the Jews and Samaritans; and the immediate conſequence was, that the latter made all the oppoſition in their power to the going on of the work. At laſt, however, all obſtacles were ſurmounted; and the temple was finiſhed, as related in the books of Ezra and Nehemiah. The laſt of theſe chiefs died about 409 B. C. after having reſtored the Jewiſh worſhip to its original purity, and reformed a number of abuſes which took place immediately on its commencement.

But, though the Jews were now reſtored to the free exerciſe of their religion, they were neither a free nor a powerful people, as they had formerly been. They were few in number, and their country only a province of Syria, ſubject to the kings of Perſia. The Syrian governors conferred the adminiſtration of affairs upon the high-prieſts; and their accepting this office, and thus deviating from the law of Moſes, muſt be conſidered as one of the chief cauſes of the misfortunes which ſoon after befel the people, becauſe it made room for a ſet of men who aſpired at this high office merely through ambition or avarice, without either zeal for religion or love for their country. It beſides made the high-prieſthood capable of being diſpoſed of at the pleaſure of the governors, whereas the Moſaic inſtitution had fixed it unalienably in the family of Aaron. Of the bad effects of this practice a fatal inſtance happened in 373 B. C. Bagoſes, governor of Syria, having contracted an intimate friendſhip with Jeſhua, the brother of Johanan the high-prieſt, promiſed to raiſe him to the pontifical office a few years after his brother had been inveſted with it. Jeſhua came immediately to Jeruſalem, and acquainted his brother with it. Their interview happened in the inner court of the temple; and, a ſcuffle enſuing, Jeſhua was killed by his brother, and the temple thus polluted in the moſt ſcandalous manner. The conſequence to the Jews was, that a heavy fine was laid on the temple, which was not taken off till ſeven years after.

About A. M. 3546, the Jews very narrowly eſcaped the ruin deviſed by Haman. About 3653, Darius Ochus king of Perſia, who is by ſome pretended to be the huſband of Eſther and maſter of Haman, ravaged part of Judea, took Jericho by force, and carried off a great number of priſoners; part of which he ſent into Egypt, and the reſt he tranſported to Hyrcania, on the ſouth of the Caſpian ſea. When Alexander was in Canaan, about 3670, he was at firſt provoked with their adherence to the Perſians; but, if we believe Joſephus, their ſolemn ſubmiſſion, with their high-prieſt at their head, entirely pacified him. He cauſed a great number of victims to be offered for his ſucceſs to the God whom they worſhipped. He confirmed to them all their privileges; and, having built Alexandria, he ſettled vaſt numbers of them there, endowed with the ſame privileges as his own Macedonians. Whether this ſtory, which we have already noticed under the article JERUSALEM, p. 779, but more fully under JADDUA, p. 670, of this volume, deſerves credit or not (for the whole tranſaction is not without reaſon called in queſtion by ſome), it is certain that the Jews were much favoured by Alexander; but with him their good fortune ſeemed alſo to expire. The country of Judea, being ſituated between Syria and Egypt, became ſubject to all the revolutions and wars which the ambitious ſucceſſors of Alexander waged againſt each other. At firſt it was given, together with Syria and Phenicia, to Leomedon the Mitylenian, one of Alexander's generals; but, he being ſoon after ſtripped of the other two by Ptolemy Lagus, Judea was next ſummoned to yield to the conqueror. The Jews ſcrupled to break their oath of fidelity to Leomedon; and were of conſequence invaded by Ptolemy at the head of a powerful army. The open country was eaſily reduced; but the city, being ſtrongly fortified both by art and nature, threatened a ſtrong reſiſtance. A ſuperſtitious fear of breaking the ſabbath, however, prevented the beſieged from making any defence on that day; of which Ptolemy being informed, he cauſed an aſſault to be made on the ſabbath, and eaſily carried the place. At firſt he treated them with great ſeverity, and carried 100,000 men of them into captivity; but, reflecting ſoon after on their known fidelity to their conquerors, he reſtored them to all the privileges they had enjoyed under the Macedonians. Of the captives he put ſome into garriſons, and others he ſettled in the countries of Libya and Cyrene. From thoſe who ſettled in the latter of theſe countries deſcended the Cyrenean Jews mentioned by the writers of the New Teſtament.

Five years after Ptolemy had ſubdued Judea, he was forced to yield it to Antigonus, reſerving to himſelf only the cities of Ace, Samaria, Joppa, and Gaza; and carrying off an immenſe booty, together with a great number of captives, whom he ſettled at Alexandria, and endowed with conſiderable privileges and immunities. Antigonus behaved in ſuch a tyrannical manner, that great numbers of his Jewiſh ſubjects fled into Egypt, and others put themſelves under the protection of Seleucus, who alſo granted them conſiderable privileges. Hence this nation came gradually to be ſpread over Syria and Aſia Minor; while Judea ſeemed to be in danger of being depopulated, till it was recovered by Ptolemy in 292. The affairs of the Jews then took a more proſperous turn, and continued in a thriving way till the reign of Ptolemy Philopator, when they were grievouſly oppreſſed by the incurſions of the Samaritans, at the ſame time that Antiochus Theos king of Syria invaded Galilee. Ptolemy, however, marched againſt Antiochus, and defeated him; after which, having gone to Jeruſalem to offer ſacrifices, he ventured to profane the temple itſelf by going into it. He penetrated through the two outer courts; but, as he was about to enter the ſanctuary, he was ſtruck with ſuch dread and terror, that he fell down half-dead. A dreadful perſecution was then raiſed againſt the Jews, who had attempted to hinder him in his impious attempt; but this perſecution was ſtopped by a ſtill more extraordinary accident related under the article EGYPT, vol. vi. p. 301–2. and the Jews were again received into favour.

About the year 204 B.C. the country of Judea was ſubdued by Antiochus the Great; and on this occaſion the loyalty of the Jews to the Egyptians failed them, the whole nation readily ſubmitting to the king of Syria. This attachment ſo pleaſed the Syrian monarch, that he ſent a letter to his general, wherein he acquainted him that he deſigned to reſtore Jeruſalem to its ancient ſplendour, and to recal all the Jews that had been driven out of it; that, out of his ſingular reſpect to the temple of God, he granted them 20,000 pieces of ſilver, towards the charges of the victims, frankincenſe, wine, and oil; 1400 meaſures of fine wheat, and 375 meaſures of ſalt, towards their uſual oblations; that the temple ſhould be thoroughly repaired at his coſt; that they ſhould enjoy the free exerciſe of their religion; and reſtore the public ſervice of the temple, and the prieſts, Levites, ſingers, &c. to their uſual functions; that no ſtranger, or Jew that was unpurified, ſhould enter farther into the temple than was allowed by their law; and that no fleſh of unclean beaſts ſhould be brought into Jeruſalem, nor even their ſkins; and all theſe under the penalty of paying 3000 pieces of ſilver into the treaſury of the temple. He further granted an exemption of taxes for three years to all the diſperſed Jews that ſhould come within a limited time to ſettle in the metropolis; and that all who had been ſold for ſlaves within his dominions ſhould be immediately ſet free.

This ſudden proſperity proved of no long duration. About the year 176, a quarrel happened between Onias, at that time high-prieſt, and one Simon, governor of the temple, which was attended with the moſt fatal conſequences. The cauſes of this quarrel are unknown. The event, however, was, that Simon, finding he could not get the better of Onias, informed Apollonius, governor of Cœloſyria and Paleſtine, that there was at that time in the temple an immenſe treaſure, which at his pleaſure might be ſeized upon for the uſe of the king of Syria. Of this the governor inſtantly ſent intelligence to the king, who diſpatched one Heliodorus to take poſſeſſion of the ſuppoſed treaſure. This perſon, through a miraculous interpoſition, as the Jews pretend, failed in his attempt of entering the temple; upon which Simon accuſed the high-prieſt to the people, as the perſon who had invited Heliodorus to Jeruſalem. This produced a kind of civil war, in which many fell on both ſides. At laſt, Onias having complained to the king, Simon was baniſhed; but ſoon after, Antiochus Epiphanes having aſcended the throne of Syria, Jaſon, the high-prieſt's brother, taking advantage of the neceſſities of Antiochus, purchaſed from him the high-prieſthood at the price of three hundred and fifty talents, and obtained an order that his brother ſhould be ſent to Antioch, there to be confined for life. Jaſon's next ſtep was to purchaſe liberty, at the price of one hundred and fifty talents more, to build a gymnaſium at Jeruſalem ſimilar to thoſe which were uſed in the Grecian cities; and to make as many Jews as he pleaſed free citizens of Antioch. By means of theſe powers he became very ſoon able to form a ſtrong party in Judea; for his countrymen were exceedingly fond of the Grecian cuſtoms, and the freedom of the city of Antioch was a very valuable privilege. From this time therefore a general apoſtacy took place; the ſervice of the temple was neglected, and Jaſon abandoned himſelf without remorſe to all the impieties and abſurdities of paganiſm. He did not, however, long enjoy his ill-acquired dignity. Having ſent his brother Menelaus with the uſual tribute to Antiochus, the former took the opportunity of ſupplanting Jaſon in the ſame manner that he had ſupplanted Onias. Having offered for the high-prieſthood three hundred talents more than his brother had given, he eaſily obtained it, and returned with his new commiſſion to Jeruſalem. He ſoon got himſelf a ſtrong party; but Jaſon, proving too powerful, forced Menelaus and his adherents to retire to Antioch. Here, the better to gain their point, they acquainted Antiochus that they were determined to renounce their old religion, and wholly conform themſelves to that of the Greeks; which ſo pleaſed the tyrant, that he immediately gave them a force ſufficient to drive Jaſon out of Jeruſalem; who thereupon took refuge among the Ammonites.

Menelaus, being thus freed from his rival, took care to fulfil his promiſe to the king with regard to the apoſtaſy, but forgot to pay the money he had promiſed. At laſt he was ſummoned to Antioch; and, finding nothing but the payment of the promiſed ſum would do, he ſent orders to his brother Lyſimachus to convey to him as many of the ſacred utenſils belonging to the temple as could be ſpared. As theſe were all of gold, the apoſtate ſoon raiſed a ſufficient ſum from them, not only to ſatiſfy the king, but alſo to bribe the courtiers in his favour. But his brother Onias, who had been all this time confined at Antioch, getting intelligence of the ſacrilege, made ſuch bitter complaints, that an inſurrection was ready to take place among the Jews at Antioch. Menelaus, in order to avoid the impending danger, bribed Andronicus, governor of the city, to murder Onias. This produced the moſt vehement complaints as ſoon as Antiochus returned to the capital (he having been abſent for ſome time in order to quell an inſurrection in Cilicia); which at laſt ended in the death of Andronicus, who was executed by the king's order. By dint of money, however, Menelaus ſtill found means to keep up his credit; but was obliged to draw ſuch large ſums from Jeruſalem, that the inhabitants at laſt maſſacred his brother Lyſimachus, whom he had left governor of the city in his abſence. Antiochus ſoon after took a journey to Tyre; upon which the Jews ſent deputies to him, both to juſtify the death of Lyſimachus, and to accuſe Menelaus of being the author of all the troubles which had happened. The apoſtate, however, was never at a loſs while he could procure money. By means of this powerful argument he pleaded his cauſe ſo effectually, that the deputies were not only caſt, but put to death; and this unjuſt ſentence gave the traitor ſuch a complete victory over all his enemies, that from thenceforth he commenced a downright tyrant. Jeruſalem was deſtitute of protectors; and the ſanhedrim, if there were any zealous men left among them, were ſo much terrified, that they durſt not oppoſe him, though they evidently ſaw that his deſign was finally to eradicate the religion and liberties of his country.

In the mean time, Antiochus was taken up with the conqueſt of Egypt; and a report was ſome how or other ſpread that he had been killed at the ſiege of Alexandria. At this news the Jews imprudently ſhowed ſome ſigns of joy; and Jaſon, thinking this a proper opportunity to regain his loſt dignity, appeared before Jeruſalem at the head of about 1000 reſolute men. The gates were quickly opened to him by ſome of his friends in the city; upon which Menelaus retired into the citadel; and Jaſon, minding nothing but his reſentment, committed the moſt horrid butcheries. At laſt he was obliged to leave both the city and country, on the news that Antiochus was coming with a powerful army againſt him; for that prince, highly provoked at this rebellion, and eſpecially at the rejoicings the Jews had made on the report of his death, had actually reſolved to puniſh the city in the ſevereſt manner. Accordingly, about 170 B. C. having made himſelf maſter of the city, he behaved with ſuch cruelty, that within three days they reckoned no fewer than 40,000 killed, and as many ſold for ſlaves. In the midſt of this dreadful calamity, the apoſtate Menelaus found means not only to preſerve himſelf from the general ſlaughter, but even to regain the good graces of the king, who, having by his means plundered the temple of every thing valuable, returned to Antioch in a kind of triumph. Before he departed, however, he put Judea under the government of one Philip, a barbarous Phrygian; Samaria under that of Andronicus, a perſon of a ſimilar diſpoſition; and left Menelaus, the moſt hateful of all the three, in the poſſeſſion of the high-prieſthood.

Though the Jews ſuffered exceedingly under theſe tyrannical governors, they were reſerved for ſtill greater calamities. About 168 B. C. Antiochus, having been moſt ſeverely mortified by the Romans, took it into his head to wreak his vengeance on the unhappy Jews. For this purpoſe he diſpatched Apollonius at the head of 22,000 men, with orders to plunder all the cities of Judea, to murder all the men, and ſell the women and children for ſlaves. Apollonius accordingly came with his army, and to outward appearance with a peaceable intention; neither was he ſuſpected by the Jews, as he was ſuperintendant of the tribute in Paleſtine. He kept himſelf inactive till the next ſabbath, when they were all in a profound quiet; and then, on a ſudden, commanded his men to arms. Some of them he ſent to the temple and ſynagogues, with orders to cut in pieces all whom they found there; whilſt the reſt, going through the ſtreets of the city, maſſacred all that came in their way; the ſuperſtitious Jews not attempting to make the leaſt reſiſtance, for fear of breaking the ſabbath. He next ordered the city to be plundered and ſet on fire, pulled down all their ſtately buildings, cauſed the walls to be demoliſhed, and carried away captive about 10,000 of thoſe who had eſcaped the ſlaughter. From that time the ſervice of the temple was totally abandoned for the ſpace of 2300 days, that place having been quite polluted, both with the blood of multitudes who had been killed, and in various other ways. The Syrian troops built a large fortreſs on an eminence in the City of David; fortified it with a ſtrong wall and ſtately towers, and put a garriſon in it to command the temple over-againſt which it was built, ſo that the ſoldiers could eaſily ſee and ſally out upon all thoſe who attempted to come into the temple; ſo many of whom were continually plundered and murdered by them, that the reſt, not daring to ſtay any longer in Jeruſalem, fled for refuge to the neighbouring nations.

Antiochus, not yet ſatiated with the blood of the Jews, reſolved either totally to aboliſh their religion or deſtroy their whole race. He therefore iſſued out a decree, that all nations within his dominions ſhould forſake their old religion and gods, and worſhip thoſe of the king, under the moſt ſevere penalties. To make his orders more effectual, he ſent overſeers into every province to ſee them ſtrictly put in execution; and, as he knew the Jews were the only people who would diſobey them, ſpecial directions were given to have them treated with the utmoſt ſeverity. Atheneas, an old and cruel miniſter, well verſed in all the pagan rites, was ſent into Judea. He began by dedicating the temple to Jupiter Olympius, and ſetting up his ſtatue on the altar of burnt-offerings. Another altar was raiſed before it, on which they offered ſacrifices to that falſe deity. All who refuſed to come and worſhip this idol were either maſſacred or put to ſome cruel tortures till they either complied or expired under the hands of the executioners. At the ſame time, altars, groves, and ſtatues, were raiſed every where through the country, and the inhabitants compelled to worſhip them under the ſame ſevere penalties; while it was inſtant death to obſerve the ſabbath, circumciſion, or any other inſtitution of Moſes.

At laſt, when vaſt numbers had been put to cruel deaths, and many more had ſaved their lives by their apoſtaſy, an eminent prieſt, named Mattathias, began to ſignalize himſelf by his bravery and zeal for religion. He had for ſome time been obliged to retire to Modin, his native place, in order to avoid the perſecution which raged at Jeruſalem. During his receſs there, Apelles, one of the king's officers, came to oblige the inhabitants to comply with the above-mentioned orders. By him Mattathias and his ſons were addreſſed in the moſt earneſt manner, and had the moſt ample promiſes made them of the king's favour and protection if they would renounce their religion. But Mattathias anſwered, that, though the whole Jewiſh nation, and the whole world, were to conform to the king's edict, yet both he and his ſons would continue faithful to their God to the laſt minute of their lives. At the ſame time, perceiving one of his countrymen juſt going to offer ſacrifices to an idol, he fell upon him and inſtantly killed him, agreeably to the law of Moſes in ſuch caſes. Upon this, his ſons, fired with the ſame zeal, killed the officer and his men; overthrew the altar and idol; and, running about the city, cried out, that thoſe who were zealous for the law of God ſhould follow them; by which means they quickly ſaw themſelves at the head of a numerous troop, with whom they ſoon after withdrew into ſome of the deſerts of Judea. They were followed by many others, ſo that in a ſhort time they found themſelves in a condition to reſiſt their enemies; and, having now conſidered the danger to which they were expoſed by their ſcrupulous obſervance of the ſabbath, they reſolved to defend themſelves, in caſe of an attack, upon that day as well as upon any other.

In the year 167 B. C. Mattathias, finding that his followers daily increaſed in number, began to try his ſtrength by attacking the Syrians and apoſtate Jews. As many of theſe as he took he put to death, but forced a much greater number to fly for refuge into foreign countries; and, having ſoon ſtruck his enemies with terror, he marched from city to city, overturned the idolatrous altars, opened the Jewiſh ſynagogues, made a diligent ſearch after all the ſacred books, and cauſed freſh copies of them to be written; he alſo cauſed the reading of the Scriptures to be reſumed, and all the males born ſince the perſecution to be circumciſed. In all this he was attended with ſuch ſucceſs, that he had extended his reformation through a conſiderable part of Judea within the ſpace of one year; and would probably have completed it, had he not been prevented by death.

Mattathias was ſucceeded by his ſon Judas, ſurnamed Maccabeus, the greateſt uninſpired hero of whom the Jews can boaſt. His troops amounted to no more than 6000 men; yet with theſe he quickly made himſelf maſter of ſome of the ſtrongeſt fortreſſes of Judea, and became terrible to the Syrians, Samaritans, and apoſtate Jews. In one year he defeated the Syrians in five pitched battles, and drove them quite out of the country; after which he purified the temple, and reſtored the true worſhip, which had been interrupted for three years and a half. Only one obſtacle now remained, viz. the Syrian garriſon before-mentioned, which had been placed over-againſt the temple, and which Judas could not at preſent reduce. In order to prevent them from interrupting the worſhip, however, he fortified the mountain on which the temple ſtood, with a high wall and ſtrong towers round about, leaving a garriſon to defend it; making ſome additional fortifications at the ſame time to Bethzura, a fortreſs at about twenty miles diſtance.

In the mean time Antiochus, being on his return from an unſucceſsful expedition into Perſia, received the diſagreeable news that the Jews had all to a man revolted, defeated his generals, driven their armies out of Judea, and reſtored their ancient worſhip. This threw him into ſuch a fury, that he commanded his charioteer to drive with the utmoſt ſpeed, threatening utterly to extirpate the Jewiſh race, without leaving a ſingle perſon alive. Theſe words were ſcarcely uttered, when he was ſeized with a violent pain in his bowels, which no remedy could cure or abate. Notwithſtanding this violent ſhock, ſuffering himſelf to be hurried away by the tranſports of his fury, he gave orders for proceeding with the ſame precipitation in his journey. But, while he was thus haſtening forward, he fell from his chariot, and was ſo bruiſed by the fall, that his attendants were forced to put him into a litter. Not being able to bear even the motion of the litter, he was forced to halt at a town called Tabæ, on the confines of Perſia and Babylonia. Here he kept his bed, ſuffering inexpreſſible torments, occaſioned chiefly by the vermin which bred in his body, and the ſtench, which made him inſupportable even to himſelf. But the torments of his mind, cauſed by his reflecting on the former actions of his life, ſurpaſſed by many degrees thoſe of his body. Polybius, who in his account of this prince's death agrees with the Jewiſh hiſtorians, tells us, that the uneaſineſs of his mind grew at laſt to a conſtant delirium or ſtate of madneſs, by reaſon of ſeveral ſpectres and apparitions of evil genii or ſpirits, which he imagined were continually reproaching him with the many wicked actions of which he had been guilty. At laſt, having languiſhed for ſome time in this miſerable condition, he expired, and by his death freed the Jews from the moſt inveterate enemy they had ever known.

Notwithſtanding the death of Antiochus, however, the war was ſtill carried on againſt the Jews; but, through the valour and good conduct of Judas, the Syrians were conſtantly defeated; and in 163 B. C. a peace was concluded upon terms very advantageous to the Jewiſh nation. This tranquillity, however, was of no long continuance; the Syrian generals renewed their hoſtilities, and were attended with the ſame ill ſucceſs as before. Judas defeated them in five engagements; but in the ſixth was abandoned by all his men except eight hundred, who, together with their chief, was ſlain in the year 161 B. C.

The news of the death of Judas threw his countrymen into the utmoſt conſternation, and ſeemed to give new life to all their enemies. He was ſucceeded, however, by his brother Jonathan; who conducted matters with no leſs prudence and ſucceſs than Judas had done, till he was treacherouſly ſeized and put to death by Tryphon, a Syrian uſurper, who ſhortly after murdered his own ſovereign. The traitor immediately prepared to invade Judea: but found all his projects fruſtrated by Simon, Jonathan's brother. Simon repaired all the fortreſſes of Judea, and furniſhed them with freſh garriſons; took Joppa and Gaza, and drove out the Syrian garriſon from the fortreſs of Jeruſalem; but was at laſt treacherouſly murdered by a ſon-in-law named Ptolemy, about 135 B.C.

Simon was ſucceeded by his ſon Hyrcanus; who not only ſhook off the yoke of Syria, but conquered the Samaritans, demoliſhed their capital city, and became maſter of all Paleſtine, to which he added the provinces of Samaria and Galilee; all which he enjoyed till within a year of his death, without the leaſt diſturbance from without, or any internal diſcord. His reign was no leſs remarkable on the account of his great wiſdom and piety at home than his conqueſts abroad. He was the firſt ſince the captivity who had aſſumed the royal title; and he raiſed the Jewiſh nation to a greater degree of ſplendour than it had ever enjoyed ſince that time. The author of the Fourth Book of the Maccabees alſo informs us, that in him three dignities were centred which never met in any other perſon, namely, the royal dignity, the high-prieſthood, and the gift of prophecy. But the inſtances given of this laſt are very equivocal and ſuſpicious. The laſt year of his reign, however, was embittered by a quarrel with the Phariſees; and which proceeded ſuch a length as was thought to have ſhortened his days. Hyrcanus had always been a great friend to that ſect, and thoy had hitherto enjoyed the moſt honourable employments in the ſtate; but at length one of them, named Eleazar, took it into his head to queſtion Hyrcanus's legitimacy, alleging, that his mother had formerly been a ſlave, and conſequently that he was incapable of enjoying the high-prieſthood. This report was credited, or pretended to be ſo, by the whole ſect; which irritated the high-prieſt to ſuch a degree, that he joined the Sadducees, and could never afterwards be reconciled to the Phariſees, who therefore raiſed all the troubles and ſeditions they could during the ſhort time he lived.

Hyrcanus died in the year 107 B.C. and was ſucceeded by his eldeſt ſon Ariſtobulus, who conquered Iturea, but proved a moſt cruel and barbarous tyrant, polluting his hands with the blood even of his mother and one of his brothers, keeping the reſt cloſely confined during his reign, which, however, was but ſhort. He was ſucceeded, in 105, by Alexander Jannæus, the greateſt conqueror, next to king David, that ever ſat on the Jewiſh throne. He was hated, however, by the Phariſees, and once in danger of being killed in a tumult excited by them; but, having cauſed his guards to fall upon the mutinous mob, they killed 6000 of them, and diſperſed the reſt. After this, finding it impoſſible to remain in quiet in his own kingdom, he left Jeruſalem, with a deſign to apply himſelf wholly to the extending of his conqueſts; but, while he was buſied in ſubduing his foreign enemies, the Phariſees raiſed a rebellion at home. This was quaſhed in the year 86 B. C. and the rebels were treated in the moſt inhuman manner. The faction, however, was by this means ſo thoroughly quelled, that they never dared to lift up their heads as long as he lived; and Alexander, having made ſeveral conqueſts in Syria, died about 79 B. C.

The king left two ſons, Hyrcanus and Ariſtobulus; but bequeathed the government to his wife Alexandra as long as ſhe lived; but, as he ſaw her greatly afraid, and not without reaſon, of the reſentment of the Phariſees, he deſired his queen, juſt before his death, to ſend for the principal leaders of that party, and pretend to be entirely devoted to them; in which caſe, he aſſured her, that they would ſupport her and her ſons after her in the peaceable poſſeſſion of the government. With this advice the queen complied; but found herſelf much embarraſſed by the turbulent Phariſees, who, after ſeveral exorbitant demands, would at laſt be contented with nothing leſs than the total extermination of their adverſaries the Sadducees. As the queen was unable to reſiſt the ſtrength of the phariſaic faction, a moſt cruel perſecution immediately took place againſt the Sadducees, which continued for four years; until at laſt, upon their earneſt petition, they were diſperſed among the ſeveral garriſons of the kingdom, in order to ſecure them from the violence of their enemies. A few years after this, being ſeized with a dangerous ſickneſs, her youngeſt ſon Ariſtobulus collected a ſtrong party in order to ſecure the crown to himſelf; but the queen, being diſpleaſed with his conduct, appointed her other ſon Hyrcanus, whom ſhe had before made high-prieſt, to ſucceed her alſo in the royal dignity. Soon after this ſhe expired, and left her two ſons competitors for the crown. The Phariſees raiſed an army againſt Ariſtobulus, which almoſt inſtantly deſerted to him, ſo that Hyrcanus found himſelf obliged to accept of peace upon any terms; which, however, was not granted, till the latter had abandoned all title both to the royal and pontifical dignity, and contented himſelf with the enjoyment of his peculiar patrimony as a private perſon.

But the depoſition of Hyrcanus did not extinguiſh his party. A new cabal was raiſed by Antipater, an Idumæan proſelyte, and father of Herod the Great; who carried off Hyrcanus into Arabia, under pretence that his life was in danger if he remained in Judea. Here he applied to Aretas, king of that country, who undertook to reſtore the depoſed monarch; and for that purpoſe invaded Judea, defeated Ariſtobulus, and kept him cloſely beſieged in Jeruſalem. The latter, A.M. 3934, had recourſe to the Romans; and, having bribed Scaurus, one of their generals, he defeated Aretas, with the loſs of 7000 of his men, and drove him quite out of the country. The two brothers next ſent preſents to Pompey, at that time commander-in-chief of all the Roman forces in the eaſt, and whom they made the arbitrator of their differences. But he, fearing that Ariſtobulus, againſt whom he intended to declare, might obſtruct his intended expedition againſt the Nabatheans, diſmiſſed them with a promiſe, that as ſoon as he had ſubdued Aretas, he would come into Judea and decide their controverſy.

This delay gave ſuch offence to Ariſtobulus, that he ſuddenly departed for Judea without even taking leave of the Roman general, who on his part was no leſs offended at this want of reſpect. The conſequence was, that Pompey entered Judea with thoſe troops with which he had deſigned to act againſt the Nabatheans, and ſummoned Ariſtobulus to appear before him. The Jewiſh prince would gladly have been excuſed; but was forced by his own people to comply with Pompey's ſummons, to avoid a war with that general. He came accordingly more than once or twice to him, and was diſmiſſed with great promiſes and marks of friendſhip. But at laſt Pompey inſiſted, that he ſhould deliver into his hands all the fortified places he poſſeſſed; which let Ariſtobulus plainly ſee that he was in the intereſt of his brother: and upon this he fled to Jeruſalem with a deſign to oppoſe the Romans to the utmoſt of his power. He was quickly followed by Pompey; and, to prevent hoſtilities, was at laſt forced to go and throw himſelf at the feet of the haughty Roman, and to promiſe him a conſiderable ſum of money as the reward of his forbearance. This ſubmiſſion was accepted; but Gabinus, being ſent with ſome troops to receive the ſtipulated ſum, was repulſed by the garriſon of Jeruſalem, who ſhut the gates againſt him, and refuſed to fulfil the agreement. This diſappointment ſo exaſperated Pompey, that he immediately marched with his whole army againſt the city.

The Roman general firſt ſent propoſals of peace; but, finding the Jews reſolved to ſtand out to the laſt, he began the ſiege in form. As the place was ſtrongly fortified both by nature and art, he might have found it very difficult to accompliſh his deſign, had not the Jews been ſuddenly ſeized with a freſh qualm of conſcience reſpecting the obſervance of the ſabbath-day. From the time of the Maccabees they had made no ſcruple of taking up arms againſt an offending enemy on the ſabbath; but now they thought that, though it was lawful on that day to ſtand on their defence in caſe they were actually attacked, yet it was unlawful to do any thing towards the preventing of thoſe preparatives which the enemy made towards ſuch future aſſaults. As therefore they never moved a hand to hinder the erection of mounds and batteries, or the making of breaches in their walls, on the ſabbath, the beſiegers at laſt made ſuch a conſiderable breach on that day, that the garriſon could no longer reſiſt them. The city was therefore taken in the year 63 B.C. 12,000 of the inhabitants were ſlaughtered, and many more died by their own hands; while the prieſts, who were offering up the uſual prayers and ſacrifices in the temple, choſe rather to be butchered along with their brethren than ſuffer divine ſervice to be one moment interrupted. At laſt, after the Romans had ſatiated their cruelty with the death of a vaſt number of the inhabitants, Hyrcanus was reſtored to the pontifical dignity with the title of *prince*; but was forbidden to aſſume the title of *king*, to wear a diadem, or to extend his territories beyond the limits of Judea. To prevent future revolts, the walls were pulled down; and Scaurus was left governor with a ſufficient force. But Pompey, before he departed, gave the Jews a ſtill greater offence than almoſt any thing he had hitherto done; and that was by entering into the moſt ſacred receſſes of the temple, where he took a view of the golden table, candleſtick, cenſers, lamps, and all the other ſacred veſſels; but, out of reſpect to the Deity, forbore to touch any of them, and when he came out commanded the prieſts immediately to purify the temple according to cuſtom.

Pompey, having thus ſubdued the Jewiſh nation, ſet out for Rome, carrying along with him Ariſtobulus and his two ſons Alexander and Antigonus, as captives to adorn his future triumph. Ariſtobulus himſelf and his ſon Antigonus were led in triumph; but Alexander found means to eſcape into Judea, where he raiſed an army of 10,000 foot and 1500 horſe, and began to fortify ſeveral ſtrong holds, from whence he made incurſions into the neighbouring country. As for Hyrcanus, he no ſooner found himſelf freed from his rival brother, than he relapſed into his former indolence, leaving the care of all his affairs to Antipater, who, like a true politician, failed not to turn the weakneſs of the prince to his own advantage and the aggrandizing of his family. He foreſaw, however, that he could not eaſily compaſs his ends, unleſs he ingratiated himſelf with the Romans; and therefore ſpared neither pains nor coſt to gain their favour. Scaurus ſoon after received from him a ſupply of corn and other proviſions, without which his army, which he had led againſt the metropolis of Arabia, would have been in danger of periſhing; and, after this, he prevailed on the king to pay three hundred talents to the Romans, to prevent them from ravaging his country. Hyrcanus was now in no condition to face his enemy Alexander; and therefore had again recourſe to the Romans, Antipater at the ſame time ſending as many troops as he could ſpare to join them. Alexander ventured a battle; but was defeated with conſiderable loſs, and beſieged in a ſtrong fortreſs named Alexandrion. Here he would have been forced to ſurrender; but his mother, partly by her addreſs, and partly by the ſervices ſhe found means to do the Roman general, prevailed upon him to grant her ſon a pardon for what was paſt. The fortreſſes were then demoliſhed, that they might not give occaſion to freſh revolts; Hyrcanus was again reſtored to the pontifical dignity; and the province was divided into five ſeveral diſtricts, in each of which a ſeparate court of judicature was erected: the firſt of theſe was at Jeruſalem, the ſecond at Gadara, the third at Amatha, the fourth at Jericho, and the fifth at Sephoris in Galilee. Thus was the government changed from a monarchy to an ariſtocracy; and the Jews now fell under a ſet of domineering lords.

Soon after this, Ariſtobulus found means to eſcape from his confinement at Rome, and raiſed new troubles in Judea, but was again defeated and taken priſoner; his ſon alſo renewed his attempts; but was in like manner defeated, with the loſs of near 10,000 of his followers; after which Gabinius, having ſettled the affairs of Judea to Antipater's mind, reſigned the government of his province to Craſſus. The only tranſaction during his government was his plundering the temple of all its money and ſacred utenſils, amounting in the whole to 10,000 Attic talents, *i. e.* above two millions of our money. After this ſacrilege, Craſſus ſet out on his expedition againſt Parthia, where he periſhed; and his death was by the Jews interpreted as a divine judgment for his impiety.

The war between Cæſar and Pompey afforded the Jews ſome reſpite, and likewiſe an opportunity of ingratiating themſelves with the former, which the politic Antipater readily embraced. His ſervices were rewarded by the emperor. He confirmed Hyrcanus in his prieſthood, added to it the principality of Judea to be entailed on his poſterity for ever, and reſtored the Jewiſh nation to their ancient rights and privileges; ordering at the ſame time a pillar to be erected, whereon all theſe grants, and his own decree, ſhould be engraved, which was accordingly done; and ſoon after, when Cæſar himſelf came into Judea, he granted liberty alſo to fortify the city, and rebuild the wall which had been demoliſhed by Pompey.

During the life-time of Cæſar, the Jews were ſo highly favoured, that they could ſcarcely be ſaid to feel the Roman yoke. After his death, however, the nation fell into great diſorders; which were not finally quelled till Herod, who was created king of Judea by Marc Anthony in 40 B. C. was fully eſtabliſhed on the throne by the taking of Jeruſalem by his allies the Romans in 37 B. C. The immediate conſequence of this was another cruel pillage and maſſacre; then followed the death of Antigonus the ſon of Ariſtobulus, who had for three years maintained his ground againſt Herod, put to death his brother Phaſael, and cut off Hyrcanus's ears, in order the more effectually to incapacitate him for the high-prieſthood.

The Jews gained but little by this change of maſters. The new king proved one of the greateſt tyrants mentioned in hiſtory. He began his reign with a cruel perſecution of thoſe who had ſided with his rival Antigonus; great numbers of whom he put to death, ſeizing and confiſcating their effects for his own uſe. Nay, ſuch was his jealouſy in this laſt reſpect, that he cauſed guards to be placed at the city-gates, in order to watch the bodies of thoſe of the Antigonian faction who were carried out to be buried, leſt ſome of their riches ſhould be carried along with them. His jealouſy next prompted him to decoy Hyrcanus, the baniſhed pontiff, from Parthia, where he had taken refuge, that he might put him to death, though contrary to his moſt ſolemn promiſes. His cruelty then fell upon his own family. He had married Mariamne, the daughter of Hyrcanus, whoſe brother Ariſtobulus, a young prince of great hopes, was made high-prieſt at the interceſſion of his mother Alexandra. But the tyrant, conſcious that Ariſtobulus had a better right to the kingdom than himſelf, cauſed him ſoon after to be drowned in a bath. The next victim was his beloved queen Mariamne herſelf. Herod had been ſummoned to appear firſt before Marc Anthony, and then before Auguſtus, in order to clear himſelf from ſome crimes laid to his charge. As he was, however, doubtful of the event, he left orders, that, in caſe he was condemned, Mariamne ſhould be put to death. This, together with the death of her father and brother, gave her ſuch an averſion for him, that ſhe ſhowed it on all occaſions. By this conduct the tyrant's reſentment was at laſt ſo much inflamed, that, having got her falſely accuſed of infidelity, ſhe was condemned to die, and executed accordingly. She ſuffered with great reſolution; but with her ended all the happineſs of her huſband. His love for Mariamne increaſed ſo much after her death, that for ſome time he appeared like one quite diſtracted. His remorſe, however, did not get the better of his cruelty. The death of Mariamne was ſoon followed by that of her mother Alexandra, and this by the execution of ſeveral other perſons who had joined with her in an attempt to ſecure the kingdom to the ſons of the deceaſed queen.

Herod, having now freed himſelf from the greateſt part of his ſuppoſed enemies, began to ſhow a greater contempt for the Jewiſh ceremonies than formerly; and introduced a number of heatheniſh games, which made him odious to his ſubjects. Ten bold fellows at laſt took it into their heads to enter the theatre where the tyrant was celebrating ſome games, with daggers concealed under their clothes, in order to ſtab him or ſome of his retinue. In caſe they ſhould miſcarry in the attempt, they had the deſperate ſatisfaction to think, that, if they periſhed, the tyrant would be rendered ſtill more odious by the puniſhment inflicted on them. They were not miſtaken: for Herod being informed of their deſign by one of his ſpies, and cauſing the aſſaſſins to be put to a moſt excruciating death, the people were ſo much exaſperated againſt the informer, that they cut and tore him to pieces, and caſt his fleſh to the dogs. Herod tried in vain to diſcover the authors of this affront; but at laſt, having cauſed ſome women to be put to the rack, he extorted from them the names of the principal perſons concerned, whom he cauſed immediately to be put to death with their families. This produced ſuch diſturbances, that, apprehending nothing leſs than a general revolt, he ſet about fortifying Jeruſalem with ſeveral additional works, rebuilding Samaria, and putting garriſons into ſeveral fortreſſes in Judea. Notwithſtanding this, however, Herod had ſhortly after an opportunity of regaining the affections of his ſubjects in ſome meaſure, by his generoſity to them during a famine; but, as he ſoon relapſed into his former cruelty, their love was again turned into hatred, which continued till his death.

Herod now, about 23 B. C. began to adorn his cities with many ſtately buildings. The moſt remarkable and magnificent of them all, however, was the temple at Jeruſalem, which he is ſaid to have raiſed to a higher pitch of grandeur than even Solomon himſelf had done. Ten thouſand artificers were ſet to work, under the direction of one thouſand prieſts, the beſt ſkilled in carving, maſonry, &c. A thouſand carts were employed in fetching materials; and ſuch a number of other hands were employed, that every thing was got ready within the ſpace of two years. After this they ſet about pulling down the old building, and rearing up the new one with the ſame expedition; ſo that the *Holy Place*, or Temple properly ſo called, was finiſhed in a year and a half; during which we are told that it never rained in the day-time, but only in the night. The remainder was finiſhed in ſomewhat more than eight years. The Temple, properly ſo called, was but ſixty cubits high, and as many in breadth; but in the front he added two wings or ſhoulders which projected twenty cubits more on each ſide, and which in all made a front of 120 cubits in length, and as many in height; with a gate ſeventy cubits high and twenty in breadth, but open and without any doors. The ſtones were white marble, twenty-five cubits in length, twelve in height, and nine in breadth, all wrought and poliſhed with exquiſite beauty; the whole reſembling a ſtately palace, whoſe middle being conſiderably raiſed above the extremities of each face, made it afford a beautiful viſta at a great diſtance, to thoſe who came to the metropolis. Inſtead of doors, the gates cloſed with very coſtly veils, enriched with a variety of flowering of gold, ſilver, purple, and every thing that was rich and curious; and on each ſide of the gates were planted two ſtately columns, from whoſe cornices hung golden feſtoons and vines, with their cluſters of grapes, leaves, &c.

curiouſly wrought. The ſuperſtructure, however, which was improperly reared on the old foundation without ſufficient additions, proved too heavy, and ſunk down about twenty cubits; ſo that its height was reduced to 100. This foundation was of an aſtoniſhing ſtrength and height, of which an account is given under the article JERUSALEM. The platform was a regular ſquare of a ſtadium or furlong on each ſide. Each front of the ſquare had a ſpacious gate or entrance, enriched with ſuitable ornaments; but that on the weſt had four gates, one of which led to the palace, another to the city, and the two others to the ſuburbs and fields. This incloſure was ſurrounded on the outſide with a ſtrong and high wall of large ſtones, well cemented; and on the inſide had on each front a ſtately piazza or gallery, ſupported by columns of ſuch a bigneſs, that three men could but juſt embrace them, their circumference being about twenty-ſeven feet. There were in all 162 of them, which ſupported a cedar ceiling of excellent workmanſhip, and formed three galleries, the middlemoſt of which was the largeſt and higheſt, it being forty-five feet in breadth and 100 in height, whereas thoſe on each ſide were but thirty feet wide and fifty in height.

The piazzas and court were paved with marble of various colours; and, at a ſmall diſtance from the galleries, was a ſecond incloſure, ſurrounded with a flight of beautiful marble rails, with ſtately columns at proper diſtances, on which were engraven certain admonitions in Greek and Latin, to forbid ſtrangers, and thoſe Jews that were not purified, to proceed farther under pain of death. This incloſure had but one gate on the eaſt ſide; none on the weſt; but on the north and ſouth it had three, placed at equal diſtances from each other.

A third incloſure ſurrounded the *Temple*, properly ſo called, and the altar of burnt-offerings; and made what they called the *Court of the Hebrews*, or *Iſraelites*. It was ſquare like the reſt; but the wall on the outſide was ſurrounded by a flight of fourteen ſteps, which hid a conſiderable part of it; and on the top was a terrace, of about twelve cubits in breadth, which went quite round the whole cincture. The eaſt ſide had but one gate; the weſt none; and the north and ſouth four, at equal diſtances. Each gate was aſcended by five ſteps more before one could reach the level of the inward court; ſo that the wall which incloſed it appeared within to be but twenty-five cubits high, though conſiderably higher on the outſide. On the inſide of each of thoſe gates were raiſed a couple of ſpacious ſquare chambers, in form of a pavilion, thirty cubits wide and forty in height, each ſupported by columns of twelve cubits in circumference. This incloſure had likewiſe a double flight of galleries on the inſide, ſupported by a double row of columns; but the weſtern ſide was only one continued wall, without gates or galleries. The women had likewiſe their particular court ſeparate from that of the men, and one of the gates on the north and ſouth leading to it. The altar of burnt-offerings was likewiſe high and ſpacious, being forty cubits in breadth, and fifteen in height. The aſcent to it was, according to the Moſaic law, ſmooth, and without ſteps; and the altar of unhewn ſtones. It was ſurrounded, at a convenient diſtance, with a low wall or rail, which divided the court of the prieſts from that of the lay Iſraelites; ſo that theſe laſt were allowed to come thus far to bring their offerings and ſacrifices; though none but the prieſts were allowed to come within that incloſure.

Herod cauſed a new dedication of this temple to be performed with the utmoſt magnificence; and preſented to it many rich trophies of his former victories, after the cuſtom of the Jewiſh monarchs.

This, and many other magnificent works, however, did not divert the king's attention from his uſual jealouſies and cruelty. His ſiſter Salome, and one of his ſons named Antipater, taking advantage of this diſpoſition, prompted him to murder his two ſons by Mariamne, named Alexander and Ariſtobulus, who had been educated at the court of Auguſtus in Italy, and were juſtly admired by all who ſaw them. His cruelty ſoon after broke out in an impotent attempt to deſtroy the Saviour of the world, but which was attended with no other conſequence than the deſtruction of 2000 innocent children of his own ſubjects. His miſery was almoſt brought to its ſummit by the diſcovery of Antipater's deſigns againſt himſelf; who was accordingly tried and condemned for treaſon. Something ſtill more dreadful, however, yet awaited him; he was ſeized with a moſt loathſome and incurable diſeaſe, in which he was tormented with intolerable pains, ſo that his life became a burden. At laſt he died, to the great joy of the Jews, five days after he had put Antipater to death, and after having divided his kingdom among his ſons in the following manner: Archelaus had Judea; Antipas, or Herod, was tetrarch of Galilee and Perea; and Philip had the regions of Trachonitis, Gaulonitis, Batanea, and Panias, which he erected likewiſe into a tetrarchy. To his ſiſter Salome he gave 50,000 pieces of money, together with the cities of Jamnia, Azotus, and Phaſaelis; beſides ſome conſiderable legacies to his other relations. See the article HEROD, vol. ix. p. 818.

Tumults, ſeditions, and inſurrections, quickly followed. Archelaus was oppoſed by his brethren, and obliged to appear at Rome before Auguſtus, to whom many complaints were brought againſt him. After hearing both parties, the emperor made the following diviſion of the kingdom: Archelaus had one half, under the title of *ethnarch*, or governor of a nation; together with a promiſe that he ſhould have the title of *king*, as ſoon as he ſhowed himſelf worthy of it. This ethnarchy contained Judea Propria, Idumea, and Samaria: but this laſt was exempted from one-fourth of the taxes paid by the reſt, on account of the peaceable behaviour of the inhabitants during the late tumults. The remainder was divided between Philip and Herod; the former of whom had Trachonitis, Batanea, and Auranitis, together with a ſmall part of Galilee; the latter had the reſt of Galilee and the countries beyond the Jordan. Salome had half a million of ſilver, together with the cities of Jamnia, Azotus, Phaſaelis, and Aſcalon.

For ſome years Archelaus enjoyed his government in peace; but at laſt, both Jews and Samaritans, tired out with his tyrannical behaviour, joined in a petition to Auguſtus againſt him. The emperor immediately ſummoned him to Rome, where, having heard his accuſation and defence, he baniſhed him to the city of Vienne in Dauphiny, and confiſcated all his effects. Judea, being by this ſentence reduced to a Roman province, was ordered to be taxed: and Cyrenius the governor of Syria, a man of conſular dignity, was ſent thither to ſee it put in execution: which having done, and ſold the palaces of Archelaus, and ſeized upon all his treaſure, he returned to Antioch, leaving the Jews in no ſmall ferment on account of this new tax.

Thus were the ſeeds of diſſenſion ſown between the Jews and Romans, which ended in the moſt lamentable cataſtrophe of the former. The Jews, always impatient of a foreign yoke, knew from their prophecies that the time was now come when the Meſſiah ſhould appear. Of conſequence, as they expected him to be a great and powerful warrior, their rebellious and ſeditious ſpirit was heightened to the greateſt degree; and they imagined they had nothing to do but to take up arms, and victory would immediately declare on their ſide. From this time, therefore, the country was never quiet; and the infatuated people, while they rejected the true Meſſiah, gave themſelves up to the direction of every impoſtor who choſe to lead them to their own deſtruction. The governors appointed by the Romans were alſo frequently changed, but ſeldom for the better. About the 16th year of Chriſt, Pontius Pilate was appointed governor; the whole of whoſe adminiſtration, according to Joſephus, was one continued ſcene of venality, rapine, tyranny, and every wicked action; of racking and putting innocent men to death, untried and uncondemned: and of every kind of ſavage cruelty. Such a governor was but ill calculated to appeaſe the ferments occaſioned by the late tax. Indeed Pilate was ſo far from attempting this, that he greatly inflamed them by taking every occaſion of introducing his ſtandards with images and pictures, conſecrated ſhields, &c. into their city; and at laſt attempting to drain the treaſury of the temple, under pretence of bringing an aqueduct into Jeruſalem. The moſt remarkable tranſaction of his government, however, was his condemnation of Jesus Christ; ſeven years after which he was removed from Judea; and in a ſhort time Agrippa, the grandſon of Herod the Great, was promoted by Caius to the regal dignity. He did not, however, long enjoy this honour; for, on his coming into Judæa, having raiſed a perſecution againſt the Chriſtians, and blaſphemouſly ſuffering himſelf to be ſtyled a god by ſome deputies from Tyre and Sidon, he was miraculouſly ſtruck with a diſeaſe which ſoon put an end to his life. The ſacred hiſtorian tells us, that he was eaten of worms; and Joſephus, that he was ſeized with moſt violent pains in his heart and bowels; ſo that he could not but reflect on the baſeneſs of thoſe flatterers, who had but lately complimented him with a kind of divine immortality, that was now about to expire in all the torments and agonies of a miſerable mortal.

On the death of Agrippa, Judæa was once more reduced to a province of the Roman empire, and had new governors appointed over it. Theſe were Ventidius, Felix, Feſtus Albinus, and Geſſius Florus. Under their government the Jewiſh affairs went on from bad to worſe; the country ſwarmed with robbers and aſſaſſins; the latter committing every where the moſt unheard-of cruelties under the pretence of religion; and about 64 A. C. were joined by 18,000 workmen, who had been employed in further repairing and beautifying the temple. About this time alſo, Geſſius Florus, the laſt and worſt governor the Jews ever had, was ſent into the country. Joſephus ſeems at a loſs for words to deſcribe him by, or a monſter to compare him to. His rapines, cruelties, conniving for large ſums with the banditti, and, in a word, his whole behaviour, were ſo open and barefaced, that he was looked upon by the Jews more like a bloody executioner ſent to butcher, than a magiſtrate to govern them. In this diſtracted ſtate of the country, many of the inhabitants forſook it to ſeek for an aſylum ſomewhere elſe; while thoſe who remained applied themſelves to Ceſtius Gallus, governor of Syria, who was at Jeruſalem at the paſſover; beſeeching him to pity their unhappy ſtate, and free them from the tyranny of a man who had totally ruined their country. Florus, who was preſent when theſe complaints were brought againſt him, made a mere jeſt of them; and Ceſtius, inſtead of making a ſtrict inquiry into his conduct, diſmiſſed the Jews with a general promiſe that the governor ſhould behave better for the future; and ſet himſelf about computing the number of Jews at that time in Jeruſalem, by the number of lambs offered at that feſtival, that he might ſend an account of the whole to Nero. By his computation there were at that time in Jeruſalem 2,556,000; though Joſephus thinks they rather amounted to 3,000,000.

In the year 67 began the fatal war with the Romans, which ended in the final deſtruction of Jeruſalem. The immediate cauſe was the deciſion of a conteſt with the Syrians concerning the city of Cæſarea. The Jews maintained that this city belonged to them, becauſe it had been built by Herod; and the Syrians pretended that it had always been reckoned a Greek city, ſince even that monarch had reared temples and ſtatues in it. The conteſt at laſt came to ſuch a height, that both parties took up arms againſt each other. Felix put an end to it for a time, by ſending ſome of the chiefs of each nation to Rome, to plead their cauſe before the emperor, where it hung in ſuſpenſe till this time, when Nero decided it againſt the Jews. No ſooner was this deciſion made public, than the Jews in all parts of the country flew to arms; and, though they were every where the ſufferers, yet, from this fatal period, their rage never abated. Nothing was now to be heard of but robberies, murders, and every kind of cruelty. Cities and villages were filled with dead bodies of all ages, even ſucking babes. The Jews, on their part, ſpared neither Syrians nor Romans, where they got the better of them; and this proved the deſtruction of great numbers of their peaceful brethren: 20,000 were maſſacred at Cæſarea, 50,000 at Alexandria, 2000 at Ptolemais, and 3500 at Jeruſalem.

A great number of aſſaſſins, in the mean time, having joined the factious Jews in Jeruſalem, they beat the Romans out of Antonia, a fortreſs adjoining to the temple, and another called Maſſada; and likewiſe out of the towers called Phaſael and Mariamne, killing all who oppoſed them. The Romans were at laſt reduced to ſuch ſtraits, that they capitulated on the ſingle condition that their lives ſhould be ſpared; notwithſtanding which, they were all maſſacred by the furious zealots; and this treachery was ſoon revenged on the Jews of Scythopolis. Theſe had offered to aſſiſt in reducing their factious brethren; but, their ſincerity being ſuſpected by the townſmen, they obliged them to retire into a neighbouring wood, where, on the third night, they were maſſacred to the number of 13,000, and all their wealth carried off. The rebels, in the mean time, croſſed the Jordan, and took the fortreſſes of Machæron and Cyprus; which laſt they razed to the ground, after having put all the Romans to the ſword. This brought Ceſtius Gallus, the Syrian governor, into Judæa with all his forces; but the Jews, partly by treachery and partly by force, got the better of him, and drove him out of the country with the loſs of 5000 men.

All this time ſuch dreadful diſſenſions reigned among the Jews, that great numbers of the better ſort, foreſeeing the ſad effects of the reſentment of the Romans, left the city as men do a ſinking veſſel; and the Chriſtians, mindful of their Saviour's prediction, retired to Pella, a city on the other ſide of Jordan, whither the war did not reach. Miſerable was the fate of ſuch as either could not, or would not, leave that devoted city. Veſpaſian was now ordered to leave Greece, where he was at that time, and to march with all ſpeed into Judea. He did ſo accordingly at the head of a powerful army, ordering his ſon Titus in the mean time to bring two more legions from Alexandria; but, before he could reach that country, the Jews had twice attempted to take the city of Aſcalon, and were each time repulſed with the loſs of 10,000 of their number. In the beginning of the year 68, Veſpaſian entered Galilee at the head of an army of 60,000 men, all completely armed and excellently diſciplined. He firſt took and burnt Gadara; then he laid ſiege to Jotapa, and took it after a ſtout reſiſtance; at which he was ſo provoked, that he cauſed every one of the Jews to be maſſacred or carried into captivity, not one being left to carry the dreadful news to their brethren. Forty thouſand periſhed on this occaſion; only 1200 were made priſoners, among whom was Joſephus the Jewiſh hiſtorian. Japha next ſhared the ſame fate, after an obſtinate ſiege; all the men being maſſacred, and the women and children carried into captivity. A week after this the Samaritans, who had aſſembled on Mount Gerizzim, were almoſt all put to the ſword, or periſhed. Joppa fell the next victim to the Roman vengeance. It had been formerly laid waſte by Ceſtius; but was now repeopled and fortified by the ſeditious Jews who infeſted the country. It was taken by ſtorm, and ſhared the ſame fate with the reſt. Four thouſand Jews attempted to eſcape by taking to their ſhips; but were driven back by a ſudden tempeſt, and all of them were drowned or put to the ſword. Tarichea and Tiberias were next taken, but part of their inhabitants were ſpared on account of their peaceable diſpoſitions. Then followed the ſieges of Gamala, Giſchala, and Itabyr. The firſt was taken by ſtorm, with a dreadful ſlaughter of the Jews; the laſt by ſtratagem. The inhabitants of Giſchala were inclinable to ſurrender; but a ſeditious Jew of that town, named John, the ſon of Levi, head of the faction, oppoſed it; and, having the mob on his ſide, overawed the whole city. On the ſabbath he begged of Titus to forbear hoſtilities till to-morrow, and then he would accept his offer; but, inſtead of that, he fled to Jeruſalem with as many as would follow him. The Romans, as ſoon as they were informed of his flight, purſued, and killed 6000 of his followers on the road, and brought back near 3000 women and children priſoners. The inhabitants then ſurrendered to Titus, and only the factious were puniſhed; and this completed the reduction of Galilee.

The Jewiſh nation by this time was divided into two very oppoſite parties; the one, foreſeeing that this war, if continued, muſt end in the total ruin of their country, were for putting an end to it by ſubmitting to the Romans; the other, which was the remains of the faction of Judas Gaulonitis, breathed nothing but war and confuſion, and oppoſed all peaceable meaſures with invincible obſtinacy. This laſt, which was by far the moſt numerous and powerful, conſiſted of men of the vileſt and moſt profligate characters that can be paralleled in hiſtory. They were proud, ambitious, cruel, rapacious, and committed the moſt horrid and unnatural crimes under the maſk of religion. They affirmed every where, that it was offering the greateſt diſhonour to God to ſubmit to any earthly potentate; much leſs to Romans and to heathens. This, they ſaid, was the only motive that induced them to take up arms, and to bind themſelves under the ſtricteſt obligations not to lay them down till they had either totally extirpated all foreign authority, or periſhed in the attempt. This dreadful diſſenſion was not confined to Jeruſalem, but had infected all the cities, towns, and villages, of Paleſtine. Even houſes and families were ſo divided againſt each other, that, as our Saviour had expreſsly foretold, a man's greateſt enemies were often thoſe of his own family and houſehold. In ſhort, if we may believe Joſephus, the *zealots* acted more like incarnate devils than like men who had any ſenſe of humanity left them. This obliged the contrary party likewiſe to riſe up in arms in their own defence againſt thoſe miſcreants; from whom, however, they ſuffered much more than they did even from the exaſperated Romans.

The *zealots* began their outrages by murdering all that oppoſed them in the countries round about. Then they entered Jeruſalem; but met with a ſtout oppoſition from the other party headed by Ananus, who had lately been high-prieſt. A fierce engagement enſued between them; and the zealots were driven into the inner cincture of the temple, where they were cloſely beſieged. John of Giſchala above-mentioned, who had pretended to ſide with the peaceable party, was then ſent with terms of accommodation; but, inſtead of adviſing the beſieged to accept of them, he perſuaded them ſtill to hold out, and call the Idumeans to their aſſiſtance. They did ſo, and procured 20,000 of them to come to their relief; but theſe new allies were refuſed admittance into the city. On that night, however, there happened ſuch a violent ſtorm, accompanied with thunder, lightning, and an earthquake, that the zealots from within the inner court ſawed the bolts and hinges of the temple-gates without being heard, forced the guards of the beſiegers, ſallied into the city, and led in the Idumeans. The city was inſtantly filled with butcheries of the moſt horrid kind. Barely to put any of the oppoſite party to death was thought too mild a puniſhment; they muſt have the pleaſure of murdering them by inches; ſo that they made it now their diverſion to put them to the moſt exquiſite tortures that could be invented; nor could they be prevailed upon to diſpatch them till the violence of their torments had rendered them quite incapable of feeling. In this manner periſhed 12,000 perſons of noble extraction, and in the flower of their age; till at laſt the Idumeans complained ſo much againſt the putting ſuch numbers to death, that the zealots thought proper to erect a kind of tribunal, which, however, was intended not for judgment, but condemnation; for, the judges having once acquitted a perſon who was manifeſtly innocent, the zealots not only murdered him in the temple, but depoſed the newly-created judges as perſons unfit for their office.

The zealots, after having exterminated all thoſe of any character or diſtinction, began next to wreak their vengeance on the common people. This obliged many of the Jews to forſake Jeruſalem, and take refuge with the Romans, though the attempt was very hazardous; for the zealots had all the avenues well guarded, and failed not to put to death ſuch as fell into their hands. Veſpaſian in the mean time ſtaid at Cæſarea an idle ſpectator of their outrages; well knowing that the zealots were fighting for him, and that the ſtrength of the Jewiſh nation was gradually waſting away. Every thing ſucceeded to his wiſh. The zealots, after having maſſacred or driven away the oppoſite party, turned their arms againſt each other. A party was formed againſt John, under one Simon, who had his head-quarters at the fortreſs of Maſſada. This new miſcreant plundered, burned, and maſſacred, wherever he came, carrying the ſpoil into the fortreſs above-mentioned. To increaſe his party, he cauſed a proclamation to be publiſhed, by which he promiſed liberty to the ſlaves; and proportionable encouragement to the freemen who joined him. This ſtratagem had the deſired effect, and he ſoon ſaw himſelf at the head of a conſiderable army. Not thinking himſelf, however, as yet maſter of force ſufficient to beſiege Jeruſalem, he invaded Idumea with 20,000 men. The Idumeans oppoſed him with 25,000; and a ſharp engagement enſued, in which neither party was victorious. But Simon, ſoon after, having corrupted the Idumean general, got their army delivered up to him. By this means he eaſily became maſter of the country; where he committed ſuch cruelties, that the miſerable inhabitants abandoned it to ſeek for ſhelter in Jeruſalem.

In the city, matters went in the ſame way. John tyrannized in ſuch a manner, that the *Idumeans* revolted, killed a great number of his men, plundered his palace, and forced him to retire into the temple. In the mean time the people, expecting that he would ſally out in the night and ſet fire to the city, called a council, in which it was reſolved to admit Simon with his troops, in order to oppoſe John and his zealots. Simon's firſt attempt againſt his rival, however, was ineffectual, and he was obliged to content himſelf with beſieging the zealots in the temple. In the mean time the miſeries of the city were increaſed by the ſtarting up of a third party, headed by one *Eleazar*, who ſeized on the court of the prieſts, and kept John confined within that of the Iſraelites. Eleazar kept the avenues ſo well guarded, that none were admitted to come into that part of the temple but thoſe who came thither to offer ſacrifices; and it was by theſe offerings chiefly that he maintained himſelf and his men. John by this means found himſelf hemmed in between two powerful enemies, Simon below, and Eleazar above. He defended himſelf, however, againſt them both with great reſolution; and, when the city was inveſted by the Romans, having pretended to come to an agreement with his rivals, he found means to cut off or force Eleazar's men to ſubmit to him, ſo that the factions were again reduced to two.

The Romans, in the year 72, began to advance towards the capital. In their way they deſtroyed many thouſands, waſting the country as they went along; and in the year 73 arrived before the walls of Jeruſalem, under Titus, afterwards emperor. As he was a man of an exceedingly merciful diſpoſition, and greatly deſired to ſpare the city, he immediately ſent offers of peace; but theſe were rejected with contempt, and he himſelf put in great danger of his life, ſo that he reſolved to begin the ſiege in form. In the mean time, Simon and John renewed their hoſtilities with greater fury than ever. John now held the whole temple, ſome of the out-parts of it, and the valley of Cedron. Simon had the whole city to range in; in ſome parts of which John had made ſuch devaſtations, that they ſerved them for a field of battle, from which they ſallied unanimouſly againſt the common enemy whenever occaſion ſerved; after which they returned to their uſual hoſtilities, turning their arms againſt each other, as if they had ſworn to make their ruin more eaſy to the Romans. Theſe drew ſtill nearer to the walls, having with great labour and pains levelled all the ground between Scopas and them, by pulling down all the houſes and hedges, cutting down the trees, and even cleaving the rocks that ſtood in their way, from Scopas to the tomb of Herod, and Bethara, or the pool of ſerpents; in which work ſo many hands were employed, that they finiſhed it in four days.

Whilſt this was doing, Titus ſent the beſieged ſome offers of peace; and Joſephus was pitched upon to be the meſſenger of them; but they were rejected with indignation. He ſent a ſecond time Nicanor and Joſephus with freſh offers, and the former received a wound in his ſhoulder; upon which Titus reſolved to begin the aſſault in good earneſt, and ordered his men to raze the ſuburbs, cut down all the trees, and uſe the materials to raiſe platforms againſt the wall. Every thing was now carried on with invincible ardour; the Romans began to play their engines againſt the city with all their might. The Jews had likewiſe their machines upon the walls, which they plied with uncommon fury; they had taken them lately from Ceſtius; but were ſo ignorant in their uſe, that they did little execution with them, till they were better inſtructed by ſome Roman deſerters; till then, their chief ſucceſs was rather owing to their frequent ſallies; but the Roman legions, who had all their towers and machines before them, made terrible havoc. The leaſt ſtones they threw were near 100lbs. weight; and theſe they could throw the length of a quarter of a mile againſt the city, and with ſuch a force, that they could do miſchief on thoſe that ſtood at ſome diſtance behind them. Titus had reared three towers fifty cubits high; one of which happening to fall in the middle of the night, greatly alarmed the Roman camp, who immediately ran to arms at the noiſe of it: but Titus, upon knowing the cauſe, diſmiſſed them, and cauſed it to be ſet up again. Theſe towers being plated with iron, the Jews tried in vain to ſet fire to them, but were at length forced to retire out of the reach of their ſhot; by which the battering-rams were now at full liberty to play againſt the wall. A breach was ſoon made in it, at which the Romans entered; and the Jews, abandoning this laſt incloſure, retired behind the next. This happened about the 28th of April, a fortnight after the beginning of the ſiege.

John defended the temple and the caſtle of Antonia, and Simon the reſt of the city. Titus marched cloſe to the ſecond wall, and plied his battering-rams ſo furiouſly, that one of the towers which looked towards the north gave a prodigious ſhake. The men who were in it made a ſignal to the Romans, as if they would ſurrender; and, at the ſame time, ſent Simon word to be ready to give them a warm reception. Titus, having diſcovered their ſtratagem, plied his work more furiouſly, whilſt the Jews that were in the tower ſet it on fire, and flung themſelves into the flames. The tower being fallen, gave them an entrance into the ſecond incloſure, five days after gaining the firſt; and Titus, who was bent on ſaving the city, would not ſuffer any part of the wall or ſtreets to be demoliſhed; which left the breach and lanes ſo narrow, that, when his men were furiouſly repulſed by Simon, they had not room enough to make a quick retreat, ſo that there was a number of them killed in it. This overſight was quickly rectified; and the attack renewed with ſuch vigour, that the place was carried four days after their firſt repulſe.

The famine, raging in a terrible manner in the city, was ſoon followed by a peſtilence; and, as theſe two dreadful judgments increaſed, ſo did the rage of the factious, who, by their inteſtine feuds, had deſtroyed ſuch quantities of proviſion, that they were forced to prey upon the people with the moſt unheard-of cruelty. They forced their houſes; and, if they found any victuals in them, they butchered them for not appriſing them of it; and, if they found nothing but bare walls, which was almoſt every where the caſe, they put them to the moſt ſevere tortures, under pretence that they had ſome proviſion concealed. "I ſhould (ſays Joſephus) undertake an impoſſible taſk, were I to enter into a detail of all the cruelties of thoſe impious wretches; it will be ſufficient to ſay, that I do not think, that ſince the creation any city ever ſuffered ſuch dreadful calamities, or abounded with men ſo fertile in all kinds of wickedneſs."

Titus, who knew their miſerable condition, and was ſtill willing to ſpare them, gave them four days to cool; during which he cauſed his army to be muſtered, and proviſions to be diſtributed to them in ſight of the Jews, who flocked upon the walls to ſee it. Joſephus was ſent to ſpeak to them afreſh, and to exhort them not to run themſelves into inevitable ruin, by obſtinately perſiſting in the defence of a place which could hold out but a very little while, and which the Romans looked upon already as their own. But this ſtubborn people, after many bitter invectives, began to dart their arrows at him; at which, not at all diſcouraged, he went on with greater vehemence; but all the effect it wrought on them was, that it prevailed on great numbers to ſteal away privately to the Romans, whilſt the reſt became only the more deſperate and reſolute to hold out to the laſt, in ſpite of Titus's merciful offers.

To haſten therefore their deſtined ruin, he cauſed the city to be ſurrounded with a ſtrong wall, to prevent either their receiving any ſuccours or proviſion from abroad, or their eſcaping his reſentment by flight. This wall, which was near five miles in circuit, was yet carried on with ſuch ſpeed, and by ſo many hands, that it was finiſhed in three days; by which one may gueſs at the ardour of the beſiegers to make themſelves maſters of the city.

There was now nothing to be ſeen through the ſtreets of Jeruſalem but heaps of dead bodies rotting above ground, walking ſkeletons, and dying wretches. As many as were caught by the Romans in their ſallies, Titus cauſed to be crucified in ſight of the town, to inject a terror among the reſt; but the zealots gave it out, that they were thoſe who fled to him for protection; which when Titus underſtood, he ſent a priſoner with his hands cut off to undeceive them, and to aſſure them, that he ſpared all that voluntarily came over to him; which encouraged great numbers to accept his offers, though the avenues were cloſely guarded by the factious, who put all to death who were caught going on that errand. A greater miſchief than that was, that even thoſe who eſcaped ſafe to the Roman camp were miſerably butchered by the ſoldiers, from a notion which theſe had taken that they had ſwallowed great quantities of gold; inſomuch that two thouſand of them were ripped up in one night, to come at their ſuppoſed treaſure. When Titus was appriſed of this barbarity, he would have condemned all thoſe butchering wretches to death; but they proved ſo numerous, that he was forced to ſpare them, and contented himſelf with ſending a proclamation through his camp, that as many as ſhould be ſuſpected thenceforward of that horrid villiany, ſhould be put to immediate death; yet did not this deter many of them from it, only they did it more privately than before; ſo greedy were they of that bewitching metal. All this while the defection increaſed ſtill more through the inhumanity of the faction within, who made the miſeries and dying groans of their ſtarving brethren the ſubject of their cruel mirth, and carried their barbarity even to the ſheathing of their ſwords in ſport in thoſe poor wretches, under pretence of trying their ſharpneſs.

When they found therefore that neither their guards nor ſeverities could prevent the people's flight, they had recourſe to another ſtratagem equally impious and cruel; which was, to hire a pack of vile pretenders to prophecy, to go about and encourage the deſpairing remains of the people to expect a ſpeedy and miraculous deliverance; and this impoſture proved a greater expedient with that infatuated nation than their other precautions.

Nothing could be more dreadful than the famiſhed condition to which they were now reduced. The poor, having nothing to truſt to but the Romans' mercy or a ſpeedy death, ran all hazards to get out of the city; and if in their flight, and wandering out for herbs or any other ſuſtenance, they fell into the hands of any of Titus's parties ſent about to guard the avenues, they were unmercifully ſcourged, and crucified if they made the leaſt reſiſtance. The rich within the walls were now forced, though in the moſt private manner, to give a very large ſum for a meaſure of wheat, and the middling ſort for one of barley. This they were forced to convey into ſome private place in their houſes, and to feed upon it as it was, without daring to pound or grind it, much leſs to boil or bake it, leſt the noiſe or ſmell ſhould draw the rapacious zealots to come and tear it from them. Not that theſe were reduced to any real want of proviſions, but they had a double end in this barbarous plunder; to wit, the ſtarving what they cruelly ſtyled all uſeleſs perſons, and the keeping their own ſtores in reſerve.

It was in this ſad and mournful conjuncture, that an unhappy mother was reduced to the extremity of butchering and eating her own child, as mentioned under the word JERUSALEM. When this news was ſpread through the city, the horror and conſternation were as univerſal as they were inexpreſſible. It was then that they began to think themſelves forſaken by the Divine Providence, and to expect the moſt terrible effects of his anger againſt the poor remains of their nation; inſomuch that they began to envy thoſe that had periſhed before them, and to wiſh their turn might come before the ſad expected cataſtrophe. Their fears were but too juſt; ſince Titus, at the very firſt hearing of this inhuman deed, ſwore the total extirpation of city and people. "Since (ſaid he) they have ſo often refuſed my proffers of pardon, and have preferred war to peace, rebellion to obedience, and famine, ſuch a dreadful one eſpecially, to plenty, I am determined to bury that accurſed metropolis under its ruins, that the ſun may never ſhoot its beams on a city where the mothers feed on the fleſh of their children, and the fathers, no leſs guilty than they, chooſe to drive them to ſuch extremities, rather than lay down their arms."

The Romans having now purſued their attacks with freſh vigour, made themſelves maſters of the fortreſs Antonia; which obliged the Jews to ſet fire to thoſe ſtately galleries which joined it to the temple, leſt they ſhould afford an eaſy paſſage to the beſiegers into this laſt. About the ſame time Titus, with much difficulty, got materials for raiſing new mounds and terraces, in order to haſten the ſiege, and ſave, if poſſible, the ſad remains of that once-glorious ſtructure; but his pity proved ſtill worſe and worſe beſtowed on thoſe obſtinate wretches, who only became the more furious and deſperate by it. Titus at length cauſed fire to be ſet to the gates, after having had a very bloody encounter, in which his men were repulſed with loſs. The Jews were ſo terrified at it, that they ſuffered themſelves to be devoured by the flames, without attempting either to extinguiſh them or ſave themſelves. All this while Joſephus did not ceaſe exhorting the infatuated people to ſurrender, repreſenting to them the dreadful conſequences of an obſtinate reſiſtance, and aſſuring them that it was out of mere compaſſion to them that he thus hazarded his own life to ſave their's; he received one day ſuch a wound in his head by a ſtone from the battlements, as laid him for dead on the ground. The Jews ſallied out immediately, to have ſeized on his body; but the Romans proved too quick and ſtrong for them, and carried him off.

By this time the two factions within, but eſpecially that of John, having plundered rich and poor of all they had, fell alſo on the treaſury of the temple, whence John took a great quantity of golden utenſils, together with thoſe magnificent gifts which had been preſented to that ſacred place by the Jewiſh kings, by Auguſtus, Livia, and many other foreign princes, and melted them all to his own uſe. The repoſitories of the ſacred oil which was to maintain the lamps, and of the wine which was reſerved to accompany the uſual ſacrifices, were likewiſe ſeized upon, and turned into common uſe; and the laſt of this to ſuch exceſs, as to make himſelf and his party drunk with it. All this while, not only the zealots, but many of the people, were ſtill under ſuch an infatuation, that (though the fortreſs Antonia was loſt, and nothing left but the temple, which the Romans were preparing to batter down) they could not perſuade themſelves that God would ſuffer the holy place to be taken by heathens, and were ſtill expecting ſome ſudden and miraculous deliverance. Even that vile monſter John, who commanded there, either ſeemed confident of it, or elſe endeavoured to make them think him ſo. For, when Joſephus was ſent for the laſt time to upbraid his obſtinately expoſing that ſacred building, and the miſerable remains of God's people, to ſudden and ſure deſtruction, he only anſwered him with the bittereſt invectives; adding, that he was defending the Lord's vineyard, which he was ſure could not be taken by any human force. Joſephus in vain reminded him of the many ways by which he had polluted both city and temple; and in particular of the ſeas of blood which he cauſed to be ſhed in both thoſe ſacred places, and which, he aſſured him from the old prophecies, were a certain ſign and forerunner of their ſpeedy ſurrender and deſtruction. John remained as inflexible as if all the prophets had aſſured him of a deliverance; till at length Titus, foreſeeing the inevitable ruin of that ſtately edifice, which he was ſtill extremely deſirous to ſave, vouchſafed even himſelf to ſpeak to them, and to perſuade them to ſurrender. But the factious, looking upon this condeſcenſion as the effects of his fear rather than generoſity, only grew the more furious upon it, and forced him at laſt to come to thoſe extremities, which he had hitherto endeavoured to avoid. That his army, which was to attack the temple, might have the freer paſſage towards it through the caſtle Antonia, he cauſed a conſiderable part of the wall to be pulled down, and levelled; which proved ſo very ſtrong, that it took him up ſeven whole days, by which time they were far advanced in the month of July.

It was on the 17th day of that month, as all Joſephus's copies have it, that the daily ſacrifice ceaſed for the firſt time ſince its reſtoration by the brave Judas Maccabeus, there being no proper perſon left in the temple to offer it up. Titus cauſed the factious to be ſeverely upbraided for it; exhorted John to ſet up whom he would to perform that office, rather than ſuffer the ſervice of God to be ſet aſide; and then challenged him and his party to come out of the temple, and fight on a more proper ground, and thereby ſave that ſacred edifice from the fury of the Roman troops. When nothing could prevail on them, they began to ſet fire again to the gallery, which yielded a communication between the temple and the caſtle Antonia. The Jews had already burnt about twenty cubits of it in length; but this ſecond blaze, which was likewiſe encouraged by the beſieged, conſumed about fourteen more: after which, they beat down what remained ſtanding. On 27th of July, the Jews, having filled part of the weſtern portico with combuſtible matter, made a kind of flight; upon which, ſome of the forwardeſt of the Romans having ſcaled up to the top, the Jews ſet fire to it, which flamed with ſuch ſudden fury, that many of the former were conſumed in it, and the reſt, venturing to jump down from the battlements, were, all but one, cruſhed to death.

On the very next day, Titus having ſet fire to the north gallery, which incloſed the outer court of the temple, from fort Antonia to the valley of Cedron, got an eaſy admittance into it, and forced the beſieged into that of the prieſts. He tried in vain for ſix days to batter down one of the galleries of that precinct with an helepolis; he was forced to mount his battering-rams on the terrace, which was raiſed by this time; and yet the ſtrength of this wall was ſuch, that it eluded the force of theſe alſo, though others of his troops were buſy in ſapping it. When they found that neither rams nor ſapping could gain ground, they bethought themſelves of ſcaling; but were vigorouſly repulſed in the attempt, with the loſs of ſome ſtandards, and a number of men. When Titus therefore found that his deſire of ſaving that building was likely to coſt ſo many lives, he ſet fire to the gates, which, being plated with ſilver, burnt all that night, whilſt the metal dropt down in the melting. The flame ſoon communicated itſelf to the porticoes and galleries; which the beſieged beheld without offering to ſtop it, but contented themſelves with ſending volleys of impotent curſes againſt the Romans. This was done on the 8th of Auguſt; and, on the next day, Titus, having given orders to extinguiſh the fire, called a council, to determine whether the remainder of the temple ſhould be ſaved or demoliſhed. That prince was ſtill for the former, but moſt of the reſt declared for the latter; alleging, that it was no longer a temple, but a ſcene of war and ſlaughter, and that the Jews would never be at reſt as long as any part of it was left ſtanding; but, when they found Titus ſtiffly bent on preſerving ſo noble an edifice, againſt which he told them he could have no quarrel, they all came over to his mind.

The next day, Auguſt the 10th, was therefore determined for a general aſſault; and the night before the Jews made two deſperate ſallies on the Romans; in the laſt of which, theſe, being timely ſuccoured by Titus, beat them back into their incloſure. But whether this laſt Jewiſh effort exaſperated the beſiegers, or, which is more likely, as Joſephus thinks, puſhed by the hand of Providence, one of the Roman ſoldiers, of his own accord, took up a blazing fire-brand, and, getting on his comrade's ſhoulders, threw it into one of the apartments that ſurrounded the ſanctuary, through a window. This immediately ſet the whole north-ſide in a flame up to the third ſtory, on the ſame fatal day and month in which it had been formerly burnt by Nebuchadnezzar. Titus, who was gone to reſt himſelf awhile in his pavilion, was awaked at the noiſe, and ran immediately to give orders to have the fire extinguiſhed. He called, prayed, threatened, and even beat his men, but in vain; the confuſion was ſo great, and the ſoldiers ſo obſtinately bent upon deſtroying all that was left, that he was neither heard nor minded. Thoſe that flocked thither from the camp, inſtead of obeying his orders, were buſy, either in killing the Jews, or in increaſing the flames. When Titus obſerved that all his endeavours were vain, he entered into the ſanctuary and the moſt holy place, in which he found ſtill ſuch ſumptuous utenſils and other riches as even exceeded all that had been told him of it. Out of the former he ſaved the golden-candleſtick, the table of ſhew-bread, the altar of perfumes, all of pure gold, and the book or volume of the law, wrapped up in a rich gold tiſſue; but in the latter he found no utenſils, becauſe, in all probability, they had not made a freſh ark ſince that of Solomon had been loſt. Upon his coming out of that ſacred place, ſome other ſoldiers ſet fire to it, and obliged thoſe that had ſtaid behind to come out; they all fell foul on the plunder of it, tearing even the gold plating off the gates and timber-work, and carried off all the coſtly utenſils, robes, &c. they found, inſomuch that there was not one of them who did not enrich himſelf by it.

A horrid maſſacre followed ſoon after, in which a great many thouſands periſhed; ſome by the flames, others by the fall from the battlements, and a greater number by the enemy's ſword, which deſtroyed all it met with, without diſtinction of age, ſex, or quality. Among them were upwards of 6000 perſons who had been ſeduced thither by a falſe prophet, who promiſed them that they ſhould find a ſpeedy and miraculous relief there on that very day. Some of them remained five whole days on the top of the walls, and afterwards threw themſelves on the general's mercy; but "he, whoſe virtue ſigh'd to loſe a day," anſwered that they had outſtaid the time; and they were led to execution. The Romans carried their fury to the burning of all the treaſure-houſes of the place, though they were full of the richeſt furniture, plate, veſtments, and other things of value, which had been laid up in thoſe places for ſecurity. In a word, they did not ceaſe burning and butchering, till they had deſtroyed all, except two of the temple-gates, and that part of the court which was deſtined for the women.

In the mean time, the ſeditious made ſuch a vigorous puſh, that they eſcaped the fury of the Romans, at leaſt for the preſent, and retired into the city. But here they found all the avenues ſo well guarded, that there was no poſſibility left for them to get out; which obliged them to ſecure themſelves as well as they could on the ſouth ſide of it, from whence Simon, and John of Giſchala, ſent to deſire a parley with Titus. They were anſwered, that, though they had been the cauſe of all this bloodſhed and ruin, yet they ſhould have their lives ſpared, if they laid down their arms, and ſurrendered themſelves priſoners. To this they replied, that they had engaged themſelves by the moſt ſolemn oaths never to ſurrender; and therefore, only begged leave to retire into the mountains with their wives and children; which ſo exaſperated the Roman general, that he cauſed a herald to bid them ſtand to their defence; for that not one of them ſhould be ſpared, ſince they had rejected his laſt offers of pardon. Immediately after this, he abandoned the city to the fury of the ſoldiers, who fell forthwith on plundering, ſetting fire every where, and murdering all that fell into their hands; whilſt the factious, who were left, went and fortified themſelves in the royal palace, where they killed 8000 Jews who had taken refuge there.

In the mean time, great preparations were making for a vigorous attack on the upper city, eſpecially on the royal palace; and this took them up from the 20th of Auguſt to the 7th of September, during which time great numbers came and made their ſubmiſſion to Titus. The warlike engines then played ſo furiouſly on the factious, that they were taken with a ſudden panic; and, inſtead of fleeing into the towers of Hippicos, Phaſael, or Mariamne, which were yet untaken, and ſo ſtrong that nothing but famine could have reduced them, they ran like madmen towards Siloah, with a deſign to have attacked the wall of circumvallation, and to have eſcaped out of the city; but, being there repulſed, they were forced to go and hide themſelves in the public ſinks and common ſewers, ſome one way and ſome another. All whom the Romans could find were put to the ſword, and the city was ſet on fire. This was on the 8th of September, when the city was taken and entered by Titus. He would have put an end to the maſſacre; but his men killed all, except the moſt vigorous, whom they ſhut up in the porch of the women juſt mentioned. Fronto, who had the care of them, reſerved the youngeſt and moſt beautiful for Titus's triumph; and ſent all that were above ſeventeen years of age into Egypt, to be employed in ſome public works there; and a great number of others were ſent into ſeveral cities of Syria, and other provinces, to be expoſed on the public theatre, to exhibit fights, or be devoured by wild beaſts. The number of thoſe priſoners amounted to 97,000, beſides about 11,000 more, who were either ſtarved through neglect, or ſtarved themſelves through ſullenneſs and deſpair. The whole number of Jews who periſhed in this war is computed at upwards of 1,400,000.

Beſides theſe, however, a vaſt number periſhed in caves, woods, wilderneſſes, common-ſewers, &c. of whom no computation could be made. Whilſt the ſoldiers were ſtill buſy in burning the remains of the city, and viſiting all the hiding-places, where they killed numbers of poor creatures who had endeavoured to evade their cruelty, the two grand rebels Simon and John were found, and reſerved for the triumph of the conqueror. John, being pinched with hunger, ſoon came out; and, having begged his life, obtained it; but was condemned to perpetual impriſonment. Simon, whoſe retreat had been better ſtored, held out till the end of October. The two chiefs, with ſeven hundred of the handſomeſt Jewiſh captives, were made to attend the triumphal chariot; after which Simon was dragged through the ſtreets with a rope about his neck, ſeverely ſcourged, and then put to death; and John was ſent into perpetual impriſonment.

Three caſtles ſtill remained untaken, namely, Herodion, Machæron, and Maſſada. The two former capitulated; but Maſſada held out. The place was exceedingly ſtrong both by nature and art, well ſtored with all kinds of proviſions, and defended by a numerous garriſon of zealots, at the head of whom was one Eleazar, the grandſon of Judas Gaulonitis, formerly mentioned. The Roman general, having in vain tried his engines and battering-rams againſt it, bethought himſelf of ſurrounding it with a high and ſtrong wall, and then ordered the gates to be ſet on fire. The wind puſhed the flames ſo fiercely againſt the Jews, that Eleazar in deſpair perſuaded them firſt to kill their wives and children, and then to chooſe ten men by lot, who ſhould kill all the reſt; and laſtly, one out of the ſurviving ten to diſpatch them and himſelf; only this laſt man was ordered to ſet fire to the place before he put an end to his own life. All this was accordingly done; and on the morrow, when the Romans were preparing to ſcale the walls, they were greatly ſurpriſed neither to ſee nor hear any thing move. On this they made ſuch a hideous outcry, that two women, who had concealed themſelves in an aqueduct, came forth and acquainted them with the deſperate cataſtrophe of the beſieged.

### From the Destruction of Jeruſalem to the preſent Time.

Thus ended the Jewiſh nation and worſhip; nor have they ever ſince been able to regain the ſmalleſt footing in the country of Judea. Prodigious numbers of Jews, however, ſtill remained in almoſt every part of the Roman empire. About fifty years after, they brought a ſuperadded ruin on their own heads. In Cyrene, Egypt, Cyprus, and Meſopotamia, they murdered about 500,000 of the Roman ſubjects, Heathens and Chriſtians. With terrible bloodſhed, and no ſmall difficulty, did the conquering Trajan, about the year 119, reduce them. About 130, the emperor Elius Adrian ſent a colony of Romans to rebuild Jeruſalem, and called it Elia, after himſelf; and had prohibited the Jews to circumciſe their children. Barcochba, one of thoſe thieviſh banditti who had infeſted Canaan for about a hundred years, pretended that he was the Meſſiah, raiſed a Jewiſh army of 200,000, who murdered all the Heathens and Chriſtians that came in their way. About 134, Adrian's forces defeated him in battle, and after a ſiege of three years, took Bitter his capital; after which fifty of his fortifications quickly ſurrendered. In this terrible war, it is ſaid, about 600,000 Jews were ſlain by the ſword, beſides what periſhed by famine and peſtilence. It is ſaid, the rivers were high ſwelled with blood, and the ſea, into which they ran, for ſeveral miles marked therewith. For ſome time the emperor cauſed annual fairs to be held for the ſale of captive Jews, and tranſported ſuch as had dwelt in Canaan to Egypt, and every where loaded with taxes ſuch as adhered to their religion. Adrian built a city on mount Calvary, and erected a marble ſtatue of a ſwine over the gate that led to Bethlehem. No Jew was allowed to enter the city, or to look to it at a diſtance, under pain of death. Conſtantine further enlarged this city; his troops repreſſed the Jews' attempt to ſeize on it. Multitudes of them had their ears cut off, and, being marked in their bodies for rebellion, were diſperſed through the empire as vagabond ſlaves.

However baſely the Jews have complied with the deluſions of the countries whither they are ſcattered, they have been expoſed to the moſt outrageous abuſe. In the end of the ſecond century, Niger the uſurper perſecuted them, becauſe of their adherence to Severus the emperor; and for a while Severus haraſſed them, on the footing of Adrian's edict. In the third century, Sapor king of Perſia, furiouſly haraſſed them; and Diocleſian intended to perſecute them; but by large ſums of money they appeaſed his fury. In the fourth century, the council of Elvira in Spain prohibited Chriſtians to eat with them. Conſtantine the Great prohibited them from retaining any Chriſtians for ſlaves, and obliged them to undergo their ſhare in public ſervices of the military, &c. It is even ſaid, that he forced multitudes of them to eat ſwine's fleſh, or be murdered. Offended with their inſult of the Chriſtians in Egypt, and their inſurrection in Paleſtine, Conſtans, his ſon, terribly chaſtiſed them, revived every harſh edict againſt them, and condemned to death ſuch as had Chriſtians either for their wives or ſervants.

Encouraged by the emperor Theodoſius's prohibition to pull down their ſynagogues, the Jews became very inſolent about the beginning of the fifth century; they crucified the image of Haman, and ſometimes a Chriſtian in deriſion of our Saviour. In Egypt they inſulted the Chriſtians on the Lord's day. Provoked herewith, the Chriſtians in Macedonia, Dacia, Chalcis, Syria, and Egypt, fell upon them, and killed prodigious numbers, eſpecially at Alexandria. In the iſle of Minorca, vaſt numbers of them were forced to turn Chriſtians, or hide themſelves in dens and caves. About the year 432, one Moſes of Crete, pretending that he, as their Meſſiah, would lead them ſafe through the ſea to Canaan, a vaſt number threw themſelves into the deep from a precipice, and were drowned.

In the ſixth century, Cavades, and the two Choſroes, kings of Perſia, terribly haraſſed them; but the latter Choſroes was afterwards reconciled to them, and gratified their malice with the murder of about 90,000 Chriſtians, at the taking of Jeruſalem, A. D. 514. About the year 530, the emperor Juſtinian prohibited them from making teſtaments, or appearing as witneſſes againſt Chriſtians, and prohibited to thoſe in Africa the exerciſe of their religion. Soon after, one Julian of Canaan ſet up for a Meſſiah. He and his followers did infinite miſchief to the Chriſtians; but, in the end, 20,000 of them were ſlain, and as many taken and ſold for ſlaves. Juſt after, numbers of Jews were executed, for occaſioning a revolt at Ceſarea. And, to revenge their aſſiſtance of the Goths at the ſiege of Naples, the Greek general Beliſarius and his troops killed as many of them as they could find, men or women. In 602, they were ſeverely puniſhed for their horrible maſſacre of the Chriſtians at Antioch. Heraclius the emperor, ſoon after baniſhed them from Jeruſalem. Multitudes in Spain and France were forced to become Chriſtians; and the councils of Toledo encouraged their ſovereigns to oblige them to do ſo. About A. D. 700, when Erica king of Spain complained that the Jews of Spain had conſpired with thoſe of Africa againſt him, the council of Toledo ordered that they ſhould be all enſlaved, and their children taken from them and educated in the Chriſtian religion. In France, a variety of edicts were made againſt them. Childeric, Dagobert, and other kings, ordered, that ſuch as refuſed baptiſm ſhould be baniſhed. In this century, too, numbers of them in the eaſt imagined Mahomet the Meſſiah; and one of them aſſiſted him in compiling his Alcoran.

In the 8th and 9th centuries, the miſery of the Jews ſtill continued. In the eaſt, the caliph Zayd permitted his ſubjects to abuſe them. About 760, Jaafar the imam, ordered that ſuch as embraced Mahometiſm ſhould be their parents' ſole heirs. About 841, the caliph Wathek perſecuted them, becauſe ſome of their number had embezzled his revenues, and he fined ſuch as refuſed to embrace Mahometiſm. Motawakhel, his ſucceſſor, deprived them of all their honour and truſt; and, marking them with infamy, cauſed them to wear leathern girdles, and ride without ſtirrups on aſſes and mules. Such marks of contemptuous diſtinction partly ſtill ſubſiſt in the eaſt, and have been imitated by other princes. Sundry of his ſucceſſors perſecuted them in a manner ſtill more ſevere. In France and Spain, the people terribly inſulted them. Probably provoked with this, they invited the Normans into France, and betrayed Bourdeaux and other places into their hands. About 724, one Serenus of Spain ſet up for the Meſſiah. Multitudes followed him, and ſet out to take poſſeſſion of Canaan. The Chriſtians ſeized what they left in their abſence. Another in the eaſt, about 831, pretended to be Moſes riſen from the dead, and was followed by numbers.

In the 10th, 11th, and 12th, centuries, their miſeries rather increaſed; partly through their own diviſions, and partly by the perſecutions which they underwent. About A. D. 1037, we find about 900,000 of them near Babylon, if we may believe their own noted traveller; and yet, about two years after, all their academies there, if not alſo their ſchools, were ruined. About A. D. 1020, Hakem, the founder of the Druſian religion, for a while perſecuted them in Egypt. Beſides the common miſeries which they ſuſtained in the eaſt by the Turkiſh and ſacred war, it is ſhocking to think what multitudes of them the eight croiſades, in this or the two following centuries, deſtroyed in Germany, Hungary, Aſia Minor, and wherever they could find them, as they marched to recover Canaan from the Mahometans; and what numbers of Jewiſh parents murdered their own children, that theſe croiſaders might not get them baptized. The bloody contention between the Moors and Spaniards might have procured them ſome eaſe in Spain, had not their own mutual broils rendered them miſerable. In France, multitudes of them were burnt, others were baniſhed, and others had their goods confiſcated, by order of king Philip; and ſuch as offered to ſell their effects, and remove, could get none to buy them. Between 1137 and 1200, there appeared nine or ten pretended Meſſiahs; two in France; two in the north-weſt of Africa; one David of Moravia, who pretended he could render himſelf inviſible at pleaſure; one near the Euphrates, who had been cured of the leproſy; El David, and two others, in Perſia. Moſt of theſe occaſioned a great deal of miſchief to thoſe of their nation in the places where they lived.

Nor in the 13th and 14th centuries was their condition much better. In Egypt, Canaan, and Syria, the croiſaders ſtill haraſſed and murdered them till themſelves were expelled from theſe places. The riſe of the mamalukes turned to their miſery in Egypt. Provoked with their mad running after pretended Meſſiahs, caliph Naſſer ſcarcely left any of them alive in his dominions of Meſopotamia, &c. In Perſia, the Tartars murdered them in multitudes. In Spain, Ferdinand perſecuted them furiouſly. About 1260, the populace of Arragon terribly haraſſed them. Henry III. of Caſtile, and his ſon John, perſecuted them; and, in the reign of the laſt, prodigious numbers were murdered. About the year 1349, the terrible maſſacre of them at Toledo forced many to murder themſelves, or change their religion. After much barbarous uſage of them, they were, in A. D. 1253, baniſhed from France. In 1275 they were recalled; but in 1300 king Philip baniſhed them, that he might enrich himſelf with their wealth. In 1312, they obtained re-admiſſion, for a great ſum of money; but in 1320, and 1330, the *ſhepherds*, who waſted the ſouth of France, terribly maſſacred them wherever they could find them; and beſides, 15,000 were murdered on another occaſion. In 1358 they were again baniſhed from France. After oft-repeated haraſſments from both kings and people, and ſix former baniſhments, founded on cauſes moſtly pretended, king Edward, in 1291, expelled them from England, to the number of 160,000. He permitted them to carry their effects and money with them over to France, where, in his own dominions, he confiſcated all to his own uſe, ſo that moſt of them died for want. We ſhall reſume the hiſtory of the Jews in England at the end of this article. In Italy they had moſt reſpite; yet they underwent ſome perſecution at Naples. Pope John XXII. pretending that they had affronted the holy croſs, ordered their baniſhment from his territories; but recalled the edict for the ſake of 100,000 florins. In this period two falſe Meſſiahs appeared in Spain; Zechariah about 1258, and Moſes in 1290.

In the 15th, 16th, and 17th, centuries, their miſery continued. In Turkey, we know of no perſecution which they have ſuffered, but what the common tyranny of the government, and their own frauds, have brought on them; only in Egypt the populace moleſt them; nor will the people of Athens and Salonæ in Greece allow them to ſettle among them. See the article EGYPT, vol. vi. p. 380. In Perſia they have been terribly uſed, eſpecially by the two Shah Abbas; from 1663 to 1666, the murder of them was ſo univerſal, that but a few eſcaped to Turkey. In Portugal and Spain, they have been miſerably handled. About A. D. 1420, Vincent half converted 200,000 of them to popery. The infernal inquiſition was appointed, to render their converſion ſincere and complete. About 1492, ſix or eight hundred thouſand Jews were baniſhed from Spain. Partly by drowning in their paſſage to Africa, and partly by hard uſage, the moſt of theſe were cut off, and many of their carcaſes lay in the fields till the wild beaſts devoured them. The African Mahometans ſhut their gates againſt the poor remains, and many were obliged to ſell to the Moors their children for ſlaves, to obtain food for the ſupport of life. In Spain and Portugal, thouſands of Jews become papiſts in appearance, and even monks and biſhops, and yet continue hearty in their own religion, and educate their children in it from age to age. If we depend on Oribio's account, we may ſuppoſe there are 16,000 or 20,000 ſuch, even at preſent. About 1412, ſixteen thouſand Jews were forced to profeſs popery at Naples. About 1472 they were barbarouſly maſſacred in the dominions of Venice. No-where in popiſh countries are they better uſed than in the pope's own territory; for which, no doubt, their purſe muſt be emptied. In Germany they have had plenty of hardſhip. In Saxony and elſewhere, they have been loaded with taxes, they have been baniſhed from Bohemia, Bavaria, Cologne, Nuremberg, Augſburg, and Vienna; they have been terribly maſſacred in Moravia, and plundered in Bonn and Bamberg. Between 1520 and 1560, three falſe Meſſiahs appeared in Europe; two of whom Charles V. emperor of Germany, burnt to death, and the other he impriſoned for life. About 1666, Sabbatha Sevi, a pretended Meſſiah, made a great noiſe in Syria, Paleſtine, and the countries about; but at laſt, to ſave his life, turned Mahometan at Conſtantinople. About 1682, Mordecai, a Jew of Germany, profeſſed himſelf the Meſſiah, and would have been puniſhed in Italy, had he not eſcaped to Poland.

So lately as the year 1805, the Jews of Algiers were dreadfully pillaged, and narrowly eſcaped general deſtruction. It is difficult to form an idea of the horrors of the dreadful ſacking to which twelve or thirteen thouſand of theſe wretched people were given up during three or four hours. A general maſſacre, with the exception of women and children, had been determined on by the troops. A number of ferocious ſoldiers ruſhed tumultuouſly from their barracks, each armed with a piſtol and a ſabre; all the barbarous rabble of the town joined them; they were cheered by the exclamations of women, who crouded the ſtreets and terraces. Fortunately it was Saturday, a Jewiſh feſtival, when but very few of that perſuaſion were abroad; and, when the ſoldiers burſt open the doors of the houſes, the riches which ſtruck their view were the means of ſaving the unfortunate Hebrew nation; they diſcontinued the carnage to think only of plunder; the trinkets with which the women were adorned were torn from them, and they were expoſed to all kinds of outrage. The plunder then became general; ferocious cries were followed by a death-like ſilence; the ſtreets were filled with men and women paſſing in all directions with their booty, and in the courſe of three hours there was not the houſe of a Jew which was not ſtripped to the bare walls. There are few cities in Europe, of equal extent, which contain ſo much wealth as Algiers. It is generally agreed, that the plunder carried off was immenſe.

Thus have the unfortunate Jews continued to be ſcattered, contemned, perſecuted, and enſlaved, among almoſt all nations, not mixed with any in the common manner, but as a body diſtinct by themſelves. While they are ſtanding witneſſes of the dreadful guilt of his murder, and of the truth of his divine predictions, they continue obſtinate rejectors of Jeſus; and contrary to all means, harſh or gaining, they improve their ancient ceremonies and covenant relation to God, as a means of hardening themſelves in their unbelief. About A. D. 1650, three hundred rabbins, and a multitude of other Jews, aſſembled in the plain of Ageda in Hungary, and had a ſerious diſpute, whether the Meſſiah was come? and whether Jeſus of Nazareth was he? Many ſeemed in a fair way to believe the truth; but the popiſh doctors preſent, by their mad extolling of the papal power, the worſhip of the Virgin Mary and other ſaints, prevented it, and ſtrengthened their prejudice againſt the Chriſtian faith. At preſent, their number is computed to be three millions; one of which reſides in the Turkiſh empire; 300,000 in Perſia, China, India on the eaſt and weſt of the Ganges, or Tartary; and 1,700,000 in the reſt of Europe, and Africa, and in America.

The hiſtory of this ſingular race of mankind affords a peculiar ſubject for philoſophical ſpeculation. However blended with other national ſocieties, they ſtill retain their primitive cuſtoms. Baniſhment, proſcription, and torture, have alternately been let looſe on them, with their attendant horrors, in every country on the earth; but no alteration has it produced on the body at large; and the only national change of manners which they have undergone appears to have taken place at their final diſperſion. Before that time, their moſt honourable employment, except that of the prieſthood, was *agriculture*; mercantile purſuits were then conſidered menial; but now how different? how changed the ſcene! Diſperſed over the whole world, they act as merchants, and nothing but merchants. Though this has been, in a great meaſure, a matter of compulſion, in conſequence of their inability in many countries to become landholders; yet it is not wholly ſo. They might rent land as well as houſes, if they were diſpoſed to cultivate the ground; but it is contrary to their policy. It ſeems more honourable, in the opinion of the lower claſs, to buy and ſell an old hat, or a pair of ſhoeſtrings, than to apply to any mechanical employment. The opulent alſo are influenced by the ſame principle; after having accumulated riches by the inferior branches of commerce, they at laſt riſe to the ſummit, and become the principal dealers in the money-market; of which, in a body, they can almoſt command the control. Theſe obſervations are applicable to them wherever they reſide. Whatever the cuſtoms of the national inhabitants may be, it makes no difference in their manners. Whether they aſſociate amongſt the Chineſe, or the Gentoos, the Mahometans, or Chriſtians, ſtill they are the ſame; the univerſal negociators of buſineſs between man and man. The commerce of the oriental parts of the world is principally conducted by theſe people; the Mahometans being too indolent to undertake the fatigue of it. The Jews are met with in all the trading cities from Baſſora to Hindooſtan, and hence gradually diſtributed, though not ſo numerouſly, over the greateſt part of Aſia. In all parts of Africa, from Egypt to Abyſſinia, along the coaſts of the Mediterranean ſea, and from Ethiopia to Morocco, we find them as numerous, and engaged in commercial affairs, as in every other country. But of all places, the Turkiſh dominions have had the greateſt number of them, until Europe had attained a ſtate of civilization, during the eighteenth century, which was unknown to former times. Conſtantinople ſeems to have favoured them more than any other place; there was neither nobleman or merchant, Muſſulman or Chriſtian, who had not one of them in his pay, either as chief ſteward, or as negotiator of all his affairs both at home and abroad. Their knowledge of different languages renders them uſeful as interpreters on all occaſions. They obtained alſo the privilege of printing their books in that capital. At Theſſalonica, in Greece, they had alſo eſtabliſhed printing-preſſes; ſo that their books, which were before this time very ſcarce and dear, were diſperſed every where, and bought at an eaſy rate.

As theſe people enjoyed ſo many privileges in the Turkiſh empire, it may very properly be aſked, why Judea, that once delightful country, under the ſame government, ſhould have comparatively but few inhabitants of their nation? The true reaſon ſeems to be, that all its fertile ſtreams of milk and honey were evaporated, and their love for it had cooled in proportion. But their excuſe for their averſion to it is curious: they generally believe that the city of Jeruſalem is to be deſtroyed by a fire from heaven at the coming of the Meſſiah; which is to be immediately ſucceeded by a miraculous rain, which will extinguiſh it; for the purpoſe of purifying the holy city, both with fire and water, from the pollutions which the Chriſtians, Mahometans, and Heathens, have committed in it. They alſo inform us that the fear of being involved in that dreadful conflagration and deluge, is the only motive which prevents them from reſiding there. But, from whatever cauſe it has originated, it is certain that no conſiderable number of Jews have reſided in Jeruſalem, or any other parts of Paleſtine, during ſeveral centuries paſt. *Atkins's Hiſt. of the Iſraelites.*

The Jews were always very anxious for preſerving their genealogies entire and uninterrupted; and this care on their part affords an argument of conſiderable importance with reſpect to the accompliſhment of thoſe ancient prophecies that pertain to the Meſſiah. Accordingly, in their ſacred writings we find genealogies carried on for above 3500 years. It is obſerved (Ezra ii. 62.) that ſuch prieſts as could not produce an exact genealogy of their families were not permitted to exerciſe their functions. Joſephus ſays that they had, in his nation, an uninterrupted ſucceſſion of prieſts for 2000 years; that the prieſts were particularly careful to preſerve their genealogies, not only in Judea, but alſo in Babylonia and Egypt; and that, wherever they were, they never married below themſelves, and had exact genealogical tables prepared from thoſe authentic documents which were kept at Jeruſalem, and to which they had recourſe; and that, in all their wars, perſecutions, and calamities, they always were diligent in ſecuring thoſe documents, and in renewing them from time to time. Jerome ſays, that the Jews know ſo perfectly the genealogies, that they can repeat all the names from Abraham to Zerubbabel as eaſily as their own. Nevertheleſs, ſince the war of the Romans againſt the Jews, about thirty years after the death of our Saviour, and ſince their entire diſperſion in the reign of Adrian, the Jews have loſt their ancient genealogies; and perhaps there is not even one of the ſacerdotal race who can produce authentic proofs of his genealogy. This circumſtance has been alleged by Chriſtian writers as a preſumptive proof of the actual advent of the Meſſiah, whoſe genealogy, correſponding to ancient predictions, the Jews are no longer able to trace.

Such Jews as received the goſpel in the apoſtolic age,
retained

retained a ſtrange affection towards the Moſaic ceremonies. To cure them of this, Paul wrote them an excellent Epiſtle, wherein he evinces the dignity of Jeſus Chriſt above angels, above Moſes and Aaron; explains many of the leading types, and from the imperfection thereof clearly concludes the neceſſity of their aboliſhment. Peter directed two Epiſtles to theſe Hebrews; and James, John, and Jude, each of them another.

### PRESENT STATE OF THE JEWS IN ENGLAND AND ON THE CONTINENT.

How ſoon any Jews ſettled in England is unknown; but, from the ſpread of Chriſtianity among the Britons previouſly to its eſtabliſhment under Conſtantine, it is reaſonable to infer, that there had long been ſome ſynagogues here for the new faith. The inroads of the Saxons and Danes obliterated much of the imperfect converſion of the native inhabitants. At this period, the Jews, with ſingular liberality, patronized the civilization of theſe barbarous heathens, by endowing Chriſtian monaſteries. In a charter of Witglaff king of Mercia, made to the monks of Croyland, we find confirmed to them not only ſuch lands as had, at any time, been given to the monaſtery by the kings of Mercia, but alſo all their poſſeſſions whatever, whether they were originally beſtowed on them by Chriſtians or Jews. Nearly a hundred years earlier, the Jews muſt have been numerous in England, ſince the 24th paragraph of the Canonical Excerptions, publiſhed by Egbright, archbiſhop of York, in 740, forbids any Chriſtians to be preſent at the Jewiſh feaſts.

Indeed, during the feudal ages, the Jews ſeem to have been the moſt opulent, poliſhed, and literate, portion of the laity. They were the only bankers, or, as the vulgar termed them, *uſurers* of the time. They conducted what there exiſted of foreign trade, and often viſited the civilized ſouth of Europe. They wrought moſt of the gold and ſilver ornaments for altars. William Rufus, who (as Tovey ſays) "was no better than an infidel," not only permitted but encouraged them to enter into ſolemn conteſts with his biſhops concerning the true faith; ſwearing by St. Luke, that, if the Jews got the better in the diſpute, he would turn Jew himſelf. Accordingly, in his time, there was a public meeting of the chief leaders on both ſides in London, when the Jews oppoſed the Chriſtians with ſo much vigour, that the biſhops and clergy were not without ſome ſolicitude how the diſputations might terminate. No other claſs of men was at that period enlightened enough to cope with the prieſthood.

Henry II. in the 24th year of his reign, granted a burial-place to the Jews on the outſide of every city where they dwelt; a proof they were numerous and reſpected. In this reign, one Joſhua, a Jew, furniſhed the rebels in Ireland with great ſums of money. And one Sancto, of Bury St. Edmund's, took in pledge certain veſſels appointed for the ſervice of the altar. Others were grown ſo preſumptuous as even to ſcoff at, and ridicule, the higheſt dignitaries of the church. We may in part owe to them the ſpirit which dictated the Conſtitutions of Clarendon. In 1188, the parliament at Northampton propoſed to aſſeſs the Jews at ſixty thouſand pounds, and the Chriſtians at ſeventy thouſand, toward a projected war. The Jews muſt have been very rich, or the parliament very tyrannical.

Under Richard I. the prejudices of the populace were ſet looſe againſt the Jews, as noticed under the article ENGLAND, vol. vi. p. 576. The moſt formidable exploſion happened at Stamford-fair, which had drawn together great multitudes of people, and among them whole troops of *roaming ſaints*, who were preparing to go with the king to the Holy Land. Theſe zealous men, diſdaining that the enemies of Chriſt ſhould abound in wealth, while they, who were his great friends, were obliged to ſtrip their wives and children of common neceſſaries, to ſupply the charges of the voyage, perſuaded themſelves, that God would be highly honoured, if they ſhould firſt cut the throats of the Jews, and then ſeize upon their money: ſo ready are men to believe what makes for their worldly advantage. Accordingly, they flew upon them, and, finding very little reſiſtance from an oppreſſed and ſpiritleſs enemy, quickly made themſelves maſters both of their perſons and fortunes; the former of which they treated with all kinds of barbarity. Some few of them, indeed, were ſo fortunate as to get ſhelter in the caſtle; whither, as they fled without their riches, the ſource of all their miſery, they were not earneſtly purſued. And, as theſe devout pilgrims pretended to do all this for the advancement of God's glory, to ſhow they were in earneſt, they took ſhipping as faſt as they could, and fled away for Jeruſalem, not ſo much as one of them being detained by the magiſtrates, or any enquiry being made by the king into ſuch a ſanctified piece of villany. Internal trade muſt at that time have been chiefly conducted by the Jews, ſince they were aſſembled in ſuch numbers at an inland fair. They had probably, too, beſtowed, 'ere this, upon commerce, the important improvement of inventing *bills of exchange*, as mention ſeems to be made of them by the name of *ſtarra* (from the Hebrew *ſhetar*) in certain Latin documents of this æra. The Jews were ſtill admitted to the liberal profeſſions, as the cruel edict of Richard I. for regiſtering their property, orders that their "contracts ſhould be made in the preſence of two aſſigned *lawyers who were Jews*, two who were Chriſtians, and two public notaries." This king appointed *juſticers of the Jews*, whoſe office it was to collect and pay into the Exchequer the taxes aſſeſſed upon that unfortunate ſect. Benedict de Talemunt and Joſeph Aaron, were the two firſt of theſe juſticers.

The intolerant policy of Richard I. occaſioned the emigration of all the wealthier Jews, and a conſequent defalcation of the revenue; which was ſo ſenſibly felt, that John, in 1199, uſed ſeveral arts to draw them back into his kingdom; not only confirming their ancient, but offering new, privileges, and particularly that of naming a high-prieſt by the title of Preſbyter Judæorum. Many Jews upon this returned, and were afterwards more cruelly plundered than ever. Our Great Charter ſanctions an injuſtice to the Jews, by enacting, that, "If any perſons have borrowed money of the Jews, more or leſs, and die before they have paid the debt, the debt ſhall not grow whilſt the heir is under age," &c.

Henry III. liberated ſuch Jews as were in priſon, ordered them to be protected againſt inſults, and to wear upon the fore-part of their upper garment two broad ſtripes of white linen or parchment. In this reign, Stephen Langton archbiſhop of Canterbury, and Hugo de Villes biſhop of Lincoln, (in hopes to drive them away by want of ſuſtenance,) publiſhed injunctions throughout their reſpective dioceſes, That no Chriſtian ſhould preſume to have communications with, *or ſell them any proviſion*, under pain of excommunication. And the ſame ſeems to have been done by the biſhop of Norwich. Perſons unacquainted with the nature of falſe zeal when backed by authority, will ſcarcely believe, that the Jews would have been in any great danger of ſtarving, though the king had not interpoſed in this matter. Yet Rapin tells us, that when the Gerhardine heretics made their appearance, in the time of Henry II. and orders were given not to relieve them, the prohibition was ſo punctually obſerved, that all thoſe wretches miſerably periſhed with hunger.

Be it remembered, however, that the prior of Dunſtable, much about this time, granted to ſeveral Jews free liberty to reſide within his lordſhip, and to enjoy all the privileges of it, in conſideration of the annual payment of two ſilver ſpoons.

During the ſunſhine of the king's favour (in 1230), the Jews erected a very ſtately ſynagogue in London, which ſurpaſſed in magnificence the Chriſtian churches. But the people petitioned the king to take it from them, and have it conſecrated; which accordingly he complied with. In the eighteenth year of his reign, upon a petition of the inhabitants of Newcaſtle, he granted them the inhoſpitable privilege, that no Jew ſhould ever reſide among them. This prince was not free from the confiſcatory policy ſo common in the dark ages; but frequently pillaged the Jews; his neceſſities, however, would have continued to tolerate them, had not the pope ſent over the Caurſini, Chriſtians and Lombards, who were gradually to ſuperſede the ancient practitioners of uſury, by conducting it in a manner not diſapproved by the church. To ſuch a pitch of hatred was the prejudice, which had been gradually inſtilled into the people againſt the Jews, arrived, during this reign, that in 1262, when the king, refuſing to ſtand to the agreement lately made with his barons at Oxford, withdrew into the Tower, and threatened the Londoners for taking part with his enemies; the barons ſuddenly entered London with great forces, and (to keep the citizens more ſtrongly in their intereſt) gratified them *with the ſlaughter of ſeven hundred Jews at once*, whoſe houſes they firſt plundered, and then burnt their new ſynagogue to the ground. It was, however, rebuilt; but, in 1270, taken from them, upon complaint of the Friers Penitents, that they were not able to make the body of Chriſt in quiet, for the great howlings the Jews made there during their worſhip.

In the third year of Edward I. a law paſſed the commons concerning Judaiſm, which ſeemed to promiſe a qualified ſecurity; notwithſtanding which, in the year 1290, and the 18th of his reign, the king ſeized upon all their real eſtates, and the whole community was baniſhed the kingdom. Yet no ſooner (adds the hiſtorian) was the inventory made, and every thing ſold to the beſt bidder, than the whole produce was unaccountably ſquandered away, without one penny being ever put aſide for thoſe pious uſes which the king had talked of. From fifteen to ſixteen thouſand Jews were thus ruined, and then expelled. During the preceding century, they muſt conſtantly have been in a ſtate of rapid and progreſſive diminution; neither is it probable, that the more reſpectable portion of them ſhould have put ſo much confidence in edicts of recal, thus frequently and perfidiouſly revoked, as to have been found ſettled in England. Yet even theſe left behind them ſeveral valuable libraries, one particularly at Stamford, and another at Oxford, which laſt being purchaſed among the ſcholars, moſt of the Hebrew books were bought by the famous Roger Bacon, who, by a ſhort note written in one of them, declared they were of great ſervice to him in his ſtudies. This expulſion was ſo complete, that no farther traces of Engliſh Jews occur until long after the reformation.

It was reſerved for the generous policy of Oliver Cromwell to attempt reſtoring to Great Britain the induſtry and wealth of the Jews. During ages of unrelenting perſecution, they had, however, loſt many of the virtues of their early character. Oppreſſion had imprinted an air of meanneſs, of ſervile timidity, upon their demeanor. The undiſtinguiſhing contempt of men, who ought to treat them as equals, had leſſened the importance, and therefore the frequency, of reſpectable character among them. This inferior degree of delicacy in points of reputation occaſioned their being employed in uſurious and other illegal tranſactions; and theſe practices kept alive the prejudices of the magiſtrate. Scarcely allowed a home, they contracted the habit of all itinerant pedlars, who, never expecting to ſee the ſame cuſtomer twice, have nothing to apprehend from making an exorbitant gain upon each ſingle tranſaction. Schools, ſynagogues, and other inſtitutions of public inſtruction, were ſo unwillingly allotted them, and their appearance in Chriſtian ſchools ſo ſhamefully reſiſted, that they were ſunk into a degree of ignorance, which increaſed to themſelves and others the difficulty of bettering their condition.

The firſt intercourſe between Cromwell and the Jews was managed by means of one Henry Marten, upon whoſe intimations, a deputation from the Jews at Amſterdam waited on the Engliſh ambaſſadors there, whom they entertained with concerts of muſic in their ſynagogue, and by means of whom they obtained permiſſion from the parliament to ſend a public envoy with propoſals. After ſome deliberation, they fixed upon Manaſſeh Ben Iſrael, a divine and doctor of phyſic, as he ſtyled himſelf; in reality, a printer and bookſeller; and of whom Huet tells us, that he was a chief ruler of the ſynagogue, and married to a wife who was related to the family of the Abrabanels, which pretends to be of the tribe of Judah and of the houſe of David, by which wife having ſeveral children, he would ſometimes boaſt of having raiſed up ſeed unto David. He was otherwiſe a man of great modeſty and moderation, a perfect maſter of the letter of ſcripture, and very little addicted to the myſtical ſuperſtitions of the cabbala. This Manaſſeh, on his arrival in England, preſented an addreſs to the Lord Protector, recognizing his authority, and ſoliciting his protection; "For our people (ſays he) did in their own minds preſage, that, the kingly government being now changed into that of a commonwealth, the ancient hatred toward them would alſo be changed into good-will; that thoſe rigorous laws, if any there be yet extant, made under the kings, againſt ſo innocent a people, would happily be repealed." He alſo preſented, printed, and diſperſed, a declaration to the commonwealth, and a treatiſe containing ſeveral arguments for toleration, addreſſed to the juſtice of the principled, to the prudence of the reflecting, and to the prejudices of the multitude. On the 4th of December, 1655, Cromwell ſummoned a convention, meeting, or privy-council, conſiſting of two lawyers, ſeven citizens, and fourteen noted preachers, to conſult upon this requeſt of the Jews. Among the latter, Mr. Godwin and Mr. Peters (whoſe works were burnt along with thoſe of Milton at the reſtoration), and Mr. Nye (of celebrated beard), particularly exerted themſelves in favour of putting the Jews upon the like footing with other ſects. So many ſymptoms of prejudice and intolerance eſcaped from others, that, after a conference of four days, Cromwell began to think the meaſure would not be introduced to the people from the pulpits in a manner to aſſiſt its popularity; and therefore diſmiſſed the meeting, ſaying, they had rendered the matter *more doubtful* to him than it was before. On the firſt of April he took leave of Manaſſeh, by a polite, but evaſive, anſwer. Whilſt this affair was pending, the rabbi Jacob Ben Azahel profeſſed to entertain ſuſpicions, that Cromwell was the expected Meſſiah; an opinion propagated, no doubt, for the purpoſe of attracting a vaſt concourſe of the lower claſſes of Jews into England, in caſe the political equality, for which Manaſſeh petitioned, could have been obtained. Some few muſt from this period have ſettled in London by connivance, ſince, in 1663, their regiſter of births contained twelve names; and during the whole reign of Charles II. who introduced the ſale of patents of denization, their numbers increaſed.

In 1684, James II. remitted the alien duty upon all goods exported in favour of the Jews. This was univerſally reſented by the Engliſh merchants, who were apprehenſive that the ſame duties would alſo be remitted upon all imported goods. Petitions from the Hamburgh-company, from the Eaſtland-company, from fifty-ſeven of the leading merchants in the city, from the weſt, and from the north, were offered to the king againſt this equitable regulation. After the revolution, this order was ſuperſeded, to the great joy of the Chriſtian merchants.

In the firſt year of queen Anne, a deteſtable ſtatute was paſſed, to encourage the converſion of young Jews, by emancipating ſuch converts from all dependence upon their parents. And in the ſixth year of George II. *Reaſons* were offered to the Lord Mayor and Court of Aldermen, for applying to Parliament for the ſuppreſſion of Jew brokers. No public proceeding, however, enſued; equity for once overpowered ſelfiſhneſs.

The church of England, jealous from its infancy, had obtained, in the ſeventh year of James I. an act, which prevented all perſons from being naturalized, unleſs they firſt received the ſacrament of the Lord's ſupper according to its own peculiar mode of commemoration. This act effectually excluded the Jews from being naturalized; till, in the year 1753, a bill was brought into the houſe of lords, and paſſed there without oppoſition, which provided, that all perſons profeſſing the Jewiſh religion, who have reſided in Great Britain or Ireland for three years, without being abſent more than three months at one time during that ſpace, may, upon application for that purpoſe, be naturalized by parliament, without receiving the ſacrament of the Lord's ſupper. But all perſons profeſſing the Jewiſh religion are, by this act, diſabled from purchaſing, or inheriting, any advowſon, right of patronage, &c. to any benefice, or eccleſiaſtical promotion, ſchool, hoſpital, or donative, whatſoever. On the 16th of April, this bill was ſent down to the houſe of commons, ordered to be printed, and on the 7th of May read a ſecond time, when a motion was made for it's being committed. Lord Barrington, lord Duplin, Robert Nugent, eſq. and Henry Pelham, eſq. were among its moſt eloquent advocates; lord Egmont, ſir Edmund Iſham, among its more zealous opponents. The bill was ſupported by the petitions of a few merchants, chiefly diſſidents, and countenanced by the miniſtry; who argued: That it would increaſe the numbers and wealth of the people, upon which depend the national ſtrength, the ability to encounter future difficulties, and achieve uſeful undertakings; and by which poſterity would eſtimate the wiſdom and utility of our frame of government. That, by receiving the Jews into our community, and admitting them to a participation of our civil rights, they would contract a warm attachment to our conſtitution and country, and gladly divide with us the public burdens. That, a great portion of the funds belonging to foreign Jews, it was our obvious intereſt to induce them to follow their property, and to expend here an income which was yearly exported to a clear loſs. That, connected as the Jews were with the great bankers and moneyed intereſt of Europe, their reſidence here would, in future wars, give us a great command of capital, and facilitate our loans. That even their prejudices, as a ſect, would operate in our favour, and occaſion our manufactures to be diſperſed among the multitudinous Jew-ſhopkeepers in Europe, who now recurred to the Jew-merchants of Holland and the other tolerant countries. That Poland had never riſen to ſo high a pitch of civil, literary, and commercial, diſtinction, as when her policy was moſt liberal toward Socinians and Jews; and that the ſect itſelf had always abandoned its offenſive prejudices in proportion to its good uſage. On the other ſide, it was urged, That, born as we are to privileges and excluſive rights, we did not, by this bill, ſell our birth-right, like Eſau, for any conſideration, however inadequate; but fooliſhly gave it away. That, if the Jews about to be naturalized belonged to the numerous claſſes, we ſhould import vagrants and cheats to burden our rates, or ſupplant the induſtry of our leſs parſimonious poor; if to the wealthy claſſes, who cannot procure a ſettlement elſewhere, they would become the higheſt bidders for our landed eſtates, diſpoſſeſs the Chriſtian owners, attract around them their butchers, bakers, and poulterers, (for they can eat nothing of our killing,) and, by and by, would endanger our religion itſelf. That the rites of the Jews will for ever reſiſt their incorporation with other nations, for any common purpoſes, while their early marriages and frequent divorces promote ſo rapid an increaſe of their numbers, that they might become, like the bitch in the kennel, too ſtrong for their hoſpitable patrons. That it had a tendency to embroil us with foreign powers; we muſt reclaim, for inſtance, as a Britiſh ſubject, any Portugueſe Jew who ſhould come over to be naturalized, and, by indiſcretions, expoſe himſelf to the inquiſition. That the Jews were not given to manufactures; and, if they ſhould open ſhops, would interfere with the profits and maintenance of Chriſtians; for the number of ſhops, being adequate to the conſumption, could only be increaſed with injury to the eſtabliſhed. That Jewiſh nationality would intrigue all their trade into their own hands; that they were enemies upon principle to all Chriſtians; and that it was flying in the face of the Almighty to gather together a ſect, of which the bible foretold the diſperſion.

The bill, however, was paſſed; but a zeal, the moſt furious, continued to be vociferated in the pulpits and corporations againſt it; and, by the next ſeſſions of parliament, inſtructions were ſent to almoſt all the members to ſolicit a repeal of it. The miniſter did not attempt to reſiſt the torrent, but was among the foremoſt who ſpoke in favour of the repeal; he was anſwered, with much force of reaſoning, and a truly liberal ſpirit, by Thomas Potter, eſq. to whoſe ſpeech a very elegant reply was delivered by ſir George Littleton; and the Jew-bill was repealed, by an act which received the royal aſſent the ſame ſeſſion. From that time, the legal condition of Jews in England has not altered; but the people no longer view them with rancour, miſtruſt, or unbrotherly emotions.

There has been lately eſtabliſhed in London a Society for promoting Chriſtianity among the Jews. In the year 1809, it appeared that they had made about thirty converts. They have alſo opened a ſchool for the reception and inſtruction of ſuch children of Jewiſh parents as may be delivered to them or ſhall voluntarily preſent themſelves. As this inſtitution is yet in its infancy, ſhould its progreſs, or any circumſtances attending it, become intereſting to the Chriſtian world, we ſhall reſume the ſubject under the article SOCIETY.

By our ancient cuſtoms (we ought not to call them laws), the Jews and all their goods were at the diſpoſal of the chief lord where they lived; who had an abſolute property in them; and they might not remove to another lord without his leave: and we read that king Henry III. ſold the Jews for a certain term of years to earl Richard his brother. They were diſtinguiſhed from the Chriſtians in their lives, and at their deaths; for they wore a badge on their outward garments, in the ſhape of a table, and were fined if they went abroad without ſuch badges; and they were never buried within the walls of any city, but without the ſame, and anciently not permitted to burial in the country. *Matt. Paris*, 521, 606, &c.

There were particular judges and laws by which their cauſes and contracts were decided here, and there was a court of juſtice aſſigned for the Jews. 4 *Inſt.* 254. A Jew may be witneſs by our laws, being ſworn on the Old Teſtament. According to our ancient books, Jews, Heretics, &c. are adjudged out of the ſtatutes allowing benefit of clergy. But this doctrine is now exploded.

A plaintiff had leave given him by the court to alter the venue from London to Middleſex, becauſe all the ſittings in London were on a Saturday, and his witneſs was a Jew, and would not appear that day. 2 *Mod.* 271. A Jew brought an action, and the defendant pleaded that the plaintiff was a Jew, and that all Jews are perpetual enemies of the king and our religion. But, by the Court, "A Jew may recover as well as a villain, and the plea is but in diſability ſo long as the king ſhall prohibit them to trade." Judgment for the plaintiff. *L. P. R.* 4. cites *Mich.* 36 *Car.* II. *B. R.* A Jew was ordered to ſwear his anſwer upon the Pentateuch, and that the plaintiff's clerk ſhould be preſent to ſee him ſworn. 1 *Vern.* 263.

In the beginning of the ſeventeenth century an inſtance occurred, where a Jew of immenſe riches turned out of doors his only daughter who had embraced Chriſtianity; and, on her application for relief, it was held he could not be compelled to afford her any. *Lord Raym.* 699. But, to prevent ſuch inhumanity in future, the ſtat. 1 Anne, c. 30, ordains, that, if Jewiſh parents refuſe to allow their proteſtant children a fitting maintenance ſuitable to the fortune of the parent, the lord chancellor on complaint may make ſuch order therein as he ſhall ſee proper. See 1 *P. Wms.* 524. 2 *Eq. Ab.* 513, *c.* 2.

Of all the ſtates of Europe, Holland is the one where the Jews have, for a long time back, been admitted to a civil exiſtence; they are divided, as elſewhere, into German and Portugueſe Jews. The latter are the richeſt; their manners are more poliſhed, and they are farther removed than the Germans from the vices and cuſtoms with which this nation is reproached in certain parts of Europe. By a decree paſſed in 1796, the Jews, like the Catholics, acquired certain political rights. Virtues and talents generally follow in the train of liberty; and this is the reaſon why the Jewiſh communities in Holland have produced ſo many enlightened men; even now we find many ſuch among them; ſuch as Cappadoce, a phyſician; d'Acoſta, who was preſident of the Batavian legiſlative aſſembly; Aſſer, and ſeveral others, of Amſterdam, who are eminent lawyers; De Solla and Bel-Infante at the Hague, &c.

Formerly the Portugueſe and German Jews deteſted the Caraites, and mutually hated each other. In the laſt century, a Pruſſian Jeweſs having married a Portugueſe phyſician, her relations put on mourning as if ſhe had been dead. A Caraite, having come to Frankfort, would have been murdered there, if Ludolp had not ſaved him from the fury of the ſynagogue. A rabbi had previouſly given it as his decided opinion, that, if a Caraite and a Chriſtian were drowning at the ſame inſtant, the rabbinical Jew ought to make a bridge of the body of the Caraite for the purpoſe of ſaving the Chriſtian. Their ideas, however, have undergone a conſiderable change in that reſpect.

For ſome years paſt a ſpirit of reform has manifeſted itſelf among the Jews of Leghorn, who, in 1796, made ſome alterations in their religious rites; among thoſe ſettled at Amſterdam, four or five hundred of whom have eſtabliſhed a ſeparate ſynagogue; among thoſe of Berlin, the greater part of whom no longer attend their ſynagogue, and ſome of whom, ten years ago, addreſſed a celebrated letter to the proteſtant paſtor Tellier. They offered to join the proteſtant church, without believing its doctrines; for they reduced their ſymbol to four or five inſignificant and abſtract propoſitions, which do not indicate any ſymptom of Chriſtianity.

The progreſs of mental improvement among the Jews is however moſt obſervable in Germany; where ſeveral men of learning are earneſtly endeavouring to improve the mode of education. The Jews have had a ſhare in this moral revolution. Mendelſohn, a creative genius, raiſed himſelf to a high rank among philoſophers; and his renown was the electric ſpark which kindled the genius of the Hebrews. Mendelſohn had for contemporaries or ſucceſſors men of diſtinguiſhed reputation, ſome of them now no more, ſuch as Bloch, Herz, Maimon, Hartevig, Vezelize, &c. others ſtill living, ſuch as Friedlander, uncle and nephew; Wolfsſohn, Frænkel, Schottlander, &c. but in particular Bendavid, preſident of the Society of Friends of Humanity at Berlin, and author of ſeveral profound works, who has endeavoured to apply algebra to the theory of taſte in the arts. Several times the Berlin Academy of Sciences had expreſſed a wiſh that Mendelſohn might be appointed one of their aſſociates; but Frederic, who has been called the Great, refuſed his aſſent, becauſe he would not have in the liſt of members the name of a Jew joined to that of Catharine II. of Ruſſia!

The Pruſſian Jews had, during the laſt ten years, publiſhed a Journal in Hebrew, in which they attacked with argument and ridicule the reveries of the Talmud. This periodical work is to be revived at Deſſau under a new form, and the title of the *Sulamite*, or a Journal for the Diffuſion of Knowledge among the Jews, by MM. Frænkel, Wolf, and Rundel.

The Jews have been reproached for undervaluing the female ſex. In the daily prayers of the men is the following paſſage: "Bleſſed be the Creator of Heaven and Earth for not having made me a woman;" whilſt the woman was taught to ſay with humility, "Bleſſed be thy name for having made me as I am." They begin to repair this injury, eſpecially at Berlin and at Hamburg, where there are many Jeweſſes whoſe education has been conducted with the greateſt care, and who are diſtinguiſhed by an union of virtue and learning. In Michael Berr's Appeal to the Juſtice of Nations, there are ſome curious notes relative to this ſubject.

Some enlightened Jews do not approve of having ſchools excluſively appropriated to the children of their nation. It would undoubtedly be a powerful means towards effecting a complete political union, if they all frequented the ſchools and univerſities of the Chriſtians; but the prejudices of the latter, by rejecting them, or at leaſt attaching a kind of ſtigma to Judaiſm, induced them to eſtabliſh ſeparate ſchools in different towns and cities of Germany, at Nuremberg, Furth, Breſlau, Konigſberg, &c. They have likewiſe ſuch ſchools at Berlin, Frankfort-on-the-Mayne, Deſſau, Seezen, in particular, for the education of poor children. They are almoſt all ſupported by voluntary contributions. The regulations of theſe ſchools, and ſeveral elementary works, expreſly written for their uſe, have been printed. At Frankfort-on-the-Mayne, M. Gieſenheimer, uniting muſic with poetry, has printed for the ſcholars a collection of pieces in every way calculated to inſpire virtuous ſentiments.

In 1795, a ſociety of Jews, for the moſt part young men, founded at Deſſau a ſeparate ſchool for the children of their nation. They had to contend againſt a multitude of obſtacles; but the protection of the government, which approved of the ſtatutes of that ſchool, the ſucceſs attending their mode of inſtruction, and the public and ſolemn examinations, cauſed the eſtabliſhments to proſper. The founders addreſſed themſelves to the benevolence of perſons in eaſy circumſtances, and received abundant ſuccours, by means of which they were enabled to enlarge their plan. They have accordingly increaſed the number of maſters and of pupils, whoſe number now amounts to about one hundred.

At Seezen, a town ſituate between Brunſwick and Gottingen, a college was founded in 1801 for the children of the Jews, by M. Jacobſohn, who filled a high office in the ſervice of the duke of Brunſwick, and enjoyed the eſteem of all ranks. He confided the direction of it to a man of learning and zeal, M. Schottländer, counſellor to the landgrave of Heſſe-Darmſtadt, who is engaged in writing a Hiſtory of his Nation. There are ten profeſſors, and the number of ſtudents daily increaſes. The arrangement of the building and adminiſtration of the eſtabliſhment may ſerve as models. There, as well as at Deſſau, the children are diſtinguiſhed by neatneſs and cleanlineſs, by good order, and an air of health and content. The poor are admitted gratis, and the others pay in proportion to their ability. They are taught the German, French, Hebrew, and Latin, languages; geography, hiſtory, declamation, natural hiſtory, mathematics, technology, &c. At Seezen they add to the above the Greek language and muſic; and it is intended ſoon to eſtabliſh a ſchool of induſtry. Each ſtudent has a ſmall plot of ground allotted to him, which he cultivates with his own hands; and it is part of the plan of this ſchool to wean them from commerce, the ſpirit of which is ſo deeply rooted among the Jews.

In Germany the moſt happy effects are expected to reſult from theſe ſchools of the Jews. They are unwearied in their endeavour to merit admiſſion to a full participation of all civil rights. This has been granted them already in France. But on the other ſide of the Rhine they have not been able to obtain the object of their wiſhes, notwithſtanding the efforts of the learned and reſpectable M. Dohm. There ſeems to be, however, a gradual approximation towards a better order of things. Already, through the zeal of Meſſrs. Jacobſohn and Breitenbach, twenty-ſix German princes have repaired an outrage done to humanity, by aboliſhing that infamous toll which put the Jews upon a level with cloven-footed animals. In a German ſtate on the right bank of the Rhine, the government had been heſitating about the ſuppreſſion of this toll, and even pretended to ſubject to it the Jews dwelling on the left ſide. But this determination was ſoon changed, when they were informed of the ſpirited conduct of M. Jambon St. André, the prefect of Mont Tonnerre, who propoſed by way of repriſal, that the ſubjects of the German prince (the Jews only excepted) ſhould be obliged to pay the ſame toll when they entered France.

Will it be believed, that in the nineteenth century there exiſts a republic where public opinion has ſo ſtigmatized the Jews, that they dare not, under pain of being inſulted, enter the wide walks which ſerve as a promenade to the Chriſtians? and yet Frankfort-on-the-Mayne is known to poſſeſs citizens eſtimable in every reſpect, and who no doubt will raiſe their voice for the purpoſe of putting an end to this injuſtice, leſs diſhonourable to thoſe who ſuffer it than to thoſe who tolerate it. Will it be believed, that at Berlin, when a Jew has ſeveral ſons, he cannot marry more than one of them? For the marriage of the ſecond he muſt have permiſſion from government, the obtaining of which, always attended with expence, becomes progreſſively more difficult, if the application be about a third or a fourth. Formerly the bridegroom was obliged to purchaſe a certain quantity of faulty porcelain-ware at the royal manufactory. But let us hail the epoch of univerſal toleration.

In the year 1805, an imperial ukaſe was publiſhed in the Court Gazette of Peterſburg, by which the rights of citizens have been given to the Jews throughout the whole extent of the Ruſſian dominions. The children of the Jews will, henceforth, be admitted, like the other Ruſſian ſubjects, into the ſchools, colleges, and univerſities. The Jews are divided into four claſſes; viz. farmers; artificers and workmen; merchants; and citizens. The farmers are free, and, as well as the artificers, may purchaſe lands; and thoſe who wiſh to engage in agriculture, and have no fortune, are to have a certain portion of the crown-lands. Thoſe who eſtabliſh manufactories are to enjoy, in their commerce, all the franchiſes of Ruſſian ſubjects.

Since the revolution, France has communicated to the 100,000 Jews diſperſed in her departments every civil right. Among them there are many men of cultivated minds, ſuch as Rodriguez, Furtado, Eli Levi; Bing, lately dead, and univerſally regretted; Lipman Moſes, known as the author of Hebrew and German poems; Berr Iſaac Beer, who at the commencement of the conſtituent aſſembly victoriouſly refuted the paralogiſms advanced by Lafare, biſhop of Nancy, againſt the admiſſion of Jews to civil rights; Michael Berr, an advocate, and member of ſeveral learned ſocieties; Zalkind Howwitz, author of ſome eſteemed works, as for inſtance, On the Reſignation of the Jews; Terkem and Anſchel, the former profeſſor of the higher branches of mathematics, the latter of phyſics and chemiſtry, at the Lyceum of Mentz, &c. &c.

No Jew has ever had a ſeat in any of the French national aſſemblies, into which Catholics, Lutherans, Calviniſts, Negroes, and Mulattoes, were admitted; but ſeveral have filled with honour the offices of judges, adminiſtrators, and municipal officers.

In the year 1807, the ſtrange ſpectacle of a grand Jewiſh ſanhedrim was preſented to the inhabitants of Paris. The ſanhedrim was originally the Jewiſh ſenate, conſiſting, in the time of Moſes, of ſeventy elders. The judges were the ſupreme magiſtrates, with a legiſlative power granted to them by the original law, and to which they had a power veſted in them to add at pleaſure. As a memorial of the preſence of this great legiſlature, they have a prince of the ſanhedrim, who completes the number of ſeventy-one members. The modern Charlemagne determined to revive, for a ſhort time, this ancient ſenate, or ſomething under the ſame name. Deputies from all parts of France had been ordered to repair to the capital; and in Auguſt 1806 they aſſembled, when commiſſioners from Bonaparte were appointed to meet them, and the buſineſs was opened by the head-commiſſioner in the following ſpeech: "Gentlemen, His majeſty the emperor and king, having appointed us commiſſioners to treat with you reſpecting your own affairs, has ſent us here this day for the purpoſe of communicating his intentions. Called from the fartheſt parts of this vaſt empire, none of you can be ignorant of the purpoſe for which you are aſſembled here. You are aware that the conduct of many of thoſe who profeſs your religion has given riſe to complaints which have reached the foot of the throne. Theſe complaints were not without foundation. The emperor, notwithſtanding, contented himſelf with arreſting the progreſs of the evil, and wiſhed to have your opinion on the means of radically curing it. You will, no doubt, prove yourſelves deſerving of this paternal conſideration, and you will feel the value of the important miſſion which is confided to you. Far from regarding the government under which you live as a power of which you ſhould be ſuſpicious, your ſtudy will be to enlighten it, to co-operate with it in the good which it is preparing; and, by thus manifeſting that you have profited by the experience of all the French, you will prove, that you have no wiſh to ſeparate yourſelves from the other claſſes of ſociety.

"The laws which have been impoſed upon perſons of your religion have been different all over the world; they have been too often dictated by the exigency of the moment. But, as there is no example in the Chriſtian annals of any aſſembly like this; ſo, in like manner, you, for the firſt time, are to be impartially judged, and your fate decided, by a Chriſtian prince. It is his majeſty's wiſh that you ſhould become French; it is your duty to accept this title, and to conſider that you, in fact, renounce it whenever you ſhow yourſelves unworthy of it.

"You ſhall hear the queſtions read which are to be propoſed to you. It will be your duty to declare the whole truth upon each of them. We now declare to you, and we ſhall never ceaſe to repeat it to you, that when a ſovereign, as firm as he is juſt, who knows every thing, who can puniſh as well as reward, interrogates his ſubjects, they would render themſelves as culpable as they would ſhow themſelves blind to their real intereſts, if they ſhould heſitate about anſwering freely and frankly.

"It is his majeſty's wiſh, gentlemen, that you ſhould enjoy perfect freedom of deliberation. Your preſident will communicate your anſwers to us as ſoon as they are prepared. As to ourſelves, we have no more ardent wiſhes than to be able to inform the emperor, that, among his ſubjects of the Jewiſh religion, there are none whoſe loyalty is not unqueſtionable, and who are not diſpoſed to conform to thoſe laws and morals which it is the duty of all Frenchmen to practiſe and follow."

The following queſtions, propoſed by his majeſty, were then read by the ſecretary of the meeting:

1. Is the Jew permitted to marry more than one wife?
2. Is divorce permitted by the Jewiſh religion?
3. Can a Jeweſs intermarry with a Chriſtian, or a Chriſtian female with a Jew; or does the law preſcribe that Jews alone ſhould intermarry?
4. Are the French, in the eyes of the Jews, brothers or aliens?
5. What in all caſes are the connections which their law permits them to maintain with the French who are not of their religion?
6. Do the Jews who were born in France, and have been treated as French citizens by the laws, conſider France as their native country? Are they bound to defend it? Are they under an obligation to obey the laws, and to follow all the regulations of the civil code?
7. Who are they who are called rabbis?
8. What civil juriſdiction do the rabbis exerciſe among the Jews? What power of puniſhment do they poſſeſs?

9. Are the mode of chooſing the rabbis, and the ſyſtem of puniſhment, regulated by the Jewiſh laws, or are they only rendered ſacred by cuſtom?

10. Were the Jews forbidden by their laws to take uſury of their brethren? Are they permitted or forbidden to do this of ſtrangers?

11. Are thoſe things proclaimed which are forbidden to the laws by their law?

On the 4th of February, 1807, a ſelect committee of nine members of the ſanhedrim met at the hotel of M. Mole, one of the French commiſſioners, to verify the powers of the members, both rabbis and laics. They choſe a *naſſy*, or prince of the ſanhedrim, in the perſon of David Sintzheim, a rabbi of Straſburgh, and of the department of the Lower Rhine; an *abethdin*, or father of the rabbis; and a *xaxam*, or wiſe man. They appointed three ſcribes, and a number of ſupplementary rabbis and laics, called *notables*, to fill vacant places. The preſident was Abraham Furtado, a French Jew of the department of Gironde.

To give every ſolemnity to the opening of the grand ſanhedrim, prayers and ceremonies for the occaſion were performed. The Jews having aſſembled in the ſynagogue, the ſanhedrim remained on the outſide, chaunting the 19th verſe of Pſalm cxviii. "Open to us the gates of righteouſneſs; we will go in to them, and we will praiſe the Lord." The reader replied by the following verſe: "This is the gate of the Lord, into which the righteous ſhall enter." The ſanhedrim then, advancing into the ſynagogue, ſeated themſelves together, and the reader chaunted the 24th, 26th, and 29th, verſes of the ſame Pſalm. They turned themſelves towards the ark, where the rolls of the Pentateuch, or the books of the law, are depoſited; and, collecting themſelves in ſilence for a few minutes, the doors of the ark were opened; they recited the prayer which confeſſes the unity of the Deity. An appointed rabbi then laid his hand on the Pentateuch, and delivered a prayer adapted to the occaſion, followed by the uſual ones for the ſovereign and imperial family, and the preſervation of the armies, victory, and peace.

The ſanhedrim now departed, to meet at their hall; where they adopted ſixteen regulations, of which the following are the moſt remarkable: When two delegated commiſſioners, drawn out of the committee of nine, ſhall ſubmit a ſubject for the deciſion of the grand ſanhedrim, its deliberation ſhall be adjourned for eight days; during this interval, every member of the grand ſanhedrim may preſent his obſervations, written and ſigned by himſelf, to the committee of nine, who will make report thereon, to the commiſſioners of his majeſty, and afterwards to the grand ſanhedrim, on the eighth day; after this laſt report, it ſhall be immediately proceeded with, by nominal appeal, *(appel nominal.) There ſhall never be any diſcuſſions in the grand ſanhedrim.*

This *appel nominal* is explained by the next regulation: Every member is called on by name, and anſwers Yes, or No. One of the ſecretaries notes down the affirmative votes; and the other the negatives. The two notes are then preſented to the chief, who counts them, and proclaims the deciſion of the grand ſanhedrim by the abſolute majority of voices.

In the hall of the grand ſanhedrim the aſſembly is to form a ſemicircle. The members ſhall be placed according to their ages; the eldeſt ſhall be ſeated on the left of the chief, and ſo of the reſt. This ſemicircle was the cuſtom of antiquity; and thus formerly the ſanhedrim was formed, and its members placed.

On the 9th of February, 1807, was held their firſt meeting. The miniſter of the interior had appointed the chief of the ſanhedrim, and the other officers. The rabbi Sintzheim, the chief of the ſanhedrim, had compoſed an exhortation, which was read in French by one of the committee of nine. Of this addreſs the following are extracts:

"Doctors of the Law, and Sages of Iſrael: The holy ark, beaten by ages of ſtorm, at length ceaſes to be agitated. The elect of the Lord conjured the tempeſt, and the ark has entered into its haven. O, Iſrael, dry thy tears; thy God has looked on thee, and, touched by thy miſery, he has renewed his alliance. Thanks be rendered to the hero, ever to be renowned, who chains the human paſſions while he confounds the pride of nations He elevates the humble, he humiliates the haughty; a ſenſible image of the Divinity, which pleaſes itſelf by confounding the vanity of men. Miniſter of eternal juſtice, all mankind are equal before him; their rights are eternal.

"Contemplating this ſupreme council, my imagination bounds backwards over thouſands of ages. I am borne away to the æra of its inſtitution, and my heart beats with a certain emotion, which, doubtleſs, you participate with me!

"Doctors and Sages of Iſrael! Broken as ye are by the long attrition of the moſt cruel intolerance, who of us has hoped to ſee ſo ſtrange a miracle ſucceed to ſuch long, and to ſo many, troubles.

"Confident in the mercy of the God of Iſrael, we ſhall render ourſelves worthy of the powerful protection of our ſovereign, and of the confidence of all our co-religioniſts, *(co-religionaires,)* who have their eyes conſtantly fixed on us.

"I humble myſelf before God, I humble myſelf before man, when I conſider the vaſt weight impoſed on me. The particular favour of the Thrice Holy can alone carry me to the cloſe of my career. Pure intentions, rectitude of heart, and the deſire of performing good, can alone render us agreeable to God, and the hero who has broken our chains."

Before we enter into an account of the doctrinal ſubjects agitated in this convocation, it is neceſſary to notice ſome parts of the preamble to their decrees. It is well known that the children of Iſrael, in the due performance of their rites and ceremonies, have found an unconquerable difficulty to preſerve them, and at the ſame time to mingle with their Chriſtian fellow-ſubjects. Their political ſituation, therefore, has always been at variance with their religious diſpoſitions. How are they to conciliate the irreconcilable? This difficulty, after having exiſted nearly two thouſand years, the Pariſian ſanhedrim has not conſidered as ſuch. By the ſimple principle, that part of the laws of Moſes are a political inſtitution, they get rid of their ritual, which, like a rock, divided them from Chriſtians; and, by conſenting to acknowledge "that the ſupreme law is the law of the ſtate in which they reſide," they annihilate, by this convenient invention, whatever they think proper. But it is the creed of the Jew that his laws are impreſcriptible, and impoſſible to alter, ſince the Pentateuch was the inſpiration of the Divinity by his ſervant Moſes. This belief is grounded on this precept, Deut. xvii. 11. "Thou ſhalt not depart from the thing which they ſhall tell thee, right or left."

We are informed by this preamble: That their dogmas may be conciliated with the civil laws under which they live, and do not ſeparate the Jew from the ſociety of other men: That the divine law, the precious inheritance of their anceſtors, contains religious ordinances and political ordinances: That *religious* ordinances are, from their nature, abſolute, and independent of circumſtances and times. That *political* ordinances are not; that their government was deſigned for the Iſraelites in Paleſtine, when they had their kings, their pontiff, and their magiſtrates. Theſe laws ceaſe when the people ceaſe to be a nation. An aſſembly of the doctors of the law can alone determine what may be rejected; and, if former ſanhedrims have not aſſumed this power, it was becauſe political circumſtances were not favourable to them!

"In virtue of the right with which a ſanhedrim inveſts a convocation of the doctors of the age, they have the power to decree, according to the preſent urgencies, what obſervance is to be paid to laws, either written or traditional; and, in conſequence, the preſent ſanhedrim lay down, as their firſt principle, that an entire obedience be paid to the laws of the ſtate in all civil and political matters."

The three firſt doctrinal deciſions were on Polygamy, Divorce, and Marriage.

The grand ſanhedrim declares that *polygamy*, admitted by the law of Moſes, is only a ſimple or conditional faculty; that the doctors made it ſubordinate to the huſband's fortune, in caſe it was ſufficient to ſupply the neceſſities of more than one wife; that, from the firſt time of the diſperſion of the Iſraelites in the eaſt, they acknowledged the neceſſity of harmonizing their cuſtoms with the civil laws of the ſtates in which they eſtabliſhed themſelves; and that, this uſage being aboliſhed in almoſt every European nation, *it is prohibited to marry a ſecond wife during the life-time of the firſt.*

The *divorce*, permitted by the law of Moſes, is only valid inaſmuch as it operates the entire diſſolution of every tie even of a civil nature; but as, according to the civil code which they decree muſt govern every Iſraelite as a Frenchman or an Italian, no divorce is completed till the court of law has awarded its ſentence; conſequently, *the Moſaic divorce has ceaſed to have a full effect on both parties, till the civil authority has diſſolved the congenial bond.* If, therefore, any rabbi ſhall aſſiſt in making a divorce, independent of the civil code, he violates the preſent religious ſtatute, and ſhall ceaſe to exerciſe his rabbinical functions.

That *marriages* ſhall be contracted according to the civil codes of France and Italy, and *no rabbi ſhall aſſiſt at a marriage which the civil officer does not firſt allow.* Further, in reſpect to the inter-marriages of Jews with Chriſtians, which ſhall be contracted according to the civil code, they are declared valid and obligatory; and, although theſe can never be ſolemnized with religious ceremonies, they ſhall not be anathematiſed, as hitherto they have been.

On theſe three deciſions the preſident, M. Furtado, addreſſed the ſanhedrim with copious eloquence. From his ſpeech we ſhall glean ſome few paſſages: the matter and the manner offer ſome novelty.

"If our exiſtence among all the nations of the earth, if the antiquity of our origin, if our long adverſities, exhibit one of thoſe political phenomena which preſs on our attention, and excite our ſurpriſe, our convocation in the capital of France, and under the protection of the greateſt Chriſtian prince, the unexpected exiſtence of a *ſanhedrim*, of that ancient body whoſe origin is loſt in the night of time, is a phenomenon not leſs remarkable. We owe our admiration, our love, our gratitude, to the hero who governs us; he has given us this ſolemn opportunity to render a ſplendid homage to the purity of that religion which neither time, nor diſperſions, nor the revolutions of empires, could deſtroy. Eternal as nature, durable as ſociety, its principles neceſſarily have ſurvived all human viciſſitudes.

"Doctors of the law, and notables of Iſrael: No monarch had hitherto conceived the means by which he might ſhield us from the unfavourable prepoſſeſſions which long habit, more than any other motive, has attached even to the name of *Jew*; none had yet eſſayed if, by a clear interpretation of our dogmas, we could be morally prepared for the enjoyments of political and civil rights; none had yet ſeized on the ſimple notion, but fertile in its reſults, ſince it influences our own character, and the opinion of the people among whom we live, to convoke an aſſembly of Iſraelitiſh deputies; to interrogate them concerning their dogmas, their cuſtoms, and their eccleſiaſtical hierarchy, in a grand ſanhedrim. The ſovereigns of Europe, guided by timid and uncertain politics, imbued with a falſe notion that it was impoſſible to work our regeneration, attribute to our dogmas effects which are only to be aſcribed to their laws, and reproach us with habits which they have compelled us to contract.

"Seated on the firſt throne of the world, a man, the moſt aſtoniſhing man whom hiſtory preſents to us, has given the fragments of Iſrael a new æra and a better fate! Since the time our anceſtors have ceaſed to form a nation, the viciſſitudes which have afflicted our exiſtence have been interrupted but by ſhort intervals. Nations civilized themſelves; we among them, alone, remain barbarous! Human vanity ſeemed pleaſed by our humiliation. But let us turn away our eyes from contemplating the horrid picture of our paſt calamities; ages of fanaticiſm and ignorance, where the miſerable Iſraelite was caſt out of the ſociety of men, and could find no reſting-place. Frederic the Great, in Pruſſia; Joſeph II. in Auſtria; Leopold, in Tuſcany; Alexander, in Ruſſia; by their enlightened toleration, have commenced the great work of our regeneration; but it was reſerved for the hero of this age to accompliſh it on a more enlarged plan.

"This fortunate change in our ſituation will reſolve a great problem in legiſlation and morality; we ſhall now ſee, having obtained a national character, whether the Iſraelite ſhall ſtill perſevere in that repugnance he has ſo long ſhown for agriculture and the arts; for uſeful trades, and the profeſſion of arms. We ſhall ſee if that inſulated ſtate in which he has hitherto exiſted, and if the practices of money-tranſactions, are in him the reſult of a peculiar character, produced by his religion; or if we are not to aſcribe theſe to exterior circumſtances, totally unconnected with his holy religion."

In the ſitting of the 20th of February, the ſanhedrim came to the fourth doctrinal point, *fraternity*. The Iſraelite has been too often ſuſpected of a want of fraternal affection by the nations among whom he is reſident; and the popular prejudice infers, that the Jew in France and in Italy does not conſider his Chriſtian fellow-citizen but in the character of a ſtranger. The great ſanhedrim therefore declare, that "all Iſraelites are obliged by the law of Moſes, to conſider as their brethren all men who acknowledge as God the Creator of the Univerſe, and who grant them hoſpitable enjoyments and civil rights; that the ſacred writings ordain we ſhould love our own likeneſs, and do nothing to another but what we would another ſhould do to us; this doctrine is univerſal with the greateſt doctors of Iſrael; the Moſaic code commands every Iſraelite to practiſe all the charities of life by receiving ſtrangers in their towns; it conſequently follows, that ſo much the more muſt we cheriſh the ſame ſentiments towards thoſe whoſe laws protect us, whoſe armies defend us, and who permit us to adore the Eternal according to our rites." The great ſanhedrim therefore ordains, *that every Iſraelite ſhall blend with his fellow-ſubjects as a brother and a citizen, ſince they with him acknowledge as God the Creator of the Univerſe.*

When, at the fifth ſitting, 25th of February, the ſanhedrim voted this deciſion reſpecting *fraternity*, it was diſtinguiſhed by a remarkable circumſtance. The chief having delivered a diſcourſe in Hebrew, afterwards read in French, and having declared that this fourth decree had been adopted unanimouſly, the aſſembly, inſpired by an inſtantaneous ſympathy, diveſting itſelf of the religious gravity of its character, echoed aloud their unanimous plaudits. We are here forcibly reminded of the well-known anecdote of the celebrated verſe of Terence, which, at the theatre, occaſioned a ſimilar ſenſation in the breaſts of all preſent.

In the ſitting of the 29th of February, they read the fifth, ſixth, and ſeventh, deciſions.

The fifth deciſion was on the *moral duties* which the law of Moſes preſcribed to the Hebrew, to be obſerved between him and the individuals of the nation among whom he reſided. The great ſanhedrim declare, that the Decalogue of the ſacred writings, which contain the preciſe commandments of God, do not make any diſtinction between man and man, who acknowledge one God, creator of the univerſe. That this doctrine has been taught by the doctors of the law, who never ceaſe to inculcate the love of the Creator and his creature; that Moſes commands it in the name of God; ſee Leviticus, chap. xix. 33, 34. And they quote one of their rabbis, who ſays, "Our doctors declare, that the man who is compaſſionate towards his fellow is in our eyes as dear to us as if he had deſcended from the race of Abraham. That every Iſraelite is obliged to love as his brethren thoſe who obſerve the *noachides*, (theſe mean the precepts given to Noah,) viſit the infirm, aſſiſt their poor, &c. whatever may be their religion."

The ſixth deciſion relates to *civil and political duties*. It is declared, that it is a religious duty for the Iſraelite to love the kingdom in which he is born, or reſides, as his country; and its ſovereign as his own. Thus Daniel ſaid to Darius, that he had been ſaved from the rage of the lions only becauſe he had been equally faithful to his God *and his king*; chap. vi. 23. That Jeremiah exhorts all the Hebrews to conſider Babylon as their own country; chap. iv. See alſo in the ſame book, chap. xl. 9, the oath which Gedaliah offers to the Iſraelites to remain faithful to the king of Babylon. "Fear God and thy king," ſays Solomon, Prov. chap. xxiv. 21. That all obliges the Jew never to inſulate his intereſt from the public intereſt, nor to ſeparate the proſperity of his affairs from the public welfare; to afflict himſelf with its calamities, and to rejoice in its triumphs. In a word, the great ſanhedrim declares, *that the Iſraelite is to ſerve and defend his country, and to obey its civil laws.* There is one remarkable deciſion concluding this article. The great ſanhedrim declares,' that *every Iſraelite called to military ſervice is diſpenſed* by the law, during the time of that ſervice, *from obſerving all religious ordinances and ceremonies* which are incompatible with military ſervice.

Here we loſe ſight of the ſeries of queſtions; of the 7th, 8th, and 9th, reſpecting the rabbis, no notice is taken; but the ſeventh deciſion turns on *uſeful profeſſions*. The great ſanhedrim are deſirous of enlightening the Iſraelites, on the neceſſity and the advantages reſulting from agricultural purſuits, to become land-holders, to practiſe arts and trades, and to cultivate the ſciences which will enable them to embrace liberal profeſſions; and reflecting that hitherto the Iſraelites have been compelled, from various impediments, to renounce mechanics and manufactures, and above all, the cultivation of land, which had been from the earlieſt times their favourite occupation; this fatal abandonment can only be attributed to the viciſſitudes of their unhappy ſtate; to the uncertainty of their perſonal ſecurity, either with regard to their property, or to the numerous obſtacles which the laws or cuſtoms of other nations have oppoſed to the free developement of their induſtry and their activity. That this apathy and abandonment have in no wiſe reſulted from the principles of their religion, nor the interpretations of their doctors, but in truth, are only an unfortunate effect of habits, which the privation of a free exerciſe of their induſtrious faculties has made them contract. That the Moſaic legiſlation manifeſts that all manual labours were honourable among the children of Iſrael; and that there is no mechanical art which is interdicted to them; but, on the contrary, the holy writings excite them to acts of induſtry. Pſalm cxxviii: "When thou eateſt the labour of thine hands, thou ſhalt be bleſſed, and it ſhall be well with thee." Proverbs, chap. xxviii. v. 19: "He that tilleth his land ſhall be ſatisfied with bread, but he that followeth the idle ſhall be filled with poverty." Chap. xxiv. v. 27: "Prepare thy work without, and make ready thy things in the field, and after build thine houſe." Their rabbis in the Miſhna are alſo quoted as authorities, which inculcate that there is a religious merit in purſuing induſtrious trades; and in the Talmud it is declared, that the father who does not educate his ſon to ſome profeſſion is rearing a thief.

In conſequence of all this, the great ſanhedrim, in virtue of the powers inveſted in them, ordain, "that all Iſraelites, and particularly thoſe of France and Italy, who now enjoy civil and political rights, ſhall ſeek for means, and adopt them, to inſpire their youth with the love of labour, and an ambition to excel in uſeful trades and liberal arts, as theſe laudable purſuits are conformable to our holy religion, and ſerviceable to the country; which, in men unoccupied and without ſome calling, can only ſee dangerous citizens." The great ſanhedrim further invites the Iſraelites of France and Italy to purchaſe lands, as a means to attach themſelves more ſtrongly to their country, and to renounce thoſe baſer occupations which degrade men in the eyes of their fellow-citizens, and finally to acquire their eſteem and kindneſs by induſtrious habits.

The 10th queſtion, *uſury*, was the ſubject of the eighth and ninth doctrinal points. The eighth point was on *loans to an Iſraelite*. The great ſanhedrim feel the evil conſequences which have followed from an erroneous tranſlation of the 19th verſe of chap. xxiii. of Deuteronomy, wherein the Hebrew word *neſhech* is improperly tranſlated *uſury*, inſtead of *intereſt*. It ſignifies intereſt of any kind, and not uſurious intereſt. The Bible of Oſtervald, and that of the Portugueſe Jews, tranſlate *neſhech* by intereſt, which Sacy, from the Vulgate, has called uſury. When the law prohibited the Jew lending another Jew any thing and requiring *intereſt* for this loan, it was only to bind cloſer the bond of brotherhood, to inſpire a reciprocal kindneſs, and to love one another with diſintereſtedneſs. The divine law and its interpreters permit intereſt, according to the uſe which is made of money. If the loan is intended to aſſiſt an unfortunate family, intereſt is prohibited. *Lend to the poor*, ſays Moſes. The idea of appearing agreeable in the eyes of the Eternal, is the only intereſt the Jew can accept. In commercial ſpeculations it is allowed to receive a juſt intereſt, becauſe the lender riſks his capital with the borrower.

The ninth doctrinal point is on *loans from an Iſraelite to a ſtranger*. The great ſanhedrim, deſirous of correcting that error which attributes to Iſraelites the faculty of practiſing uſurious acts with thoſe who are not of their religion, allowed both by their Law and their Talmudical doctors; and further conſidering that this imputation has occaſioned ſtrong prejudices againſt them, declare that the text which authoriſes loans on intereſt, *to the ſtranger*, is to be confined to thoſe foreign nations on the borders of their Jewiſh territories, who had an intercourſe with the ancient Iſraelites, and who themſelves lent to the Jews; and that the word *nockri* is only applicable to the individuals of thoſe foreign nations, and not to thoſe individuals among whom the Hebrews live as fellow-citizens. That even this intereſt is never permitted to be exceſſive and ruinous, for that would be an abominable iniquity. Therefore they declare, that henceforward all Iſraelites are to make no diſtinction in their loans to their brethren or their fellow-citizens, or even foreigners, but are to conſider this ordinance as a religious duty; and that *uſury is an abominable iniquity*.

The preſident Furtado addreſſed the ſanhedrim on theſe two laſt deciſions: "The ſubject of theſe two deciſions have often produced polemical diſcuſſions. Divines and politicians have ſpoken in direct oppoſition to each other. The firſt would not permit any intereſt whatever for loans; but the other, aſpiring only to that degree of moral perfection which is adequate to human powers, have permitted it in ſome caſes, and prohibited it in others. Among political enquirers, ſome have conſidered that fixing the rate of intereſt was favourable to the well-being of man; while others have deemed this regulation as hurtful to the free circulation of commercial capitals, and conſequently to a greater developement of national induſtry. It is not our buſineſs to reconcile theſe oppoſite ſyſtems, but merely to ſtate the doctrine of our holy legiſlator.

"The Iſraelites have been accuſed that their religion authoriſed them to take uſury; accuſed by men of another religion, which religion is founded on the divinity of the revelation of Moſes. They have ſaid that uſury was a precept of our law! Have they been aware of what they ſaid? If we have received our law from God, as they agree we have, God then would have commanded us to commit a crime! for *uſury is a kind of robbery.* This error, you know, originates in a falſe interpretation of a ſingle word, *neſhech.*"

Here Mr. Furtado labours to prove that this word anſwers to the Latin word *fænus.* To conclude that it means *uſury*, another word ſhould be found which means *intereſt*; but, as ſuch a word does not exiſt, it follows that all intereſt is uſury, and all uſury is intereſt.

He then proceeds with great ingenuity: "Moſes declares, *Thou ſhalt not lend upon intereſt* to thy brother; Deut. xxiii. 9. But how could a ſkilful legiſlator (ſome have ſaid) forbid a legitimate and moderate intereſt between the Iſraelites? are we not rather to believe that he only interdicted uſury from Hebrew to Hebrew, while he allowed it to be practiſed on the ſtranger as an act of hoſtility? Thus, as if it were not enough to accuſe the divine law of having given a power to the Iſraelite to vex the ſtranger by exacting a ruinous intereſt, they have even attributed to it the *inculcating* this infamous traffic. On the other hand, theſe reaſoners confound the manners and habitudes of modern nations with thoſe of the higheſt antiquity; and they falſely attribute to the infancy of ſociety what only belongs to its maturity, and too often to its decrepitude."

Here he refers to what he had delivered in the meetings before the ſanhedrim was formed, in which, with great ability, he had ſketched a picture of the civil and œconomical ſtate of the Jews in the time of Moſes. Equality of property and mediocrity of private fortune were what they firſt aimed to eſtabliſh. Hence the inſtitution of the ſabbatical year, and the year of jubilee; the firſt in every ſeventh year releaſed all debtors from their obligations, and the ſecond every fiftieth year brought with it the reſtitution of all eſtates ſold or mortgaged. It was eaſy to foreſee that the greater or leſs induſtry, the different qualities of the ſoil, and many other ſimilar cauſes, would compel the more unfortunate Iſraelite to have recourſe to his proſperous brother. Moſes foreſaw that in urgent diſtreſs the former might become a ſlave to the latter. With a view to this, he ſays, "Thou ſhalt not lend upon intereſt to thy brother." All aſſiſtance was to be gratuitous; his people were a nation of agriculturiſts. The Jews, though Idumea was not diſtant from the ſea-coaſts, inhabited by the Tyrians, the Sidonians, and other nations poſſeſſing ſhips and commerce, were never themſelves addicted to trade. From all this it follows, that the law of Moſes reſpecting *intereſt* among Jews, was nothing more than a charitable precept, not a commercial regulation.

He then exhibits a fine picture of the Jewiſh people in Paleſtine: "Never were the manners of any ancient nation, its government, its laws, its worſhip, more exactly deſcribed than our's. All the monuments of hiſtory atteſt the ſimplicity of our anceſtors. A paſtoral and agricultural life was their ſole occupation; ruſtic games their only pleaſures. They had neither manufactures nor navigation; all their commerce with their neighbours was naturally limited to barter, at a time when money was rare, and its various uſes ſo little known. They lived in a happy ignorance of all thoſe ſumptuous embelliſhments which are known only to great and opulent nations; they enjoyed a happineſs without ſplendour, and knew to practiſe virtues without celebrity. Moſes would only make them a people of brothers; he would only maintain a family equality; he would not have in Iſrael the poor and the rich. Hence thoſe laws which, after a limited time, re-eſtabliſhed all property. What need had he to regulate commercial matters, ſince all his ordinances tended to remove them from that ſtate, and attach them ſolely to agricultural induſtry? For this reaſon Moſes prohibited the Hebrew to lend his brother money, grain, or any thing, at intereſt. He permitted, but did not command, it towards ſtrangers. The rabbis even prohibit the Jew to take intereſt from the Gentiles, leſt he ſhould in time ſo accuſtom himſelf to the profit, that he might be induced to take it from his brethren. The Jews in Rome declared, on their oath, that uſury was not permitted to be practiſed, either with their brethren or with ſtrangers. And this declaration was certainly conformable to religion and to truth, underſtanding the term uſury in its popular ſignification.

"*If* there are Jews who practice uſury, they are abject beings, unfaithful to the law of Moſes, diſavowed by God and man, and who only prophane the name of Jew. *There can be no uſurers among the Hebrew nation.* Uſurers are neither Jews, Mahometans, nor Chriſtians; they belong to no religion, and are diſavowed by all. Doctors of the law, and notables, you well know, that if we were at this moment living under the civil and political inſtitutions of our patriarchal manners, and that there exiſted ſome anti-ſocial *uſurer* among the people of Iſrael, he would be ignominiouſly expelled from their boſom."

In the ſittings of the 2d of March, 1807, when they adopted theſe two deciſions, the chief of the ſanhedrim delivered an animated diſcourſe. He ſays, that the vice of uſury, which has ſo long ſerved as a ſource of calumny to the Jews, but which originated only in the corruption of the human heart, and the ignorance and intolerance of ages of fanaticiſm, was always prohibited by the law. *That many of their brethren have practiſed it, is a melancholy truth*; but the Talmudiſts declare, that all who abandon themſelves to ſuch monſtrous exceſſes will not at the day of judgment participate in the reſurrection.

He then attributes the cauſe of theſe uſurious practices among Jews to their having been deprived of all civil and political rights; they muſt long have ſtruggled with their conſciences; but their abandonment, and the *ſevere neceſſity of unhappy times*, made the practice ſeem legitimate to thoſe loſt men.

The preſident Furtado then addreſſed the ſanhedrim in an elaborate oration, beginning as follows: "You have at length cloſed your important miſſion, confided to you by a prince, whoſe kindneſs has changed the deſtiny of Iſrael, and annulled the civil and political anathema under which you have groaned ſo many ages."

He declares, that, in their frequent conferences before the ſanhedrim was formed, their ſtudy had been to unite *religious duties with what the circumſtances in which they were now placed required.* Theſe *circumſtances* exacted no ſacrifices from real piety, nor did their religion require that the civil advantages which theſe circumſtances offered to them ſhould be refuſed. "Thus (he continued) all that the pious man owes his God, the citizen his country, the ſubject his ſovereign, you have performed; and your deciſions conſtitute a pact of alliance between our *religion* and our *country!* Above all, it was neceſſary that this accuſation of *uſury*, with which the Hebrews are ſo frequently reproached, as an effect of their religion, ſhould be branded with an indelible mark by an Iſraelitiſh aſſembly."

He then developes and defends the great principle on which the preſent ſanhedrim has formed its deciſions. "Some pious men conceived that the legiſlation of Moſes, containing laws on ſpiritual duties and temporal intereſts, oppoſed by this union an invincible obſtacle to an entire and ſocial incorporation with the people whoſe countries we inhabit. To diſſipate this doubt, it was neceſſary to form a baſis for our deciſions; and this principle is contained in the preamble you have adopted. (See p. 813.) There we eſtabliſh the diſtinction which exiſts between religious laws and political laws: the former are unalterable, whatever the eventual ſituation of the Hebrew people may be; but the latter are ſubordinate in their execution to the human viciſſitudes of their ſtate, their climate, their manners, and the laws of nations. And from all this we might infer, that, *though the orthodox Iſraelite* *may believe that all thoſe orders or commands which compoſe the Moſaic code have been equally revealed, he is not held to believe that all are equally obligatory.* Some of theſe define the connection between man and his Creator; others between man and man, as members of a political ſociety; and a third between ſubjects and their ſovereign. The firſt appeal to our conſcience, and are independent of temporal events; the ſecond and third, from the nature of the objects they decree on, cannot enjoy the ſame permanence; they cannot be immutable, connected as they are with the circumſtances of place, of time, and that political ſtate to which they apply. This political ſtate has been overturned, or diſſolved by ſlow and unexpected revolutions, and neceſſarily looſens thoſe bonds which originated in its exiſtence, and were preſerved by its duration.

"Is there no difference between a conſtituted political body, and a people diſperſed among all the nations of the earth; between a nation which exiſted three thouſand years ago, and the deſcendants of that nation, ſpread at this moment among all others, and to whoſe laws they are religiouſly bound, adopting for their country the ſpot they inhabit, and all that they preſerve of their ancient ſtate being only the manner of worſhipping the Eternal? For, in the ſtate of diſperſion in which they have lived ſo many centuries, they have never had a chief for their religion, no particular depoſitory, no guardian, of their law, no regulator of their eccleſiaſtical hierarchy. Their great ſanhedrims had diſappeared, like ſo many other inſtitutions; and it is in this deſolate ſtate that we have reached the preſent times.

"Yet the opinion prevailing, that we were attached to another terreſtrial country, continued to form an obſtacle to our being incorporated with other nations, ſo as to efface for ever the line of demarcation between Iſraelite and Chriſtian. Thus reduced to form unavailing vows, we have long ſhared in the duties of ſubjects, without participating in their rights, and in the charges of ſociety, without enjoying its advantages. With the inſulation which religion produced, a civil and political inſulation was combined. We were ſtrangers to whom government granted an aſylum; men rather ſubjected than ſubjects; rather domiciliated than citizens; men on whom humanity would beſtow natural rights, but to whom falſe politics denied to grant civil ones.

"Is it ſurpriſing, when we reflect on the moral effect of ſuch an order of things, that this effect ſhould manifeſt itſelf among an ignorant multitude, by a vile and degrading character? among men endowed with ſome elevation of ſoul, by a deſire of ſeeking, in the acquiſition of wealth, ſome indemnification for being deprived of ſerving their country, and diſtinguiſhing themſelves in civil and military employments?

"In refuſing thus to the Iſraelite the ſweet happineſs of ſaying to himſelf, *I have a country*, ſome, in truth, might eaſily have believed, at certain moments, that this people had none. With a noble pride we now declare we poſſeſs one."

The eloquent preſident then ſums up the argument which turns on the diſtinction made between the commands of the law of Moſes; one claſs being eſſentially religious and irrevocable, and the other political inſtitutions, liable to change. "The French government required that this diſtinction ſhould be authoriſed by a great ſanhedrim, becauſe many Iſraelites, whoſe conſciences were ſcrupulous, and who declared that the ſpiritual and temporal ſovereignties were united, could not conceive that the religious ordinances could ever be ſeparated from the political ones; but the declaration the ſanhedrim adopt, unites the triple benefit; 1. To have given this guarantee to the government. 2. To take away the ſcruples which ſome appear to have felt. 3. To do away the error which attributes to the Iſraelite a want of attachment to the country he inhabits.

"Such, doctors of the law and notables, is the advantage of a religion which has particular rites, but an univerſal worſhip. The univerſal worſhip remains, but the particular rites ceaſed, when they became impracticable by the tranſportation of that religion of a particular country into ſuch various climates.

"Permit one reflection which the memorable event of this day ſuggeſts. Among the ſovereigns whom hiſtory preſents as truly great, there are few who have not been either founders or protectors of religion; but too often, in maintaining the majeſty of a religion, they have ſullied its ſplendour and obſcured their own glory, in becoming perſecutors of a different religion. It could only appertain to a ſovereign, whoſe valour and whoſe genius aſtoniſh his contemporaries, as they will poſterity, to re-eſtabliſh the catholic religion, and at the ſame time to place by its ſide two religions, of which one, the common ſource of both, riſes for the firſt time ſince eighteen centuries, from the obſcurity which diſguiſed and concealed it."

He concludes, "Till now thoſe who have read the hiſtory of the modern Hebrews have found nothing but an uninterrupted ſeries of exiles, confiſcations, violations of public faith, rebellions and maſſacres, the ſhame of reaſon and the opprobrium of humanity. The reader is fatigued with this continuity of terrific pictures, where the innocent and the feeble are ſeen gaſping under the powerful oppreſſor, and where men transform themſelves to tigers among the handful of miſerable fellow-beings whoſe only crime conſiſts in adoring the Eternal in a different manner. At length, in this hiſtory exiſts an epoch, on which the virtuous friends of humanity may pauſe with delight; and this epoch is the reign of the magnanimous prince who governs us."

In the ſittings of the 9th of March, the chief of the ſanhedrim cloſed it with an animated oration: he declares that the law of Iſrael is perfect, and contains no anti-ſocial principle. He apoſtrophiſes Napoleon as the idol of France and Italy, and devotes the Jewiſh nation to his commands. He finiſhes by ſaying, "I proclaim the cloſe of the ſittings of the grand ſanhedrim, *conformably to the orders tranſmitted to me.*"

It does not appear that any new regulations or other proceedings relative to the Jews have been adopted in conſequence of the above communications between the heads of that people and the French government; but it is aſſerted by ſome, that the Jews have been forced to pay a large ſum of money that they may continue to enjoy the advantages of citizens of France.

So lately as October laſt, (1810,) the elector (king) of Saxony aboliſhed the perſonal impoſt to which all French, Dutch, Weſtphalian, Daniſh, Bavarian, and Poliſh, Jews were ſubject, as well as thoſe of the duchies of Frankfort and Anholt.

## Of the Logic, Theology, and present Customs, of the Jews.

The manner in which the modern Jews ſet about interpreting the Scriptures has been but little adverted to by Chriſtians in general, perhaps becauſe many of the principal Hebrew works have not been tranſlated, and a ſlender knowledge of the Hebrew tongue was not thought ſufficient to read them in the original. The rabbis draw their deciſions from thirteen different ways of arguing from the text of the written law: this they uſually call *Middoth.* They lay ſo great a ſtreſs upon theſe modes of reaſoning, that they have thought proper to give them a place in their liturgies, where they are read over with the reſt of their hymns. In the Seder Tephilloth they are inſerted among the hymns, with this introduction: "Rabbi Iſhmael ſays, The ſenſe of the law is diſcovered by thirteen modes of argumentation:" and they contain a ſyſtem of what may be called Talmudic logic or reaſoning.

I. *Light and heavy.* This is what the logicians call *argumentum ab impari.* If a ſmall thing produces ſuch effects, how much greater will a greater thing produce? The inſtance which the Talmudiſts bring for this out of

Scripture, is of Miriam, who was ſtruck with leproſy for murmuring againſt Moſes; and, when Moſes interceded that ſhe might be healed, "The Lord ſaid, if her father had but ſpit in her face, ſhould ſhe not be aſhamed ſeven days? let her be ſhut out from the camp ſeven days, and after that, let her be received in again." *Numb.* xii. 14. If a father's rebuke ought to make her aſhamed ſeven days, how much more ought a rebuke from God, againſt whoſe diſpoſition ſhe had murmured, at leaſt equally to affect her. *Halicoth Olam.* p. 116. This they illuſtrate by an inſtance in caſes of damage and treſpaſs, ſpoken to at large in title *Baba Kama*, i. e. The firſt Gate, in *Seder Nezikin*, The Book concerning Damages. The Baba Kama contains rules how to tax the damages done by man or beaſt, or other caſualties; the laws are in Exod. xxi. xxii. If, ſay they, a man's beaſt breaks into another man's ground, and treſpaſſes by eating up his corn, he ſhall make ſatisfaction; then certainly if his beaſt gores another man's beaſt, or a man, he is more obliged to do ſo: for the tooth deſigns no damage, but only to be inſtrumental to prepare food for the ſtomach, whereas the horn deſigns to do miſchief; this is very ſubtil. But the way of reaſoning is certain, and founded upon nature, and is accordingly taken notice of by the great maſters of logic. The prophet Jeremiah uſes this way of reaſoning twice in Jer. xii. 5. "If thou haſt run with the footmen, and they have wearied thee, then how canſt thou contend with horſes? And if in the land of peace, wherein thou truſtedſt, they wearied thee, then how wilt thou do in the ſwelling of Jordan?" Here we ought to obſerve, that arguments from leſs to greater affirm; but from greater to leſs deny. Our Saviour uſes this laſt in Luke xxiii. 31. "If they do theſe things in a green tree, what ſhall be done in the dry?" If I am taken off, who am the green tree, who am innocent, and not, upon the account of any contracted guilt, fit and ripe for deſtruction, ſhall you be ſpared? ſhall this ſinful city which has killed prophets, and ſtoned them which were ſent unto her, eſcape? No, certainly.

II. *Equality*, or *agreement of words*; that is, when two words are alike in Scripture; from the one concluſions are drawn to the other: or, when they agree, reaſonings are formed from that agreement. Here they tell us, that when two like words occur in the ſame verſe, they are put together, that the one may be determined by the other. Thus they interpret Deut. xv. 12. "If thy brother, an Hebrew man, or an Hebrew woman, be ſold unto thee, and ſerve thee ſix years; then in the ſeventh year thou ſhalt let him go free from thee." In the beginning of the law, an Hebrew man and an Hebrew woman are both mentioned. Afterwards, to ver. 18, the law ſpeaks only of the man: yet, becauſe the woman is ſpecified as well as the man at firſt, the woman is intended to enjoy the privilege of the law as well as the man, when ſhe has ſerved out her ſix years. *Halic Olam.* p. 149.

III. *The building of the father.* When the Scripture reveals and explains any thing in one place, we are thence inſtructed how to underſtand other places that are like unto it; becauſe the law is often conciſe, and from a part we muſt gather the whole. This ſort of argument therefore is called "the building of the father," becauſe the paſſage which teaches is as a father, and the other paſſages which are taught, *i. e.* explained by means of that, are as if they came out of his loins. An inſtance or two will make this plain. Exod. xii. 16. the law concerning the feaſt of unleavened bread ſays, "In the firſt day there ſhall be a holy convocation, and in the ſeventh day there ſhall be a holy convocation to you; no manner of work ſhall be done in them, ſave that which every man muſt eat, that only may be done of you." Hence they gather, that the ſame prohibition of ſervile work holds in all other feſtivals of the ſame nature as it does in this. Here the principal ſtructure is raiſed from one verſe. But when this principal ſtructure, as Buxtorf very properly calls it, (Lex Talmud. p. 318. v. Binjan.) is raiſed from two verſes, then the firſt verſe contains the general propoſition, and in the ſecond the particulars ariſing from, and contained in, that general propoſition are ſet down. Thus, Levit. xxi. 17. whoſoever of the ſeed of Aaron had any blemiſh was commanded not to approach the altar. The ſeveral ſorts of blemiſhes are ſpecified in the following verſes. Again, Lev. xv. 2. the law ſays, that the man who hath a running iſſue is, upon the ſcore of that iſſue, unclean. In ver. 4. his bed and his ſeat are pronounced unclean. There, how far the uncleanneſs is to reach is particularly declared.

IV. *Univerſal and particular*, or *general and ſpecial.* That is, when there is ſomething general and ſomething ſpecial in the ſame paſſage, the ſpecial binds the general. As for inſtance, Lev. i. 2. God commands, "If any man of you bring an offering unto the Lord, ye ſhall bring your offering of the cattle, even of the herd and of the flock." *Behemah*, which we render cattle, includes, according to the Talmudiſts, all that we call beaſts, wild as well as tame. Therefore that is reſtrained in the next words, "even of the herd and of the flock," to ſhow that no beaſts muſt be uſed in ſacrifice but beeves, ſheep, and goats. *Halic. Olam.* p. 144, 145.

V. *Particular and univerſal.* When a word expreſſing a genus is added to any number of ſpecies, it is added to ſhow that every poſſible ſpecies that can be included, whether named or not named, ought to be comprehended. As for inſtance, Exod. xxii. 9. when an ox, or an aſs, and a ſheep, are mentioned, and any manner of loſt thing is added, thence the Talmudiſts conclude, that every thing that a man can poſſibly loſe is deſigned herein to be comprehended. *Buxtorf Lex. Talm.* voce *Celal.*

VI. *Univerſal and particular, and then univerſal again, where the determination is made by the particular.* The particular coming here between two univerſals, ſhows that theſe univerſals or generals are not to be taken as the words may ſeen to imply, but ought to be reſtrained by this particular which comes between. As thus; the law ſays concerning the ſecond tithe, which was to be turned into money, and with that money proviſions to be bought at Jeruſalem, or the place which the Lord ſhould chooſe, and ſpent there, Deut. xiv. 26; "Thou ſhalt beſtow that money for whatſoever thy ſoul luſteth after, for oxen, or for ſheep, or for wine, or for ſtrong drink, or for whatſoever thy ſoul deſireth." The ſpecies enumerated here, between the two genera, ſhow that this money was to be laid out only upon the produce of the land of Canaan, which was then and there to be eaten and drunk. *Halic. Olam.* p. 156.

VII. *Something general, that wants ſomething ſpecial*; *and ſomething ſpecial, that wants ſomething general.* The following inſtances will explain this: Levit. xvii. 13. the law is, that "whatſoever man there be of the children of Iſrael, or of the ſtrangers that ſojourn among you, which hunteth and catcheth any beaſt or fowl that may be eaten, he ſhall even pour out the blood thereof, and cover it with duſt." *Cover* here, is a general word; and God uſes the ſame word, which we render *hide* in Gen. xviii. 17. "Shall I hide (or cover or conceal) from Abraham that thing which I do?" Here the general word *cover* is reſtrained, to ſhow that the blood muſt not be put into any ſort of veſſel, but muſt be covered, *i. e.* mixed with duſt: The general here wanted a ſpecial. Again, Exod. xiii. 2. the Lord ſaid, "Sanctify unto me all the firſt-born, whatſoever openeth the womb, among the children of Iſrael, both of man and beaſt, it is mine." It does not appear by this, whether females were not intended as well as males. That therefore is determined in Deut. xv. 19. "All the firſtling males that come of thy herd, and of thy flock, thou ſhalt ſanctify unto the Lord thy God." Still there might be a difficulty in caſe the firſt-born were a female, whether the firſt male that was born afterwards might be ſanctified: that ſcruple is entirely taken away by Exod. xxxiv. 19. "All that openeth the matrix is mine." Here then we have every firſt-born; that being too general, is reſtrained by the ſpecial reſtriction in Deuteronomy, to males. And becauſe this may be too general, though it is ſpecial with reſpect to the firſt, this is again reſtrained by the ſecond general, "All that openeth the matrix."

VIII. *When any thing is taught generally, and there is ſomething particular ſpecified, that ſpecification is not for its own ſake, but to ſhow that the general rule is to be generally underſtood.* Thus, Exod. xxxv. 3. it is ſaid, "Ye ſhall kindle no fire throughout your habitations upon the ſabbath-day." This exception, or rather ſpecification, ſtrengthens the general command, "In it thou ſhalt do no manner of work." If this ſo obvious, and generally ſpeaking ſo neceſſary, a work be forbidden, how much more all the reſt? So Levit. vii. 29. "The ſoul that eateth of the fleſh of the ſacrifice of peace-offerings, having his uncleanneſs upon him, even that ſoul ſhall be cut off from his people." This ſpecification of peace-offerings is not intended to be reſtrained to them alone, but to ſhow that whatſoever is eaten that is ſacred muſt be eaten by thoſe that are clean. Again, Levit. xx. 27. the law ſays, "A man alſo or woman that hath a familiar ſpirit, or that is a wizzard, ſhall ſurely be put to death; they ſhall ſtone them with ſtones." And in Deut. xviii. 10, 11. where the conſulter of familiar ſpirits and the wizzard are joined with witches, though the word *mecaſheph*, which we render witch, is ſuppoſed to comprehend the ſpecified ſorts of "dealers with evil ſpirits." So alſo, Lev. xx. 2. the law is expreſs: "Thou ſhalt ſay to the children of Iſrael, whoſoever he be of the children of Iſrael, or of the ſtrangers that ſojourn in Iſrael, that giveth any of his ſeed unto Molech, he ſhall ſurely be put to death; the people of the land ſhall ſtone him with ſtones." The mention here of this particular ſpecies of idolatrous worſhip is not intended to excuſe the reſt, but rather to confirm the puniſhment of ſtoning, to which all idolaters of what ſort ſoever were liable. *Hal. Olam.* p. 165. and *Buxtorf.* v. *Celal.*

IX. *When any thing that comes under a general rule is excepted, to lay a particular obligation upon that thing which otherwiſe would be compriſed in the general; in this caſe the exception alleviates, and not aggravates.* This is well explained by Buxtorf by the caſe of the man-ſlayer, Deut. xix. 5. "When a man goeth into the wood with his neighbour to hew wood, and his hand fetcheth a ſtroke with the axe to cut down the tree, and the head ſlippeth from the helve, and lighteth upon his neighbour that he die, he ſhall flee unto one of thoſe cities, and live." This is an exception to the general law, Exod. xxi. 12. "He that ſmiteth a man ſo that he die, ſhall ſurely be put to death:" Now, if it were not for this exception, there could be no diſtinction as to the penalty between the man that killed his neighbour caſually, to whom he bore no ill-will before, and him that ſmote him through prepenſe malice. The exception then here excuſes him. This exception is intrinſically juſt, and therefore God in mercy to ſuch unfortunate men, who without deſign, and utterly againſt their wills, dipped their hands in their neighbours' blood, appointed cities of refuge for them, to which they might fly, and where they were obliged to ſtay till the high-prieſt for the time being died. The Talmudiſts give alſo this following inſtance: Levit. xiii. 46. it is commanded concerning the leprous man, "that he ſhould dwell alone, without the camp ſhould his habitation be." This, were there nothing elſe, might be thought very ſevere: therefore, where there might be hopes of his recovery, he was only to be "ſhut up ſeven days," and that twice ſucceſſively, ver. 4, 5. Theſe exceptions conſequently alleviate. *Hal. Olam.* p. 167.

X. *When any thing that comes under a general rule is excepted, to lay a particular obligation not agreeing with the ſenſe of the general rule; in which caſe, the exception both alleviates and aggravates.* As for inſtance, in Levit. xiii. 3. when the hair of the perſon ſuſpected is white, he is ordered to be ſhut up for a leper; but ver. 29. the "hairs of the head and beard" are excepted, leſt grey hairs ſhould be ſuſpected to be ſigns of leproſy; and then the prieſt was to ſee if they were yellowiſh and thin; for then the caſe was different, and it was a ſcall, not a leproſy. Here now there is an alleviation, becauſe all white hairs are not included in the enquiry, ver. 3. And there is an aggravation likewiſe, becauſe of the new caſe. Another inſtance of this way of reaſoning from Exod. xxi. 2. is produced by Buxtorf, and after him by Dr. Clavering. (*Not. in Maimon. de Studio Legis*, p. 114.) There the law is, "If thou buy a Hebrew ſervant, ſix years he ſhall ſerve; and in the ſeventh he ſhall go out free for nothing." Under *ſervant* here, both ſexes may be included, becauſe it is ſo interpreted by Moſes himſelf, Deut. xv. 12. But then that general law in Deuteronomy muſt be reſtrained as it is here; becauſe, when a maid-ſervant is ſold to any man, ſhe ſhall not go out as the men-ſervants do, Exod. xxi. 7. for ſhe may have her freedom before, if ſhe is betrothed either to her maſter or to his ſon; in which caſe, if they break their word with her, they are bound to diſmiſs her immediately. Here then is an alleviation, and there is an aggravation too. The alleviation is, that if ſhe is abuſed they muſt let her go. The aggravation conſiſts in this, that the maſter or his ſon may betroth her to themſelves without aſking her conſent.

XI. *When there is an exception from a general rule, in order to determine a new matter, that new matter cannot be brought back to its general rule again, unleſs it may be expreſsly mentioned in the text.* As thus, Levit. xxii. 10–13. "There ſhall no ſtranger eat of the holy thing, a ſojourner of the prieſt or an hired ſervant ſhall not eat of the holy thing; but, if the prieſt buy any ſoul with his money, he ſhall eat of it, and he that is born in his houſe, they ſhall eat of his meat. If the prieſt's daughter alſo be married unto a ſtranger, ſhe may not eat of an offering of the holy things; but, if the prieſt's daughter be a widow or divorced, and have no child, and is returned unto her father's houſe as in her youth, ſhe ſhall eat of her father's meat, but there ſhall no ſtranger eat thereof." The law here is, that the prieſt, his ſervant bought with his money, and his child, may eat of the holy thing; that is general; the prieſt's daughter married to a ſtranger, *i. e.* to one that is not of the ſacerdotal race, is excepted. Now this exception would have always ſtood good if ſhe had died a wife to that ſtranger, or had children, or had not returned to her father's houſe; therefore there is a new law to give her freſh leave to eat of the holy thing which ſhe had forfeited by being married to a ſtranger; and that is, if ſhe is a widow or divorced, and has no child, and returns to her father's houſe, then ſhe may eat of the holy thing as ſhe might at firſt. *Buxtorf.* There is another inſtance of this rule given by the Talmudiſts, which is this: Levit. xiv. 12. the leper that is to be cleanſed is to offer a *treſpaſs-offering*; this treſpaſs-offering is ſaid in the next verſe to be *as a ſin-offering*; conſequently then the rites of offering both ought to be the ſame; that they might therefore be effectually diſtinguiſhed from each other, there are new particulars added to this ſacrifice, which are the putting of its blood upon the tip of the right ear, and the thumb of the right hand, and the great toe of the right foot, of the perſon that was to be cleanſed. *Hal. Olam.* p. 168.

XII. *Things that teach from the ſubject, and things that teach from the end.* This rule is double; in the firſt part the ſubject is the context, in which there is ſomething clear, by which we may explain what is obſcure. The caſe put in the Halicoth Olam. p. 171. is very extraordinary: "Thou ſhalt not ſteal," ſays the law. What is the puniſhment? If it be meant of ſtealing a man, (which we in Engliſh commonly call kidnapping,) the puniſhment is capital. This, ſays the Mechilta, (a very ancient commentary upon Exodus,) may be gathered from the "Thirteen Ways of Reaſoning, by which the Law is explained:" For ſince, in the decalogue, "thou ſhalt not ſteal" is joined to "thou ſhalt not commit adultery," and "thou ſhalt do no murder," the puniſhment of both which is death by the law of Moſes; therefore this ſort of ſtealing, which certainly comes within the letter of the eighth commandment,

mandment, is puniſhed with death. This is mere rabbinic ſubtlety; the eaſier and the ſurer way of proving it would have been to have recurred to Exod. xxi. 16. where ſtealing of men is expreſsly declared to be capital. The ſecond part is of things that teach from the end: to this the author of the Halicoth ſays nothing, as thinking it ſufficiently plain. Schickard, who was very well ſkilled in theſe matters, thinks that by the end here is not meant the final cauſe of logicians, but a leading clauſe at the end of a law, from which the ſenſe of that law is to be determined. As thus, Levit. xiv. 34. God threatens to viſit ſome houſes with leproſy: The Talmudiſts tell us that mud-walls were exempted from the plague, becauſe, ver. 45, they are commanded "to break down the houſe, the ſtones of it, and the timber thereof, and all the mortar of the houſe." Now, ſay theſe doctors, ſince, in the end or concluſion of the law about leprous houſes, they are required to pull down the houſe, with the ſtones, timber, and mortar, thereof, this ſhows that no houſes came within that law, and conſequently no houſes were ever viſited with leproſy, but what were made of the materials there ſpecified. *Bechinath Happeruſhim*, p. 109.

XIII. *When two texts contradict one another, and a third comes and weighs them both down.* Thus, Exod. xix. 20. it is ſaid that "the Lord came down upon Mount Sinai;" and yet, Exod. xx. 22. "The Lord ſaid unto Moſes, Thus thou ſhalt ſay unto the children of Iſrael, Ye have ſeen that I have talked with you from heaven." Theſe two paſſages are perfectly reconciled by what Moſes ſays to the people of Iſrael, Deut. iv. 36. "Out of heaven he made thee to hear his voice, that he might inſtruct thee; and upon earth he ſhowed thee his great fire, and thou heardeſt his words out of the fire." *Halic. Olam.* p. 171. The next inſtance which the Talmudiſts bring is very ingenious. When David commanded Joab to number the people, he brought in the number of the men of Iſrael to be 800,000 men that were fit to bear arms; 2 Sam. xxiv. 9. Now in the account which we have of this ſame tranſaction in 1 Chron. xxi. 5. the number of the men of Iſrael is ſaid to be 1,100,000 men; here we ſee is a difference of 300,000 men, which we cannot well lay upon a corruption in the Hebrew text, ſince the copy which the ſeventy-two interpreters uſed has the ſame difference; ſo that the reading is the ſame there with that in our Hebrew Bibles. Now this diſagreement is ſolved by the Talmudiſts thus: It appears by 1 Chron. xxvii. 1. that every month there were 24,000 men who waited in their turns to do the king's buſineſs. In king David's time, every body knows, that they divided their year into twelve months as we do; 24,000 multiplied by 12 makes 288,000; that brings the number within 12,000, of whom they ſuppoſe every captain to have 1000 for his own uſe. Now (ſay they) theſe, being already engaged in the king's ſervice, were omitted in one account, and inſerted in the other. Bochart (*Hierozoic. Part* i. *lib.* ii. *cap.* 37.) thinks this ſolution is right. Some very conſiderable interpreters are of opinion that there is nothing at all in this, becauſe there is no foundation for it in Scripture; and therefore they go the ſhorteſt way to work, and fancy the copies in one or both places, but rather that in the Chronicles which enlarges the account, are faulty; but, if they are, they have certainly been ſo for many centuries; for not only the Septuagint, but the vulgar Latin, agree in the ſame numbers. The rabbis, and particularly the Talmudiſts, often trifle, but they do not always; yet, becauſe they do ſo too often, learned men are very apt to run them down at all adventures: but ſince the moſt eminent men among them were men of admirable parts, and thoroughly ſkilled in the biblic ſtyle, and perpetually buſied in the ſame diſquiſitions, their interpretations of texts of Scripture, when they ſtart notions with which we are unacquainted, are not always to be deſpiſed.

Theſe are the thirteen ways of reaſoning which are ſo celebrated among the rabbis; their notion that they are *Halacah le Moſcheh miſſinai*, or a Conſtitution, as they call it, of Moſes, which he brought with him from Mount Sinai, is certainly founded in error. It ſerved them, however, for many uſeful purpoſes, and helped to give a ſanction to many of their forced interpretations of Scriptural texts, by which they endeavoured to ſupport their traditions. But yet this logic of theirs is by no means deſpiſable; and there is not one ſingle mode of the whole thirteen, but may ſometimes be uſed to explain difficulties which frequently occur in the law of Moſes.

Excluſive of the written law, the Jews had another, which they denominated the oral, or the ſecond, law. It conſiſts either in explanation of the ſenſe of the written law, or in cuſtoms, which are ſo many guards to ſecure the more exact obſervance of it. They pretend, that Moſes is as well the author of the ſecond law as of the firſt. The honour the rabbis do their traditional or oral law is indeed very great; for, according to Maimonides, "Moſes, at the time he received the law from God, received the interpretation of it alſo." The ſame rabbi informs us, that, when "Moſes retired into his tent, Aaron came to him, and learned of him the law which God had given to him, and the interpretation of it; and then he ſtood up, and placed himſelf at his right-hand. After Aaron came in Eleazar and Ithamar his ſons, and Moſes repeated to them the ſame things which he had ſaid to Aaron. Then came the ſeventy elders, and Moſes gave them the ſame leſſon which he had given Aaron and his children. And laſt of all came all the people to ſeek the Lord, and to learn of Moſes the law, and its interpretation. The chief among the people divided among the elders the care of teaching both the text of the law, and the explanation of it; but the text was written, and the interpretation was preſerved by tradition. And hence it is, that the ſages, peace be to their ſouls, divide the laws into two ſorts, the one written and the other oral." Some of the rabbis have been remarkably rigorous in their interpretations of the law, while others have been noticed for the oppoſite extreme; and hence that diverſity of opinions which has prevailed among their doctors, and occaſioned infinite diſputes.

It was in order to ſtop the courſe of theſe diſputes, and to hinder the oral law, which was not written, from being loſt, that, after the deſtruction of the temple, the Jews drew it up in a volume called *Miſchna*, a term which the Greeks render by *deuteroſis*, *i. e.* the ſecond law. The compiler of it was rabbi Jehudah. A great while before his time, and even before the birth of Chriſt, the two rabbis Hillel and Schammai had ſet up two ſchools in direct oppoſition to one another; and "ever ſince the diſciples of theſe two rabbis began to multiply, (ſays Maimonides,) as they did not conſider things thoroughly, the diviſion between them has much divided Iſrael, and has made, as it were, two laws of the law of Moſes." "This book, ſays the ſame author, was received by all the Jewiſh world; every one tranſcribed it, and every one taught it in Iſrael, that the oral law might not be loſt." The Miſchna, though a very little volume, contains both the canon and civil law of the Jews. Rabbi Jehudah, as before obſerved, was the compiler of it, about A. D. 180. This doctor was born at Sephoris in Galilee; and, having acquired a great reputation, and being long employed in compoſing differences and deciding diſputes that happened among thoſe of his nation concerning the ſenſe of the law; and likewiſe ſeeing the danger they were in, leſt the Jews, diſperſed through ſo many provinces, might at laſt recede from the traditions of their fathers, or forget ſome part of the rites of their nation; he judged it better to reduce them to writing than to truſt to their memories.

The Miſchna is divided into ſix parts: The firſt is converſant about the diſtinction of ſeeds in a field, the trees, fruits, tythes, &c. The ſecond regulates the manner of obſerving the feſtivals. The third treats of women, and matrimonial caſes. The fourth, whoſe title is *loſſes*, takes cognizance of ſuch ſuits as ariſe from trade, and ſhows the way of proceeding therein. Mention is alſo made of ſtrange worſhip, or idolatry, becauſe it afforded much matter for judicial proceedings. The fifth was concerning obligations, ſacrifices, and every thing that had any relation thereto. The ſixth had for its ſubject the ſeveral ſorts of purifications.

The rabbis have made this book their principal ſtudy, and many of them have written comments on it; which they call *Gemara*, i. e. the perfection of the Miſchna, or finiſhing of the law. Theſe commentaries have been collected together, and are contained in the Two TALMUDS, viz. that of Jeruſalem and that of Babylon; they contain a complete body of Jewiſh doctrines, as well religious as moral. The former was compiled by the rabbis of Jeruſalem, about A.D. 230; the Jews tell us that the principal author was rabbi Johanan; but it is not of ſo great authority as that of Babylon, which was compoſed at a future period. The Jeruſalem Talmud is frequently obſcure, but that of Babylon is clear and explicit. The Babyloniſh Talmud was begun by Aſa, and continued by Marmar and Mar, his diſciples or ſons; it is ſuppoſed to have been completed about A. D. 500. The Talmud of Jeruſalem and the Miſchna, after the Chaldee paraphraſes of Onkelos and Jonathan, are the moſt ancient books of doctrine the Jews have, except the ſacred authors. Lightfoot has derived a great deal of help from them, for the explaining many paſſages of the New Teſtament, by comparing the expreſſions of the Miſchna with thoſe of the apoſtles and evangeliſts. Maimonides has made an extract or abridgement of the Talmud of Babylon, which, in the judgment of many, is preferable to the Talmud itſelf; for he rejects what he finds there that is fabulous, childiſh, or uſeleſs, and applies himſelf to collect only the deciſions of caſes with which that great work abounds. See the article TALMUD.

It may be eaſy for an enlightened mind to perceive how uſeful it would be, in order to underſtand, with clearneſs and preciſion, the Goſpel and the apoſtolical Epiſtles, if the opinions and uſages of the Jews, at the time when the authors of the New Teſtament wrote, were properly known. By Jewiſh opinions we do not mean the precepts and doctrines of the law, but certain traditions, which they pretend were left them by their fathers, which are now found in the Talmud, and which the Jews, who are ſtrict adherers to their cuſtoms and ceremonies, do yet obſerve, as far as times and places will admit.

The Confeſſion of Faith, which contains a ſummary of theſe traditions, conſiſts of thirteen articles, but they are not all equally ancient. The ninth, which declares that the law of Moſes cannot be aboliſhed by any other law, was evidently drawn up with a view to counteract the principles of Chriſtianity; but Jeſus Chriſt came not to deſtroy the law, but to fulfil it. This confeſſion of faith is preſented to us by Buxtorf in his treatiſe *De Synagoga Judaica*, and is as follows:

I. I firmly believe, that God, bleſſed be his name for ever, is the Creator and the Maker of all things; and that every thing was, is, and will be, made for him alone.

II. I firmly believe, that this Creator of all things, bleſſed be his name for ever, is one, by an unity peculiar to himſelf; and that he alone has been, is, and will be, our God.

III. I firmly believe, that this Creator, bleſſed be his name for ever, is not corporeal, nor can in any manner whatſoever be conceived to be corporeal; and that there is no likeneſs to him whatever.

IV. I firmly believe, that the Creator, bleſſed be his name for ever, is the beginning and end of all things.

V. I firmly believe, that the Creator, bleſſed be his name for ever, ought alone to be worſhipped, and that none other beſides him is worthy of adoration.

VI. I firmly believe, that all the words of the prophets are true.

VII. I firmly believe, that the prophecies of Moſes our inſtructor, peace be to him, are true; and that he is the father of all the ſages, whether they went before, or came after, him.

VIII. I firmly believe, that all the law, which is at preſent in our poſſeſſion, was given by Moſes our inſtructor, peace be to him.

IX. I firmly believe, that this law will be never changed; and that the Creator, bleſſed be his name, will never give another.

X. I firmly believe, that the Creator, bleſſed be his name, knows all the actions and all the thoughts of men.

XI. I firmly believe, that the Creator, bleſſed be his name, will benevolently reward thoſe who keep his commandments, and puniſh thoſe who break them.

XII. I firmly believe, that the Meſſiah muſt come; though his coming be delayed, I will always expect it, until he does appear.

XIII. I firmly believe, that the dead will ariſe at the time appointed by the Creator, whoſe name be bleſſed, and his glory magnified, throughout all ages, to all eternity. Amen.

The Jews were ſo firmly and ſtrictly attached to the worſhip of the true God, long before the birth of Chriſt, that no remains of their former inclination to idolatry was obſerved in them; and hence it is, that neither Jeſus Chriſt, nor any of his apoſtles, caſt the leaſt reflection or reproach upon them for any ſuch thing. But, becauſe they received ſeveral other doctrines, which it may be of ſome importance to know, beſides thoſe which are contained in theſe thirteen articles, we ſhall therefore give an account of them, beginning with that which relates to the birth of man.

The rabbis acknowledge, that there is in man a fund of corruption and uncleanneſs; and the Talmud ſpeaks of original ſin in theſe words: "We ought not to be ſurpriſed that the ſin of Eve and of Adam was ſo deeply engraven, and that it was ſealed with the king's ſignet, that it might be thereby tranſmitted to all their poſterity: it was becauſe all things were ſignified the day that Adam was created, and he was the perfection and conſummation of the world; ſo that, when he ſinned, all the world ſinned with him. We partake of his ſin, and ſhare in the puniſhment of it, but not in the ſins of his deſcendants."

The rabbis teach, that the wounds which were made in man by ſin will be cured by the Meſſiah; but they ſay there will be two Meſſiahs, one of which ſhall be put to death, and the other appear with glory. As to the time of his coming, they acknowledge that their fathers believed that the ſpace of time which the world was to laſt was ſix thouſand years; that of theſe God appointed two thouſand for the law of nature, two thouſand for the law of Moſes, and two thouſand for the Meſſiah; ſo that, according to this account, the Meſſiah muſt have come much about the ſame time that Jeſus Chriſt was born and died; but, ſay they, the iniquities of men, which are increaſed *in infinitum*, have obliged God to let a great part of this two thouſand years paſs away before the coming of the Meſſiah; and they forbid the making of any computation of the years of his coming. Moreover, the groſs and carnal Jews ſtill look on the Meſſiah as a conqueror, who muſt ſubdue all the earth, make them maſters of it, and heap all good things upon them; and they fondly imagine that his reign will be a reign of pleaſure and voluptuouſneſs.

They ſeldom make uſe of the name of God in their oaths; but, when they do, it makes them inviolable. They will, however, ſwear by the creatures, (a pitiful ſhift,) and think they have an indubitable right to break thoſe atteſtations. This, perhaps, gave riſe to the prohibition of oaths by Jeſus Chriſt and his apoſtles in Matth. v. in order to correct that horrid abuſe of them, which was too frequently practiſed by the Jews, when the name of God was not expreſsly mentioned in them.

That not one of them ſhall be excluded from a future ſtate of exiſtence is a prevailing notion among the Jews, is evident from their confeſſion of faith; entertaining the idea, that thoſe who do well will have all ſorts of good things heaped upon them, and thoſe that do ill will be puniſhed, either in this or in the other world. They have a ſort of penitential canons, which ſhow the puniſhments, according to their opinion, that ought to be inflicted upon ſinners, when they come to confeſs their ſins. This confeſſion is looked upon as obligatory upon them, and may be found among the ceremonies of the ſin-offering. He who offered it confeſſed his ſin, and charged the victim with it.

They acknowledge that there is a place appointed for the purification of ſouls after death; and they formerly offered ſacrifices for them; but at preſent they content themſelves with barely praying for them. They diſtinguiſh between two ſorts of ſins, one of which will be pardoned in the other world, and the other is unpardonable; and Joſephus tells us, that the Phariſees held a very ſingular opinion upon this ſubject. They taught that the ſouls of good men, when they go out of one body, enter into another; but that thoſe of the wicked are condemned to eternal puniſhments. Thus Herod the Tetrarch, who was prepoſſeſſed with this opinion, thought that the ſoul of John the Baptiſt, whom he had put to death, was entered into Jeſus Chriſt. *Matth.* xiv. 2. The Jews pretend to diſcover what ſort of ſoul every man has in his body, by the firſt letters of his name! As for inſtance, they think that the ſoul of Adam paſſed into the body of David, and muſt come into that of the Meſſiah, becauſe the firſt letters of theſe three names make that of Adam, according to the Hebrew orthography.

One of the principal uſages among the Jews is the extreme care they take to avoid all uncleanneſſes. There are a vaſt number of them ſet down in the law, or eſtabliſhed by tradition; and it is their great care to avoid all theſe ſorts of uncleanneſs that has compelled them to break off all intercourſe with the people among whom they live. It was not poſſible, but that they muſt fall into ſome one or other of theſe pollutions ſo long as they lived with them; becauſe, the Gentiles not taking any of the precautions required by the law, whatever they touched muſt of neceſſity become unclean. Thus they would not make uſe of the oil made by the Greeks, as Joſephus informs us.

The reſpect which the Jews have for the ſacred writings is another of their religious practices. Nothing can be added to the care they take in writing them. The books of the ancients were of a different form from ours; they were written upon ſkins of parchment, which were ſewn together lengthwiſe, and faſtened at the ends to rollers of wood, upon which they were rolled up. The Jews, who are ſtrict adherers to ancient cuſtoms, to this day make uſe of no bibles in their ſynagogues but ſuch as are of this ancient form. Each ſynagogue has a Pentateuch, which they call the Book of the Law, written upon calves' ſkins, in large characters, and without points, becauſe points are of late invention. Theſe ſkins are faſtened to two rollers, whoſe ends project out at the ſides beyond the ſkins, and are uſually adorned with ſilver; it is by them that they hold up the book of the law when they ſhow it to the people, becauſe they are forbidden to touch the book itſelf. Theſe ſkins are ſeveral ells long, and muſt be ſewn together by a Jew with goats' hair which has been ſpun and prepared by a Jeweſs. It muſt be likewiſe a Jew that writes the law, and they are extremely diligent and exact in it, for the moſt trifling error would profane the book. To open and ſhut this book, to hold it, and to raiſe and ſhow it to the people, are three diſtinct offices, which are ſold, and bring in a great deal of money. All who are in the ſynagogue kiſs it; and thoſe who are not near enough to reach it with their mouths, touch it, then kiſs their hands, and put the two fingers with which they touched it upon their eyes, thinking that it preſerves the eye-ſight. They keep it in a cupboard, which ſupplies the place of the ark of the covenant; and they therefore call this cupboard *aron*, which ſignifies *ark*.

The perſon who preſides chooſes any one whom he pleaſes to read and explain the Scriptures, which was looked upon as a mark of diſtinction, (*Maimon. Hilc. Teph.* c. xii.) as we ſee Acts xiii. where we find the rulers of the ſynagogue deſiring the apoſtles, when they were in the ſynagogue, to make a diſcourſe to the people. Ordinarily ſpeaking, a prieſt began, a levite read on, and at laſt one of the people, whom the preſident choſe, concluded. He who read ſtood upright, as did Chriſt when he went into the ſynagogue on the ſabbath-day; Luke iv. 16. Before the reader began, he ſaid with a loud voice, "Bleſs ye God;" and the congregation anſwered, "Bleſſed be thou, O my God; bleſſed be thou for ever and ever." When the leſſon was ended, the book was wrapped up in a piece of ſilk.

The Jews yet retain ſo great a veneration for the ancient Hebrew tongue, that they will not ſuffer any bible in a different language to be read in the ſynagogue. The Helleniſtic Jews read the Septuagint Greek verſion in their ſynagogues; which ſo enraged the other Jews againſt them, that ſerious conſequences were ſometimes expected to ariſe from it: indeed, they were ſo grieved that this verſion was ever made, that they inſtituted a faſt, in which they annually bewailed this misfortune. Becauſe, after the captivity, Hebrew ceaſed to be the vulgar dialect, an interpreter was appointed in the ſynagogues, whoſe office it was to explain to the people what had before been read to them in Hebrew; but nevertheleſs, the uſe they made of the Scriptures, in daily reading them, gave the people at leaſt an imperfect knowledge of their ancient language. See Neh. viii. 4–8. and Prid. Con. ii. 8. And thus we perceive that the eunuch, mentioned Acts viii. 34. could read the prophecy of Iſaiah, and underſtood enough of it to aſk Phillip a queſtion concerning the application of a paſſage in that book, which evidently bore reference to Chriſt.

The Jews keep feſtivals, and call them all ſabbaths, or days of reſt; but they moſt religiouſly obſerve the weekly ſabbath, or ſeventh day. On the eve of the ſabbath the Jews prepared every thing that was neceſſary for the enſuing day; and that eve was called by the Helleniſts *paraſkeve*, or day of preparation. They never undertook any thing on this eve which they were unable to finiſh before ſun-ſet; for at that inſtant the ſabbath began, and continued till the ſame period on the following day; ſo that it laſted from ſun-ſet to ſun-ſet. This is the reaſon why the people waited till ſun-ſet before they brought out their ſick to Jeſus Chriſt. As ſoon as the ſun had ſo far ſunk into the weſtern horizon as to ſhine only on the tops of the hills, the lamps were lighted, becauſe it was unlawful to light any fire on the ſabbath-day.

The Jews on the ſabbath abſtained from all ſorts of labour, which they divide into thirty-nine different kinds, and which contain under them a multitude of others; ſome inſtances of which are theſe: It is forbidden to reap; and even to gather the ears of corn, becauſe that is a ſort of reaping. It is not lawful to ſow; therefore it is not proper to walk on ground newly ſown, becauſe the ſeed may ſtick to the feet, and ſo be carried from place to place, which is looked upon as a kind of ſowing. They were alſo commanded to let all animals reſt that day. If a beaſt by accident fall into a pit on the ſabbath-day, the Jews will not take him out, as they formerly did, but will feed him there. They extend the prohibition of carrying any thing on that day ſo far, that even a tailor dare not go out of his houſe with a needle on his ſleeve. They bear neither arms, nor gold, nor ſilver, about them; they are not even permitted to touch them; neither do they think it lawful to dreſs a wound on that day, unleſs life be ſuppoſed to be in danger.

In order to explain what is ſaid in Exodus xvi. 29. "Abide ye every one in his place, let no man go out of his place on the ſeventh day," they have fixed a certain boundary, which ought not to be exceeded on the ſabbath-day; this was a ſpace of 2000 cubits, which, Acts

i. 12, is called "a ſabbath day's journey." But, to avoid theſe troubleſome obſervances, one of their moſt common methods in this caſe is, to confound two houſes together, and by that means blend two of theſe ſpaces of 2000 cubits into one diſtance: thus, two houſes which adjoin to each other are conſidered with them as but one dwelling; for men that eat of the ſame bread with them are conſidered as of the ſame houſehold; and if, after walking 2000 cubits, a man takes one of the three repaſts uſually eaten on the ſabbath, he may then walk 2000 more, becauſe the latter are then thought to be blended with the former, and to make but one ſingle diſtance of 2000. This artifice they call *erubin*, i. e. mixture.

There does not remain any thing more to be ſaid concerning their feſtivals, except it be, that the word *ſabbath* is ſometimes taken for the whole week; and that, as the Jews never ſuffer three days together to paſs without aſſembling in their ſynagogues, Mondays and Fridays are a ſort of feaſts with them. Some indeed, that they might ſpend them more holily, accuſtomed themſelves to faſt on thoſe particular days; and ſuch was the Phariſee, who ſaid he faſted "twice in a week;" Luke xviii. 12. But on Saturday they never faſted; on the contrary they fed better, and were better dreſſed, than on the other days of the week; it was a day of rejoicing, rather than a day of humiliation, and continues ſo even to this hour. They think themſelves obliged to attend the ſynagogues; and, when they go thither, it is with ſo much apparent gravity and attention, that they do not even ſalute any perſon by the way. They never ate on thoſe days till their return home, which gave riſe to the obſervation of Joſephus, "that on ſynagogue-days they never ate before noon;" and this ſeems to be the reaſon why St. Peter told the Jews on the day of Pentecoſt, that the apoſtles could not be drunk, as they ſuppoſed, "ſeeing it was but the third hour of the day," Acts ii. 15. that is, according to our mode of computation, about nine o'clock in the morning.

Previous to the deſtruction of the temple, the Jews never entered into it but with the moſt profound reſpect, and took care not to look too intently upon the eaſtern gate. No body ſat in it but the princes of the houſe of David; they alone had this privilege. The Jews were even forbidden to have any cane, or money to negociate with, or even ſhoes on, when they went up to the mountain where the temple ſtood; and they took great care, when they were upon it, to ſhake off the duſt from their feet, and never ſpit but in their handkerchiefs. *Maimon. de Domo electa*, cap. vii. They could never go acroſs the temple in order to ſhorten their way; much leſs were they ſuffered to make a thoroughfare of it by carrying any thing through it. The prieſts always went barefooted into it, and it is highly probable that all the Jews did the ſame. The women had a ſeparate place to themſelves, as they have in the ſynagogues to this day, where they are ſhut up in pews ſurrounded with lattices, through which they look. It was common among the Jews, when they prayed, to turn themſelves towards the temple. Daniel did ſo; and this is, perhaps, what we are to underſtand by Hezekiah's "turning his face to the wall," i.e. towards the temple. *Maimon. de Tabern.* lib. vii. cap. i. The reſpect which the Jews entertain for this mode, will not permit them, even at this day, to place their beds in the poſition in which the temple was; nay, they avoid placing themſelves ſo on all occaſions, except ſuch wherein they think the turning towards the temple to be an indubitable teſtimony of reſpect.

The Jews have now no places of worſhip but the ſynagogues, where they aſſemble to pray and read the Scriptures. They offer no ſacrifices in them, becauſe they have always thought it unlawful to offer ſacrifice in any other place than Jeruſalem. Formerly they went thither in the morning, after dinner, and at night; and always ſtood. On their feſtivals and faſts they uſed to pray in public places in the ſame poſture, eſpecially the Phariſees, who did it with a great deal of affectation.

The Jews were remarkably fond of long prayers, and ſuperſtition generally added ſomething new to them; on which account Jeſus forbade his diſciples to pray after that manner, as the heathen did, who thought they ſhould be heard for their much ſpeaking. *Matth.* vi. 7. The Jews divide their prayers into ſeveral ſorts, as praiſes, petitions, thankſgivings, which have all particular names. Beſides prayers, the Jews had likewiſe benedictions among them, of which every one was obliged to repeat a hundred every day. They ſaid them over their bread, and over their wine, when they were at table.

Faſting was practiſed with great rigour among the Jews; and, inſtead of thoſe rich habits which they generally wore, they then clothed themſelves with ſackcloth made of hair. They did not then lie upon their beds to eat as uſual; but ſat upon the ground, in the duſt, and ſcattered aſhes upon their heads. "Whoever," ſays Maimonides in his treatiſe of Faſting, "keeps a faſt, either on account of his own private misfortunes, or of ſome dreadful dream, or of public calamities, ought not to give himſelf any manner of pleaſure, or to walk with his head lifted up, or ſuffer joy to appear in his countenance." Their faſts began in the evening, and ended the next day at the ſame time. On ſome faſt-days they went barefoot, and neither waſhed nor anointed themſelves with oil. When they were at Jeruſalem, they ſpent the whole day in the temple; but, when they were at any other place, they ſpent it in the public places, where they read the Scriptures aloud from morning until the evening, made long prayers, confeſſed their ſins, diſcourſed about the misfortunes which had happened on the like day, upon the account of which theſe faſts had been eſtabliſhed, and ſometimes read nothing but the Lamentations of Jeremiah. They ate not any thing till after ſun-ſet, when the faſt had expired; but their great and moſt ſolemn faſts began an hour before ſun-ſet, and continued till midnight on the following day, during all which time they abſtained from food. Manual labour was not to be exerciſed on their great faſts, at leaſt in the day-time; they were not then permitted even to waſh their bodies in warm water, but only their hands and faces; anointings were forbidden; the baths ſhut up, and not to be entered by any but thoſe whoſe buſineſs it was to cleanſe them; ſhoes were not to be worn on thoſe days, unleſs upon a journey; and the uſe of marriage was then forbidden. But there were ſome faſt-days on which they might do all theſe things.

It may ſeem very wonderful, ſince the conſtitutions and traditions of the elders are ſo often appealed to, and ſo often as well as ſo juſtly blamed by our bleſſed Saviour in his diſcourſes with the Jews, which are preſerved to us in the writings of the evangeliſts, that the generality of the learned men, who have appeared in ſuch numbers ſince the reſtoration of letters, have known ſo little of them as it is plain by their writings that they did. For, though here and there an inquiſitive man among the Chriſtians had looked into thoſe writings of the Jews, in which theſe traditions have carefully been preſerved; yet their number has been very ſmall, and for want of tranſlations of the original books themſelves, to which other men might appeal, what theſe men ſaid had not its due weight. Learning had been propagated in Europe for above 150 years, and the great writers among the ancient Greeks and Romans, both Chriſtian and Pagan, printed, and moſt of the Grecian authors tranſlated into Latin, before any one ritual title of the old genuine traditions of the Jews had been publiſhed among us. Paulus Fagius indeed, ſoon after the reformation, ſet forth the *Pirke Avoth*, in which we have a conciſe hiſtory of the propagation of tradition among the Jews, with ſome few apophthegms of the firſt doctors from whom they reckon their traditions. But then that title had little ritual in it; ſo that, wherein the traditions of the elders conſiſted was not much better known.

In 1629, Johannes Cocceius of Bremen, printed two Miſchnic titles, *Sanhedrin* and *Maccoth*, in Hebrew and Latin, at Amſterdam, which contain an authentic account of the Jewiſh courts of juſtice, and of their method of animadverting upon offenders, with judicious notes, and large and valuable excerpta out of the Babylonian Talmud upon thoſe two titles. Conſtantin l'Empereur printed the title *Middoth*, in which we have the dimenſions of the Temple and all its parts, in 1630; and the title *Baba Kama*, which treats of damages done by beaſts, and fire, and pits, and things of the like nature, ſpecified in Exodus xxi. in 1637. He had finiſhed ſeveral other titles for the preſs. L'Empereur was admirably well verſed in the Jewiſh learning; and, by his great ſkill in the civil law, he was enabled to compare the deciſions of the Talmudiſts with the conſtitutions of the Roman law-givers. Beſides this, he publiſhed a Jewiſh tract called *Halicoth Olam*, in which the Ways of Reaſoning of theſe maſters are accurately explained; and from which we have largely borrowed in this part of our article.

Mr. Robert Sheringham, fellow of Caius College in Cambridge, and a very great honour to that univerſity in his time, printed the title *Joma*, or of the Great Expiation, in Hebrew and Latin, with a learned commentary, at London, in 1648, when he was ejected for his loyalty, for which he was long an exile abroad. Some years after, Dr. Pocock, who was truly an honour to his age and country, printed ſeveral of Maimonides's prefaces to his Commentaries upon the Miſchna in Arabic and Latin, under the title of *Porta Moſis*, at Oxford, in 1655; in which, as the title promiſes, a gate is opened to the underſtanding of the whole traditional law of the Jews. After him Mr. William Guiſe, late fellow of All-Souls College in Oxford, (who, to the ineſtimable loſs of the whole eaſtern learning, was taken off in the flower of his years,) attempted to tranſlate the whole Miſchna into Latin; but he finiſhed only the ſix firſt titles of the *Seder Zeraim*, which were printed after his death at Oxford in 1690, by the learned Savilian profeſſor of aſtronomy in that univerſity, Dr. Edward Bernard. Some few titles more have been printed abroad, among which the moſt conſiderable is the title *Sotah*, (or of the woman accuſed of adultery, who was to be tried by the waters of jealouſy,) by Johannes Chriſtophorus Wagenſeilius; to which he has added a noble commentary, wherein he has taught his Chriſtian readers abundance of things concerning the Jewiſh affairs, beſides what immediately related to the title which he undertook to illuſtrate. He alſo, as Cocceius had done before him, annexed large excerpta out of the Gemara to the text of the Miſchna. Sebaſtianus Schmidius publiſhed the titles *Shabbath* and *Eruvin*, with the commentaries of Maimonides and Bartenora. Huntingius alſo and Lundius have given us the titles *Roſh Haſhana*, i. e. of the feaſt of trumpets, or the beginning of the year; and *Taanith*, i. e. of the Jewiſh faſts; which they have illuſtrated with large and uſeful commentaries.

All this did not contain a full third part of the Miſchna; and all this while the original text of the Phariſaic law was unknown to moſt men. Mr. Selden indeed, who was a great maſter of the whole Talmudic learning, had given us juſt diſcourſes upon many different ſubjects, in which he fully explained the opinions of theſe ancient doctors upon thoſe heads which he treats of. (Hiſtory of Tithes. Uxor Ebraica; De Succeſſione in Pontificatum; De Succeſſionibus in Bona Defuncti; De Anno Civili Veterum Judæorum; De Jure Naturali & Gentium Secundum Diſciplinam Ebræorum; De Synedriis.) And Dr. Lightfoot, a man no ways his inferior in that ſort of knowledge, had applied it with great advantage to the illuſtration of the biblical text, and thereby cleared abundance of things in the New Teſtament which were before unknown to the moſt learned interpreters of the Scriptures among the Chriſtians.

Gulielmus Surenhuſius, profeſſor of Hebrew and Greek in what they call the Schola Illuſtris at Amſterdam, undertook to give us the Miſchna entire in Hebrew and Latin, with the commentaries of Maimonides and Bartenora at large upon the whole work. This he publiſhed at Amſterdam in ſix folios, of which the firſt volume was printed in 1698, and the laſt in 1703. So lately is it that that book which the moſt conſiderable part of the Jewiſh nation eſteems as the authentic text of their oral law, as it has done for near 1700 years paſt, has been entirely communicated to the Chriſtian world. The greatneſs of the undertaking had deterred other men, which makes our obligation to him ſo much the greater.

The Jews indeed have had, for ſeveral ages, full and plain inſtitutions of the whole oral law among them, written in a clear intelligible ſtyle. The chief of theſe is the *Yadhachazaca*, or the Strong Hand, of Maimonides; in which in an eaſy and methodical manner, and in a clear ſtyle, he has given his countrymen an ample account of the whole Talmudic law. This has been printed ſeveral times among the Jews, and has been from the time of its firſt publication valued by them as it juſtly deſerves. And yet it is not much above two hundred years ſince its true value has been well known to the learned among us. Petrus Cunæus was one of the firſt that diſcovered its great uſefulneſs, in his incomparable little book of the Commonwealth of the Jews. Joſeph Scaliger, before him, knew the worth of that great man, and of his *More Nevochim*, which he commends according to its merit in ſeveral places of his epiſtles; but that book is not ritual. However, Joſeph Scaliger did not ſtop there; he it was, who whilſt he lived in Holland, where he ſpent his latter years, inſpired the young men of that nation with a love of the eaſtern learning, by ſhowing them its intrinſic worth; ſo that in truth we owe to his example and authority, in a great meaſure, all thoſe noble performances by which Cunæus, l'Empereur, de Dieu, Erpenius, who died early, and after him Golius, and many others of that age and country, acquired ſo juſt a reputation to themſelves, and were ſo uſeful to thoſe that came after them. And yet very few titles of that great work of Maimonides were publiſhed in Latin till the ſeventeenth century. Dionyſius, ſon to the great Gerarde John Voſſius, tranſlated the title of *Idolatry*, which is printed with his father's great work of the Original and Progreſs of Idolatry, with a very uſeful commentary. Georgius Gentius publiſhed his *Hilcoth Deuth*, or Moral Precepts, in Hebrew and Latin, at Amſterdam, in 1640; Gulielmus Vorſtius alſo tranſlated his *Foundations of the Law*: but neither that, nor any other of his verſions of Hebrew books, of which we have ſeveral, are much eſteemed by the learned. The excellent dean of Norwich, Dr. Prideaux, to whom we are obliged for his Connexion of the Hiſtory of the Old and New Teſtament, publiſhed two titles out of Maimonides's *Yad*, concerning the "Gifts of the Poor," and the "Laws of the Proſelytes of Righteouſneſs and the Gate." And the learned and worthy profeſſor of the Hebrew language at Oxford, Dr. Robert Clavering, gave us two other titles, "of the Study of the Law," and "of Repentance," in Hebrew and Latin, with very uſeful notes. All which, for the curioſity of the matter, and the eaſineſs of the ſtyle, are very proper to be put into the hands of young beginners.

But in all theſe titles there is little ritual; ſo that, though theſe pieces have their juſt and true value, yet, they do not much contribute towards underſtanding the *traditions of the elders*, of which we have an entire ſyſtem in that admirable work of Maimonides. About 120 years ago, M. Colbert, that great patron of letters, employed Louis de Veil, a convert Jew, who was maſter of a beautiful Latin ſtyle, to turn the whole Yad into Latin. He printed ſome few titles out of it in Latin, eſpecially concerning "the Temple Service," and the "Method of Intercalations" of the Jewiſh year, at Paris; when, turning proteſtant, he came into England about the year 1680, where he went on with that work, and publiſhed the title "of Sacrifices" in the year 1683 at London, with Abarbanel's preface to his commentaries upon Leviticus. It is pity that he did not find encouragement to go on with his deſign; for, though he too often ſuffered his Latinity to get the better of his Hebrew, yet that work, if he had gone through with it, would have been a noble and a pleaſant introduction to thoſe who would willingly know theſe things at an eaſy rate, and are often diſguſted at the uncouthneſs and barbarity of the ſtyle of moſt writers upon theſe ſubjects. In 1711 Andreas Chriſtophorus Zellerus printed his title "of the Red Heifer" at Amſterdam.

But all this, and whatever elſe has been publiſhed by Chriſtians out of theſe pandects, is very little in compariſon of the whole work. And, after all, if we had it entire in Latin or Engliſh, yet it wants a great deal of the authority of the Miſchna itſelf, eſpecially in conteſted caſes. For we ought to conſider that Maimonides lived in the twelfth century, ſeveral ages after the Talmud was ſealed up, which it was upon the finiſhing of the Babylonian Gemara, after the great ſchools which the Jews kept for many ages in Babylonia were deſtroyed by the Saracenic caliphs. The Jews were then diſperſed into Europe; and in Spain, France, and England, they made numerous ſettlements. At Corduba in Spain Maimonides was born; there he began to compoſe his firſt great work, which was his Commentaries upon the Miſchna, which he wrote in Arabic, the language of the Moriſcos and Arabs among whom he had his education. It was afterwards turned into Hebrew; and Dr. Pococke has given us a hiſtory of that verſion in his Preface to the Porta Moſis. From that verſion it has been publiſhed in Latin by Surenhuſius. That commentary is drawn from the Gemaras and the other moſt ancient ritual authors among the Jews. But ſtill, whatſoever praiſe he may and does deſerve, as an exact, intelligible, and judicious, interpreter, who has cleared the whole body of thoſe traditional laws from the vaſt load of impertinent and fabulous ſtuff with and under which it had ſo long lain mixed and oppreſſed, he can be conſidered only as an interpreter. Nothing that he ſays can be appealed to as a record, when any eſſential doubts ariſe. The caſe is the ſame with him, who ought to be placed in the front of the Talmudic commentators and ſyſtematical men, and Solomon Jarchi and Bartenora, when the meaning of any deciſion is enquired after, as it is with Stapleton, Bellarmin, or Du Perron, or any eminent polemical divines among the papiſts. They are readily allowed by their own ſide to be good and uſeful writers upon any queſtion that is controverted between us and the church of Rome. But if any man of that communion ſhould in the heat of diſputation be preſſed with the authority of any of theſe authors, by one of our writers, who may judge that what they ſay is to his purpoſe; ſuch a man would inſtantly reply, Theſe were but ſingle doctors; they might err, and they very often do. We are not bound to ſtand to their deciſion. What ſays the Council of Trent? What ſays the Catechiſmus ad Parochos? Is there any ſuch thing in the eſtabliſhed Liturgies? So here, if a queſtion ſhould ariſe relating to any material conſtitution, either concerning its ſenſe or its validity, no learned Jew will be determined by what Maimonides or Solomon Jarchi ſays, if it ſhould ſeem to contradict the text of the Miſchna; and much more if it cannot be reconciled to the ſettled explications of the text in the Gemaras, eſpecially that of Babylon, which is of the greateſt authority, as we have before obſerved.

In addition to the above, we may remark, that ſeveral authors, beſides thoſe before mentioned. have treated on ſome particular paſſages of the Miſchna; and we ſhall conclude with obſerving, that every thing reſpecting the Jewiſh mode of interpreting the law is worth the attention of every individual who wiſhes to become acquainted with the minutiæ of the Jewiſh as well of the Chriſtian faith.

JEW's EARS, *ſ.* [from its reſemblance of the human ear. *Skinner.*] A fungus, tough and thin; and naturally, while growing, of a rumpled figure, like a flat and variouſly-hollowed cup; from an inch to two inches in length, and about two thirds of its length in breadth. Its ſides in many places run into the hollow, ſo as to repreſent in its ridges like thoſe of the human ear. It generally grows on the lower parts of the trunks of elder-trees decaying. The common people cure themſelves of ſore throats with a decoction of it in milk. *Hill's Mat. Med.*—See PEZIZA.—An herb called *Jew's ear* groweth upon the lower parts of elder, and ſometimes aſhes; in warm water it ſwelleth, and openeth extremely. *Bacon.*

JEW's HARP, *ſ.* A kind of muſical inſtrument held between the teeth, which gives a ſound by the motion of a broad ſpring of iron, which, being ſtruck by the hand, plays againſt the breath.

JEW's MAL'LOW, *ſ.* Ranwolf ſays it is ſown in great plenty about Aleppo as a pot-herb, the Jews boiling the leaves of this plant to eat it with their meat. *Miller.*—See CORCHORUS.

JEW's STONE, *ſ.* The clavated ſpine of a very large egg-ſhaped ſea-urchin, petrified by long lying in the earth. It is of a regular figure, oblong and rounded, ſwelling in the middle, and gradually tapering; about three quarters of an inch in length, and half an inch in diameter; ridged and furrowed alternately, in a longitudinal direction; and its colour is a pale duſky grey, with a faint caſt of duſky reddiſhneſs. It is found in Syria. *Hill's Mat. Med.*

JEW's TRUMP, *ſ.* The Jew's harp. *Scott.*

JEW'EL, *ſ.* [*joyau*, Fr. *jeweelen*, Dut.] Any ornament of great value, uſed commonly of ſuch as are adorned with precious ſtones.—Here, wear this *jewel* for me; 'tis my picture. *Shakeſpeare.*

They found him dead, and caſt into the ſtreets,
An empty caſket, where the *jewel*, life,
By ſome damn'd hand was robb'd and ta'en away. *Shakeſp.*

A precious ſtone; a gem.—*Jewels* too, ſtones, rich and precious ſtones, ſtolen by my daughter! *Shakeſpeare.*—A name of fondneſs; an appellation of tender regard;

Ye *jewels* of our father, with waſh'd eyes
Cordelia leaves you. *Shakeſpeare.*

Jewels made a part of the ornaments with which the Jews, Greeks, and Romans, eſpecially their ladies of diſtinction, adorned themſelves. So prodigious was the extravagance of the Roman ladies in particular, that Pliny the elder ſays he ſaw Lollio Paulina with an equipage of this kind amounting, according to Dr. Arbuthnot's calculation, to 322,916l. 13s. 4d. of our money. It is worthy of obſervation, that precious ſtones amongſt the Romans and all the ancients were much ſcarcer, and conſequently in higher eſteem, than they are amongſt us ſince a commerce has been opened with the Indies. The ancients did not know how to cut and poliſh them to much perfection; but coloured ſtones were not ſcarce, and they cut them very well either hollow or in relief. When luxury had gained ground amongſt them, the Romans hung pendants and pearls in their ears; and, for this purpoſe, the ears of both ſexes were frequently bored.

JEW'EL (John), a learned prelate of the church of England, and zealous champion for the proteſtant cauſe, was deſcended from an ancient and reſpectable family in Devonſhire, and born at the village of Buden in that county, in the year 1522. He received his firſt inſtruction in the rudiments of grammar-learning from his uncle John Bellamy, rector of Hampton; and before he was fourteen years of age was ſent to the univerſity of Oxford, and admitted a poſt-maſter at Merton-college; where his tutor was Mr. John Parkhurſt, afterwards biſhop of Norwich. Under his inſtructions young Jewel made a conſiderable progreſs in his academical ſtudies, and was initiated in the principles of the reformed religion. In the year 1539, he removed to Corpus-Chriſti college, of which he had been elected a ſcholar; and in the following year he took the degree of B. A. He now began to proſecute his ſtudies with more ardour than before, accuſtoming himſelf to riſe at four o'clock in the morning, and to continue at his books till ten at night, with ſuch intenſeneſs of application, that he was often obliged to be reminded when to take his neceſſary meals. By this indefatigable aſſiduity he acquired a rich furniture of various learning, but at the expence of his health; and this was ſtill further injured by a cold which he caught in a place whither he had retired from Oxford, during the prevalence of an epidemical ſickneſs; owing to which he contracted a lameneſs in one of his legs, that accompanied him to the grave. However, he now commenced tutor, with great reputation and ſucceſs, and contributed much to promote the reformation, by privately inſtructing his pupils in proteſtant principles. Soon afterwards he was choſen profeſſor of rhetoric in his college, and diſcharged the duties of that office with diſtinguiſhed honour for ſeven years. But our author was not more celebrated for his learning and talents, than for his eminent piety, and the exemplarineſs of his manners. It is recorded that the dean of his college, who was a rigid papiſt, once ſaid to him, "I ſhould love thee, Jewel, if thou wert not a Zuinglian. In thy faith I hold thee a heretic; but ſurely in thy life thou art an angel. Thou art very good and honeſt; but a Lutheran." In the year 1544 Mr. Jewel was admitted to the degree of M.A.

Upon the acceſſion of king Edward VI. in 1546, Mr. Jewel no longer made any ſecret of his religious opinions, but openly avowed himſelf to be a proteſtant; and, when Peter Martyr entered on his divinity profeſſorſhip at Oxford, he contracted a cloſe friendſhip with that eminent man, attended on his lectures and ſermons, and officiated as his notary, when he diſputed in the divinity-ſchool with the champions of the catholic doctrine, on the ſubject of the real preſence. In the year 1550, he commenced bachelor of divinity; on which occaſion he preached an excellent Latin ſermon. The zeal which he diſplayed, during the whole of king Edward's reign, to diſſeminate proteſtant principles, occaſioned his being one of the firſt victims to the reſentment of the papiſts, upon the acceſſion of queen Mary. So eager were the catholic zealots in his own college to ſignalize their fury againſt him, that, before any law was enacted for the re-eſtabliſhment of popery, the majority of the fellows expelled him as a heretic, *by their own private authority*. But, notwithſtanding his expulſion, ſo high was the opinion which the univerſity entertained of his abilities, that they appointed him their orator, and employed his elegant pen to draw up their congratulatory addreſs upon the acceſſion of the new queen. Fuller, indeed, intimates, that this diſtinguiſhed honour was intended to enſnare him, either by rendering him odious to his own party if he accepted it, or by provoking againſt him the enmity of the catholics if he refuſed it. If ſuch was the caſe, which is not improbable, he had the dexterity to diſappoint his enemies; for the addreſs was worded by him in ſuch reſpectful, and at the ſame time guarded, terms, that it gave offence to neither party; and, after having obtained the approbation of the vice-chancellor and the heads of the colleges, was favourably received by the queen. Mr. Jewel, upon his expulſion from his own college, withdrew to Broadgate-hall, now Pembroke-college, whither many of his pupils and other gentlemen privately reſorted to him for inſtruction. But not long afterwards, upon the re-eſtabliſhment of popery, being required to ſubſcribe to the tenets of that faith, with threatenings of death upon his refuſal, his fortitude forſook him, and he gave his ſignature to ſentiments which his heart abhorred. His compliance, however, not being thought ſincere, meaſures were planned for ſecuring him, that he might be delivered over to the inquiſitorial examination of the bloody and mercileſs biſhop Bonner. Having received information of this deſign, he privately ſet out on the night in which it was intended to ſeize him, and took a bye-road towards London. He purſued his journey on foot, till he was quite exhauſted, and obliged to lie down upon the ground. In this condition he was found by Auguſtine Bernher, a Swiſs, who had been in the ſervice of biſhop Latimer, and afterwards a miniſter, who furniſhed him with a horſe, and conducted him to the houſe of lady Anne Warcup, where he was hoſpitably entertained, and then conveyed in ſafety to London. Here he was obliged to exerciſe the utmoſt precaution, in order to avoid the emiſſaries of Bonner, who took incredible pains to diſcover him; and at length his eſcape from the kingdom was happily effected by means of ſir Nicholas Throgmorton, who ſecured him a paſſage in a ſhip, giving him money for his ſupport; and the management of Giles Lawrence, a fellow-collegian, who conveyed him on-board. No ſooner was Mr. Jewel landed on the continent, than he proceeded directly to Frankfort, where he arrived in the year 1554; and ſoon afterwards made a public confeſſion before the Engliſh exiles in that city, of his ſincere contrition on account of his late ſubſcription at Oxford, begging pardon of God, and of the church, for the weakneſs which he had diſcovered in that tranſaction. After a ſhort ſtay at Frankfort, he went to reſide with his old friend Peter Martyr, at Straſburg; who had eſtabliſhed in his houſe a kind of college for learned men, of which he conſtituted Mr. Jewel his vice-maſter. The latter alſo accompanied that eminent man to Zurich, where he aſſiſted him in the publication of ſome of his writings, and in the compoſition of his theological lectures. It was probably from this place that Mr. Jewel made an excurſion to Padua, in which city he commenced a friendſhip with ſignior Scipio, a noble Venetian, to whom he afterwards addreſſed his Epiſtle relative to the Council of Trent.

When the joyful news arrived of the death of queen Mary in 1558, and of the peaceable acceſſion of queen Elizabeth to the throne, Mr. Jewel, as well as moſt of the other proteſtant exiles, prepared to return to England, where he arrived in the beginning of the following year, and met with a gracious reception from the queen; and his learning and merits were rewarded, in the beginning of the year 1560, by his promotion to the biſhopric of Saliſbury. Soon after he gave a public challenge to all Roman-catholics, both at home and abroad, in a ſermon which he preached at St. Paul's croſs, and immediately printed, to produce a ſingle clear and evident teſtimony, either from the fathers, or any writer of acknowledged merit who flouriſhed within ſix hundred years after Chriſt, from any general council during that period, from the example of the primitive church, or from the holy Scriptures, in ſupport of any one of the many articles which the Romaniſts maintained againſt the church of England. Two years afterwards, biſhop Jewel publiſhed his famous Apology for the Church of England, in elegant Latin, of which an Engliſh tranſlation was publiſhed ſoon after its appearance, and another in 1564, by Anne, one of the ſix learned daughters of ſir Anthony Cooke, and wife of ſir Nicholas Bacon, lord keeper of the great-ſeal. It was alſo tranſlated into the German, Italian, French, Spaniſh, and Dutch, languages, and afterwards into the Greek, and procured the author a high degree of reputation in every part of Europe. In the years 1564 and 1566, different anſwers to our author's *challenge* made their appearance; and ſeveral catholic writers had undertaken to confute the *Apology*; the moſt learned and able of whom was Mr. Harding; who, in 1563, publiſhed at Antwerp, A Confutation of the Apology of the Church of England, 4to. To this work our prelate publiſhed a long and particular anſwer, containing incidental notices of his other antagoniſts, and entitled, A Defence of the Apology of the Church of England, &c. 1564, folio; which was tranſlated into Latin, and printed at Geneva, in the year 1600. It was ſo much eſteemed, that it was ordered by queen Elizabeth, king James, king Charles I. and by four ſucceſſive archbiſhops, to be read and chained up in all pariſh churches throughout England and Wales. It contributed to promote the reformation from popery more than any other publication of that period.

Biſhop Jewel diſcharged the duties of his epiſcopal function with exemplary diligence and attention. In his firſt viſitation he began, and in his laſt he perfected, ſuch a reformation, not only in the cathedral and parochial churches, but in all the courts of his juriſdiction, as procured him the veneration and eſteem of all good men. Of the manner in which his clergy diſcharged their duties, and of their moral conduct, he was a vigilant inſpector; and by watching narrowly the proceedings of his chancellor and archdeacons, his ſtewards and receivers, he guarded againſt thoſe acts of oppreſſion, injuſtice, and extortion, for which epiſcopal courts have been too often juſtly cenſured. To prevent theſe, and other abuſes, he often ſat in his conſiſtory court; and he alſo frequently ſat as aſſiſtant on the bench of civil juſtice, being himſelf in the commiſſion of the peace. He was alſo a frequent and zealous preacher, often travelling about his dioceſe, and occupying the pulpit wherever he came. His private life was pious, uſeful, and laboriouſly ſtudious. He generally roſe about four o'clock in the morning; and, after prayers, with his family at five, and in the cathedral about ſix, retired to his ſtudies during the remainder of the morning. After dinner he gave audience to all perſons who had any requeſts to make to him, or attended to the cauſes which either devolved upon him in his judicial capacity, or were referred to him as an arbitrator. About nine o'clock at night, he examined his domeſtics reſpecting the manner in which they had ſpent the day, and then went to prayers with them; after which he returned to the labours of his ſtudy, till near midnight, when he went to bed, where the gentlemen of his bedchamber generally read to him till he fell aſleep. Such a laborious courſe of life, without any recreation or intermiſſion, excepting what his neceſſary refreſhment at meals, and a very few hours of reſt, afforded him, contributed to injure his health, and bring on a decline. When his friends could not but obſerve a ſenſible alteration in his appearance, they endeavoured, but without effect, to prevail upon him to relax from his inceſſant application, and to deſiſt, at leaſt for a time, from undertaking pulpit-ſervices. In reply to their friendly remonſtrances he only anſwered, that "a biſhop ſhould die preaching." Theſe words were almoſt literally fulfilled in his own caſe; for a little time before his death, having promiſed to preach at ſome place in Wiltſhire, on his way thither he was met by a gentleman, who, perceiving from his looks that he was very ill, ſtrongly urged him to return home, telling him that the people had better loſe one ſermon, than be altogether deprived of ſuch a paſtor. The biſhop, however, could not be prevailed upon to return, but proceeded to the place appointed, and there preached his laſt ſermon, which he was not able to finiſh without great difficulty. From that time he grew rapidly worſe, and died within a few days, in September 1571, at Monkton-Farley, in Wiltſhire, when he was in the fiftieth year of his age. Beſides the articles already numerated, biſhop Jewel wrote, 1. Sermons. 2. A View of a ſeditious Bull ſent into England from Pius V. anno 1569. 3. A Treatiſe of the Holy Scriptures, and A Treatiſe of the Sacraments. 4. Expoſition of the two Epiſtles of the Apoſtle Paul to the Theſſalonians, printed in 1594, 8vo. 5. Certain Sermons preached before the Queen's Majeſty at St. Paul's Croſs, and elſewhere, printed in 1583, 8vo. All his Engliſh works, which are ſtill deſervedly held in eſteem, were printed together at London, in 1609, folio; and many of his Letters are in the collection of records at the end of the third volume of Burnet's Hiſtory of the Reformation.

JEW'EL-BLOCKS, *ſ.* in the ſea-language, a name given to two ſmall blocks which are ſuſpended at the extremity of the main and fore top-ſail yards, by means of an eye-bolt driven from without into the middle of the yard-arm, parallel to its axis. The uſe of theſe blocks is, to retain the upper part of the top-maſt ſtudding-ſails beyond the ſkirts of the top-ſails, ſo that each of thoſe ſails may have its full force of action, which would be diminiſhed by the encroachment of the other over its ſurface. The *haliards*, by which thoſe ſtudding-ſails are hoiſted, are accordingly paſſed through the jewel-blocks; whence, communicating with a block on the top-maſt head, they lead downwards to the top or decks, where they may be conveniently hoiſted.

JEW'EL-HOUSE, or OFFICE, *ſ.* The place where the regal ornaments are repoſited.—The king has made him maſter of the *jewel-houſe. Shakeſpeare.*

JEW'ELLER, *ſ.* [from *jewel.*] One who traffics in precious ſtones.—Theſe grains were as like little dice as if they had been made by a *jeweller. Boyle.*—The price of the market to a *jeweller* in his trade is one thing; but the intrinſic worth of a thing to a man of ſenſe is another. *L'Eſtrange.*—I will turn *jeweller:* I ſhall then deal in diamonds, and all ſorts of rich ſtones. *Addiſon.*

JEW'ELRY, *ſ.* The place or office where jewels are kept; the art or trade of a jeweller.

JEW'ESS, a Hebrew woman, a woman profeſſing Judaiſm.

JEW'ISH, *adj.* Belonging to the Jews, pertaining to the Hebrews.

JEW'RY, the country of the Jews, a place where Jews are permitted to reſide.

JEZANI'AH, [Hebrew.] The name of a man.

JEZ'EBEL, [Heb. a dunghill.] The name of a woman.

JE'ZER, [Hebrew.] A man's name.

JEZ'ERITE, *ſ.* [from *Jezer.*] A deſcendent of Jezer.

JEZ'IDES, *ſ.* Among the Mahometans; a term of ſimilar import with heretics among Chriſtians.

The Jezides are a numerous ſect inhabiting Turkey and Perſia, ſo called from their head Jezid, an Arabian prince, who ſlew the ſons of Ali, Mahomet's father-in-law; for which reaſon he is reckoned a parricide, and his followers heretics. There are about 20,000 Jezides in Turkey and Perſia; who are of two ſorts, black and white. The white are clad like Turks; and diſtinguiſhed only by their ſhirts, which are not ſlit at the neck like thoſe of others, but have only a round hole to thruſt their heads through: this is in memory of a golden ring, or circle of light, which deſcended from heaven upon the neck of their cheq, the head of their religion, after his undergoing a faſt of forty days. The black Jezides, though married, are the monks or religious of the order.

JEZI'EL, [Hebrew.] The name of a man.

JEZIER'NICA, a town of Lithuania, in the palatinate of Novogrodeck: forty miles ſouth-weſt of Novogrodeck.

JEZIOROC'ZE, a town of Lithuania, in the palatinate of Wilna: thirty-two miles weſt-north-weſt of Braſlaw.

JEZLI'AH, [Hebrew.] The name of a man.

JEZO'RA, a town of Lithuania, in the palatinate of Troki: twelve miles north-eaſt of Grodno.

JE'ZOW. See BIEKOW.

JEZ'RAEL, or JEZREEL, a town in the north of Samaria, towards mount Carmel, where ſtood a palace of the kings of Iſrael. (1 Kings xxi. 18.)—On the borders of Galilee; (Joſhua xix.) ſaid to be one of the towns of Iſſachar.—The valley of Jezreel (Judges vi. 17.) was ſituated to the north of the town, running from weſt to eaſt for ten miles, between two mountains; the one to the north, commonly called *Hermon*, near mount Tabor; the other *Gilboa*; in breadth two miles.

JEZRAHI'AH, [Heb. the brightneſs of the Lord.] A man's name.

JEZ'REELITE, *ſ.* [from *Jezreel.*] An inhabitant of Jezreel.

JEZ'REELITESS, *ſ.* A woman of Jezreel.

IF, *conjunction*; [ȝıꝼ, Sax.] Suppoſe it be ſo, or it were ſo, that. An hypothetical particle.—This ſeeing of all things, becauſe we can deſire to ſee all things, Malbranche makes a proof that they are preſent to our minds; and, *if* they be preſent, they can no ways be preſent but by the preſence of God, who contains them all. *Locke.*

Tiſiphone, that oft haſt heard my pray'r,
Aſſiſt, *if* Oedipus deſerve thy care. *Pope.*

Whether or no:

She doubts *if* two and two make four:
It can't—it may be—and it muſt;
To which of theſe muſt Alma truſt?
Nay, further yet they make her go,
In doubting *if* ſhe doubts or no. *Prior.*

Allowing that; ſuppoſe it be granted that.—Such mechanical circumſtances, *if* I may ſo call them, were not neceſſary to the experiments. *Boyle.*

IF, *ſ.* A doubt, a condition; as, *Ifs* and ands.

IF, a ſmall iſland in the Mediterranean, near the coaſt of France, the moſt eaſterly of three, at the entrance of the port of Marſeilles, well fortified and furniſhed with a garriſon.

I'FAITH, [an oath for] In faith.—Your gown's a moſt rare faſhion, *i'faith. Shakeſpeare.*

IFFEHAN', a town of Aſia, in Perſian Armenia: forty-ſix leagues eaſt-north-eaſt of Erivan.

IFFEN'DIC, a town of France, in the department of the Ille and Vilaine, and chief place of a canton, in the diſtrict of Montfort: one league weſt of Montfort, and two and a half eaſt-ſouth-eaſt of St. Meen.

IFF'ROS, a town of Arabia, in the province of Yemen: twelve miles eaſt-ſouth-eaſt of Taas.

IFLAMABAT', a town of Hindooſtan, in the country of Bengal: 124 miles ſouth-ſouth-eaſt of Dacca, and 120 north-north-weſt of Aracan.

I'FORDSHICK, or KROTZKA, a town of European Turkey, in Servia: eight miles weſt of Semandria, and fourteen ſouth-eaſt of Belgrade.

I'FRAN, I'FREN, or UFARAM', a town and diſtrict of Africa, near the Atlantic, belonging to Morocco: forty miles ſouth-weſt of Non.

I'GA, a town of Japan, in the province of Iſiju.

I'GAL, [Hebrew.] A man's name.

IGDA'LIA, [Heb. the greatneſs of the Lord.] A man's name.

IGEI'ALIN, a ſmall iſland in the ſtrait between Ruſſia and America. Lat. 65. 40. N. lon. 207. 22. E. Ferro.

IGE'NI, a people of Britain. *Tacitus.*

IG'GENSEN, a town of Germany, in the circle of Weſtphalia, and biſhopric of Paderborn: ſix miles ſouth-eaſt of Paderborn.

IGIL'IUM, now *Giglio,* an iſland of the Mediterranean, on the coaſt of Tuſcany.

I'GIS, a town of the country of the Griſons, in Caddea, with a magnificent caſtle, in which is a cabinet of curioſities and a handſome library; twenty-three miles ſouth-weſt of Choira, and twenty-three ſouth of Glaris. Lat. 49 10. N. lon. 9. 0. E.

I'GLAU, a town of Moravia, and capital of a circle of the ſame name, which contains twenty-one towns, 294 villages, and 6433 houſes. The town is well built, fortified, and populous: it contains 1196 houſes, two convents, and a college; ſome good cloth is manufactured in the town, which is ſent into Italy, by Trieſte; the commerce in corn and hemp is conſiderable. In the year 1742, this town was taken by the Pruſſians: ſixty-two miles ſouth-eaſt of Prague, and 122 ſouth-eaſt of Dreſden. Lat. 49. 15. N. lon. 33. 18. E. Ferro.

IGNA'RO, *ſ.* A fooliſh fellow. *Phillips.*

IGNATEV'SKOE, a town of Ruſſia, in the government of Ekaterinoſlav: forty miles ſouth of Bachmut.

IGNA'TIA, *ſ.* ST. IGNATIUS'S BEANS; in botany, a genus of the claſs pentandria, order monogynia, natural order of luridæ, (apocineæ, *Juſſ.*) The generic characters are—Calyx: perianthium one-leafed, ſhort, bell-ſhaped; five-toothed: teeth upright, ovate, obtuſe. Corolla: one-petalled, funnel-form; tube filiform, of a ſpan's length, ſmooth, upright; border flat, five-parted: diviſions oblong, obtuſe, perfectly entire. Stamina: filaments five, inſerted into the receptacle, length of the tube, thread-ſhaped, very ſmooth. Anthers five, converging into an oblong column, which is five-cornered, ſharp, and rough. Piſtillum: germ very ſmall, ovate, very ſmooth; ſtyle filiform, length of the ſtamens; ſtigma, ſlender, two-parted: diviſions awl-ſhaped. Pericarpium: berry pear-ſhaped, large, one-celled, with a thick woody bark. Seeds: ſeveral, covered with a thin cuticle, ſolid, horny, very hard; the lateral ones irregularly tetragonal, with the inner ſides flat, the outward gibboſe, the interior oblique: the central one hexagonal with flat ſides.—*Eſſential Character.* Calyx, five-toothed; corolla, funnel-form, very long; fruit one-celled, many-ſeeded.

*Species.* 1. Ignatia amara, or bitter beans: leaves ovate, acute; ſtem ſcandent, peduncles axillary; four-flowered, or thereabouts. This is a very branching tree, the branches long, round, very ſmooth, climbing. Leaves oppoſite, petioled, a ſpan long, quite entire, veined, very ſmooth, flat. Flowers in ſmall panicles; peduncles bearing from three to five flowers; very long, nodding, white, having the ſmell of jaſmine. Fruit ovate, with a very ſmooth dry rind, narrowed at the neck, the ſize of a bonchretien pear. Native of the Eaſt Indies and the Philippine iſlands, whence it has been tranſported to Cochin-china and other countries for cultivation. The ſeeds, which are known by the name of *St. Ignatius's beans,* are much uſed in the Eaſt Indies, and are reputed to be tonic, diaphoretic, emmenagogue, and anthelmintic. They are uſed in the pituitary apoplexy, colic, cardialgia, intermittent fevers, ſuppreſſion of the menſes, and bites of venomous animals. They may be taken internally from ſix to twelve grains, in powder, either in wine or water, generally with good effect, ſometimes without any, but never with any danger. Too large a doſe will bring on vertigo and convulſions, but they are eaſily cured by lemonade, drunk largely. What the younger Linnæus affirms, namely that the ſeeds are equally poiſonous to animals with nux vomica, is a miſtake; for a whole nut, weighing a dram, has been given to oxen, buffaloes, horſes, and ſwine, without any damage. Nor is it true that theſe ſeeds are never ſpoiled by keeping, or by worms; for they are frequently found with holes eaten in them, eſpecially in the Eaſt Indies and in moiſt places.

2. Ignatia longiflora, or long-flowered beans: leaves oblong, waving, acuminate; peduncles terminating, ſix-flowered or thereabouts. This is a branching ſhrub five or ſix feet high, with a ſmooth green bark, and a white hard wood. It begins to put forth branches at two feet from the ground; they are knotty, twiſted, and ſubdivided into oppoſite twigs. At each joint are two leaves oppoſite, ſmooth, entire, thin, oblong, waving on the edge, ending in a long point: the largeſt are ſeven inches long, and two and a half wide; between them on each ſide is a broad, ſtiff, ſharp, ſtipule. Native of Guiana on the banks of large rivers: flowering in November, and fruiting in January. The Caribbee name is *aymara-poſoqueri.*

IGNA'TIUS (St.), ſurnamed THEOPHORUS, one of the apoſtolical fathers of the Chriſtian church, and a martyr in the early part of the ſecond century, was probably a native of Syria, though the ancients furniſh us with no information concerning his country or parentage. He was early educated in the principles of the Chriſtian religion, and was an attendant on the inſtructions of St. Peter and St. Paul. According to the Acts of his martyrdom, the genuineneſs of which, however, is diſputable, he was alſo the particular diſciple of St. John. Having become eminent for his acquaintance with the Chriſtian doctrine, and diſtinguiſhed by his piety and abilities, he was choſen biſhop of Antioch; but it is difficult to fix the preciſe time and order of his election to that office. Euſebius ſays, that he was the ſucceſſor of Euodius, the firſt biſhop of Antioch after St. Peter; and St. Jerome concurs in that ſtatement. In his Chronicle, Euſebius places the ordination of Ignatius in the year 69, after the death of St. Peter and St. Paul at Rome. Some think, however, that Ignatius was ordained by St. Peter, and ſuppoſe that Euodius and Ignatius were both biſhops of Antioch at one and the ſame time; the former of the Jewiſh, and the latter of the Gentile, Chriſtians; and that, after the death of Euodius, when the Jewiſh converts were become better reconciled to the Gentiles, they all united under Ignatius as their biſhop. But, if Ignatius only ſucceeded Euodius about the year 70, it may reaſonably be concluded that he was acquainted with ſeveral of the apoſtles; and St. Chryſoſtom ſays, that he converſed familiarly with them, and was perfectly acquainted with their doctrine. He preſided over the church of Antioch for upwards of forty years, with admirable diligence, prudence, and conſtancy, till he was condemned to a cruel death in the perſecution under the reign of Trajan. With reſpect to the fact, and manner of his martyrdom, there is no difference in opinion among eccleſiaſtical hiſtorians; but they do not agree in fixing the time when it took place, and in the ſame relation of the circumſtances which preceded it. Dupin, Tillemont, and Cave, place it under the year 107; while biſhop Pearſon, biſhop Lloyd, Pagi, Le Clerc, and Fabricius, place it under 116. We ſhall lay before our readers the moſt commonly-received account of the circumſtances which preceded the martyrdom of Ignatius, as it has been collected from the Acts of his martyrdom, the writings of Euſebius, St. Jerome, &c.

About the year 107, the emperor is repreſented to have arrived at Antioch, elated with his victories over the Scythians and the Daci, to prepare for a war againſt the Parthians and Armenians. Having entered the city with all the pomp and ſolemnities of a triumph, one of the firſt objects of his enquiries was concerning the ſtate of religion in that place. Finding that the Chriſtians were numerous there, he ordered that the laws ſhould be put in force againſt them, in the ſame manner as in the other parts of the empire; and, though he forbade the Chriſtians to be ſought after, yet he directed that they ſhould be puniſhed if convicted. In theſe circumſtances Ignatius could not expect that he ſhould be overlooked, and thought it more prudent voluntarily to preſent himſelf before the emperor, than to ſtay till he was ſent for, and, after modeſtly avowing his principles, leave the event to Providence. It is true, that he expreſſed an earneſt deſire to ſuffer for the ſake of Chriſt, and a great joy at the expectation of it; but it does not appear that he raſhly ſought or provoked danger. When the emperor ſaw him, he reproached him for daring to tranſgreſs his laws; and a long as well as particular converſation is ſaid to have paſſed between them, in which the good biſhop defended the innocence and inoffenſiveneſs of himſelf and his fellow-believers, and explained the principles of his religion, maintaining the ſuperiority of the God of the Chriſtians over the objects of pagan worſhip, and his belief of the ultimate triumph of the cauſe of Jeſus Chriſt over every ſpecies of ſuperſtition and wickedneſs. The freedom with which he avowed his ſentiments, and the reſolution which he expreſſed of adhering to them, determined Trajan to make him a ſignal example of puniſhment, in order to deter others from renouncing the Gentile religion. He therefore gave orders for his impriſonment, and finally paſſed ſentence upon him, that, ſince he was incurably addicted to ſuperſtition, he ſhould be conducted in bonds by ſoldiers to Rome, and there thrown as a prey to wild beaſts at the amphitheatre. This cruel ſentence created joy, inſtead of terror, in the mind of Ignatius, who in an addreſs to God exclaimed, "I thank thee, O Lord, that thou haſt condeſcended thus perfectly to honour me with thy love, and haſt thought me worthy with the apoſtle Paul to be bound with iron chains." Theſe chains he would often cheerfully embrace; and, having frequently prayed for his church, and recommended it to the divine care and providence, he was delivered into the hands of his keepers, who were appointed to convey him to the place of execution.

Ignatius's guard conſiſted of ten ſoldiers, who conducted him on foot to Seleucia, a ſea-port town in Syria, about ſixteen miles from Antioch, whence Paul and Barnabas had embarked for Cyprus. From this place they went by ſea to Smyrna, in Ionia; where, for the fees which were beſtowed upon them, his brutal keepers permitted him to viſit Polycarp, the biſhop of that place; to receive himſelf the viſits of the clergy of the Aſiatic churches in that country, who encouraged him to a firm and final perſeverance in his glorious cauſe; and alſo to write letters to different churches, for their inſtruction and eſtabliſhment in the faith. One of theſe letters was to the Chriſtians at Rome, in which he acquainted them with his ſituation, and his paſſionate deſire not to be hindered in that courſe of martyrdom which he was now haſtening to accompliſh. At length his guard became impatient of any longer ſtay at Smyrna, and proceeded with him by ſea to Troas, a noted city of the leſſer Phrygia, and not far from the ruins of ancient Troy, where he had the ſatisfaction of hearing that the perſecution had ceaſed in the church of Antioch. At this place his conductors, for the ſake of the money which they received from him and his viſitors, permitted meſſengers who were deputed by different churches to pay their reſpects to him, and allowed of his further epiſtolary correſpondence with his friends; but, notwithſtanding this dearly-purchaſed indulgence, they uſed him at the ſame time cruelly and barbarouſly. Of this behaviour he complains in his Epiſtle to the Romans: "From Syria even to Rome," ſays he, "both by ſea and land, I fight with beaſts; night and day I am chained to ten leopards, forming my military guard, who, the kinder I am to them, are the more cruel and fierce to me."

From Troas they ſailed to Neapolis, a maritime town of Macedonia, and thence to Philippi, a Roman colony, where they were received with all imaginable kindneſs and courteſy. Hence they proceeded on foot through Macedonia and Epirus, till they came to Epidamnum, a city of Dalmatia; where they again embarked, and, after ſailing through the Adriatic, and touching at Rhegium and Puteoli, arrived at the ſtation for the Roman navy near Oſtia, at the mouth of the Tyber, about ſixteen miles from Rome. The Chriſtians of that city, who had been daily expecting his arrival, came out to meet and entertain him with affectionate reſpect mingled with the deepeſt ſorrow, on account of the cruel death which awaited him; but he was firm and undaunted, and rejoiced that he was ſo nearly approaching to the end of his race, and to the moment when he ſhould bear teſtimony to the truth of the religion of Chriſt with his blood. When ſome of them intimated, that poſſibly the populace might be diſſuaded from deſiring his death, he expreſſed a pious indignation, entreating them to throw no obſtacles in his way, nor to take any meaſures that might hinder him, now that he was haſtening to his crown. The interval which took place between the time when he was delivered to the prefect of the city, and his martyrdom, he ſpent with his brethren in prayers for the peace and proſperity of the church, and for the prevalence of mutual love and charity among its members. That his puniſhment might be the more pompous and public, one of their ſolemn feſtivals, the Saturnalia, was fixed upon for its execution; when it was their cuſtom to entertain the people with the bloody conflicts of gladiators, and the hunting of and fighting with wild beaſts. Accordingly, on the 20th of December, he was brought out into the amphitheatre; and the hungry lions, being let looſe upon him, quickly made him their prey, leaving no remains but a few of the hardeſt of his bones. Theſe were afterwards collected by two deacons, who had been the companions of his journey, and tranſported by them to Antioch, where they were honourably interred.

Not long after the martyrdom of this apoſtolical father, Polycarp, biſhop of Smyrna, collected together his Epiſtles, and ſent them to the Chriſtians at Philippi, as appears from the teſtimony of Euſebius, St. Jerome, Photius, and of Irenæus, the diſciple of Polycarp. Among the pieces of this kind, ſtill extant, which have been attributed to Ignatius, there are ſeveral which are now almoſt univerſally allowed by the learned to be ſpurious; indeed ſome critics have gone ſo far, as to pronounce this verdict on all the remains of antiquity which have been publiſhed in his name. The moſt weighty arguments, however, are in favour of the genuineneſs of the ſeven Epiſtles aſcribed to him, which were addreſſed to the churches at Epheſus, Magneſia, Trallium, Rome, Philadelphia, Smyrna, and to Polycarp. The principal value of theſe Epiſtles conſiſts in the abundant evidence which they afford of the authenticity of the books of the New Teſtament. The beſt edition of them is that publiſhed after Le Clerc, in his impreſſion of Cotelerius's collection SS. Pat. Apoſtol. with the notes of Uſher, Voſſius, Cotelerius, &c. printed at Amſterdam, in 1724, in 2 vols. folio.

IGNA'TIUS LOYOLA. See Loyola.

IGNA'TIUS's BEANS. See Ignatia, p. 828.

IG'NEOUS, *adj.* [*igneus*, Lat.] Fiery; containing fire; emitting fire; having the nature of fire. That the fire burns by heat, leaves us ſtill ignorant of the immediate way of *igneous* ſolutions. *Glanville.*

IGNIF'EROUS, *adj.* [from *ignis*, Lat. fire, and *fero*, to bring.] Producing fire; bringing fire.

IGNIF'LUOUS, *adj.* [from *ignis*, Lat. fire, and *fluo*, to flow.] Flowing with fire. *Scott.*

IGNIGE'NA, a ſurname of Bacchus.

IGNIG'ENOUS, *adj.* [from *ignis*, Lat. fire, and *gigno*, to beget.] Ingendered in the fire, produced by fire. *Scott.*

IGNIP'OTENCE, *ſ.* [from *ignis*, Lat. fire, and *potentia*, power.] Efficacy againſt fire; power over fire.

IGNIP'OTENT, *adj.* [*ignis* and *potens*, Lat.] Preſiding over fire.—Vulcan is call'd the pow'r *ignipotent. Pope.*

IG'NIS, *ſ.* [Latin.] Fire.

IG'NIS FAT'UUS, *ſ.* That luminous appearance which goes by the name of ignis fatuus, to which the credulous vulgar aſcribe very extraordinary and miſchievous powers, is moſt frequently obſerved in boggy places and near rivers, though ſometimes alſo in dry places. By its appearance benighted travellers are ſaid to have been ſometimes miſled into marſhy places, taking the light which they ſaw before them for a candle at a diſtance; from which ſeemingly-miſchievous property it has been thought by the vulgar to be a ſpirit of a malignant nature, and been named accordingly Will with a Whiſp, or Jack with a Lantern; for the ſame reaſon alſo it probably had its Latin name *ignis fatuus*.

This kind of light is often ſeen about burying-places and upon dunghills. Some particular countries are alſo remarkable for it, as about Bologna in Italy, and ſome parts of Spain and Ethiopia. Its forms are ſo uncertain and variable, that they can ſcarcely be deſcribed, eſpecially as few philoſophical obſervers ever had the good fortune to meet with it. Dr. Derham, however, happened one night to perceive one of them, and got ſo near that he could have a very advantageous view of it. This is by no means eaſy to be obtained; for, among other ſingularities of the ignis fatuus, it is obſerved to avoid the approach of any perſon, and fly from place to place as if it were animated. That which Dr. Derham obſerved was in ſome boggy ground betwixt two rocky hills; and the night was dark and calm; by which means, probably, he was enabled to advance within two or three yards of it. It appeared like a complete body of light without any diviſion, ſo that he was ſure it could not be occaſioned by inſects, as ſome have ſuppoſed; the ſeparate lights of which he could not have failed to diſtinguiſh, had it been occaſioned by them. The light kept dancing about a dead thiſtle, till a very ſlight motion of the air, occaſioned, as he ſuppoſed, by his near approach to it, made it jump to another place; after which it kept flying before him as he advanced. M. Beccari endeavoured to procure all the intelligence he could concerning the phenomenon, by inquiring of all his acquaintance who might have had an opportunity of obſerving it. Thus he obtained information that two of theſe lights appeared in the plains about Bologna, the one to the north, and the other to the ſouth, of that city, and were to be ſeen almoſt every dark night, eſpecially that to the eaſtward, giving a light equal to an ordinary faggot. The latter appeared to a gentleman of his acquaintance as he was travelling; moved conſtantly before him for about a mile; and gave a better light than a torch which was carried before him. Both theſe appearances gave a very ſtrong light, and were conſtantly in motion, though this was various and uncertain. Sometimes they would riſe, ſometimes ſink; but commonly they would hover about ſix feet from the ground; they would alſo frequently diſappear on a ſudden, and appear again in ſome other place. They differed alſo in ſize and figure, ſometimes ſpreading pretty wide, and then contracting themſelves; ſometimes breaking into two, and then joining again. Sometimes they would appear like waves, at others they would ſeem to drop ſparks of fire: they were but little affected by the wind; and, in wet and rainy weather, were frequently obſerved to caſt a ſtronger light than in dry weather; they were alſo obſerved more frequently when ſnow lay upon the ground, than in the hotteſt ſummer; but he was aſſured that there was not a dark night throughout the whole year in which they were not to be ſeen. The ground to the eaſtward of Bologna, where the largeſt of theſe appearances was obſerved, is a hard chalky ſoil mixed with clay, which will retain the moiſture for a long time, but breaks and cracks in hot weather. On the mountains, where the ſoil is of a looſer texture, and leſs capable of retaining moiſture, the ignes fatui were leſs.

From the beſt information which M. Beccari was able to procure, he found that theſe lights were very frequent about rivers and brooks. He concludes his narrative with the following ſingular account: "An intelligent gentleman travelling in the evening, between eight and nine, in a mountainous road about ten miles ſouth of Bologna, perceived a light which ſhone very ſtrangely upon ſome ſtones which lay on the banks of the river Rioverde. It ſeemed to be about two feet above the ſtones, and not far from the water. In ſize and figure it had the appearance of a parallelopiped, ſomewhat more than a foot in length, and half a foot high, the longeſt ſide being parallel to the horizon. Its light was ſo ſtrong, that he could plainly diſcern by it part of a neighbouring hedge and the water of the river; only in the eaſt corner of it the light was rather faint, and the ſquare figure leſs perfect, as if it were cut off or darkened by the ſegment of a circle. On examining it a little nearer, he was ſurpriſed to find that it changed gradually from a bright red, firſt to a yellowiſh, and then to a pale, colour, in proportion as he drew nearer; and, when he came to the place itſelf, it quite vaniſhed. Upon this he ſtepped back, and not only ſaw it again, but found that the farther he went from it, the ſtronger and brighter it grew. When he examined the place of this luminous appearance, he could perceive no ſmell nor any other mark of fire." This account was confirmed by another gentleman, who informed M. Beccari, that he had ſeen the ſame light five or ſix different times in ſpring and autumn; and that it always appeared of the ſame ſhape, and in the very ſame place. One night in particular, he obſerved it come out of a neighbouring field to ſettle in the uſual place.

A very remarkable account of an ignis fatuus is given by Dr. Shaw in his Travels to the Holy Land. It appeared in the valleys of mount Ephraim, and attended him and his company for more than an hour. Sometimes it would appear globular, or in the ſhape of the flame of a candle; at others it would ſpread to ſuch a degree as to involve the whole company in a pale inoffenſive light, then contract itſelf, and ſuddenly diſappear; but in leſs than a minute would appear again; ſometimes, running ſwiftly along, it would expand itſelf at certain intervals over more than two or three acres of the adjacent mountains. The atmoſphere from the beginning of the evening had been remarkably thick and hazy; and the dew, as they felt it on the bridles of their horſes, was very clammy and unctuous.

Lights reſembling the ignis fatuus are ſometimes obſerved at ſea, ſkipping about the maſts and rigging of ſhips; and Dr. Shaw informs us, that he has ſeen theſe in ſuch weather as that juſt mentioned when he ſaw the ignis fatuus in Paleſtine. Similar appearances have been obſerved in various other ſituations; and we are told of one which appeared about the bed of a woman in Milan, ſurrounding it as well as her body entirely. This light fled from the hand which approached it; but was at length entirely diſperſed by the motion of the air. Of the ſame kind alſo, moſt probably, are thoſe ſmall luminous appearances which ſometimes appear in houſes or near them, called in Scotland *elf-candles*, and which are ſuppoſed to portend the death of ſome perſon about the houſe. In general theſe lights are harmleſs, though not always; for we have accounts of ſome luminous vapours which would encompaſs ſtacks of hay and corn, and ſet them on fire; ſo that they became objects of great terror and concern to the country people. Of theſe it was obſerved, that they would avoid a drawn ſword, or ſharp-pointed iron inſtrument, and that they would be driven away by a great noiſe; both which methods were made uſe of to diſſipate them; and it was likewiſe obſerved, that they came from ſome diſtance, as it were on purpoſe to do miſchief.

Several philoſophers have endeavoured to account for theſe appearances, but hitherto with no great ſucceſs; nor indeed does there ſeem to be ſufficient data for ſolving all their phenomena. Willoughby, Ray, and others, have imagined that the light was occaſioned by a number of ſhining inſects; but this opinion was never ſupported in ſuch a manner as to gain much ground. The ignis fatuus ſeen by Dr. Derham above-mentioned, as well as all the other inſtances we have related, ſeem to demonſtrate the contrary. Sir Iſaac Newton calls it a *vapour ſhining without heat*; and ſuppoſes that there is the ſame difference between the vapours of ignis fatuus and flame that there is between the ſhining of rotten wood and burning coals. But, though this ſeems generally to be the caſe, there are ſtill ſome exceptions, as had been inſtanced in the vapours which ſet fire to the ſtacks of corn. Dr. Prieſtley ſuppoſes that the light is of the ſame nature with that produced by putreſcent ſubſtances; and others are of opinion, that the electrical fluid is principally concerned; but none have attempted to give any particular ſolution of the phenomena.

From the frequent appearance of the ignis fatuus in marſhes, moiſt ground, burying-places, and dunghills, we are naturally led to conclude, that putrefaction is concerned in the production of it. This proceſs, we know, is attended with the emiſſion of an aqueous ſteam, together with a quantity of fixed, inflammable, phlogiſticated, and alkaline, airs, all blended together in one common vapour. It is likewiſe attended with ſome degree of heat; and we know that there are ſome vapours, that of ſulphur particularly, which become luminous, with a degree of heat much leſs than that ſufficient to ſet fire to combuſtible bodies. There is no inconſiſtency, therefore, in ſuppoſing that the putrid vapour may be capable of ſhining with a ſtill ſmaller degree of heat than that of ſulphur, and conſequently become luminous by that which putrefaction alone affords. This would account for the ignis fatuus, were it only a ſteady luminous vapour ariſing from places where putrid matters are contained; but its extreme mobility, and flying from one place to another on the approach of any perſon, cannot be accounted for on this principle. If one quantity of the putrid vapours becomes luminous by means of heat, all the reſt ought to do ſo likewiſe; ſo that, though we may allow heat and putrefaction to be concerned, yet, of neceſſity, we muſt have recourſe to ſome other agent, which cannot be any other than *electricity*. Without this it is impoſſible to conceive how any body of moveable vapour ſhould not be carried away by the wind; but, ſo far is this from being the caſe, that the ignes fatui, deſcribed by M. Beccari, were but little affected by the wind. It is beſides proved by undoubted experiment, that electricity always is attended with ſome degree of heat; and this, however ſmall, may be ſufficient to give a luminous property to any vapour on which it acts ſtrongly; not to mention, that the electric fluid itſelf is no other than that of light, and may therefore by its action eaſily produce a luminous appearance independent of any vapour.

We have a ſtrong proof that electricity is concerned, or indeed the principal agent, in producing the ignis fatuus, from an experiment related by Dr. Prieſtley of a flame of this kind being artificially produced. A gentleman, who had been making many electrical experiments for a whole afternoon in a ſmall room, on going out of it, obſerved a flame following him at ſome little diſtance. This, we have no reaſon to doubt, was a true ignis fatuus, and the circumſtances neceſſary to produce it were then preſent, viz. an atmoſphere impregnated with animal vapour, and likewiſe ſtrongly electrified. Both theſe circumſtances undoubtedly muſt have taken place in the preſent caſe; for the quantity of perſpiration emitted by a human body is by no means inconſiderable; and it, as well as the electricity, would be collected by reaſon of the ſmallneſs of the room. In this caſe, however, there ſeems to have been a conſiderable difference between the artificial ignis fatuus and thoſe commonly met with; for this flame followed the gentleman as he went out of the room; but the natural ones commonly fly from thoſe who approach them. This may be accounted for, from a difference between the electricity of the atmoſphere in the one room and the other; in which caſe the flame would naturally be attracted towards that place where the electricity was either different in quality or in quantity; but, in the natural way, where all bodies may be ſuppoſed equally electrified for a great way round, a repulſion will as naturally take place. Still, however, this does not ſeem to be always the caſe. In thoſe inſtances where travellers have been attended by an ignis fatuus, we cannot ſuppoſe it to have been influenced by any other power than what we call *attraction*, and which electricity is very capable of producing. Its keeping at ſome diſtance is likewiſe eaſily accounted for; as we know that bodies poſſeſſed of different quantities of electricity may be made to attract one another for a certain ſpace, and then repel without having ever come into contact. On this principle we may account for the light which ſurrounded the woman at Milan, but fled from the hand of any other perſon. On the ſame principle we may account for thoſe miſchievous vapours which ſet fire to the hay and cornſtacks, but were driven away by preſenting to them a pointed iron inſtrument, or by making a noiſe. Both theſe are known to have a great effect upon the electric matter; and, by means of either, even lightning may occaſionally be made to fall upon, or to avoid, particular places, according to the circumſtances by which the general maſs happens to be affected at that time.

On the whole, therefore, it ſeems moſt probable, that the ignis fatuus is a collection of vapour of the putreſcent kind, very much affected by electricity; according to the degree of which, it will either give a weak or ſtrong light, or even ſet fire to certain ſubſtances diſpoſed to receive its operation. This opinion ſeems greatly to be confirmed from ſome luminous appearances obſerved in privies, where the putrid vapours have collected themſelves into balls, and exploded violently on the approach of a candle. This laſt effect, however, we cannot ſo well aſcribe to the electricity, as to the accenſion of the inflammable air which frequently abounds in ſuch places.

In the Appendix to Dr. Prieſtley's third volume of Experiments and Obſervations on Air, Mr. Warltire gives an account of ſome very remarkable ignes fatui, which he obſerved on the road to Broomſgrove, about five miles from Birmingham. The time of obſervation was the 12th of December, 1776, before day-light. A great many of theſe lights were playing in an adjacent field, in different directions; from ſome of which there ſuddenly ſprung up bright branches of light, ſomething reſembling the exploſion of a rocket that contained many brilliant ſtars, if the diſcharge was upwards inſtead of the uſual direction, and the hedge and trees on each ſide of the hedge were illuminated. This appearance continued but a few ſeconds, and then the jack-a-lanterns played as before. Mr. Warltire was not near enough to obſerve if the apparent exploſions were attended with any report.

Cronſtedt gives it as his opinion, that ignes fatui, as well as the meteors called falling ſtars, are owing to collections of inflammable air raiſed to a great height in the atmoſphere. But, with regard to the latter, the vaſt height at which they move evidently ſhows that they cannot be the effect of any gravitating vapour whatever; for the lighteſt inflammable air is one-twelfth of that of the common atmoſphere; and we have no reaſon to believe, that, at the diſtance of forty or fifty miles from the earth, the latter is near one-twelfth of its weight at the ſurface. From the account given by Mr. Warltire, we ſhould be apt to conclude, that there is a ſtrong affinity betwixt the ignes fatui and fire-balls, inſomuch that the one might be very eaſily converted into the other. From this then we muſt aſcribe an electrical origin to the one as well as the other. Electricity, we know, can aſſume both of theſe appearances, as is evident in the caſe of points; or even when the atmoſphere is violently electrified, as round the ſtring of an electrical kite, which always will appear to be ſurrounded with a blue flame in the night, if the electricity be very ſtrong.

On the whole, it appears, that electricity acting upon a ſmall quantity of atmoſpherical air, with a certain degree of vigour, will produce an appearance reſembling an ignis fatuus; with a ſuperior force it will produce a fire-ball; and a ſudden increaſe of electrical power might produce thoſe ſparks and apparent exploſions obſerved by Mr. Warltire. The only difficulty therefore is, Why does electricity exert its power upon one portion of the atmoſphere rather than another, ſeeing it has an opportunity of diffuſing itſelf equally through the whole? To this it ſeems impoſſible to give any other anſwer than that we ſee the fact is ſo; and that, in all caſes where there is a quantity of electrified air or vapour, there will be an accumulation in one part rather than another. Thus, in the experiment already related, where the gentleman perceived a blue flame following him, the whole air of the room was electrified, but the greateſt power of the fluid was exerted on that which gave the luminous appearance.

With regard to the uſes of the ignes fatui in the ſyſtem of nature, we can only ſay, that they ſeem to be accidental appearances reſulting from the motion of the electric fluid, and are, no doubt, like other meteors, ſubſervient to the preſervation of its equilibrium, and thus are uſeful in preventing thoſe dreadful commotions which enſue when a proper medium for ſo doing is deficient.

*To* IGNI'TE, *v. a.* [from *ignis*, Lat. fire.] To kindle; to ſet on fire.—Take good firm chalk, *ignite* it in a crucible, and then powder it. *Grew.*

IGNITE'GIUM, *ſ.* [from *ignis*, Lat. fire, and *tego*, to cover.] The curfew; the bell which rings at eight o'clock. See CURFEW-BELL, vol. v.

IGNIT'IBLE, *adj.* Inflammable; capable of being ſet on fire. *Not in uſe.*—Such bodies only ſtrike fire which have ſulphur or *ignitible* parts. *Brown.*

IGNI'TION, *ſ.* [Fr. from *ignite.*] The act of kindling, of ſetting on fire.—Thoſe black circular lines we ſee on diſhes, and other turned veſſels of wood, are the effects of *ignition*, by the preſſure of an edged ſtick upon the veſſel turned nimbly in the lathe. *Ray.*

IGNI'TING, *ſ.* The act of kindling, or ſetting on fire.

IGNIV'OMOUS, *adj.* [*ignovomus*, Lat.] Vomiting fire.—Vulcanos and *ignivomous* mountains are ſome of the moſt terrible ſhocks of the globe. *Derham.*

IGNOBIL'ITY, *ſ.* [from *ignoble.*] Meanneſs of birth. *Bailey. Not uſed.*

IGNO'BLE, *adj.* [Fr. from *ignobilis*, Lat.] Mean of birth; not noble; not of illuſtrious race:

As when in tumults riſe th' *ignoble* crowd,
Mad are their motions, and their tongues are loud. *Dryd.*

Worthleſs; not deſerving honour. Uſed of things or perſons:

The noble iſle doth want her proper limbs;
Her royal ſtock graft with *ignoble* plants. *Shakeſpeare.*

IGNO'BLY, *adv.* Ignominiouſly; meanly; diſhonourably; reproachfully; diſgracefully:

To theſe, that ſober race of men, whoſe lives
Religious titled them the ſons of God,
Shall yield up all their virtue, all their fame,
*Ignobly!* *Milton.*

IGNOMIN'IOUS, *adj.* [*ignominieux*, Fr. *ignominioſus*, Lat.] Mean; ſhameful; reproachful; diſhonourable. Uſed both of perſons and things.—Nor has this kingdom deſerved to be ſacrificed to one ſingle, rapacious, obſcure, *ignominious*, projector. *Swift.*

They gave, and ſhe transferr'd, the curs'd advice,
That monarchs ſhould their inward ſoul diſguiſe;
By *ignominious* arts, for ſervile ends,
Should compliment their foes, and ſhun their friends. *Prior.*

IGNOMIN'IOUSLY, *adv.* Meanly; ſcandalouſly; diſgracefully; ſhamefully; reproachfully.—It is ſome allay to the infamy of him who died *ignominiouſly* to be buried privately. *South.*

IG'NOMINY, *ſ.* [*ignominie*, Fr. *ignominia*, Lat.] Diſgrace; reproach; ſhame; infamy; meanneſs; diſhonour.—Their generals have been received with honour after their defeat; yours with ignominy after conqueſt. *Addiſon.*

Adieu, and take thy praiſe with thee to heav'n:
Thy *ignominy* ſleep with thee in the grave. *Shakeſpeare.*

IG'NOMY, [a contraction of] Ignominy.—I bluſh to think upon this *ignomy*. *Shakeſpeare.*

IGNORA'MUS, *ſ.* [Latin.] A fooliſh fellow; a vain uninſtructed pretender. *A low word.*—Tell an *ignoramus*, in place and power, that he has a wit and an underſtanding above all the world, and he ſhall readily admit the commendation. *South.*

This word (ſignifying We are ignorant) was formerly written on a bill of indictment by the grand jury impannelled on the inquiſition of criminal cauſes, when they rejected the evidence as too weak or defective to make good the preſentment againſt a perſon ſo as to put him on the trial; the effect whereof was, that all farther inquiry and proceedings againſt that party on that bill, (for the words now uſed are, *Not a true bill*, or *Not found*,) for the fault wherewith he is charged, is thereby ſtopped, and he is delivered without further anſwer. 3 *Inſt.* 30. See the article INDICTMENT.

IG'NORANCE, *ſ.* [*ignorance*, Fr. *ignoratio*, Lat.] Want of knowledge; unlearnedneſs.—If all the clergy were as learned as themſelves are that moſt complain of *ignorance* in others, yet our book of prayer might remain the ſame. *Hooker.*

Still baniſh your defenders, 'till at length
Your *ignorance* deliver you,
As moſt abated captives, to ſome nation
That won you without blows. *Shakeſpeare.*

If we ſee right, we ſee our woes;
Then what avails it to have eyes?
From *ignorance* our comfort flows;
The only wretched are the wiſe! *Prior.*

Want of knowledge reſpecting ſome particular thing.—It is in every body's power to pretend *ignorance* of the law. *Sherlock.*

*Sherlock.*—Want of knowledge diſcovered by external effect. In this ſenſe it has a plural.—Forgive us all our ſins, negligences, and *ignorances*. *Com. Prayer.*—Puniſh me not for my ſins and *ignorances*. *Tobit.*

IGNORANCE in law. Want of knowledge of the law ſhall not excuſe any man from the penalty of it. Every perſon is bound at his peril to take notice what the law of the realm is; and ignorance of it, though it be invincible, where a man affirms that he hath done all that in him lies to know the law, will not excuſe him. *Doct. & Stud.* 1. 46. *Plowd.* 343. And an infant of the age of diſcretion ſhall be puniſhed for crimes, though he be ignorant of the law; but infants of tender age, have *ignorance by nature* to excuſe them; ſo perſons *non compos* have *ignorance by the hand of God. Stud. Comp.* 83, 84.

Though *ignorance of the law* excuſeth not, *ignorance of the fact* doth; as if a perſon buy a horſe or other thing in open market, of one that had no property therein, and not knowing but he had right; in that caſe he hath good title, and the ignorance ſhall excuſe him. *Doct. & Stud.* 309. But if the party bought the horſe out of the market, or knew the ſeller had no right, the buying in open market would not have excuſed. *Ibid.* 5 *Rep.* 83. Alſo where a man is to enter into land or ſeize goods, &c. he muſt ſee that what he does be rightly done, or his ignorance ſhall be no excuſe. *Wood's Inſt.* 608. Ignorance of fact is a defect of will, when a man, intending to do a lawful act, does that which is unlawful. For here, the deed and the will acting ſeparately, there is not that conjunction between them which is neceſſary to form a criminal act; as if a man, intending to kill a thief or houſebreaker in his own houſe, by miſtake kills one of his own family. This is no criminal action. *Cro. Car.* 538. But if a man thinks he has a right to kill a perſon excommunicated or outlawed wherever he meets him, and does ſo, this is murder, as it proceeds from a criminal ignorance of the law. 4 *Comm.* 27.

IG'NORANT, *adj.* [Fr. from *ignorans*, Lat.] Wanting knowledge; unlearned; uninſtructed, unenlightened.—He that doth not know thoſe things which are of uſe for him to know, is but an *ignorant* man, whatever he may know beſides. *Tillotſon.*

Fools grant whate'er ambition craves,
And men, once *ignorant*, are ſlaves. *Pope.*

Unknown; undiſcovered. This is merely poetical:

If you know aught, which does behove my knowledge
Thereof to be informed, impriſon't not
In *ignorant* concealment. *Shakeſpeare.*

Without knowledge of ſome particular.—Let not judges be ſo *ignorant* of their own right, as to think there is not left to them, as a principal part of their office, a wiſe application of laws. *Bacon.*

O viſions ill foreſeen! Better had I
Liv'd *ignorant* of future! ſo had borne
My part of evil only. *Milton.*

Unacquainted with. *In a good ſenſe.*—*Ignorant* of guilt, I fear not ſhame. *Dryden.*—Ignorantly made or done. *Unuſual:*

His ſhipping,
Poor *ignorant* baubles, on our terrible ſeas
Like egg-ſhells mov'd. *Shakeſpeare.*

IG'NORANT, *ſ.* One untaught, unlettered, uninſtructed:

Did I for this take pains to teach
Our zealous *ignorants* to preach! *Denham.*

IG'NORANTLY, *adv.* Without knowledge; unſkilfully; without information.—When a poet, an orator, or a painter, has performed admirably, we ſometimes miſtake his blunders for beauties, and are ſo *ignorantly* fond as to copy after them. *Watts.*

The greateſt and moſt cruel foes we have
Are thoſe whom you would *ignorantly* ſave. *Dryden.*

*To* IGNO'RE, *v. a.* [*ignorer*, Fr. *ignora*, Lat.] Not to know; to be ignorant of. This word Boyle endeavoured to introduce; but it has not been received.—I *ignored* not the ſtricter interpretation, given by modern critics to divers texts, by me alleged. *Boyle.*

IGNOS'CIBLE, *adj.* [*ignoſcibilis*, Lat.] Capable of pardon. *Dict.*

IGNY', a town of France, in the department of the Marne: five miles ſouth of Fiſmes.

IGRAN'DE, a town of France, in the department of the Allier, and chief place of a canton, in the diſtrict of Cerilly: two leagues ſouth-eaſt of Cerilly.

IGRA'NI, a town of European Turkey, in the province of Dalmatia: forty-four miles eaſt-ſouth-eaſt of Moſtar.

IGRI'DI, a town of Aſiatic Turkey, in the province of Caramania, ſituated on a large lake.

IGUALE'JA, a town of Spain, in the province of Grenada: three miles ſouth-eaſt of Ronda.

IGUI'DI, a town and diſtrict of Africa, in the country of Sahara: the country is otherwiſe called *Lempta.*

IGUI'RA, a town of Africa, on the Gold Coaſt, in the country of Soko, near which is dug very fine gold.

IGUIT'PO, a town of South America, in the country of Braſil, and government of St. Paul.

IGUN'SKOI, a town of Ruſſia, near the eaſtern extremity of the continent of Aſia. Lat. 65. 45. N. lon. 206. 20.

IGU'VIUM, a town of Umbria, on the Via Flaminia; now *Gubio.*

I'HOR, JO'HOR, or JOR, a town of Aſia, in Malacca, and capital of a province of the ſame name in the peninſula beyond the Ganges. It was taken by the Portugueſe in 1603, who deſtroyed it, and carried off the cannon; but it has ſince been rebuilt, and is now in poſſeſſion of the Dutch. Lat. 1. 15. N. lon. 93. 55. E.

IHRE (John), knight of the Swediſh order of the Polar Star, public profeſſor of rhetoric and politics in the univerſity of Upſal, and member of the Academy of Sciences at Stockholm, was born in the month of March 1707. Having at an early age loſt his father, who was profeſſor of theology at Lund, young Ihre was taken under the protection of his grandfather, then archbiſhop of Upſal, at which place he ſtudied. After he had completed his academic ſtudies, he ſet out in 1730 on his travels: he viſited Germany, England, France, the Low Countries, and Denmark; and in 1733 returned to Upſal, where he diſputed "De Uſu Accentuum Hebræorum," and was elected a member of the Academy of Sciences. Two years after he was appointed ſub-librarian, and in 1737 public profeſſor of poetry. This office proved, at firſt, highly agreeable to him, and, by his lectures on Horace, Virgil, and Ovid, he ſoon excited among his pupils a taſte for the beauties of poetry; but the number of the ſtudents who applied to this branch of ſtudy being too ſmall, he expreſſed a wiſh of obtaining another profeſſorſhip. This wiſh was ſoon gratified, for in the year 1748 he was appointed by the king profeſſor of rhetoric and politics; an office the duties of which he diſcharged for forty years with great reputation, and with much benefit to his pupils, many of whom were of the higher orders. But, though the greater part of his time was neceſſarily required for his academic labours, he devoted ſome part of it to the improvement of the literature of his country; and, as he made choice of thoſe ſubjects which had been neglected by others, the ſervice he rendered to it in this way was the more meritorious. Having tranſlated into Swediſh the Lady's Library, written by ſir Richard Steele, he was convinced that he was ſtill very deficient in the knowledge of his own language, and was therefore ſtrongly excited to examine it with more attention. In the year 1766, he publiſhed a Lexicon Dialectorum, in which he explained and illuſtrated obſolete words, ſtill uſed in the provinces; and in 1769, his valuable *Gloſſarium Sueo-Gothicum*, in 2 vols. folio, which is well known to philologiſts. Sweden is indebted to him alſo for an explanation of the old catalogue of the Sueo-Gothic kings, to which are added the old Weſt-Gothic laws. In his four diſſertations *De Runorum Antiquitate, Patria, Origine, & Occaſu,* he aſſerts that the Runic writing was formerly uſed in the greater part of Europe, was introduced into Sweden about the ſixth century, and became entirely extinct in the beginning of the fifteenth. Theſe works will be laſting monuments of Ihre's great learning and induſtry. He was of a mild diſpoſition; loved innocent mirth; had an open friendly heart, and entertained the utmoſt reſpect and reverence for the Supreme Being. In the year 1756, king Adolphus Frederic raiſed him to the rank of a counſellor of the chancery; two years after to that of patrician; and in 1759 conferred on him the order of the Polar Star. During the laſt four years of his life he was very infirm; and died in the month of November, 1780, in the ſeventy-fourth year of his age.

JHY'LUM, a town of Aſia, in the country of Lahore: ſeventy-three miles north-north-weſt of Lahore.

I'JA, a river of Ruſſia, which runs into the Oka near Archangelſkoi.

I'JAR, the month otherwiſe called Zif.

JIB, *ſ.* The foremoſt ſail of a ſhip, being a large ſtay-ſail extended from the outer end of the bowſprit prolonged by the jib-boom, towards the fore-topmaſt-head. The jib is a ſail of great command with any ſide-wind, but eſpecially when the ſhip is *cloſe hauled*, or has the wind upon her beam; and its effort in *caſting* the ſhip, or turning her head to leeward, is very powerful, and of great utility, particularly when the ſhip is working through a narrow channel.

JIB-BOOM, *ſ.* A boom run out from the extremity of the bowſprit, parallel to its length, and ſerving to extend the bottom of the jib, and the ſtay of the fore-top-gallant maſt. This boom, which is nothing more than a continuation of the bowſprit forward, to which it may be conſidered as a topmaſt, is uſually attached to the bowſprit by means of two large boom-irons, or by one boom-iron and a cap on the outer end of the bowſprit; or, finally, by the cap without and a ſtrong laſhing within, inſtead of a boom-iron, which is generally the method of ſecuring it in ſmall merchant-ſhips. It may therefore be drawn in upon the bowſprit as occaſion requires; which is uſually practiſed when the ſhip enters a harbour, where it might very ſoon be broken, or carried away, by the veſſels which are moored therein, or paſſing by under ſail.

JIB'BEL-AUREZ, the Mons Auraſius of the middle age, an aſſemblage of many very rocky mountains in Africa, in the kingdom of Algiers. Here Mr. Bruce met with a race of people much fairer in the complexion than any of the nations to the ſouthward of Britain; their hair was red, and their eyes blue; they maintain their independence, and are of a ſavage diſpoſition, ſo that our traveller found it difficult to approach them with ſafety. They are called Neardia; and each of them has a Greek croſs in the middle between the eyes, marked with antimony. They are divided into tribes, but, unlike the other Arabs, have huts in the mountains built of mud and ſtraw; and are, by our author, ſuppoſed to be a remnant of the Vandals. He even thinks that they may be deſcended from the remainder of an army of Vandals mentioned by Procopius, which was defeated among theſe mountains. They live in perpetual war with the Moors, and boaſt that their anceſtors were Chriſtians.

JIB'BING, *ſ.* [from *jib.*] The act of ſhifting the boom-ſail.

JIBE, *ſ.* See GIBE.

JIB'SAM, [Hebrew.] The name of a man.

JID'DA, a town of Arabia, ſituated in a very unwholeſome, barren, and deſert, part of the country. Immediately without the gate to the eaſtward, is a deſert plain filled with the huts of the Bedoweens, or country Arabs, built of long bundles of ſpartum or bent-graſs put together like faſcines. Theſe people ſupply the town with milk and butter. "There is no ſtirring out of the town (ſays Mr. Bruce), even for a walk, unleſs for about half a mile in the ſouth ſide by the ſea, where there is a number of ſtinking pools of ſtagnant water, which contributes to make the town very unwholeſome."

From the diſagreeable and inconvenient ſituation of this port, it is probable, that it would have been long ago abandoned, had it not been for its vicinity to Mecca, and the vaſt annual influx of wealth occaſioned by the India trade; which, however, does not continue, but paſſes on to Mecca, whence it is diſperſed all over the eaſt. The town of Jidda itſelf receives but little advantage, for all the cuſtoms are immediately ſent to the needy and rapacious ſheriff of Mecca and his dependents. "The gold (ſays Mr. Bruce) is returned in bags and boxes, and paſſes on as rapidly to the ſhips as the goods do the market, and leaves as little profit behind. In the mean time proviſions riſe to a prodigious price, and this falls upon the townſmen, while all the profit of the traffic is in the hands of ſtrangers; moſt of whom, after the market is over, (which does not laſt ſix weeks,) retire to Yemen and other neighbouring countries, which abound in every ſort of proviſion. From this ſcarcity, Mr. Bruce ſuppoſes it is that polygamy is leſs common here than in any other part of Arabia. "Few of the inhabitants of Jidda (ſays our author) can avail themſelves of the privilege granted by Mahomet. He cannot marry more than one wife, becauſe he cannot maintain more; and from this cauſe ariſes the want of people and the number of unmarried women."

The trade at Jidda is carried on in a manner which appeared very ſtrange to our traveller. "Nine ſhips (ſays he) were there from India; ſome of them worth, I ſuppoſe, 200,000l. One merchant, a Turk, living at Mecca, thirty hours journey off, where no Chriſtian dares go whilſt the continent is open to the Turk for eſcape, offers to purchaſe the cargoes of four out of theſe nine ſhips himſelf; another of the ſame caſt comes and ſays he will buy none unleſs he has them all. The ſamples are ſhown, and the cargoes of the whole nine ſhips are carried into the wildeſt parts of Arabia by men with whom one would not wiſh to truſt himſelf alone in the field. This is not all; two India brokers come into the room to ſettle the price; one on the part of the India captain, the other on that of the buyer, the Turk. They are neither Mahometans nor Chriſtians, but have credit with both. They ſit down on the carpet, and take an India ſhawl which they carry on their ſhoulder like a napkin, and ſpread it over their hands. They talk in the mean time indifferent converſation, as if they were employed in no ſerious buſineſs whatever. After about twenty minutes ſpent in handling each other's fingers below the ſhawl, the bargain is concluded, ſay for nine ſhips, without one word ever having been ſpoken on the ſubject, or pen or ink uſed in any manner whatever. There never was one inſtance of a diſpute happening in theſe ſales. But this is not all; the money is yet to be paid. A private Moor, who has nothing to ſupport him but his character, becomes reſponſible for the payment of theſe cargoes. This man delivers a number of coarſe hempen bags full of what is ſuppoſed to be money. He marks the contents upon the bag, and puts his ſeal upon the ſtring that ties the mouth of it. This is received for what is marked upon it without any one ever having opened one of the bags; and in India it is current for the value marked upon it as long as the bag laſts.

The port of Jidda is very extenſive, and contains numberleſs ſhoals, ſmall iſlands, and ſunk rocks, with deep channels, however, between them; but in the harbour itſelf ſhips may ride ſecure, whatever wind blows. The only danger is in the coming in or going out; but as the pilots are very ſkilful, accidents are never known to happen. The charts of this harbour, as Mr. Bruce informs us, are exceedingly erroneous. While he ſtaid here, he was deſired by captain Thornhill to make a new chart of the harbour; but, finding it had been undertaken by another gentleman, captain Newland, he dropped it. He argues in the ſtrongeſt terms againſt the old maps, which, he ſays, can be of no uſe, but the contrary; and he gives it as a characteriſtic of the Red-Sea, "ſcarcely to have ſoundings in any part of the channel, and often on both ſides; whilſt aſhore, ſoundings are hardly found a boat's length from the main." This place was firſt ſurrounded with walls in the year 1514, by El Guri ſultan of Egypt, to protect it from the Portugueſe; the walls are now in a ſtate of decay. The revenue ariſing from the cuſtoms is ſhared between the ſultan and the ſheriffe; upon which account the kiaja and the viſier always attend together, when goods are examined. The dues of cuſtom are fixed at 10 per cent. upon the value of the goods, eſtimated arbitrarily by the cuſtom-houſe officers; ſo that they may be conſidered as equal, in reality, to 12 or 15 per cent. The Engliſh, however, are particularly favoured, even more than the ſubjects of the ſultan; they pay only 8 per cent. and are ſuffered to diſcharge this in goods, whereas all others muſt produce money. The circumjacent country affords nothing but taif-almonds for an object of traffic; of theſe, indeed, the Engliſh carry five hundred thouſand weight a-year to India. Balm of Mecca is alſo brought hither from the neighbourhood of Medina, as an article of exportation. The imports are greater, becauſe both Mecca and Medina are to be ſupplied from this market. Large quantities of corn, rice, lentiles, ſugar, oil, &c. are imported from Egypt, without which this part of Arabia could not poſſibly be inhabited. All goods from Europe come alſo by the way of Egypt; and on the other hand, thoſe which are brought hither from India paſs generally into Egypt. It is 170 miles ſouth of Medina. Lat. 21. 28. N. lon. 39. 16. E.

JID'LAPH, [Heb. one that diſtils.] A man's name.

JIDOO'N, a country or diſtrict of Aſia, ſituated on the eaſt ſide of the river Sinde, on the borders of Cachimere and Thibet.

IJEBA'RIM, [Hebrew.] The name of a place.

JIF'RAI, a town of Africa, on the river Gambia.

JIG, *ſ.* [*giga*, Ital. *geige*, Teutonic, a fiddle.] A light careleſs dance, or tune.—When Cyrus had overcome the Lydians, that were a warlike nation, inſtead of their warlike muſic, he appointed to them certain laſcivious lays and looſe *jigs*; by which he ſo mollified and abated their courage, that they forgot their former fierceneſs. *Spenſer.*

Another Phœbus, thy own Phœbus, reigns,
Joys in my *jigs*, and dances in my chains. *Pope.*

A ballad:

The fleering Scots
To England's high diſgrace have made this *jig*. *Marlow.*

*To* JIG, *v. n.* To dance careleſsly; to dance. Expreſſed in contempt.—As for the *jigging* part and figures of dances, I count that little. *Locke.*

JIG'-MAKER, *ſ.* One who dances or plays merrily.—Your only *jig-maker!* what ſhould a man do but be merry? *Shakeſpeare.*—A ballad-maker.—*Jig-makers* and chroniclers ſhall pick ſomething out of you. *Dekker.*

JI'GAT POINT, a cape of Hindooſtan, forming the weſtern extremity of Guzerat, where is a pagoda. Lat. 22. 23. N. lon. 68. 12. E. Greenwich.

JIG'GER, *ſ.* One that jigs. A machine to hold on the cable when heaved into the ſhip.

JIG'GING, *ſ.* The act of dancing in a careleſs manner.

JIG'GUMBOB, *ſ.* [A cant word.] A trinket; a knick-knack; a ſlight contrivance in machinery:

He rifled all his pokes and fobs
Of gimcracks, whims, and *jiggumbobs*. *Hudibras.*

JI'HON, a river of Aſia, which riſes in the mountains of Little Thibet, paſſes through Bukharia, Charaſm, and empties itſelf partly in the Caſpian Sea, and partly into the lake Aral.

JILGOU'N, a town of Aſiatic Turkey, in the province of Caramania: twenty-eight miles eaſt of Akſerai.

JILL, *ſ.* [from *Julia.*] The name of a woman. A doxy; a woman of ill fame. *Scott.*

JI'LL-FLIRT, *ſ.* [a name of reproach to] A pert young woman.—Well, *jill-flirt*, you are very pert. *Congreve.*

JILLIFREE', a town on the northern bank of the river Gambia, oppoſite to James's iſland, where the Engliſh had formerly a ſmall fort. The kingdom of Barra, in which it is ſituated, produces great plenty of the neceſſaries of life; but the chief trade of the inhabitants is in ſalt, which they carry up the river in canoes; and, in return, bring down Indian corn, cotton cloths, elephants' teeth, ſmall quantities of gold duſt, &c. "The number of canoes and people conſtantly employed in this trade, make the king of Barra (ſays Mr. Park) more formidable to Europeans than any other chieftain on the river, and have encouraged him to eſtabliſh thoſe exorbitant duties, which traders of all nations are obliged to pay at entry, amounting nearly to 20l. on every veſſel, great and ſmall. Theſe duties, or cuſtoms, are generally collected in perſon by the alcaid or governor of Jillifree, who is attended by a numerous train of noiſy and troubleſome dependants; who, by their frequent intercourſe with the Engliſh, have acquired a ſmattering of our language, and beg for every thing which they fancy with ſuch earneſtneſs, that traders, in order to get quit of them, are frequently obliged to grant their requeſts." Lat. 13. 16. lon. 16. 10. E. Greenwich.

JILT, *ſ.* [*gilia*, Iſlandic, to intrap in an amour, *Mr. Lye.* Perhaps from *giglot*, by contraction; or *gillet*, or *gillot*, the diminutive of *gill*, the ludicrous name of a woman; alſo called *jillet* in Scotland.] A woman who gives her lover hopes, and deceives him:

Avoid both courts and camps,
Where dilatory fortune plays the *jilt*
With the brave, noble, honeſt, gallant, man,
To throw herſelf away on fools. *Otway.*

A name of contempt for a woman:

When love was all an eaſy monarch's care,
*Jilts* rul'd the ſtate, and ſtateſmen farces writ. *Pope.*

*To* JILT, *v. a.* To trick a man by flattering his love with hopes, and then leaving him for another.—Tell a man, paſſionately in love, that he is *jilted*; bring witneſſes of the falſehood of his miſtreſs; and three kind words of her's ſhall invalidate all their teſtimonies. *Locke.*

Tell who loves who,
And who is *jilted* for another's ſake. *Dryden.*

*To* JILT, *v. n.* To play the jilt; to practiſe amorous deceits:

She might have learn'd to cuckold, *jilt*, and ſham,
Had Covent-garden been at Surinam. *Congreve.*

JIL'TING, *ſ.* The act of deceiving a man in love.

JIM, [Hebrew.] The name of a place.

JIM'LAH, [Hebrew.] The name of a man.

JIM'MEL, a town of Africa, in the kingdom of Algiers: thirty-three miles ſouth-weſt of Conſtantina.

JIM'MELAH, a town of Africa, anciently Gemella. Near it are magnificent ruins, the remains of an amphitheatre, &c. nine leagues ſouth-ſouth-weſt of Conſtantina.

JIM'NA, [Hebrew.] The name of a man.

JIM'NITE, *ſ.* [from *Jimna.*] A deſcendant of Jimna.

*To* JIN'GLE, *v. n.* [A word made from *jangle*, or copied from the ſound intended to be expreſſed.] To clink; to ſound with a kind of ſharp rattle.—What ſhould the wars do with theſe *jingling* fools? *Shakeſpeare.*—Any clink, or ſharp rattle. It is uſed to expreſs the correſpondence of ſound in the effects of rhyme.—Vulgar judges are nine parts in ten of all nations who call conceits and *jingles* wit. *Dryden.*—Any thing ſounding; a rattle; a bell.—If you plant where ſavages are, do not only entertain them with trifles and *jingles*, but uſe them juſtly. *Bacon.*

What crowds of theſe, impenitently bold,
In ſounds and *jingling* ſyllables grown old! *Pope.*

JING'LING, *ſ.* A clinking ſound; correſpondence of ſounds.

JIN'NET BAY', a bay of the Mediterranean, on the coaſt of Algiers: eleven leagues eaſt of Algiers.

JIN'ZO, a town of Spain, in the province of Galicia: twelve miles ſouth-eaſt of Orenſe.

JINZOOWA'RAH, a town of Hindooſtan, in the country of Guzerat: forty miles ſouth of Janagur.

I'JO, or Jos'su, a province of Japan.

I'JON, [Heb. a fountain.] The name of a city.

JIONPOU'R, a town of Hindooſtan, in the country of Benares, on the Goomty river: thirty miles north-weſt of Benares. Lat. 25. 46. N. lon. 82. 55. E. Greenwich.

JIPH'TA, [Hebrew.] The name of a city.

JIPH'THUBAL, [Hebrew.] The name of a place.

IK'ENILD STREET. See Ickenild Street, p. 753.

JIR'BAN, a town of Arabia, in the province of Yemen: eight miles north-weſt of Sana.

JIUNCHE'TO, a town of the iſland of Corſica: four miles ſouth of Sarcena.

IK, a river of Ruſſia, which runs into the Kama.

IK, a river of Ruſſia, which runs into the Sakkara.

IKARUN'GA, a town of Japan, in the province of Tunga.

IKAZA'NI, a town of Lithuania, in the palatinate of Wilna: four miles ſouth-eaſt of Wilna.

IK'EN (Conrad), profeſſor of theology in the reformed Gymnaſium at Bremen, and firſt preacher in Stephen's church, preſident of the German Society in that city, and member of the Academy of Sciences at Berlin, was born at Bremen in 1689. After acquiring great celebrity by his writings, as a good divine and learned orientaliſt, he died in the month of June, 1753. His works are: 1. Antiquitates Hebraicæ, Brem. 1732, 8vo. ſeveral times reprinted. 2. Theſaurus novus theologico-philologicus, ſive Sylloge Diſſertationum Exegeticarum ad Selectiora atque Inſigniora Veteris & Novi Teſtamenti Loca, Amſt. 1732, 2 vols. folio. 3. Tractatus Talmudicus de Cultu quotidiano Templi Verſione Latina donatus & Notis illuſtratus, Brem. 1736, 4to. 4. Symbolæ Literariæ ad Incrementum Scientiarum omne Genus a variis amice collatæ, Brem. 1744, 3 vols. 8vo. 5. Diſſertationes philologico-theologicæ in diverſa ſacri Codicis utriuſque Teſtamenti Loca, Ludg. Bat. 1749, 8vo.

I'KI, or Is'ju, one of the iſlands of Japan.

IK'KESH, [Hebrew.] The name of a man.

IK'MAS, a town of Egypt: ten miles ſouth-weſt of Menuf.

IKOL'LA, a province of Africa, in the kingdom of Angola.

I'KON, a town of Africa, on the Gold Coaſt, where the Dutch have a factory.

I'LA, Il'ay, or Isla, one of the Weſtern Iſles of Scotland, lying to the weſt of Jura, from which it is ſeparated by a narrow channel. It extends twenty-eight miles in length from north to ſouth, and is eighteen in breadth from eaſt to weſt. On the eaſt ſide, it is full of mountains covered with heath; to the ſouthward, the land is tolerably well cultivated. In ſome parts the inhabitants have found great plenty of limeſtone, and lead-mines are worked in three different places. The only harbour in Iſla is at Lochdale, near the north end of the iſland. Here are ſeveral rivers and lakes well ſtored with trout, eels, and ſalmon. In the centre is Loch Finlagan, about three miles in circuit, with the little iſle of that name in the middle.

Here the great Lord of the Iſles once reſided in all the pomp of royalty; but his palaces and offices are now in ruins. Inſtead of a throne, Macdonald ſtood on a ſtone ſeven feet ſquare, in which there was an impreſſion made to receive his feet; here he was crowned and anointed by the biſhop of Argyle and ſeven inferior prieſts, in preſence of the chieftains. The ſtone ſtill exiſts. The ceremony (after the new lord had collected his kindred and vaſſals) was truly patriarchal. After putting on his armour, his helmet, and his ſword, he took an oath to rule as his anceſtors had done; that is, to govern as a father would his children; his people in return ſwore that they would pay the ſame obedience to him as children would to their parent. The dominions of this potentate, about the year 1586, conſiſted only of Ilay, Jura, Knapdale, and Cantyre; ſo reduced were they from what they had been before the deprivation of the great earl of Roſs in the reign of James III. Near this is another little iſle, where he aſſembled his council, *Ilan na Corlle*, or the Iſland of Council; where thirteen judges conſtantly ſat to decide differences among his ſubjects; and received for their trouble the eleventh part of the value of the affair tried before them. In the firſt iſland were buried the wives and children of the lords of the iſles; but their own perſons were depoſited in the more ſacred ground of Iona. On the ſhores of the lake are ſome marks of the quarters of his *carnarch* and *gilli-glaſſes*, the military of the iſles; the firſt ſignifying a ſtrong man, the laſt a grim-looking fellow. The firſt were light-armed, and fought with darts and daggers; the laſt with ſharp hatchets. Theſe are the troops that Shakeſpeare alludes to, when he ſpeaks of a Donald, who

> From the Weſtern Iſles
> Of kernes and gallow-glaſſes were ſupplied.

Beſides thoſe already mentioned, the lords had a houſe and chapel at Laganon, on the ſouth ſide of Loch-andaal; a ſtrong caſtle on a rock in the ſea, at Dunowaik, at the ſouth-eaſt end of the country; for they made this iſland their reſidence after their expulſion from that of Man in 1304. There is a tradition, that while the Iſle of Man was part of the kingdom of the iſles, the rents were for a time paid in this country; thoſe in ſilver were paid on a rock, ſtill called *Creig-a-nione*, or the Rock of the Silver-rent; the other, *Creig-a-nairgid*, or the Rock of Rents in kind. Theſe lie oppoſite to each other, at the mouth of a harbour on the ſouth ſide of this iſland. There are ſeveral forts built on the iſles in freſh-water lakes, and divers caverns in different parts of the iſland, which have been uſed occaſionally as places of ſtrength. The iſland is divided into four pariſhes, viz. Kildalton, Kilaron, Kilchoman, and Kilmenie. The produce is corn of different kinds; ſuch as bear, which ſometimes yields eleven-fold; and oats, ſix-fold. Much flax is raiſed here, and about 2000l. worth ſold out of the iſland in yarn, which might better be manufactured on the ſpot, to give employ to the poor natives. Notwithſtanding the excellency of the land, above 1000l. worth of meal is annually imported. Ale is frequently made in this iſland of the young tops of heath, mixing two-thirds of the plant with one of malt, ſometimes adding hops. Boethius relates, that this liquor was much uſed among the Picts; but, when that nation was extirpated by the Scots, the ſecret of making it periſhed with them. Numbers of cattle are bred here, and annually exported. The iſland is often overſtocked, and numbers die in March for want of fodder. None but milch-cows are houſed; cattle of all other kinds, except the ſaddle-horſes, run out during winter.

The number of inhabitants is computed to be between ſeven and eight thouſand. About ſeven hundred are employed in the mines and in the fiſhery; the reſt are gentlemen-farmers, and ſubtenants or ſervants. The women ſpin. The ſervants are paid in kind; the ſixth part of the crop. They have houſes gratis; the maſter gives them the ſeed for the firſt year, and lends them horſes to plough annually the land annexed.

In this iſland, Mr. Pennant informs us, ſeveral ancient diverſions and ſuperſtitions are ſtill preſerved; the laſt indeed are almoſt extinct, or at moſt lurk only amongſt the very meaneſt of the people. The latewakes or funerals, like thoſe of the Romans, were attended with ſports and dramatic entertainments. The power of faſcination is as ſtrongly believed here as it was by the ſhepherds of Italy in times of old: *Neſcio quis teneros oculis mihi faſcinat agnos?* But here the power of the evil-eye affects more the milch-cows than lambs. If the good houſewife perceives the effect of the malicious on any of her kine, ſhe takes as much milk as ſhe can drain from the enchanted herd, (for the witch commonly leaves very little;) ſhe boils it with certain herbs, and adds to them flints and untempered ſteel; after that ſhe ſecures the door, and invokes the three ſacred perſons. This puts the witch into ſuch an agony, that ſhe comes nilling-willing to the houſe, begs to be admitted, to obtain relief by touching the powerful pot; the good woman then makes her terms; the witch reſtores the milk to the cattle, and in return is freed from her pains.' But ſometimes, to ſave the trouble of thoſe charms, (for it may happen that the diſorder may ariſe from other cauſes than an evil eye,) the trial is made by immerging in milk a certain herb, and, if the cows are ſupernaturally affected, it inſtantly diſtils blood. The unſucceſsful lover revenges himſelf on his happy rival by charms potent as thoſe of the ſhepherd Alpheſibæus, and exactly ſimilar:

> *Necte tribus nodis ternos, Amarylli, colores:*
> *Necte, Amarylli, modo.*

Donald takes three threads of different hues, and ties three knots on each, three times imprecating the moſt cruel diſappointments on the nuptial bed; but the bridegroom, to avert the harm, ſtands at the altar with an untied ſhoe, and puts a ſixpence beneath his foot.

Hiſtory furniſhes very few materials for the great events or revolutions of Ilay. It ſeems to have been long a ſeat of empire, probably jointly with the Iſle of Man, as being moſt conveniently ſituated for the government of the reſt of the Hebrides; for Crovan the Norwegian, after his conqueſt of that iſland in 1066, retired and finiſhed his days in Ilay. There are more Daniſh or Norwegian names of places in this iſland than any other; almoſt all the preſent farms derive their titles from them; ſuch as Perſibus, Torridale, Torribolſe, and the like. On the retreat of the Danes, it became the ſeat of their ſucceſſors the Lords of the Iſles; and continued, after their power was broken, in the reign of James III. in their deſcendants the Macdonalds, who held or ought to have held it from the crown. It was in the poſſeſſion of a ſir James Macdonald in the year 1598, the ſame who won the battle of Traii-dhruinard. His power gave umbrage to James VI. who directed the lord of Macleod, Cameron of Lochiel, and the Macueiles of Barra, to ſupport the Macleans in another invaſion. The rival parties met near the hill of Benbigger, eaſt of Kilarow; a fierce engagement enſued, and the Macdonalds were defeated and almoſt entirely cut off. Sir James eſcaped to Spain; but returned in 1620, was pardoned, received a penſion, and died the ſame year at Glaſgow; and in him expired the laſt of the great Macdonalds. But the king, irritated by the diſturbances raiſed by private wars waged between theſe and other clans, reſumed the grant made by his predeceſſor, and transferred it to ſir John Campbell of Calder, who held it on paying an annual feu-duty of 500l. ſterling, which is paid to this day. The iſland was granted to ſir John as a reward for his undertaking the conqueſt; but the family conſidered it as a dear acquiſition, by the loſs of many gallant followers, and by the expences incurred in ſupport of it.

I'LA SOUND, a narrow ſtrait, between the iſlands of Jura and Ila, the navigation of which is dangerous, from the rapidity of the tides, ſudden ſqualls, and foul ground.

ILAANTRE'RACH, a ſmall iſland, near the weſt coaſt of Scotland, a little to the eaſt of Oronſa.

ILAANRO'AN, a ſmall iſland, near the weſtern coaſt of Scotland, a little to the ſouth of Oronſa.

ILA'CA KIA'MEN, a poſt of Chineſe Tartary: fifteen miles ſouth of Merguen.

IL'AI, [Hebrew.] The name of a man.

I'LAK, or Ja'lak, a town of Africa, in the country of Nubia, on the Nile, ſuppoſed by ſome to be the ancient Meroe. Lat. 18. 48. N. lon. 34. 30. E. Greenwich.

ILAM'BA, or Elua'me, a large province of Africa, in the kingdom of Angola.

ILANMO'RE, a ſmall iſland in Clew Bay, on the weſt coaſt of Ireland.

ILANMO'RE, a ſmall iſland of Scotland, about half a mile north from the iſle of Coll.

I'LANTZ, a town of the Griſons, and capital of the Griſe league, ſituated near the Rhine: twenty miles ſouth-weſt of Coire, and forty ſouth-eaſt of Lucern. Lat. 46. 40. N. lon. 26. 40. E. Ferro.

ILANTZIN'SKOI, a town of Ruſſia, in the government of Irkutſk: ten miles north-north-weſt of Verchnei Udinſk.

IL'BERG, a town of Sweden, in the province of Warmeland: ſix miles north-weſt of Carlſtadt.

IL'CHESTER. See Ivelchester.

IL'DEFONSO (St.), a celebrated royal reſidence of Spain, diſtant about two leagues from Segovia, but upwards of twenty from Madrid. It was erected by Philip V. in the midſt of a ſolitary wood, and in the boſom of ſteep mountains. It is chiefly remarkable for its gardens. There is nothing magnificent in the palace, particularly in its exterior appearance. The front on the ſide of the garden is of the Corinthian order, and not deſtitute of elegance. Here are the king's apartments, which look upon a parterre ſurrounded with vaſes and marble ſtatues, and a caſcade, which, for the richneſs of its decorations, may be compared with the fineſt of the kind. The purity and clearneſs of the water is indeed incomparable. Philip V. could not, in this reſpect, be better ſerved by nature. From the mountains which ſhade the palace deſcend ſeveral rivulets, which ſupply the reſervoirs. Theſe waters anſwer the double purpoſe of ſupplying numerous fountains, and of diffuſing life and verdure through the magnificent gardens, the ſight of which alone is a ſufficient recompence for a journey into Spain. They are on the inſide a league in circumference. The inequality of the ground affords every moment new points of view. The principal walks anſwer to different ſummits of neighbouring mountains; and one in particular produces the moſt agreeable effect. It is terminated at one end by the grand front of the palace. From this point are ſeen, at one view, five fountains, ornamented with elegant groups, riſing into an amphitheatre, above which appear the ſummits of lofty mountains. The moſt elevated of theſe groups is that of Andromeda faſtened to a rock. When ſeen at a little diſtance it is perhaps defective, becauſe the rock appears too diminutive by the ſide of the monſter which threatens Andromeda; and of Perſeus, by whom it is attacked; but the whole contributes to the beauty of the view. The moſt remarkable of the five groups is that of Neptune.

Philip had not the pleaſure of completely enjoying what he had created; death ſurpriſed him when the works he had begun were but half finiſhed. The undertaking was however the moſt expenſive one of his reign. "The finances of Spain, ſo deranged under the princes of the houſe of Auſtria, (ſays Mr. Bourgoanne,) would have been ſufficient for three long and ruinous wars, and for all the operations of a monarchy which Philip V. had conquered and formed anew, as well as to have reſiſted the ſhocks of ambition and political intrigue; but they ſunk beneath the expenſive efforts of magnificence." It is ſingular that the caſtle and gardens of St. Ildefonſo ſhould have coſt about 45,000,000 of piaſtres, preciſely the ſum in which Philip died indebted. This enormous expence will appear credible, when it is known that the ſituation of the royal palace was, at the beginning of the 18th century, the ſloping top of a pile of rocks; that it was neceſſary to dig and hew out the ſtones, and in ſeveral places to level the rock; to cut out of its ſides a paſſage for a hundred different canals, to carry vegetative earth to every place in which it was intended to ſubſtitute cultivation for ſterility, and to work a mine to clear a paſſage to the roots of the numerous trees which are there planted. All theſe efforts were crowned with ſucceſs. In the orchards, kitchen-gardens, and parterres, there are but few flowers, eſpaliers, or plants, which do not thrive; but the trees, naturally of a lofty growth, and which conſequently muſt ſtrike their roots deep into the earth, already prove the inſufficiency of art when it attempts to ſtruggle againſt nature. Many of them languiſh with withered trunks, and with difficulty keep life in their almoſt naked branches. Every year it is neceſſary to call in the aid of gunpowder to make new beds for thoſe which are to ſupply their place; and none of them are covered with that tufted foliage which belongs only to thoſe that grow in a natural ſoil. In a word, there are in the groves of St. Ildefonſo, marble ſtatues, baſons, caſcades, limpid waters, verdure, and delightful proſpects, every thing but that which would be more charming than all the reſt, thick ſhades.

The court of Spain comes hither annually during the heat of the dog-days. It arrives towards the end of July, and returns at the beginning of October. The ſituation of St. Ildefonſo, upon the declivity of the mountains which ſeparate the two Caſtiles, and fronting a vaſt plain where there is no obſtacle to the paſſage of the north wind, renders this abode delightful in ſummer; the mornings and evenings of the hotteſt days are cool and refreſhing.

IL'DEFONSO, a town of North America, in the government of Mexico, and province of Guaxaca: fifteen leagues eaſt-ſouth-eaſt of Guaxaca.

IL'DEFONSO's ISLANDS, a cluſter of iſlands near the ſouth coaſt of Terra del Fuego. Lat. 21. 50. S. lon. 69. 21. W. Greenwich.

ILDIN'SKOI, a cape of Ruſſia, in the Pacific Ocean, near the northern part of Kamtchatka. Lat. 59. 15. N. lon. 182. E. Ferro.

ILE, *ſ.* [corrupted from *aiſle*, Fr. a wing.] A walk or alley in a church or public building. Properly *aile*:

Upward the columns ſhoot, the roofs aſcend,
And arches widen, and long *iles* extend. *Pope.*

An ear of corn. *Ainſworth.*

ILE, *ſ.* [from ειλεος, Gr. an involution.] In anatomy, the cavity from the cheſt to the thigh-bones. *Scott.*

ILE, a river of England, in the county of Somerſet, which runs into the Parret about a mile ſouth from Langport.

ILEHAR'RE, a town of France, in the department of the Lower Pyrennées, near Mauleon.

ILEIG'NES, or ST. CHARLES, a town on the ſouth ſide of the iſland of St. Domingo, near the city of St. Domingo. It is inhabited by emigrants from the Canary Iſlands, and has a few ſtreets which run from the four cardinal points, and cut each other at right angles. The inhabitants are the moſt induſtrious people in the Spaniſh part of the iſland.

I'LEK, a river of Ruſſia, which runs into the Ural at fort Iletzkaia.

I'LEN, a river of Wales, in the county of Pembroke, which runs into the ſea a little to the ſouth of St. David's.

ILER'DA, in ancient geography, the capital of the Iligertes; ſituated on an eminence between the rivers Sicoris and Singa: an unhappy city, often beſieged, and often taken, becauſe lying expoſed to the incurſions from Gaul; and under Gallienus it was deſtroyed by the Germans. Now LERIDA, in Catalonia, on the river Segra.

I'LET, *ſ.* [from *iſle.*] A little iſland.

I'LET, a river of Ruſſia, which runs into the Volga, forty miles north-weſt of Kazan.

I'LET-HOLE, *ſ.* [from *œillet*, Fr. a little eye, and *hole.*] A hole wrought in a garment to receive a point; a kind of needlework.

ILETER'TON, a town of Aſia, in Thibet: thirty miles ſouth-weſt of Cha-tcheou.

ILETZKA'IA, a fort of Aſiatic Ruſſia, in the government of Upha, on the ſouth ſide of the Ural; ſeventy-two miles weſt of Orenburg.

ILETZKAIAZATSCHI'TA, a fort of Ruſſia, on the river Ilek, in the government of Upha: forty miles ſouth of Orenburg.

IL'EUM, *ſ.* [from ειλεος, Gr. an involution.] In anatomy, the third of the ſmall inteſtines, ſo called from its various windings.

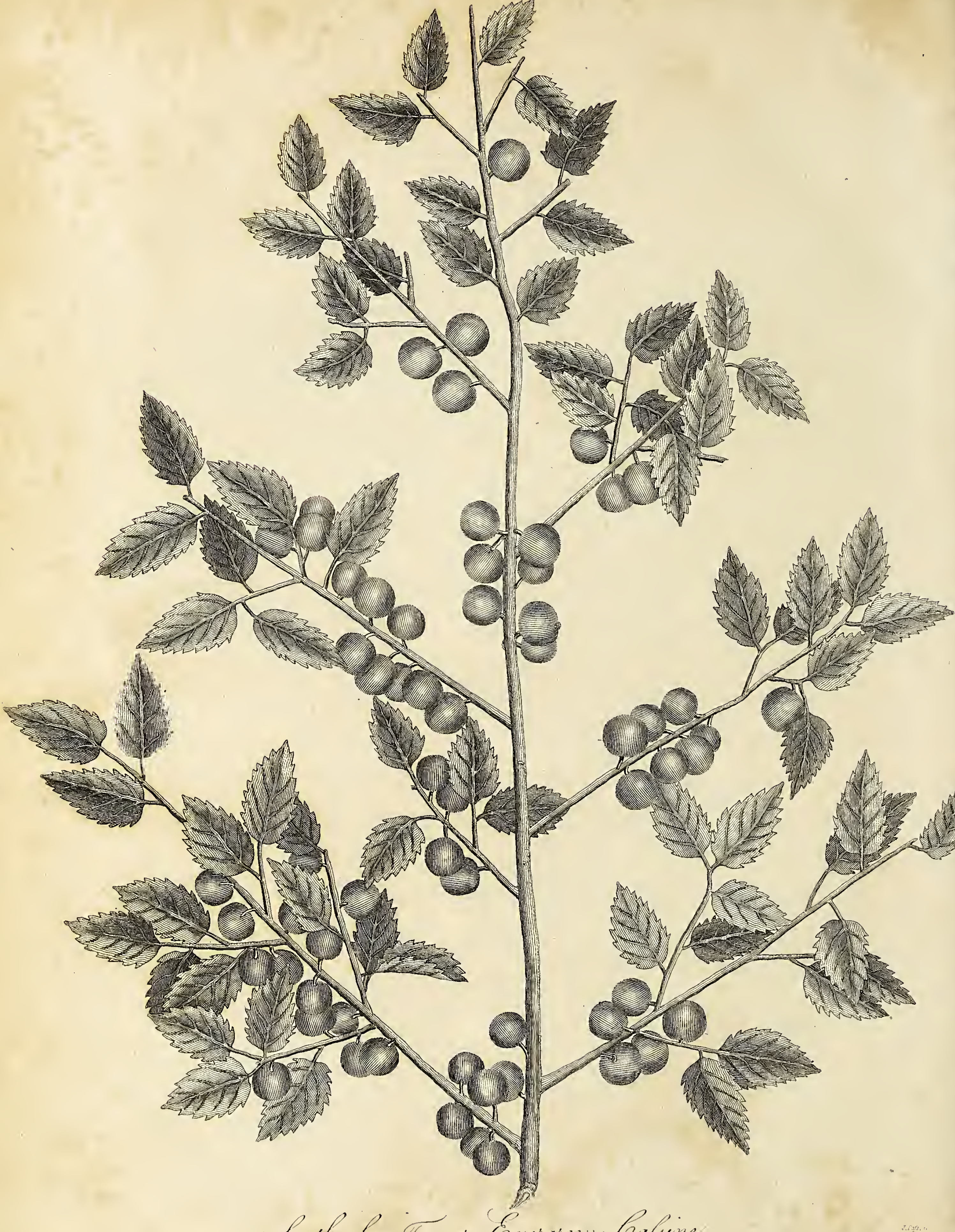
ILE'US, *ſ.* [Latin.] An *ileus*, commonly called the twiſting of the guts, is really either a circumvolution or inſertion of one part of the gut within the other. *Arbuthnot.*

I'LEX, *ſ.* HOLLY; in botany, a genus of the claſs tetrandria, order tetragynia, (polygamia dioecia, *Hudſ.*) natural order of dumoſæ, (rhamni, *Juſſ.*) The generic characters are—Calyx: perianthium four-toothed, very ſmall, permanent. Corolla: one-petalled, four-parted, wheel-ſhaped; diviſions roundiſh, ſpreading, rather large, with cohering claws. Stamina: filaments four, awl-ſhaped, ſhorter than the corolla; antheræ ſmall. Piſtillum: germ roundiſh; ſtyle none; ſtigmas four, obtuſe. Pericarpium: berry roundiſh, four-celled. Seed: ſolitary, bony, oblong, obtuſe, gibboſe on one ſide, cornered on the other. —*Eſſential Character.* Calyx four-toothed; corolla wheel-ſhaped; ſtyle none; berry four-ſeeded.

*Species.* 1. Ilex aquifolium, or common holly: leaves ovate, acute, ſpiny, ſhining, waved; flowers axillary, ſubumbelled. The common holly riſes from twenty to thirty feet, and ſometimes more. Bradley mentions a tree ſixty feet in height; but its ordinary height is not above twenty-five feet. The trunk is covered with a greyiſh ſmooth bark, and thoſe trees which are not lopped or browzed by cattle, are commonly furniſhed with branches the greateſt part of their length, and form a ſort of cone. Leaves about three inches long, and one and a half broad; of a lucid green on their upper ſurface, but pale on their under, having a ſtrong midrib; the edges are indented and waved, with ſharp thorns terminating each of the points, ſome raiſed upwards, others bent downwards; and, being very ſtiff, the leaves are troubleſome to handle; theſe thorns are fixed into a ſtrong woody border which ſurrounds the leaf. When this tree grows naturally it has flat entire leaves, without thorns, only ending in a ſharp point, mixed with the others, eſpecially as it advances in age. Flowers in cluſters from the baſe of the petioles, on very ſhort peduncles, each ſuſtaining five, ſix, or more, flowers, appearing in May; the corolla of a dirty white. They are ſucceeded by roundiſh berries, turning to a beautiful ſcarlet about Michaelmas, and continuing the greater part of the winter. Seeds three or four.

Mr. Miller ſays, "in ſome plants I have obſerved the flowers are wholly male and produced no berries, in others female and hermaphrodite flowers, but upon ſome large old trees growing in Windſor foreſt I have obſerved all three upon the ſame trees." The late ſir William Watſon alſo made an obſervation of the ſame ſort. Gerard remarked hermaphrodite flowers with five petals on one tree, and male flowers with a four-parted petal and an abortive germ on another tree. Dr. Withering ſays, that he found the holly in flower ſo late as the ſecond week in June, and then *all the flowers* had four ſtamens and four piſtils. Haller alſo remarks, that in all the flowers which he had an opportunity of examining, the corolla had the ſame ſtructure. Mr. Hudſon, however, deſcribes a five-toothed calyx and five-parted corolla in the hermaphrodite, with five ſtamens, four ſtigmas, and a four-ſeeded berry; in the male, a four-toothed calyx, a four-parted corolla, and four ſtamens. But whether this be from his own obſervation, or founded only on Gerard's, we are at a loſs to know. He has removed the holly from the claſs where Linnæus and others have placed it into the claſs polygamia dioecia, where it ſhould properly be found according to the obſervations given above. But it is very well remarked by Dr. Stokes, that, before it be removed to another claſs, it is proper to ſhow, that the majority of the other ſpecies are liable to ſimilar ſexual variations.

ILEX.



South-Sea Tea, or Evergreen Caſsine.

J. Sys. sc.

London, Publish'd as the Act directs, March 17, 1812.

In the mean time, the claſs polygamia itſelf ſeems to be vaniſhing from the ſyſtem.

The common holly grows wild in many parts of Europe, in North America, Japan, Cochin-china, &c. It is found in woods and foreſts in many parts of England. It grows ſo ſpontaneouſly, ſays Mr. Evelyn, in this part of Surrey, that the large vale near my own dwelling was anciently called *Holmeſdale*: in Dungeneſs in Kent, it grows naturally among the pebbles upon the very beach. Dr. Withering ſays, that on the north ſide of the Wrekin, in Shropſhire, the trees grow to a large ſize. The holly is very common in the Chiltern diviſion of Buckinghamſhire, and where permitted has a conſiderable growth. Mr. Bradley tells us, that he has ſeen it above ſixty feet high in the Holly-walk, near Frenſham in Surrey. The holly is called alſo in Engliſh *hulver* and *holme*; it is known by the name of hulver in Norfolk. In German, it has a great variety of appellations; in French, *houx*, *grand houſſon*, *agron*, *grand pardon*, *bois franc*; in Italian, *agrifoglio*, *alloro ſpinoſo*; in Spaniſh and Portugueſe, *agrifolio*, *acrifolio*, *aquifolio*.

Holly makes an impenetrable fence, and bears cropping well; nor is its verdure, or the beauty of its ſcarlet berries, ever obſerved to ſuffer from the ſevereſt of our winters. It would claim the preference for this purpoſe even to the hawthorn, (Cratægus,) were it not for the ſlowneſs of its growth whilſt young, and the difficulty of tranſplanting it when grown to a moderate ſize. But, when it once takes well, the hedge may be rendered ſo cloſe and thick as to keep out all ſorts of animals. Mr. Evelyn's impregnable holly-hedge, four hundred feet in length, nine feet high, and five in diameter, has been much celebrated by himſelf, Ray, and others. It does beſt in cold ſtony lands, according to Dr. Hunter; it certainly proſpers on gravel over chalk. It refuſes not, ſays Mr. Boutcher, the pooreſt hot ſandy gravelly and rocky ground, nor the coldeſt clay. Mr. Marſhall relates, that in the Wolds of Yorkſhire, he has ſeen the holly raiſed (by the practice of a man who has paid great attention to the buſineſs of hedge-planting) with an unuſual degree of rapidity and certainty. This man's ſecret would be of ineſtimable value to the public. The common holly, being a very beautiful tree in winter, deſerves a place in all plantations of evergreen trees and ſhrubs, where its ſhining leaves and ſcarlet berries make a fine variety; and, if a few of the beſt variegated ſorts are properly intermixed, they will enliven the ſcene. The wood of this tree, ſays Mr. Evelyn, is the whiteſt of all hard woods, and uſed by the inlayer, eſpecially under thin plates of ivory. The mill-wright, turner, and engraver, prefer it to any other. It makes the beſt handles and ſtocks for tools, flails, the beſt riding-rods, and carters' whips; bowls, chivers, and pins for blocks; alſo it excels for door-bars and bolts. Mr. Miller adds, that it is made into hones for ſetting razors; that the wood, taking a fine poliſh, is very proper for ſeveral kinds of furniture; and that he had ſeen the floor of a room laid in compartments with this and mahogany, which had a very pretty effect. It is much uſed with box, yew, white-thorn, &c. in the ſmall trinkets and other works, carried on in and about Tunbridge, and commonly called *Tunbridge-ware*. The wood, ſays Dr. Withering, is uſed in fineering, and is ſometimes ſtained black to imitate ebony. Sheep and deer are fed during winter with the croppings; birds eat the berries; the bark fermented, and afterwards waſhed from the woody fibres, makes the common birdlime.

Forty or fifty varieties, depending on the variegations of the leaves or thorns, and the colour of the berries, all derived from this one ſpecies, are raiſed by the nurſery-gardeners for ſale, and formerly were in very great eſteem, but are now leſs regarded, ſince the old taſte of filling gardens with ſhort evergreens has been laid aſide; a few, however, of the moſt lively varieties ſhould be admitted in plantations, and will have a good effect in the winter ſeaſon, if they are properly diſpoſed. Of thoſe varieties, the *I. ferox*, or hedge-hog holly, is the moſt remarkable. Mr. Miller will have it to be a diſtinct ſpecies; and ſays, that the leaves are not ſo long as thoſe of the common holly, and have the edges armed with ſtronger thorns, ſtanding cloſer together; the upper ſurface ſet very cloſe, with ſhort prickles. It grows naturally in Canada; and, keeping its difference when raiſed from the berries, Mr. Miller makes no doubt of its being a diſtinct ſpecies; he calls it I. echinatum, and, there are two varieties of it with variegated leaves, one green and yellow, and the other green and white: ſee a leaf of the former variety on the Botany Plate V. fig. 31. vol. iii. p. 243. Hedgehog holly was cultivated in the garden of Compton biſhop of London at Fulham, by that ingenious and ſkilful gardener Mr. George London, who is ſuppoſed to have introduced it firſt from France.

2. Ilex opaca, or Carolina holly: leaves ovate, acute, ſpiny, ſmooth, flat; flowers ſcattered at the baſe of the laſt-year's ſhoots. Native of Carolina; flowers in May and June.

3. Ilex perado, or thick-leaved ſmooth holly: leaves ovate, with a point; unarmed; almoſt entire. Native of Madeira; flowers in April and May.

4. Ilex prinoides, or deciduous holly: leaves elliptic-lanceolate, acute, deciduous, ſerrate; ſerratures without prickles. Native of Carolina and Virginia; flowers in July.

5. Ilex caſſine, or dahoon holly: leaves alternate, diſtant, evergreen, lanceolate, ſerrate; ſerratures acuminate. The dahoon holly riſes with an upright branching ſtem to the height of eighteen or twenty feet; the bark of the old ſtems is of a brown colour, but that of the younger ſtems or branches is green and ſmooth. Leaves more than four inches long, and one and a quarter broad in the broadeſt part, of a light green and thick conſiſtence; the upper part is ſerrate, each ſerrature ending in a ſmall ſharp ſpine; they ſtand alternately on every ſide of the branches, on very ſhort foot-ſtalks. The flowers come out in thick cluſters from the ſide of the ſtalks; they are white, and ſhaped like thoſe of the common holly, but ſmaller. Both the female and hermaphrodite flowers are ſucceeded by ſmall roundiſh berries, making a fine appearance in winter; but they have not as yet produced fruit in England. Native of Florida and Carolina, whence the ſeeds were ſent about the year 1726 by Mr. Mark Cateſby, who found the trees growing on a ſwamp at a diſtance from Charles-town. There are two varieties of the dahoon holly; one with broader leaves, the other with narrower leaves, with ſcarcely any ſerratures.

6. Ilex vomitoria, or South-ſea tea, or evergreen caſſine: leaves alternate, diſtant, oblong, bluntiſh, crenate-ſerrate; ſerratures without prickles. South-ſea tea, or evergreen caſſine, riſes to the height of ten or twelve feet, ſending out branches from the ground upwards, which form themſelves into a ſort of pyramid. Leaves about the ſize, ſhape, texture, and colour, of the ſmall-leaved alaternus, but ſomewhat ſhorter, and a little broader at the baſe. See Botany Plate V. fig. 60. vol. iii. p. 244. The flowers are produced in cloſe whorls at the joints of the branches, near the foot-ſtalks of the leaves: they are white, and are ſucceeded by red berries, which continue upon the plants moſt part of the winter, and, being of a bright red colour, make a fine appearance, intermixed with the green leaves. From their continuing ſo long untouched by birds, in a country where theſe animals are ſo numerous, we may conclude that they have ſome venomous quality in them. Native of Weſt Florida: Mr. Miller ſays, Carolina, and ſome of the warm parts of Virginia, chiefly near the ſea. It was cultivated here in 1700; and preſerved in ſeveral curious gardens near London, till the ſevere winter 1739, when moſt of them were deſtroyed. But ſince that many young plants have been raiſed from ſeeds, and have reſiſted the cold of our winters without covering; though

they often ſuffer in very cold ſeaſons, where they are not very well ſheltered. The leaves of this are not ſo bitter as thoſe of the caſſine, or caſſioberry-buſh, eſpecially when green, and therefore are preferred for making an infuſion in the manner of tea; which is accounted by the Indians very wholeſome, and is almoſt the only phyſic they uſe in ſome parts. At a certain time of the year they come down in droves, from a diſtance of ſome hundred miles, to the coaſt, for the leaves of this tree, which is not known to grow at any conſiderable diſtance from the ſea. They make a fire on the ground, and, putting a great kettle of water on it, they throw in a large quantity of theſe leaves, and, ſetting themſelves round the fire, from a bowl that holds about a pint they begin drinking large draughts, which in a very ſhort time occaſion them to vomit eaſily and freely; thus they continue drinking and vomiting for the ſpace of two or three days, until they have ſufficiently cleanſed themſelves; and then, every one taking a bundle of the tree to carry away with him, they all retire to their habitations. This plant is generally ſuppoſed to be the ſame as that which grows in Paraguay, where the Jeſuits make a great revenue from the leaves, and of which an account is given by Monſ. Frezier.

7. Ilex Aſiatica: leaves broad-lanceolate, blunt, quite entire. Native of the Eaſt Indies.

8. Ilex cuneifolia: leaves wedge-form, three-cuſped. Native of South America.

9. Ilex integra: leaves oblong, obtuſe, entire; peduncles one-flowered.

10. Ilex rotunda: leaves rounded, acute, entire; peduncles umbelliferous.

11. Ilex crenata: leaves ovate, crenate; peduncles on the branches ſcattered, bearing two or three flowers.

12. Ilex emarginata: leaves obovate, emarginate; flowers axillary, uſually in pairs.

13. Ilex ſerrata: leaves ovate, acute, ciliate, ſerrate; flowers axillary, ſolitary. It flowers in June.

14. Ilex Japonica: leaves oppoſite, ſeſſile; flowers in terminating racemes. It flowers in April.

15. Ilex latifolia: leaves ovate, ſerrate; flowers axillary, aggregate.

16. Ilex crocea: leaves oblong, ſerrate; ſerratures ciliate-ſpiny. Native of the Cape of Good Hope.

*Propagation and Culture.* Holly is propagated by ſeeds, which never come up the firſt year, but lie in the ground as the haws do; therefore the berries ſhould be buried in the ground in a large pot or tub one year, and then taken up and ſown in the autumn upon a bed expoſed only to the morning ſun. The following ſpring the plants will appear, which muſt be kept clean from weeds; and, if the ſpring ſhould prove dry, it will be of great ſervice to the plants if they are watered once a-week; but they muſt not have it oftener, nor in too great quantity, for too much moiſture is very injurious to theſe plants when young. In this ſeed-bed the plants may remain two years, and then ſhould be tranſplanted in the autumn, into beds at about ſix inches diſtance each way, where they may ſtand two years longer, during which time they muſt be kept conſtantly clean from weeds; and, if the plants have thriven well, they will be ſtrong enough to tranſplant where they are deſigned to remain; for, when they are tranſplanted at that age, there will be leſs danger of their failing, and they will grow to a larger ſize than thoſe which are removed when they are much larger; but, if the ground is not ready to receive them at that time, they ſhould be tranſplanted into a nurſery in rows at two feet diſtance, and one foot aſunder in the rows, in which place the plants may remain two years longer; and, if they are deſigned to be grafted or budded with any of the variegated kinds, that ſhould be performed after the plants have grown one year in this nurſery; but the plants ſo budded, or grafted, ſhould continue two years after in the nurſery, that they may make good ſhoots before they are removed; though the plain ones ſhould not ſtand longer than two years in the nurſery, becauſe, when they are older, they do not tranſplant ſo well. The beſt time for removing hollies is in the autumn, eſpecially in dry land; but, where the ſoil is cold or moiſt, they may be tranſplanted with great ſafety in the ſpring. Hedges of holly are raiſed, either by ſowing the berries where they are deſigned to remain, or by plants of three or four years growth; but the latter method is the moſt uſual; early in the autumn is the beſt time for planting them, eſpecially in dry grounds; or, if it be deferred to the end of March, mulch muſt be laid to their roots, to keep them from drying, and they muſt be watered once a-week, if the ſeaſon ſhould prove dry. Mr. Bradley obſerves, that the holly, being tap-rooted, does not love tranſplanting, unleſs the roots have been often pruned in the nurſery. He ſays, the earth in which it is to be planted, cannot well be too barren; and that September is the beſt month for tranſplanting it. For ſowing, Mr. Boutcher directs, that the berries ſhould hang on the trees till December, or, if they could be defended from birds, till February or March. As ſoon as they are gathered, throw them into a tub with water, and rub them between your hands, till the ſeeds are diveſted of their thick glutinous covering. Pour off the water, with the light ſeeds that ſwim, the mucilage, &c. and ſpread the ſeeds on a cloth in a dry airy place, rubbing them often, and giving them a freſh cloth daily till the ſeeds are quite dry. If this be done in autumn or winter, mix them with ſand, and keep them dry till ſpring; but, if they have been gathered in ſpring, let them be immediately ſown. This may be done any time in March or April, when the weather is ſeaſonable, in beds of looſe light mould, three feet and a half broad, with alleys of eighteen inches between. Let the berries be ſown regularly, and not too cloſe, covering them with fine mould three quarters of an inch deep. The following year, in the beginning of April, draw out ſuch a number of plants as to leave the reſt thin enough to receive all the influence of the ſun. Plant thoſe that are drawn in a ſhady border, in rows eighteen inches aſunder, and five or ſix inches diſtant in the rows. In this ſituation they may remain three years.

Profeſſor Bradley has given a method of forwarding the germination of theſe and other hard ſeeds, for which he pretends to have been obliged to the incomparable ſir Iſaac Newton. Having obſerved that berries of this kind which have been eaten by fowls, and paſs through their bodies, begin to vegetate ſoon afterwards, we have no more to do than to contrive a mixture, which ſhall have in it a heat and moiſture reſembling that in the bodies of birds, and to lay the ſeeds in it for a few days before we ſow them. For this purpoſe provide a buſhel of bran, with which mix your ſeeds, and then wet the whole very well with rain or pond-water, and let the preparation remain ten days without any diſturbance in a veſſel of wood or ſtone. In about three days the mixture will begin to ferment, and ſo continue thirty or forty days, if it be ſprinkled from time to time with warm water, as it begins to dry. The heat of this moiſtened bran will put the berries into a ſtate of vegetation fit for ſowing in about a week's time after the fermentation has commenced.

Mr. Evelyn affirms, that the varieties with white berries, and gold and ſilver leaves, may be raiſed from ſeeds ſown and planted in a gravelly ſoil, mixed with ſtore of chalk, and preſſed hard down. Mr. Miller alſo ſays, that he has raiſed the hedge-hog holly from the berries, and always found the plants to continue the ſame. They are, however, all uſually propagated in the nurſeries by budding or grafting upon the common holly. The ſtocks will be fit to be grafted or budded on at four or five years growth. The grafting muſt be done in March, and the budding in July.

Theſe directions may ſerve for the ſecond, fourth, and fifth, ſorts. The third requires the protection of a green-houſe. The other ſorts have not been introduced, except the ſixth, which is propagated from ſeeds, ſown in pots filled with light ſandy earth, and plunged into a gentle hot-bed, obſerving to water them frequently, until the plants appear, which is ſometimes in five or ſix weeks time; but at other times they will remain in the ground until the ſecond year; therefore, if the plants ſhould not come up in two months, remove the pots into a ſhady ſituation, where they may remain till October, being careful to keep them clean from weeds, and now and then in dry weather giving them a little water; then remove the pots into ſhelter during the winter; and in March put them upon a freſh hot-bed, to forward the ſeeds for vegetation. When the plants are come up, expoſe them to the open air by degrees, to inure them to the climate; yet they ſhould not be expoſed to the open ſun at firſt, but have the morning ſun only; placing them for ſome time where they may be ſheltered from cold winds. They ſhould be kept in pots four or five years; being ſlow of growth, and not having ſtrength enough to reſiſt the cold when young. See Hippomane and Quercus.

IL'FELD, a town of Germany, in Upper Saxony, and county of Hohnſtein: ſix miles north of Nordhauſen, and eight weſt-north-weſt of Stolberg.

IL'FRACOMB, or Ilfordcomb, a ſeaport of England, ſituated in the Britiſh Channel, on the north coaſt of the county of Devon, with a convenient and ſafe harbour, whither veſſels frequently ſtrive to enter for ſhelter, when not able to make the Taw for Barnſtable. Lights are kept here burning for the direction of mariners. There is a good quay and pier, repaired by act of parliament. The veſſels belonging to the port are chiefly employed as coaſters, in carrying ore and corn, &c. from Cornwall and Devonſhire, to Briſtol; and in fiſhing. It is governed by a mayor, bailiffs, &c. though it never ſent members to parliament. It conſiſts chiefly of one ſtreet of ſcattered houſes, almoſt a mile long. Its market is on Saturday. The pariſh is large, containing ſeveral tithings and manors. It is a pleaſant and convenient place for bathing, and much reſorted to by the gentry for that purpoſe. On the 22d of February, 1797, three French frigates appeared off this place, ſcuttled ſeveral merchantmen, and attempted to deſtroy the ſhipping in the harbour. They alſo landed 1400 men, and ſoon after ſet ſail; the whole of the troops were taken priſoners. Ilfracomb is forty-four miles weſt of Bridgewater, and 181 weſt of London. Lat. 51. 11. N. lon. 3. 10. W. Greenwich.

A little to the eaſtward of Ilfordcomb lies Comb Martin, or Martin's Comb, ſo named from its ancient owners, the Martins; which at preſent has only a cove for boats, but is very capable of being improved. It is chiefly remarkable for a lead-mine, diſcovered in the reign of Edward I. and out of the contents of which conſiderable quantities of ſilver were extracted; but by degrees, or through ill management, it was in no very long time exhauſted. However, in the reign of Edward III. it was again wrought, and that to larger profit than before. In ſome ſhort ſpace after this, through the civil wars between the houſes of York and Lancaſter, theſe works were diſcontinued, but revived with ſtronger hopes in the reign of queen Elizabeth, by ſir Bevis Bulmer, a ſkilful engineer, in great credit with that princeſs. Mr. Buſhel, who valued himſelf on being ſervant and pupil to the famous lord Bacon, made ſome propoſals for recovering it a fourth time, a little before the reſtoration; and towards the cloſe of the ſeventeenth century it was actually opened, with great expectations, but with little effect.

IL'GA, a river of Ruſſia, which runs into the Lena at Ilginſkaia.

ILGINSKAI'A, a town of Ruſſia, in the government of Irkutſk, at the conflux of the Ilga and Lena: fifty-two miles ſouth of Orlenga.

ILGIN'SKOI, a town of Ruſſia, in the government of Irkutſk, on the Ilga: ſeventy-ſix miles north-eaſt of Balaganſkoi, and 140 north of Irkutſk. Lat. 54. 30. N. lon. 123. E. Ferro.

ILHA'VO, a town of Portugal, in the province of Beira: one league ſouth of Bragança Nova, and eight and a half north-north-weſt of Coimbra.

ILHE'OS, a captainſhip ſouth of that called the Bay of All-Saints, and in the middle diviſion of Braſil. Ilheos, the capital of the above province, ſtands about thirty leagues north-eaſt of Porto Seguro, and as far ſouth-weſt of the Bay of All-Saints. It is watered by a river of the ſame name, and contains about two hundred families. Lat. 15. 40. S. lon. 34. 28. W.

IL'IA, or Rhe'a, a daughter of Numitor king of Alba, conſecrated by her uncle Amulius to the ſervice of Veſta, which required perpetual chaſtity, that ſhe might not become a mother to diſpoſſeſs him of his crown. He was however diſappointed; violence was offered to Ilia, and ſhe brought forth Romulus and Remus, who drove the uſurper from his throne, and reſtored the crown to their grandfather Numitor, its lawful poſſeſſor. Ilia was buried alive by Amulius, for violating the laws of Veſta; and, becauſe her tomb was near the Tiber, ſome ſuppoſed that ſhe married the god of that river.

IL'IA, *ſ.* in anatomy, the flanks; the ſmaller inteſtines.

IL'IAC, *adj.* [*iliacus*, Lat.] Relating to the lower bowels.—The *iliac* paſſion is a kind of convulſion in the belly. *Floyer.*

IL'IAC PAS'SION, a violent and dangerous kind of colic; called alſo *volvulus*, *miſerere mei*, and *chordapſus*. It takes its name from the inteſtine *ilion*, on account of its being uſually affected in this diſtemper; or perhaps from the Greek ειλειν, to wind or twiſt; whence alſo it is that the Latins call it *volvulus*. See Pathology.

ILI'ACI LU'DI, games inſtituted by Auguſtus in commemoration of the victory he had obtained over Antony and Cleopatra. They are ſuppoſed to be the ſame as the *Trojani ludi* and the *Actia*; and Virgil ſays, they were celebrated by Æneas, not only becauſe they were inſtituted at the time when he wrote his poem, but becauſe he wiſhed to compliment Auguſtus, by making the founder of Lavinium ſolemnize games on the very ſpot which was, many centuries after, to be immortalized by the trophies of his patron. During theſe games, were exhibited horſe-races, and gymnaſtic exerciſes.

ILI'ACUS, an epithet applied to ſuch as belong to Troy. *Virgil.*

ILI'ADES, a ſurname given to Romulus, as ſon of Ilia. *Ovid.*—A name given to the Trojan women. *Virgil.*

I'LIM, a river of Ruſſia, which riſes in lat. 54. 20. and runs into the Angara near Samakina, in lat. 57. 25. N. lon. 119. 48. E. Ferro.

I'LIMSK, a town of Ruſſia, on the Ilim, in the government of Irkutſk, in the environs of which are found the moſt beautiful black ſables. It conſiſts of an oſtrog, and about eighty houſes: 152 miles north of Irkutſk. Lat. 56. 30. N. lon. 121. 40. E. Ferro.

ILIN'SKA, a town of Ruſſia, in the government of Irkutſk, on the Lena: fifty-ſix miles north-eaſt of Kirenſk.

ILINSKA'IA, a fortreſs of Ruſſia, on the river Ural: eighty-four miles eaſt-ſouth-eaſt of Orenburg.

ILIN'SKOI, a town of Ruſſia, in the government of Tobolſk: eight miles north of Atchinſk.

ILIN'SKOI, a town of Ruſſia, in the government of Tver: thirty-two miles eaſt-north-eaſt of Tver.

ILIN'SKOI, a town of Ruſſia, in the government of Olonetz: eight miles north of Olgſkoi.

ILIN'SKOI, a town of Ruſſia, in the government of Novgorod, on the river Sula, oppoſite Tcherepovetz.

IL'ION, a town of Aſia, in Thibet: twenty-five miles weſt-north-weſt of Hara-toube.

ILI'ONE, the eldeſt daughter of Priam, who married Polymneſtor, king of Thrace. *Virgil.*

ILIONE'US, a man's name; an eloquent Trojan.

ILIP'PE, *ſ.* in botany. See Bassia.

ILIS'SUS, a river running to the eaſt of Athens; which, with the Eridanus running on the weſt ſide, falls below the city into the ſea. Sacred to the muſes, called *Iliſſiades*;

on whoſe bank their altar ſtood, and where the luſtration in the leſs myſteries was uſually performed.

ILITHYI'A, a goddeſs called alſo Juno Lucina. Some ſuppoſe her to be the ſame as Diana. She preſided over the travails of women; and in her temple, at Rome, it was uſual to carry a ſmall piece of money as an offering. This cuſtom was firſt eſtabliſhed by Servius Tullius, who by enforcing it was enabled to know the exact number of the Roman people.

IL'IUM, or IL'ION, a citadel of Troy, built by Ilus, one of the Trojan kings, from whom it received its name. It is generally taken for Troy itſelf; and ſome have ſuppoſed that the town was called *Ilium*, and the adjacent country *Troja*.

ILK, *adj.* [ealc, Sax.] The ſame. It is ſtill retained in Scotland, and denotes each; as, *Ilk ane of you*, Every one of you. It alſo ſignifies the ſame; as, *Macintoſh of that ilk*, denotes a gentleman whoſe ſurname and the title of his eſtate are the ſame; as, Macintoſh of Macintoſh:

Shepherds, ſhould it not yſhend
Your roundels freſh, to hear a doleful verſe
Of Roſalind, who knows not Roſalind,
That Colin made? *ilk* can I you rehearſe. *Spenſer.*

IL'KUCH, a royal town of Poland, in the palatinate of Cracow, remarkable for its ſilver mines mixed with lead. It is ſeated in a barren and mountainous country. Lat. 50. 26. N. lon. 20. 0. E.

ILL, *adj.* [contracted from EVIL, and retaining all its ſenſes.] Bad in any reſpect; contrary to good, whether phyſical or moral; evil. See EVIL.—Neither is it *ill* air only that maketh an *ill* ſeat, but *ill* ways, *ill* markets, and *ill* neighbours. *Bacon.*

There ſome *ill* planet reigns;
I muſt be patient, 'till the Heavens look
With an aſpect more favourable. *Shakeſpeare.*

Sick; diſordered; not in health. I know not that *evil* is ever uſed in this ſenſe.—I have known two towns of the greateſt conſequence loſt, by the governors falling *ill* in the time of the ſieges. *Temple.*

You wiſh me health in very happy ſeaſon;
For I am on the ſudden ſomething *ill*. *Shakeſpeare.*

ILL, *ſ.* Wickedneſs; depravity; contrariety to holineſs.—*Ill*, to man's nature, as it ſtands perverted, hath a natural motion ſtrongeſt in continuance. *Bacon.*

Young men to imitate all *ills* are prone;
But are compell'd to avarice alone:
For then in virtue's ſhape they follow vice. *Dryden.*

Misfortune; miſery:

Who can all ſenſe of others *ills* eſcape,
Is but a brute at beſt in human ſhape. *Tate.*

ILL, *adv.* Not well; not rightly in any reſpect:

*Ill* at eaſe, both ſhe and all her train
The ſcorching ſun had borne, and beating rain. *Dryden.*

Not eaſily; with pain; with difficulty:

*Ill* bears the ſex a youthful lover's fate,
When juſt approaching to the nuptial ſtate. *Dryden.*

ILL, ſubſtantive or adverb, is uſed in compoſition to expreſs any bad quality or condition; which may be eaſily underſtood by the following examples.

ILL, *ſubſtantive.*—Dangerous conjectures in *ill*-breeding minds. *Shakeſpeare.*

I have an *ill*-divining ſoul;
Methinks I ſee thee, now thou art below,
As one dead in the bottom of a tomb. *Shakeſpeare.*

No look, no laſt adieu, before he went!
In an *ill*-boding hour to ſlaughter ſent. *Dryden.*

The wiſeſt prince on earth may be deceived by the craft of *ill*-deſigning men. *Swift.*

Your *ill*-meaning politician lords,
Under pretence of bridal friends and gueſts,
Appointed to await me thirty ſpies,
Who, threat'ning cruel death, conſtrain'd the bride
To wring from me and tell to them my ſecret. *Milton.*

A ſpy diſtinguiſh'd from his airy ſtand,
To bribe whoſe vigilance, Ægiſthus told
A mighty ſum of *ill*-perſuading gold. *Pope.*

ILL, *adverb.*—There ſounded an *ill*-according cry of the enemies, and a lamentable noiſe was carried abroad. *Wiſd.* xviii. 10.

My colleague,
Being ſo *ill*-affected with the gout,
Will not be able to be there in perſon. *Ben Jonſon.*

The examples
Of every minute's inſtance, preſent now,
Have put us in theſe *ill*-beſeeming arms. *Shakeſpeare.*

Lead back thy Saxons to their ancient Elbe:
I would reſtore the fruitful Kent, the gift
Of Vortigern, or Hengiſt's *ill*-bought aid. *Dryden.*

We ſimple toaſters take delight
To ſee our women's teeth look white;
And ev'ry ſaucy *ill*-bred fellow
Sneers at a mouth profoundly yellow. *Prior.*

The ungrateful treaſon of her *ill*-choſen huſband overthrows her. *Sidney.*

Envy, how does it look? How meagre and *ill*-complexioned? It preys upon itſelf, and exhauſts the ſpirits. *Collier.*

There grows,
In my moſt *ill*-compos'd affection ſuch
A ſtanchleſs avarice, that, were I king,
I ſhould cut off the nobles for their lands. *Shakeſpeare.*

Our generals at preſent are ſuch as are likely to make the beſt uſe of their numbers, without throwing them away on any *ill*-concerted projects. *Addiſon.*

The ſecond daughter was a peeviſh, froward, *ill*-conditioned, creature as ever was. *Arbuthnot.*

No Perſian arras hides his homely walls
With antic veſts, which, through their ſhady fold,
Betray the ſtreaks of *ill*-diſſembled gold. *Dryden.*

You ſhall not find me, daughter,
After the ſlander of moſt ſtep-mothers,
*Ill*-ey'd unto you. *Shakeſpeare.*

I ſee thy ſiſter's tears,
Thy father's anguiſh, and thy brother's death,
In the purſuit of our *ill*-fated loves. *Addiſon.*

Plain and rough nature, left to itſelf, is much better than an artificial ungratefulneſs, and ſuch ſtudied ways of being *ill*-faſhioned. *Locke.*

Much better, when I find virtue in a fair lodging, than when I am bound to ſeek it in an *ill*-favoured creature, like a pearl in a dunghill. *Sidney.*

They would not make bold, as every where they do, to deſtroy *ill*-formed and miſ-ſhaped productions. *Locke.*

Bid him employ his care for theſe my friends,
And make good uſe of his *ill*-gotten power,
By ſhelt'ring men much better than himſelf. *Addiſon.*

*Ill*-govern'd paſſions in a prince's breaſt,
Hazard his private and the public reſt. *Waller.*

That knowledge of theirs is very ſuperficial and *ill*-grounded. *Dryden.*

Hither, of *ill*-join'd ſons and daughters born,
Firſt from the ancient world theſe giants came. *Milton.*

Nor has he erred above once by *ill*-judged ſuperfluity. *Garth.*

Did you never taſte delicious drink out of an *ill*-looked veſſel? *L'Eſtrange.*

The match had been ſo *ill*-made for Plexirtus, that his *ill*-led life would have tumbled to deſtruction, had there not come fifty to his defence. *Sidney.*

These are the product
Of thoſe *ill*-mated marriages thou ſaw'ſt,
Where good with bad were match'd. *Milton.*

The works are weak, the garriſon but thin,
Diſpirited with frequent overthrows,
Already wavering on their *ill*-mann'd walls. *Dryden.*

He will not hear me out!
Was ever criminal forbid to plead?
Curb their *ill*-manner'd zeal. *Dryden.*

It is impoſſible for the moſt *ill*-minded, avaricious, or cunning, clergyman to do the leaſt injuſtice to the meaneſt cottager, in any bargain for tythes. *Swift.*

Soon as th' *ill*-omen'd rumour reach'd his ear,
Who can deſcribe th' amazement in his face! *Dryden.*

The eternal law of things muſt not be altered, to comply with his *ill*-ordered choice. *Locke.*

When you expoſe the ſcene,
Down the *ill*-organ'd engines fall,
Off fly the vizards. *Swift.*

For Phthia fix'd is my return;
Better at home my *ill*-paid pains to mourn,
Than from an equal here ſuſtain the public ſcorn. *Dryden.*

There motley images her fancy ſtrike,
Figures *ill*-pair'd, and ſimilies unlike. *Pope.*

Sparta has not to boaſt of ſuch a woman;
Nor Troy to thank her, for her *ill*-plac'd love. *Dryden.*

I ſhall direct you, a taſk for which I take myſelf not to be *ill*-qualified, becauſe I have had opportunities to obſerve the follies of women. *Swift.*

Actions are pleaſing or diſpleaſing, either in themſelves, or conſidered as a means to a greater and more deſirable end; the eating of a well-ſeaſoned diſh, ſuited to a man's palate, may move the mind, by the delight itſelf that accompanies the eating, without reference to any other end; to which the conſideration of the pleaſure there is in health and ſtrength may add a new guſt, able to make us ſwallow an *ill*-reliſhed potion. *Locke.*

Bluſhes *ill*-reſtrain'd betray
Her thoughts intentive on the bridal day. *Pope.*

Behold the fruit of *ill*-rewarded pain. *Dryden.*

The god inform'd
This *ill*-ſhap'd body with a daring ſoul. *Dryden.*

There was plenty enough, but the diſhes were *ill*-ſorted: whole pyramids of ſweetmeats for boys and women; but little of ſolid meat for men. *Dryden.*

It does not belong to the prieſt's office to impoſe this name in baptiſm; he may refuſe to pronounce the ſame, if the parents give them ludicrous, filthy, or *ill*-ſounding, names. *Ayliff.*

*Ill*-ſpirited Wor'ſter, did we not ſend grace,
Pardon, and terms of love, to all of you. *Shakeſpeare.*

From thy fooliſh heart, vain maid, remove
An uſeleſs ſorrow, and an *ill*-ſtarr'd love. *Prior.*

Ah, why th' *ill*-ſuiting paſtime muſt I try?
To gloomy care my thoughts alone are free:
*Ill* the gay ſports with troubled hearts agree. *Pope.*

Holding of *ill*-taſted things in the mouth will make a ſmall ſalivation. *Grew.*

The maid, with downcaſt eyes and mute with grief,
For death unfiniſh'd, and *ill*-tim'd relief,
Stood ſullen to her ſuit. *Dryden.*

How ſhould opinions, thus ſettled, be given up, if there be any ſuſpicion of intereſt or deſign, as there never fails to be, where men find themſelves *ill*-treated? *Locke.*

That boldneſs and ſpirit which lads get amongſt their playfellows at ſchool, has ordinarily a mixture of rudeneſs and *ill*-turned confidence; ſo that theſe miſbecoming and diſingenuous ways of ſhifting in the world muſt be unlearned. *Locke.*

ILL, a river of France, which riſes in the department of the Upper Rhine, near Ferrette, paſſes by Muhlhauſen, Enſiſheim, Schlettſtat, &c. and runs into the Rhine near Straſburg. It is navigable for boats from Schlettſtat.

ILL, a river of Germany, which paſſes by Pludentz and Feldkirch, and empties itſelf into the Rhine northweſt of the town of Feldkirch.

ILL-DO'ING, *ſ.* Doing ill.—We knew not the doctrine of *ill-doing. Shakeſpeare.*

IL'LA, *ſ.* in botany. See CALLICARPA.

ILLAC'ERABLE, *adj.* [from *in*, Lat. againſt, and *lacero*, to tear.] Incapable of diviſion. *Scott.*

ILLACH'RYMABLE, *adj.* [*illachrymabilis*, Lat.] Incapable of weeping. *Dict.*

ILLAHON', a town of Egypt: twelve miles ſouth-eaſt of Faiom.

ILLAP'SE, *ſ.* [*illapſus*, Lat.] Gradual emiſſion or entrance of one thing into another.—As a piece of iron redhot, by reaſon of the *illapſe* of the fire into it, appears all over like fire; ſo the ſouls of the bleſſed, by the *illapſe* of the divine eſſence into them, ſhall be all over divine. *Norris.*—Sudden attack; caſual coming:

Life is oft preſerv'd
By the bold ſwimmer in the ſwift *illapſe*
Of accident diſaſtrous. *Thomſon.*

*To* ILLA'QUEATE, *v. a.* [*illaqueo*, Lat.] To entangle; to entrap; to enſnare.—I am *illaqueated*, but not truly captivated into your concluſion. *More.*

ILLAQUEA'TION, *ſ.* [from *illaqueate.*] The act of catching or enſnaring.—The word in Matthew doth not only ſignify ſuſpenſion, or pendulous *illaqueation*, but alſo ſuffocation. *Brown.*—A ſnare; any thing to catch another; a nooſe.

ILLA'SI, a valley in Italy, ſituated on the rivulet of the ſame name; it extends as far as the territory of Vicenza, and contains five pariſhes.

ILLA'SI, the chief place of the above valley, is ſeated on a ſmall rivulet of the ſame name, between hills, and in a pleaſant country.

ILLATEBRA'TION, *ſ.* [*latebra*, Lat. a hiding place.] The act of hiding in ſecret places; the act of ſeeking in ſecret places. *Bailey.*

ILLA'TION, *ſ.* [*illatio*, Lat.] Inference; concluſion drawn from premiſes.—Herein there ſeems to be a very erroneous *illation* from the indulgence of God unto Cain, concluding an immunity unto himſelf. *Brown.*

IL'LATIVE, *adj.* [*illatus*, Lat.] Relating to illation or concluſion.—In common diſcourſe or writing, ſuch caſual particles as *for*, *becauſe*, manifeſt the act of reaſoning as well as the *illative* particles *then* and *therefore. Watts.*

IL'LATIVELY, *adv.* By way of inference. *Scott.*

ILLAU'DABLE, *adj.* [*illaudabilis*, Lat.] Unworthy of praiſe or commendation:

Strength from truth divided, and from juſt,
*Illaudable*, nought merits but diſpraiſe. *Milton.*

ILLAU'DABLY, *adv.* [from *illaudible.*] Unworthily; without deſerving praiſe.—It is natural for people to form, not *illaudably*, too favourable a judgment of their own country. *Broome.*

IL'LE, a town of France, in the department of the Eaſtern Pyrennées, and chief place of a canton, in the diſtrict of Prades, on the Teck, containing about 2000 inhabitants: four leagues weſt of Perpignan, and three and a half eaſt-north-eaſt of Prades.

IL'LE, a river of France, which riſes near Dingé, in the department of the Ille and Vilaine, and joins the Vilaine near Rennes.

IL'LE and VILAI'NE, a department of France, bounded on the north by the Engliſh Channel and the department of the Channel, on the eaſt by the department of the Mayenne, on the ſouth by the Lower Loire, and on the weſt by the departments of the Morbihan and the North Coaſts; about ſixty miles in length from north to ſouth, and from twenty to forty-eight in breadth from eaſt to weſt. It takes its name from two rivers, the Ille and the Vilaine, which unite together at Rennes, the capital of the department.

ILLECE'BRA, *ſ.* in botany. See Sedum.

ILLECE'BRUM, *ſ.* (*Illecebra* of Pliny; pretty or enticing plants.) Mountain Knot-grass; in botany, a genus of the claſs pentandria, order monogynia, natural order of holoraceæ, (amaranthi, *Juſſ.*) The generic characters are —Calyx: perianthium five-leaved, cartilaginous, five-cornered; with coloured leaflets, which are ſharp, with diſtant points, permanent. Corolla: none. Stamina: filaments five, capillary, within the calyx; antheræ ſimple. Piſtillum: germ ovate, ſharp, ending in a ſhort bifid ſtyle; ſtigma ſimple, obtuſe. Pericarpium: capſule roundiſh, acuminate, both ways five-valved, one-celled, covered by the calyx. Seed: ſingle, roundiſh, ſharp on both ſides, very large. The fruit in ſeveral ſpecies is different.—*Eſſential Character.* Calyx five-leaved, cartilaginous; corolla none; ſtigmas ſimple; capſules five-valved, one-ſeeded.

*Species.* 1. Illecebrum brachiatum: ſtem upright, herbaceous, brachiate; leaves oppoſite, even. Stem naked, obſcurely angular; leaves petioled, lanceolate-ovate. It is an annual plant, and a native of the Eaſt Indies.

2. Illecebrum ſanguinolentum, or red illecebrum: fruteſcent, leaves oppoſite; ſpikes compound; heaped. Stem uſually proſtrate, and very much branched. Leaves red on both ſides, but the upper ſide darker. This is perennial, and a native of the Eaſt Indies.

3. Illecebrum Canarienſe, or Canary illecebrum: ſhrubby, leaves elliptic, acute, ſtipules and bractes ovate, ſhorter, panicles terminating, dichotomous. This is ſufficiently diſtinguiſhed from the other ſpecies by its woody arboreous ſtem, and its terminating dichotomous panicles. Found on the iſland of Teneriffe by Maſſon.

4. Illecebrum lanatum, or woolly illecebrum: leaves ovate, ſomewhat hairy; ſpikes lateral, calyxes woolly. Native of the Eaſt Indies and Cochin-china, both in fields and gardens. Cultivated in 1691, in the royal garden at Hampton Court. It is a biennial plant, and flowers moſt part of the year. It varies in ſize. The ſmaller one is deſcribed above. The great woolly illecebrum, var. β, has ſolitary, not aggregate, ſpikes. Retzius mentions a remarkable variety, γ, with round leaves, in Malabar.

5. Illecebrum Javanicum, or ſpear-leaved illecebrum: leaves lanceolate, tomentoſe; ſpikes cylindrical, numerous, terminating. Leaves obovate-lanceolate, white-tomentoſe underneath, aſh-coloured above. Native of the Eaſt Indies, and cultivated in 1768 by Mr. Miller, whoſe deſcription has been already given under Celosia lanata, vol. iv. p. 16. which is the ſame plant with this, and is repeated here, becauſe this ſeems to be its proper place. It is not eaſy, without more accurate notice than we ſometimes poſſeſs, to aſcertain whether a plant belongs to this genus, or to Celoſia, Herniaria, Achyranthes, or Gomphrena.

6. Illecebrum verticillatum, or whorl-flowered illecebrum, or verticillate knot-graſs: flowers in whorls, naked; ſtems procumbent. This little plant is only about three inches high. The upper whorls are crowded near together, and by no means ſo far aſunder as repreſented in the Flora Danica. Native of many parts of Europe, in wet paſtures, Ray obſerved it both in Flanders and Germany; he ſays it loves boggy places with Nummularia rubra and Portulaca aquatica: it was not known in his time to grow wild in England, except in the weſtern part of Cornwall, about Penzance and elſewhere; but it has ſince been found not uncommonly in Devonſhire. It flowers in July and Auguſt.

7. Illecebrum ſuffruticoſum, or ſhrubby knot-graſs: flowers lateral, ſolitary; ſtems ſuffruticoſe. This has woody ſtems about a foot high, with ſmall leaves like thoſe of Polygonum, or knot-graſs. The flowers come out ſingly on the ſide of the ſtems, and make little appearance. Native of the ſouth of Europe; flowers from May to Auguſt.

8. Illecebrum cymoſum, or flat knot-graſs: ſpikes cymed, directed one way; ſtem diffuſed. This has the appearance of Sedum and Polygonum. Root annual, ſimple, herbaceous, whitiſh. Stems procumbent from two inches to half a palm in length, jointed, knotty, the joints more frequent at the baſe and top, round, with very ſhort villoſe hairs. Leaves obovate, ſeſſile; the lower ones in pairs oppoſite, broader and more obtuſe, naked; the reſt in fours or more, coming out together from the axils of two oppoſite leaves, narrower, ſharper, and ſubciliate. Native of the ſouth of France, the Iſle of Elbe, and Portugal.

9. Illecebrum ariſtatum, or bearded illecebrum: flowers ſubfaſcicled; leaves lanceolate, ſilky, awned. This is a biennial plant, native of the Canary iſlands, where it was found by Mr. Francis Maſſon. It flowers in June and July.

10. Illecebrum paronychia, or mountain knot-graſs: flowers fenced, with ſhining bractes; ſtems procumbent; leaves even. This has trailing ſtalks near two feet long, with leaves like thoſe of the ſeventh ſort; the heads of flowers come out from the joints of the ſtalk, having neat ſilvery bractes ſurrounding them, which make a pretty appearance. The flowers appear in June, and there is generally a ſucceſſion of them for at leaſt two months; and, when the autumn proves warm, the ſeeds will ripen at the beginning of October. It differs from the next ſpecies in being perennial, in having longer creeping ſtems, and ſmaller heads of flowers. Native of the ſouth of Europe. Cultivated here in 1640, as appears from Parkinſon.

11. Illecebrum divaricatum, or forked illecebrum: flowers bracted, ſubfaſcicled; peduncles dichotomous, panicled; leaves ovate-oblong, petioled. Native of the Canary iſlands, where it was found by Maſſon. It flowers in July and Auguſt.

12. Illecebrum capitatum, or hooded knot-graſs: flowers with ſhining bractes, hiding terminating heads; ſtems ſomewhat erect; leaves ciliate, villoſe underneath. This is an annual plant, according to Gerarde, in which it differs from the tenth ſort; but Villars ſays it is perennial. The ſtems are not ſo trailing as in that, and the leaves are ciliate, underneath villoſe. Native of Provence, Spain, and the Levant.

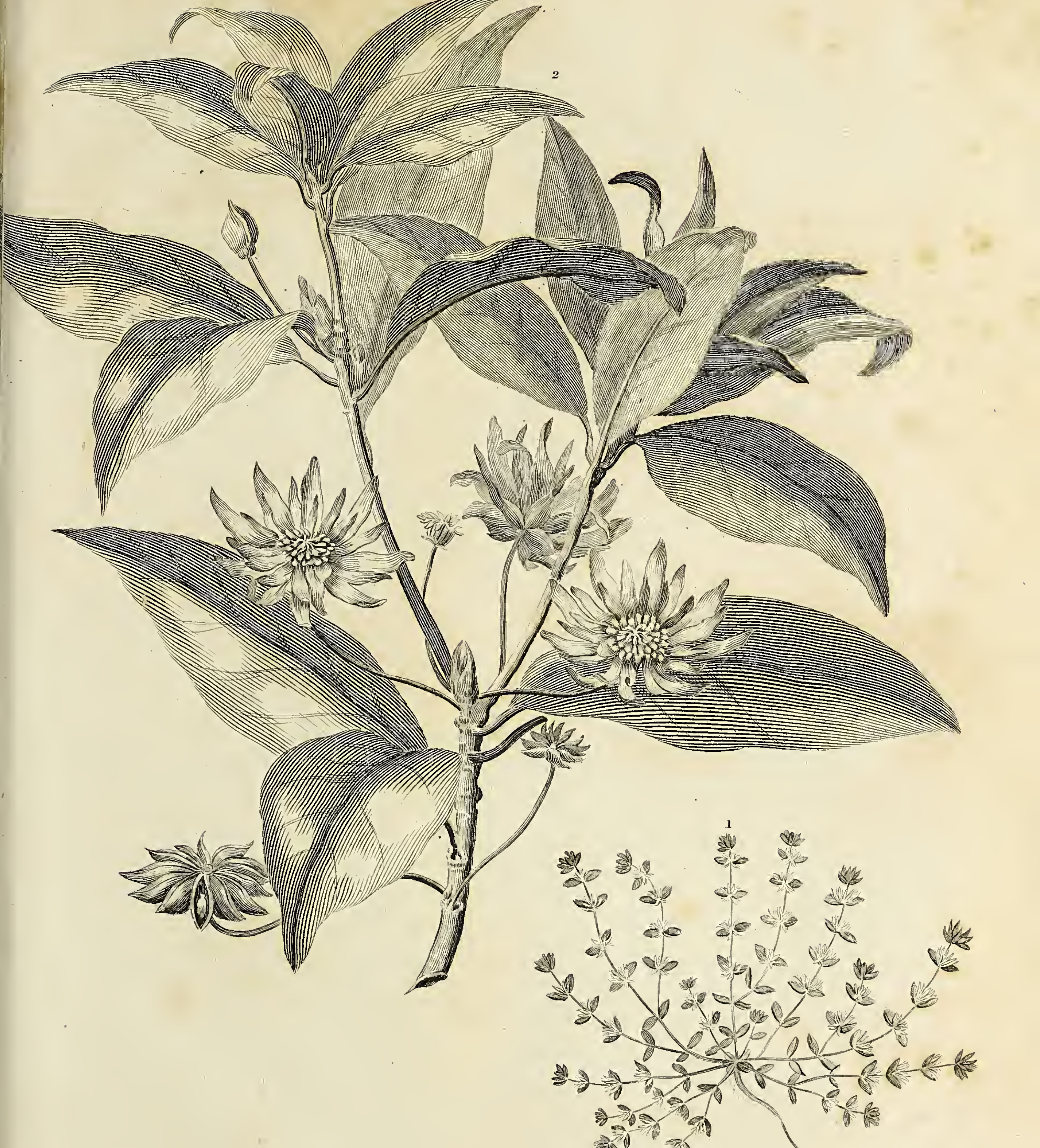
13. Illecebrum Benghalenſe, or Bengal illecebrum: ſtem upright, herbaceous; leaves alternate and oppoſite; lanceolate, pubeſcent. Root annual. Stem upright, ſubpubeſcent, not at all white; a foot or a foot and a half in height. Native of Bengal, Java, &c. in the Eaſt Indies.

14. Illecebrum Arabicum, or Arabian illecebrum: flowers ſcattered, heaped; bractes ſhining, equalling them; ſtems procumbent. This very much reſembles I. paronychia, No 10; but the flowers are not in terminating heads, but ſcattered and cluſtered all over the ſtem, with bractes not longer than the flowers. Found in Arabia by Forſkhal.

15. Illecebrum achyrantha, or creeping illecebrum: ſtems creeping, hairy; leaves ovate, mucronate, one oppoſite; ſmaller, heads ſubglobular, ſomewhat ſpiny. Root annual. Stems from a foot to eighteen inches long, decumbent, round, jointed, and frequently putting out roots at the joints. Native of Buenos Ayres, whence ſpecimens in ſeed were ſent by Mr. Mylam, who was phyſician and ſurgeon to the South-Sea Company there. From theſe ſeeds plants were raiſed in the Eltham garden about the year 1732 or ſooner, which flowered and perfected their ſeeds in October.

16. Illecebrum polygonoides, or angled illecebrum: ſtems creeping, rough-haired; leaves broad-lanceolate, petioled, heads orbiculate, naked. Stem round, villoſe

# ILLECEBRUM AND ILLICIUM.



*1. The Verticillate Knot-graſs. 2. Starry Anniseed Tree.*

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all over, dichotomous, which is not the caſe in the two next ſpecies. Native of America, on ſea-ſhores. Browne ſays, that this little plant is found creeping in all the low lands and dry ſavannas about Kingſton in Jamaica; that it generally grows in tufts, and ſpreads about ſix or eight inches from the root. He calls it hairy rupture-wort, ſuppoſing it to be a Herniaria.

17. Illecebrum ficoideum, or fig-like illecebrum: ſtems creeping, ſmooth; leaves broad-lanceolate, petioled, heads orbiculate, pubeſcent. Native of America, on the coaſt; now wild in Spain. Jacquin ſays, it is ſo abundant in Martinico in meadows, as to be a noxious weed.

18. Illecebrum ſeſſile, or ſeſſile-flowered illecebrum: ſtems creeping, bifariouſly tomentoſe; leaves lanceolate, ſubſeſſile, heads oblong, ſmooth. Flowers white, in roundiſh axillary heads, often two together. Native of the Eaſt Indies, and in wet places about Canton in China. It is an annual plant, and was introduced in 1778 by Monſ. Thouin. It flowers from July to October. Forſkahl found ſix ſtamens in his Alternanthera, but Vahl remarked only five in the dried ſpecimens; and, ſince it agrees with this plant both in the herb and fructification, he doubts not of their being the ſame.

19. Illecebrum vermiculatum, or creeping illecebrum: ſtems creeping, ſmooth; leaves ſubcylindric, fleſhy, heads oblong, ſmooth, terminating. This creeping plant ſpreads a great way among the graſs. The ſtem is pretty ſlender, and throws out a few fibrous roots at every joint. The whole plant has a reddiſh-brown caſt; and ſomething the appearance of Portulaca, or purſlane. Native of Braſil and Curaçao; very common about Rock-river in Jamaica, and on the ſandy ſhores of South America. Swartz places it among the gomphrenas, on account of its having commonly two ſtyles, a two or three-leaved calyx, with a nectary and lanugo between the calyx and corolla; all indicating an affinity betweeen this and G. globoſa. See Gomphrena, vol. viii. p. 672.

20. Illecebrum alſinefolium, or chickweed-leaved illecebrum: ſtems diffuſed; leaves ovate, flowers heaped, bractes ſhining. Native of Spain.

21. Illecebrum fruteſcens, or ſhrubby illecebrum: ſtem ſhrubby, diffuſed, dichotomous; leaves oppoſite, mealy. Root woody, branched, grey. The whole plant is mealy, and proſtrate. Stem branched, round, aſh-coloured; branches alternate, flexuoſe, purple at the joints.

*Propagation and Culture.* 7, 8, 10, 12. Theſe, which are natives of the ſouth of Europe, may be propagated by ſeeds ſown on a bed of light earth the beginning of April. The plants will come up in May, when they ſhould be kept clean from weeds till the plants are fit to remove, and then ſhould be carefully taken up, planting ſome of each ſort in ſmall pots, and the other in a warm dry border, obſerving to water and ſhade them until they have taken new root; after which, thoſe that are planted in the full ground will require no other culture but to keep them clean from weeds; for, in the ordinary winters of England, they will live in the open air; but, as theſe plants are ſometimes killed in ſevere winters, ſome ſhould be ſet in pots, to be placed in a common frame, where they may enjoy the open air in mild weather, but be ſcreened from froſt. But, as the ſeeds do not conſtantly ripen, they may alſo be increaſed by cuttings; which, if carefully taken off in May or June, and planted in a ſhady border, will in two months put out roots: in moiſt weather they may be tranſplanted, and afterwards treated as the old plants.

The reſt, being natives of the Eaſt or Weſt Indies, and other hot climates, are tender, and will not thrive in the open air in England; their ſeeds therefore muſt be ſown on a hot-bed in the ſpring, with amaranthus, gomphrena, and other tender plants; afterwards, if they are plunged into the tan-bed in the ſtove, their branches will put out roots, whereby they may be propagated in plenty. Where ſeeds cannot be obtained, they may be increaſed this way; and the perennial ſorts by cuttings.

ILLEC'TIVE, *adj.* [*illiceo*, Lat. to allure.] Alluring, enticing. *Not uſed.*

ILLEC'TIVE, *ſ.* An allurement. *Scott.*

ILLE'GAL, *adj.* [*in* and *legalis*, Lat.] Contrary to law. No patent can oblige the ſubject againſt law, unleſs an—*illegal* patent paſſed in one kingdom can bind another, and not itſelf. *Swift.*

ILLEGAL'ITY, *ſ.* [from *illegal.*] Contrariety to law.—He wiſhed them to conſider what votes they had paſſed, of the *illegality* of all thoſe commiſſions, and of the unjuſtifiableneſs of all the proceedings by virtue of them. *Clarendon.*

ILLE'GALLY, *adv.* [from *illegal.*] In a manner contrary to law.—The baſtard ſhall be ſettled in the pariſh from whence the mother was *illegally* removed. *Blackſtone.*

ILLE'GALNESS, *ſ.* The ſtate of being illegal; illegality. *Scott.*

ILLEG'IBLE, *adj.* [*in* and *legibilis*, from *lego*, Lat.] What cannot be read.—The ſecretary poured the ink-box all over the writings, and ſo defaced them that they were made altogether *illegible. Howel.*

ILLEGIT'IMACY, *ſ.* [from *illegitimate.*] State of baſtardy.—Abſtractedly from any religious view, which has nothing to do with the legitimacy or *illegitimacy* of the children. *Blackſtone.*

ILLEGIT'IMATE, *adj.* [*in* and *legitimus*, Lat.] Unlawfully begotten; not begotten in wedlock.—Being *illegitimate*, I was deprived of that endearing tenderneſs and uncommon ſatisfaction, which a good man finds in the love and converſation of a parent. *Addiſon.*

Grieve not at your ſtate;
For all the world is *illegitimate.* *Cleaveland.*

ILLEGIT'IMATELY, *adj.* [from *illegitimate.*] Not begotten in wedlock.

ILLEGITIMA'TION, *ſ.* [from *illegitimate.*] The ſtate of one not begotten in wedlock.—Richard III. had a reſolution, out of hatred to both his brethren, to diſable their iſſues, upon falſe and incompetent pretexts; the one of attainder, the other of *illegitimation. Bacon.*

IL'LENAS (Las), a town of the iſland of Hiſpaniola: ſeven miles north of St. Domingo.

ILLEP'ID, *adj.* [*in*, Lat. contrary to, and *lepidus*, pleaſant.] Unpleaſant, dull in converſation. *Bailey.*

IL'LER, a river of Germany, which riſes in the ſouth part of the biſhopric of Augſburg, on the borders of the Tyroleſe, paſſes by Kempten, Memingen, &c. and joins the Danube about two miles above Ulm.

ILLES'CAS, a town of Spain, in New Caſtile, ſituated about midway in the road from Toledo to Madrid. It contains two pariſhes, and three convents: fifteen miles ſouth-ſouth-weſt of Madrid, and fifteen north-north-eaſt of Toledo.

ILLEV'IABLE, *adv.* [*lever*, Fr.] What cannot be levied or exacted.—He rectified the method of collecting his revenue, and removed obſolete and *illeviable* parts of charge. *Hale.*

ILLFA'VOURED, *adj.* See Ill.

ILLFA'VOUREDLY, *adv.* With deformity. Roughly; ruggedly; in ludicrous language.—He ſhook him very *illfavouredly* for the time, raging through the very bowels of his country, and plundering all whereſoever he came. *Howel.*

ILLFA'VOUREDNESS, *ſ.* Deformity.

ILLIB'ERAL, *adj.* [*illiberalis*, Lat.] Not noble: not ingenuous.—The charity of moſt men is grown ſo cold, and their religion ſo *illiberal. King Charles.*—Not munificent; not generous; ſparing.—Yet ſubſiſt they did, and well too: an argument that earth did not deal out their nouriſhment with an overſparing or *illiberal* hand. *Woodward.*

ILLIBERAL'ITY, *ſ.* [*illiberalitas*, Lat. from *illiberal.*] Meanneſs of mind. Parſimony; niggardlineſs; want of munificence.—The *illiberality* of parents, in allowance towards their children, is an harmful error, and acquaints them with ſhifts. *Bacon.*

ILLIB'ERALLY, *adv.* [from *illiberal.*] Diſingenuouſly; meanly.—One that had been bountiful only upon ſurprize and incogitancy, *illiberally* retracts. *Decay of Piety.*

ILLIB'ERIS, a town of Gaul, through which Hannibal paſſed, as he marched into Italy.

IL'LIC, a town of Aſia, in the country of Thibet: ſeven miles north-weſt of Tocſon-Hotun.

ILLIC'IT, *adj.* [*illicitus*, Lat. *illicite*, Fr.] Unlawful; as, an *illicit* trade.

ILLI'CIUM, *ſ.* (*ab illiciendo*; an incitement or allurement; an inticing plant.) ANISEED-TREE; in botany, a genus of the claſs polyandria, order polygynia, natural order of coadunatæ, (magnoliæ, *Juſſ.*) The generic characters are—Calyx: perianthium ſix-leaved, deciduous, the three inferior leaflets oval; the three ſuperior alternate ones narrower, and reſembling petals. Corolla: petals many (twenty-ſeven), diſpoſed in a triple ſeries; the nine inferior obtuſe, concave, the nine middle ſhorter and narrower; the interior nine ſtill ſhorter and narrower. Stamina: filaments very many (thirty), ſhort, depreſſed; antheræ upright, oblong, obtuſe, emarginate. Piſtillum: germs very many (twenty), diſpoſed in a circle, ending in very ſhort ſpreading ſtyles; ſtigmas at the upper ſide of the ſtyle, oblong. Pericarpium: capſules ſeveral, (commonly eight, *Lour.*) ovate, compreſſed, hard, ſpreading into a circle, bivalve; (one-valved, *Lour.* opening at the upper edge, *Gærtner.*) Seed: ſolitary, ovate, rather compreſſed, gloſſy.—*Eſſential Character.* Calyx ſix-leaved; petals twenty-ſeven. Capſule ſeveral, diſpoſed in a circle, bivalve, one-ſeeded.

*Species.* 1. Illicium aniſatum, or yellow-flowered ſtarry aniſeed-tree: flowers yellow; petals ſixteen, capſules ſix or eight. Stem arboreous, a fathom or more in height, ſmooth all over. Branches trichotomous, wrinkled and angular, from ſpreading upright. Leaves aggregate, in threes or fours, elliptic, broader near the tip, acuminate, quite entire, evergreen, paler underneath, often reflex, two inches long. Petiole very ſhort, channelled, gradually widening into the leaf. Flowers axillary, peduncled, ſolitary. Germs eight or more. Capſules ſix or eight, ovate-lanceolate, compreſſed a little, horizontal, of a ſubſtance like cork, rugged without, ſmooth and even within, having a ſtrong ſmell of aniſe when rubbed. Seeds elliptic, ſubtruncated in front, lens-ſhaped, extremely ſmooth and even, gloſſy, rufous, or cinnamon-coloured.

We meet with an account of the ſtarry aniſeed, together with a figure of it, taken from Cluſius, in Parkinſon's Theatre of Plants, p. 1569, where he obſerves, that ſome branches of it, with the huſks and ſeeds only, without leaves or bloſſoms, were brought into England by ſir Thomas Cavendiſh, in queen Elizabeth's time, from the Philippine iſlands, where he met with it in his voyage round the world. Theſe branches were given to Mr. Morgan, the queen's apothecary, and to Mr. James Garrat, of whom Cluſius received them. Monſieur Geoffroy, in his Materia Medica, tranſlated in 1736 by Dr. G. Douglas, p. 322, calls it *Aniſum Sinenſe, ſemen badian & fructus ſtellatus*, and ſays, it is highly eſteemed in China, and all over the eaſt; that it is uſed to cure any bad taſte in the mouth, as a preſervative againſt the effects of bad air, and alſo for the ſtone and gravel; that the Indians likewiſe ſteep this fruit in water, and afterwards ferment the infuſion, and thus make a vinous liquor: that the Dutch in the Eaſt Indies, as well as the natives, mix this fruit with their tea and ſherbet. Kæmpfer, in his Amœtates Exoticæ, p. 880, calls it *ſomo* or *ſkimmi*, and has given a very good figure of a branch of it, with the leaves, flowers, and fruit. He found it in Japan, and ſays that the Japaneſe and Chineſe eſteem it a ſacred tree, that they offer it to their idols, and burn the bark of it, as a perfume, on their altars; and lay the branches upon the graves of the dead, as an offering to the ghoſts of their pious departed friends; and that the public watchmen uſe the powder of this aromatic bark ſtrewed in ſmall winding grooves, or little channels, on ſome aſhes in a box ſecured from the weather, for the following purpoſe. This powder, being lighted at one end, burns ſlowly on, and being come to certain marked diſtances, and ſo ſparkling through the grooves, they ſtrike a bell, and, by means of this time-keeper, proclaim the hours of the night to the public. And laſtly, that it has the remarkable property of rendering the poiſon of the bladder-fiſh (Tetrodon hiſpidus of Linn. Syſt. Nat.) more virulent, as many have experienced, that have uſed violent means to deſtroy themſelves. Native of China and Japan. Thunberg doubts whether this and the *floridanum* be really diſtinct ſpecies, or only varieties.

2. Illicium Floridanum, or red-flowered ſtarry aniſeed-tree: flowers red; petals 21–27, capſules 12 or more. We are indebted for the firſt diſcovery of this curious American tree to a negro ſervant of William Clifton, eſq. chief juſtice of Weſt Florida, who was ſent to collect ſpecimens of all the rarer plants by his maſter, in April, 1765. After this, in the latter end of January, 1766, Mr. John Bartram, the king's botaniſt for the Floridas, diſcovered it on the banks of the river St. John, in Eaſt Florida, as appears from his deſcription of it, and the drawing of a ſeed-veſſel, with ſome of the leaves, which he ſent to Peter Collinſon, eſq. Mr. Bartram's deſcription of it is as follows: "Near here my ſon found a lovely ſweet tree, with leaves like the ſweet bay, which ſmelled like ſaſſafras, and produces a very ſtrange kind of ſeed-pod; but all the ſeed was ſhed; the ſevere froſt had not hurt it; ſome of them grew near twenty feet high; a charming bright ever-green aromatic." The medicinal properties of this tree are worth enquiring into. The leaves afford a moſt agreeable bitter. A ſprig of it ſet to putrify in a phial of water, the bark ſoon became full of a clear mucilage. The young bloſſoms, put into water with a ſmall quantity of tartar *per deliquium*, from a dark-reddiſh colour became a light-brown; but, from the ſame proportion of oil of vitriol in water, they turned to a fine carmine colour, which ſtained the paper of a fine red. This points out its aſtringent quality. Many perſons think this plant not really a different ſpecies from the oriental one. The ſeed-veſſels from China, however, ſmell very diſagreeably of aniſeed: whereas the ſeed-veſſel of the *Floridanum* is agreeably aromatic, as are the leaves and young branches. The flower, according to Kæmpfer, is of a yellowiſh white, and looks at a diſtance like a narciſſus: the preſent ſpecies has a flower of a dark-red colour. Kæmpfer reckons the number of petals ſixteen, and the rays or ſeed-veſſels eight; the number of petals in this is from twenty-one to twenty-ſeven, and the ſeed-veſſels twelve or thirteen that ripen. Indeed the generic characters, as they appear at the head of the article, ſeem to have been formed upon a view of this ſpecies, which is that repreſented in the annexed Engraving.

*Propagation and Culture.* The aniſeed-tree may be propagated by ſeeds, if they can be procured; or by laying down the young branches; or by cuttings, which ſtrike freely. It requires the ſame treatment as GARDENIA, which ſee, vol. viii. p. 253.

IL'LIERS, a town of France, in the department of the Eure and Loire, and chief place of a canton, in the diſtrict of Chartres: four leagues ſouth-eaſt of Chartres, and five north-north-weſt of Chateaudun.

*To* ILLIGH'TEN, *v. n.* [*in* and *lighten.*] To enlighten; to illuminate.—Corporeal light cannot be, becauſe then it would not pierce the air, nor diaphanous bodies; and yet every day we ſee the air *illightened. Raleigh.*

ILLIM'ITABLE, *adj.* [*in* and *limes*, Lat.] That which cannot be bounded or limited.—Although, in adoration of idols, unto the ſubtiler heads the worſhip perhaps might be ſymbolical; yet was the idolatry direct in the people, whoſe credulity is *illimitable*, and who may be made to believe that any thing is God. *Brown.*

With what an awful world-revolving power,
Were firſt th' unwieldly planets launch'd along
The *illimitable* void! *Thomſon.*

ILLIM'ITABLY, *adv.* Without ſuſceptibility of bounds.

ILLIM'ITED, *adj.* Unbounded; interminable.

ILLIM'ITEDNESS, *ſ.* Exemption from all bounds.—The abſoluteneſs and *illimitedneſs* of his commiſſion was generally much ſpoken of. *Clarendon.*

ILLINO'IS, a large navigable river of the north-weſt territory of the American States, formed by the confluence of the rivers Plein and Theakiki, in lat. 41. 48. N. and in lon. 88.42. W. This noble branch of the Miſſiſſippi, after running a ſerpentine ſouth-weſt courſe through an extenſive country of rich fertile land; and receiving a vaſt number of rivers from twenty to one hundred yards wide, which are navigable for boats from fifteen to one hundred and eighty miles, approaches within five miles of the Miſſiſſippi; from thence running eaſtward about twelve miles it pays its tribute by a mouth four hundred yards wide, in lat. 38. 40. N. and in lon. 92. 12. W. oppoſite the large cave, one hundred and ſeventy-ſix miles above the Ohio, and eighteen above the Miſſouri. The lands on the banks of the Illinois, particularly thoſe on the ſouth-eaſt ſide, are perhaps as fertile as any part of North America. They produce, in the moſt luxuriant plenty, wheat, rye, Indian corn, peaſe, beans, flax, hemp, tobacco, hops, grapes, apples, pears, peaches, dying roots, medicinal plants, &c. Here alſo grow large foreſts of hickory, oak, cedar, mulberry-trees, &c. Savannas, or natural meadows, are both numerous and extenſive. In the foreſts are great variety of animals, as buffaloes, deer, &c. and in the rivers are plenty of fiſh, particularly cat, carp, and perch, of an enormous ſize. Such is the abundance of wild grapes in this country, that in 1769 the French planters upon this river made above 110 hhds. of ſtrong wine from theſe grapes. On the north-weſtern ſide of this river is a coal-mine, which extends for half a mile along the middle of its banks; and about the ſame diſtance below the coal-mine are two ſalt ponds, one hundred yards in circumference, and ſeveral feet in depth. The water is ſtagnant, and of a yellowiſh colour; but the French and natives make a good ſalt from it. The Illinois furniſhes a communication with lake Michigan, by Chicago river, between which and the Illinois are two portages, the length of which do not exceed four miles. The whole length of the river, from the ſource of Theakiki, which is but a ſhort diſtance from the river St. Joſeph, oppoſite to Fort St. Joſeph on the north, is four hundred and eighty miles. The Indians have ceded to the United States, by the treaty of Greenville, in 1795, a tract of land twelve miles ſquare, at or near the mouth of the Illinois; alſo a tract ſix miles ſquare, at the Old Piarias fort and village near the ſouth end of Illinois Lake. That lake is only a dilatation of the river, and is ſituated about two hundred and forty miles below the ſource of Theakiki, and forty-three below the Salt Ponds. It is twenty miles long, and five broad, in the middle.

ILLI'QUATED, *adj.* [from *in*, Lat. into, and *liqueo*, to melt.] Melted down. *Scott.*

ILLIQUA'TION, *ſ.* The act of melting one thing into the other. *Scott.*

ILLIT'ERATE, *adj.* [*illiteratus*, Lat.] Unlettered; untaught; unlearned; unenlightened by ſcience. In the firſt ages of Chriſtianity, not only the learned and the wiſe, but the ignorant and *illiterate*, embraced torments and death. *Tillotſon.*

Th' *illiterate* writer, empiric-like, applies
To minds diſeas'd unſafe chance remedies:
The learn'd in ſchools, where knowledge firſt began,
Studies with care th' anatomy of man;
Sees virtue, vice, and paſſions, in their cauſe;
And fame from ſcience, not from fortune, draws. *Dryden.*

ILLIT'ERATELY, *adv.* Without learning.

ILLIT'ERATENESS, *ſ.* [from *illiterate.*] Want of learning; ignorance of ſcience.—Many, acquainted with chemiſtry but by report, have, from the *illiterateneſs* and impoſtures of thoſe that pretend ſkill in it, entertained an ill opinion of the art. *Boyle.*

ILLIT'ERATURE, *ſ.* [*in* and *literature.*] Want of learning. *Not much uſed.*—The more uſual cauſes of this deprivation are want of holy orders, *illiterature*, or inability for the diſcharge of that ſacred function, and irreligion. *Ayliffe.*

ILLITHY'A, in heathen mythology, the goddeſs of child-bearing; Lucina.

ILLNA'TURE, *ſ.* Habitual malevolence; want of humanity.—*Illnature* inclines a man to thoſe actions that thwart and ſour and diſturb converſation, and conſiſts of a proneneſs to do ill turns, attended with a ſecret joy upon the ſight of any miſchief that befals another, and of an utter inſenſibility of any kindneſs done him. *South.*

ILLNA'TURED, *adj.* Habitually malevolent; wanting kindneſs or good will; miſchievous; deſirous of another's evil.—Theſe ill qualities denominate a perſon *illnatured*, they being ſuch as make him grievous and uneaſy to all whom he deals and aſſociates himſelf with. *South.*

Stay, ſilly bird, th' *illnatur'd* taſk refuſe;
Nor be the bearer of unwelcome news. *Addiſon.*

*Philips* applies it to land.—Untractable; not yielding to culture:

The fondly ſtudious of increaſe,
Rich foreign mold on their *illnatured* land
Induce. *Philips.*

ILLNA'TUREDLY, *adv.* In a peeviſh froward manner.

ILLNA'TUREDNESS, *ſ.* Want of a kindly diſpoſition.

ILL'NESS, *ſ.* [from *ill.*] Badneſs or inconvenience of any kind, natural or moral. He that has his chains knocked off, and the priſon-doors ſet open, is perfectly at liberty, though his preference be determined to ſtay, by the *illneſs* of the weather. *Locke.*—Sickneſs; malady: diſorder of health.—Since the account her majeſty received of the inſolent faction, during her late *illneſs* at Windſor, ſhe hath been willing to ſee them deprived of power to do miſchief. *Swift.*—Wickedneſs:

Thou would'ſt be great;
Art not without ambition; but without
The *illneſs* ſhould attend it. *Shakeſpeare.*

ILLO'CABLE, *adj.* [from *in*, Lat. contrary to, and *locus*, a place.] Incapable of being placed out, incapable of being hired. *Bailey.*

ILLOG'ICAL, *adj.* Ignorant or negligent of the rules of reaſoning.—One of the diſſenters appeared to Dr. Sanderſon ſo bold and *illogical* in the diſpute, as forced him to ſay, he had never met with a man of more pertinacious confidence, and leſs abilities. *Walton.*—Contrary to the rules of reaſon.—Reaſon cannot diſpute and make an inference ſo utterly *illogical*. *Decay of Piety.*

ILLOG'ICALLY, *adv.* In a manner contrary to the laws of argument.

IL'LOK, a town of Sclavonia, ſituated on the Danube: ſixteen miles weſt of Peter Waradin, and forty-eight weſt-north-weſt of Belgrade.

ILLO'RA, a town of Spain, in the province of Grenada: ſixteen miles north of Loja.

ILLOWNI'KA, a river of Sileſia, in the principality of Teſchen, which runs into the Viſtula near Dziedzitz.

*To* ILLU'DE, *v. a.* [*illudo*, Lat.] To deceive; to mock; to impoſe on; to play upon; to torment by ſome contemptuous artifice of mockery:

Sometimes athwart, ſometimes he ſtrook him ſtrait,
And falſed oft his blow, t' *illude* him with ſuch bait.
*Fairy Queen.*

In vain we meaſure this amazing ſphere,
While its circumference, ſcorning to be brought
Ev'n into fancy'd ſpace, *illudes* our vanquiſh'd thought.
*Prior.*

ILLU'DING, *ſ.* The act of deceiving with falſe hopes.

*To* ILLU'ME, *v. a.* [*illuminer*, Fr.] To enlighten; to illuminate:

When yon ſame ſtar, that's weſtward from the pole,
Had made his courſe, t' *illume* that part of heav'n,
Where now it burns. *Shakeſpeare.*

To brighten; to adorn:

The mountain's brow,
*Illum'd* with fluid gold, his near approach
Betokens. *Thomſon.*

ILLU'MINABLE, *adj.* [from *illume.*] Capable of being illuminated.

ILLU'MINARY, *adj.* [from *illume.*] Pertaining to illumination. *Scott.*

*To* ILLU'MINATE, *v. a.* To enlighten; to ſupply with light.—No painting can be ſeen in full perfection, but as all nature is *illuminated* by a ſingle light. *Wotton.*

Reaſon our guide, what can ſhe more reply
Than that the ſun *illuminates* the ſky;
Than that night riſes from his abſent ray,
And his returning luſtre kindles day? *Prior.*

To adorn with feſtal lamps or bonfires.—To enlighten intellectually with knowledge or grace.—When he *illuminates* the mind with ſupernatural light, he does not extinguiſh that which is natural. *Locke.*—To adorn with pictures or initial letters of various colours.—To illuſtrate.—My health is inſufficient to amplify theſe remarks, and to *illuminate* the ſeveral pages with variety of examples. *Watts.*

ILLU'MINATING, *ſ.* The act of enlightening. Alſo a kind of miniature-painting, anciently much practiſed for illuſtrating and adorning books. Beſides the writers of books, there were artiſts whoſe profeſſion was to ornament and paint manuſcripts, who were called *illuminators*; the writers of books firſt finiſhed their part, and the illuminators embelliſhed them with ornamented letters and paintings. We frequently find blanks left in manuſcripts for the illuminators, which were never filled up. Some of the ancient manuſcripts are gilt and burniſhed in a ſtyle ſuperior to later times. Their colours were excellent, and their ſkill in preparing them muſt have been very great.

The practice of introducing ornaments, drawings, emblematical figures, and even portraits, into manuſcripts, is of great antiquity. Varro wrote the lives of ſeven hundred illuſtrious Romans, which he enriched with their portraits, as Pliny atteſts in his Natural Hiſtory (lib. xxxv. chap. 2). Pomponius Atticus, the friend of Cicero, was the author of a work on the actions of the great men amongſt the Romans, which he ornamented with their portraits, as appears in his life by Cornelius Nepos (chap. 18). But theſe works have not been tranſmitted to poſterity. There are, however, many precious documents remaining, which exhibit the advancement and decline of the arts in different ages and countries. Theſe ineſtimable paintings and illuminations diſplay the manners, cuſtoms, habits eccleſiaſtical, civil, and military, weapons and inſtruments of war, utenſils, and architecture, of the ancients; they are of the greateſt uſe in illuſtrating many important facts relative to the hiſtory of the times in which they were executed. In theſe treaſures of antiquity are preſerved a great number of ſpecimens of Grecian and Roman art, which were executed before the arts and ſciences fell into neglect and contempt. The manuſcripts containing theſe ſpecimens form a valuable part of the riches preſerved in the principal libraries of Europe. The Royal, Cottonian, and Harleian, libraries, as alſo thoſe in the two univerſities in England, the Vatican at Rome, the Imperial at Vienna, the Royal at Paris, St. Mark's at Venice, and many others.

A very ancient manuſcript of Geneſis, which was in the Cottonian library, and almoſt deſtroyed by a fire in 1731, contained two hundred and fifty curious paintings in water colours. Twenty-one fragments, which eſcaped the fire, are engraven by the Society of Antiquaries of London. Several ſpecimens of curious paintings alſo appear in Lambecius's catalogue of the imperial library at Vienna, particularly in vol. iii. where forty-eight drawings of nearly equal antiquity with thoſe in the Cottonian library are engraven; and ſeveral others may be found in various catalogues of the Italian libraries. The drawings in the Vatican Virgil, made in the fourth century, before the arts were entirely neglected, illuſtrate the different ſubjects treated of by the Roman poet. A miniature drawing is prefixed to each of the goſpels brought over to England by St. Auguſtin in the ſixth century, which is preſerved in the library of Corpus Chriſti college, Cambridge; in the compartments of thoſe drawings are depicted repreſentations of ſeveral tranſactions in each goſpel. The curious drawings and elaborate ornaments in St. Cuthbert's goſpels made by St. Ethelwald, and now in the Cottonian library, exhibit a ſtriking ſpecimen of the ſtate of the arts in England in the ſeventh century. The ſame may be obſerved with reſpect to the drawings in the ancient copy of the four goſpels preſerved in the cathedral church of Lichfield, and thoſe in the Codex Ruſhworthianus in the Bodleian library at Oxford. The life of St. Paul the hermit, now remaining in Corpus Chriſti college, Cambridge, affords an example of the ſtyle of drawing and ornamenting letters in England in the eighth century; and the copy of Prudentius's Pſycomachia, in the Cottonian library, exhibits the ſtyle of drawing in Italy in the ninth century. Of the tenth century there are Roman drawings of a ſingular kind in the Harleian library, (No. 2820.) Nos. 5280, 1802, and 432, in the ſame library, contain ſpecimens of ornamented letters, which are to be found in Iriſh manuſcripts from the twelfth to the fourteenth century. Cædmon's Poetical Paraphraſe of the Book of Geneſis, written in the eleventh century, which is preſerved amongſt F. Junius's manuſcripts in the Bodleian library, exhibits many ſpecimens of utenſils, weapons, inſtruments of muſic, and implements of huſbandry, uſed by the Anglo-Saxons. The like may be ſeen in extracts from the Pentateuch of the ſame age, in the Cottonian library. The manuſcript copy of Terence in the Bodleian library, diſplays the dreſſes, maſks, &c. worn by comedians in the twelfth century, if not earlier. The very elegant Pſalter in the library of Trinity-college, Cambridge, exhibits ſpecimens of the art of drawing in England in the ſame century. The Virgil in the Lambeth library of the thirteenth century, written in Italy, ſhows, both by the drawings and writing, that the Italians produced works much inferior to ours at that period. The copy of the Apocalypſe in the ſame library, (No. 209,) contains a curious example of the manner of painting in the fourteenth century. The beautiful paintings in the hiſtory of the latter part of the reign of king Richard II. in the Harleian library, No. 1319, afford curious ſpecimens of manners and cuſtoms, both civil and military, at the cloſe of the fourteenth and in the beginning of the fifteenth century; as does No. 2278 in the ſame library. Many other inſtances might be produced; but thoſe who deſire farther information may conſult Strutt's Regal and Eccleſiaſtical Antiquities, 4to. and his Horda-Angel-cynnan, lately publiſhed in 3 vols.

This art was much practiſed by the clergy, and even by ſome in the higheſt ſtations in the church. "The famous Oſmund, (ſays Bromton,) who was conſecrated biſhop of Saliſbury A.D. 1076, did not diſdain to ſpend ſome part of his time in writing, binding, and *illuminating* books." Mr. Strutt, as already noticed, has given the public an opportunity of forming ſome judgment of the degree of delicacy and art with which theſe illuminations were executed, by publiſhing prints of a prodigious number of them, in his Regal and Eccleſiaſtical Antiquities of England, and View of the Cuſtoms, &c. of England. In the firſt of theſe works we are preſented with the genuine portraits, in miniature, of all the kings, and ſeveral of the queens, of England, from Edward the Confeſſor to Henry VII. moſtly in their crowns and royal robes, together with the portraits of many other eminent perſons of both ſexes.

The illuminators and painters of this period ſeem to have been in poſſeſſion of a conſiderable number of colouring materials, and to have known the arts of preparing and mixing them ſo as to form a great variety of colours; for, in the ſpecimens of their miniature-paintings that are ſtill extant, we perceive not only the five primary colours, but alſo various combinations of them. Though Strutt's prints do not exhibit the bright and vivid colours of the originals, they give us equally a view, not only of the perſons and dreſſes of our anceſtors, but alſo of their cuſtoms, manners, arts, and employments, their arms, ſhips, houſes, furniture, &c. and enable us to judge of their ſkill in drawing. The figures in thoſe paintings are often ſtiff and formal; but the ornaments are in general fine and delicate, and the colours clear and bright, particularly the gold and azure. In ſome of theſe illuminations the paſſions are ſtrongly painted. How ſtrongly, for example, is terror painted in the faces of the earl of Warwick's ſailors when they were threatened with a ſhipwreck, and grief in the countenances of thoſe who were preſent at the death of that hero? After the introduction of printing, this elegant art of illuminating gradually declined, and at length was quite neglected.

Before concluding, it may not be improper to obſerve, that from the fifth to the tenth century, the miniature-paintings which we meet with in Greek manuſcripts are generally good, as are ſome which we find among thoſe of Italy, England, and France. From the tenth to the middle of the fourteenth century they are commonly very bad, and may be conſidered as ſo many monuments of the barbarity of thoſe ages; towards the latter end of the fourteenth, the paintings in manuſcripts were much improved; and, in the two ſucceeding centuries, many excellent performances were produced, eſpecially after the happy period of the reſtoration of the arts, when great attention was paid to the works of the ancients, and the ſtudy of antiquity became faſhionable.

ILLUMINA'TION, *ſ.* The act of ſupplying with light. That which gives light.—The ſun is but a body illightened, and an *illumination* created. *Raleigh.*—Feſtal lights hung out as a token of joy:

Flow'rs are ſtrew'd, and lamps in order plac'd,
And windows with *illuminations* grac'd. *Dryden.*

Brightneſs; ſplendour.—The illuminators of manuſcripts borrowed their title from the *illumination* which a bright genius giveth to his work. *Felton.*—Infuſion of intellectual light; knowledge of grace.—Hymns and pſalms are ſuch kinds of prayer as are not conceived upon a ſudden; but framed by meditation beforehand, or by prophetical *illumination* are inſpired. *Hooker.*

ILLU'MINATIVE, *adj.* Having the power to give light.—What makes itſelf and other things be ſeen, being accompanied by light, is called fire; what admits the *illuminative* action of fire, and is not ſeen, is called air. *Digby.*

ILLU'MINATOR, *ſ.* One who gives light.—One whoſe buſineſs it is to decorate books with pictures at the beginning of chapters.—*Illuminators* of manuſcripts borrowed their title from the illumination which a bright genius giveth to his work. *Felton.*

*To* ILLU'MINE, *v. a.* To enlighten; to ſupply with light:

What in me is dark
*Illumine!* what is low, raiſe and ſupport! *Milton.*

To decorate; to adorn:

To Cato, Virgil paid one honeſt line;
O let my country's friends *illumine* mine. *Pope.*

ILLU'MINER, *ſ.* An illuminator; one who paints or adorns the frontiſpieces and capital letters of a book or manuſcript. *Scott.*

ILLU'MINING, *ſ.* The act of enlightening.

ILLU'SION, *ſ.* [*illuſio*, Lat. *illuſion*, Fr.] Mockery; falſe ſhow; counterfeit appearance; error.—There wanted not ſome about him that would have perſuaded him that all was but an *illuſion*. *Bacon.*

So oft they fell
Into the ſame *illuſion*; not as man,
Whom they triumph'd, once laps'd. *Milton.*

ILLU'SIVE, *adj.* Deceiving by falſe ſhow:

The heathen bards, who idle fables dreſt,
*Illuſive* dreams in myſtic forms expreſt. *Blackmore.*

ILLU'SORY, *adj.* Deceiving; fraudulent.—Subtilty, in thoſe who make profeſſion to teach or defend truth, hath paſſed for a virtue; a virtue indeed, which, conſiſting for the moſt part in nothing but the fallacious and *illuſory* uſe of obſcure or deceitful terms, is only fit to make men more conceited in their ignorance. *Locke.*

*To* ILLUS'TRATE, *v. n.* [*illuſtro*, Lat. *illuſtrer*, Fr.] To brighten with light. To brighten with honour:

Thee ſhe enroll'd her garter'd knights among,
*Illuſtrating* the noble liſt. *Phillips.*

Matter to me of glory! whom their hate
*Illuſtrates*, when they ſee all regal pow'r
Giv'n me to quell their pride. *Milton.*

To explain; to clear; to elucidate.—Authors take up popular conceits, and from tradition unjuſtifiable, or falſe, *illuſtrate* matters of undeniable truth. *Brown.*

ILLUS'TRATING, *ſ.* The act of explaining.

ILLUSTRA'TION, *ſ.* Explanation; elucidation; expoſition. It is ſeldom uſed in its original ſignification for material brightneſs.—Space and duration, being ideas that have ſomething very abſtruſe and peculiar in their nature, the comparing them one with another may perhaps be of uſe for their *illuſtration*. *Locke.*

ILLUS'TRATIVE, *adj.* Having the quality of elucidating or clearing.—They play much upon the ſimile, or *illuſtrative* argumentation, to induce their enthymemes unto the people. *Brown.*

ILLUS'TRATIVELY, *adv.* By way of explanation.—Things are many times delivered hieroglyphically, metaphorically, *illuſtratively*, and not with reference to action. *Brown.*

ILLUS'TRIOUS, *adj.* [*illuſtris*, Lat. *illuſtre*, Fr.] Conſpicuous; noble; eminent for excellence.—In other languages the moſt *illuſtrious* titles are derived from things ſacred. *South.*

Of ev'ry nation, each *illuſtrious* name,
Such toys as thoſe have cheated into fame. *Dryden.*

ILLUSTRIOUS, *illuſtris*, was heretofore, in the Roman empire, a title of honour peculiar to people of a certain rank. It was firſt given to the moſt diſtinguiſhed among the knights, who had a right to bear the latus clavus: afterwards thoſe were intitled *illuſtrious* who held the firſt rank among thoſe called *honorati*; that is, the præfecti prætorii, præfecti urbis, treaſurers, comites, &c. There were, however, different degrees among the *illuſtrious*: as in Spain they have grandees of the firſt and ſecond claſs, ſo in Rome they had their *illuſtres*, whom they called great, *majores*; and others leſs, called *illuſtres minores*. For inſtance; the præfectus prætorii was a degree below the maſter of the offices, though they were both *illuſtres*. The Novels of Valentinian diſtinguiſh as far as five kinds of *illuſtres*; among whom, the *illuſtres adminiſtratores* bear the firſt rank.

ILLUS'TRIOUSLY, *adv.* Conſpicuouſly; nobly; eminently.—He diſdained not to appear at feſtival entertainments, that he might more *illuſtriouſly* manifeſt his charity. *Atterbury.*

You, carrying with you all the world can boaſt,
To all the world *illuſtriouſly* are loſt. *Pope.*

ILLUS'TRIOUSNESS, *ſ.* [from *illuſtrious.*] Eminence; nobility; grandeur.

ILLUX'TA, a town of the duchy of Courland: thirty-two miles ſouth-eaſt of Seelburg.

ILLYR'IA, IL'LYRIS, or ILLYR'ICUM, in ancient geography, a country bordering on the Adriatic ſea, oppoſite Italy, whoſe boundaries have been different at different times. It became a Roman province after Gentius its king had been conquered by the prætor Anicius; and in modern times it has formed part of Croatia, Boſnia, and Sclavonia. See the article GEOGRAPHY, vol. viii. p. 375.

ILLYR'IAN PROV'INCES. The provinces hitherto called Maritime Auſtria, and before that Venetian territory, but which were ceded to Bonaparte by the treaty of Vienna, have acquired this name by a decree dated at Schoenbrunn, October 14, 1809, the very day on which the treaty of Vienna was ſigned. "Napoleon, by the grace of God and the Conſtitution, Emperor of the French, King of Italy, and Protector of the Confederation of the Rhine; we have decreed, and do decree, as follows: The circle of Villach, Carniola, the Provinces of Iſtria formerly Auſtrian, the Provinces of Fiume and Trieſte, the countries known by the name of the Littorale, the part of Croatia, and all that has been ceded to us on the right bank of the Save, Dalmatia, and its iſlands, ſhall hereafter bear the name of the Illyrian Provinces."

ILLYR'IUS, a ſon of Cadmus and Hermione, from whom Illyricum received its name. *Apollodorus.*

ILLYR'IUS (Matthias, Flaccus, or Francowitz), one of the moſt learned divines of the Augſburgh confeſſion, born in Iſtria, anciently called *Illyrica*, in 1520. He is ſaid to have been a man of vaſt genius, extenſive learning, of great zeal againſt popery; but of ſuch a reſtleſs and paſſionate temper, as overbalanced all his good qualities, and occaſioned much diſturbance in the proteſtant church. He publiſhed a great number of books; and died in 1575.

ILM, or STADT-ILM, a town of Germany, in Upper Saxony, and county of Schwartzburg Rudolſtadt: twelve miles ſouth-ſouth-weſt of Rudolſtadt, and fourteen ſouth of Erfurt. Lat. 50. 37. N. lon. 28. 46. E. Ferro.

IL'ME, a river of Germany, in Lower Saxony, which runs into the Leine two miles ſouth-eaſt of Einbeck, in the principality of Grubenhagen.

IL'MEN, a lake of Ruſſia, in the government of Novgorod, about forty-eight miles long, and twelve to eighteen wide: Novgorod is ſituated near it.

IL'MEN, or ELME, a river which runs into the Alle near Allenburg in Pruſſia.

IL'MEN KIA'MEN, a poſt of Chineſe Tartary. Lat. 43. 40. N. lon. 143. 26. E. Ferro.

IL'MENAU, or ELMENAU, a river of Germany, which riſes about ten miles ſouth from Oldenſtadt, in the principality of Luneburg Zell, paſſes by Oldenſtadt, Luneburg, &c. and runs into the Elbe two miles north-weſt from Winſen.

IL'MENAU, a town of Germany, in Franconia, and county of Henneberg, on the ſide of the Elbe: near it are ſome mines of ſilver and copper: ten miles eaſt of Schmalkalden.

IL'MENT, a river of Perſia, in the province of Mecran, which runs into the ſea two miles weſt of Aruba.

IL'MINSTER, a town of England, in the county of Somerſet, ſituated near the river Ile, at the interſection of two great roads, the one from London to Taunton, and the other from Briſtol to Exeter, through Axminſter and Honiton. The ſituation is pleaſant, and ſurrounded by orchards. Some neighbouring eminences command very extenſive proſpects over great part of this county, and part of Dorſet and Devon. The town compriſes about three hundred houſes, which contain fourteen hundred inhabitants. Its manufacture is chiefly narrow cloth, of which about one thouſand pieces are annually made. A handſome modern market-houſe and ſhambles ſtand in the middle of the town. The market is on Saturdays; and a fair is held on the laſt Wedneſday in Auguſt, for cattle, horſes, and pedlary-wares.

Here is a very handſome church, with a quadrangular glazed tower. This church, with the manor, was, by Ina king of the weſt Saxons, given to the abbey of Muchelney in this county, and continued as part of the poſſeſſions of that abbey until the ſuppreſſion of religious houſes in the time of Henry VIII. This king, by his letters patent, granted the ſame to Edward earl of Hertford; but, on the attainder of that nobleman in 1551, it reverted to the crown; however, queen Elizabeth reſtored it to the Seymour family in the next generation, with whom it continued till 1684, when it was ſold in parcels to ſir Thomas Travel and Edward Rider, eſq. In the beginning of the laſt century the proprietors ſold it to the Speke family, of Whitelackington, with whom it continued until 1756; when, by marriage, it came into the poſſeſſion of the Guildford family, and continued with them until the year 1793, when the earl of Guildford ſold the ſame (with other manors) to John Hanning, eſq. of Barrington Court, in the county of Somerſet. In this church were buried Nicholas and Dorothy Wadham, the founders of the college in Oxford which bears their name, to whoſe memory a handſome monument of Corinthian architecture was erected in the beginning of the laſt century, and which is ſtill kept in good preſervation. In the reign of Richard I. it was made a prebend. King Edward VI. founded a free grammar-ſchool here, the revenues of which, from a very ſmall beginning, now admit a ſalary of 40l. per ann. and a houſe, to the maſter; beſides 20l. a-year, and a houſe, to a writing-maſter; and 5l. a-year to a reading-miſtreſs; leaving alſo a ſurpluſage, to be applied to divers other purpoſes, as particularly ſpecified in the grant. Ilminſter is diſtant from Taunton twelve miles, Chard five, Crewkerne ſeven and a half, Yeovil fourteen, South Petherton ſix, Lamport ten, and London 137.

ILOC'COS, a province of the iſland of Luçon.

ILOV'LA, a ſmall river of Ruſſian Tartary, in the country of the Coſacs, which runs into the Don at fort Donſkaia.

IL'SENBURG, a town of Germany, in Upper Saxony, and county of Wernigerode: four miles weſt of Wernigerode.

IL'SLEY, or EAST ILSLEY, a town of England, in the county of Berks, with a weekly market on Wedneſday: fourteen miles weſt of Reading, and fifty-three weſt of London.

IL'SNA, a river of Poland, which runs into the Bog eight miles north of Brzeſk.

ILST, or YLST, a town of the ſtate of Frieſland, defended by a ditch filled with the waters of the river Weymer: twelve miles north-eaſt of Staveren, and five ſouth-eaſt of Bolſwaert.

IL'SLORP, a town of Sweden, in the province of Weſt Gothland: twenty-ſeven miles ſouth-ſouth-eaſt of Gotheborg.

IL'TEN, a town of Germany, in Lower Saxony, and principality of Luneburg: ſixteen miles ſouth-ſouth-weſt of Zell.

ILTZ, a river of Germany, which riſes north-weſt of Biſchofftorff, in Stiria, and runs into the river Feiſtritz three miles ſouth-ſouth-eaſt of Kalſtorff.

IL'TZHOFEN, a town of Germany, in Swabia, in the territory of Hall: eight miles north-eaſt of Hall.

I'LU-MUL'LU, *ſ.* in botany. See SPINIFEX.

IL'UA, now *Elba*, an iſland in the Tyrrhene ſea, celebrated for its iron-mines. The people were called *Iluates.*

ILU'A, a ſmall iſland in the Mediterranean, near the north coaſt of the iſland of Sardinia.

ILUCHA'NO, a town of Ruſſia, in the government of Upha: thirty-two miles ſouth-ſouth-eaſt of Menzelinſk.

I'LUS, the fourth king of Troy, was ſon of Tros by Callirhoe. He married Eurydice the daughter of Adraſtus, by whom he had Themis, who married Capys, and Laomedon the father of Priam. He built, or rather embelliſhed,

belliſhed, the city of Ilium, called alſo Troy from his father Tros. Jupiter gave him the Palladium, a celebrated ſtatue of Minerva; and promiſed that, as long as it remained in Troy, ſo long would the town remain impregnable. When the temple of Minerva was in flames, Ilus ruſhed into the middle of the fire to ſave the Palladium; for which action he was deprived of his ſight by the goddeſs, though he recovered it ſome time after. *Homer.*—A name of Aſcanius, while he was at Troy.—A friend of Turnus, killed by Pallas. *Virgil.*

IL'WITZKOLFLE, a town of Sweden, in the province of Skone: ten miles ſouth of Chriſtianſtadt.

I'LY, *ſ.* in botany. See ARUNDO BAMBOS, vol. ii. p. 246.

ILY'E, a town of Tranſilvania, on the river Maros: thirty-two miles ſouth-ſouth-weſt of Weiſenburg.

IL'ZA, a town of Poland, in the palatinate of Sandomirz: fourteen miles ſouth-ſouth-eaſt of Radom.

IL'ZOLSTADT. See PASSAU.

I'M. Contracted from *I am.*

IM is uſed commonly, in compoſition, for *in* before mute letters. What is *im* in Latin, when it is not negative, is often *em* in French; and our writers, as the Latin or French occurs to their minds, uſe *im* or *em:* formerly *im* was more common, and now *em* ſeems to prevail.

IMA'BA, or INSJU, a province of Japan.

IM'AGE, *ſ.* [*image*, Fr. *imago*, Lat.] Any corporeal repreſentation, generally uſed of ſtatues; a ſtatue; a picture.—The one is too like an image, and ſays nothing; and the other too like my lady's oldeſt ſon, evermore talking. *Shakeſpeare.*

Thy brother I,
Even like a ſtony *image*, cold and numb. *Shakeſpeare.*

An idol; a falſe god.—Manaſſeh ſet the carved *image* in God's houſe. *Chron.*—A copy; repreſentation; likeneſs:

He made us to his *image* all agree:
That *image* is the ſoul, and that muſt be,
Or not the Maker's *image*, or be free. *Dryden.*

Semblance; ſhow; appearance:

The face of things a frightful *image* bears,
And preſent death in various forms appears. *Dryden.*

An idea; a repreſentation of any thing to the mind; a picture drawn in the fancy.—When we ſpeak of a figure of a thouſand angles, we may have a clear idea of the number one thouſand angles; but the *image* or ſenſible idea we cannot diſtinguiſh by fancy from the *image* of a figure that has nine hundred angles. *Watts.*

Outcaſts of mortal race! can we conceive
*Image* of aught delightful, ſoft, or great? *Prior.*

IMAGE, in rhetoric, ſignifies a lively deſcription of any thing in a diſcourſe. *Images* in diſcourſe are defined by Longinus, to be, in general, any thoughts proper to produce expreſſions, and which preſent a kind of picture to the mind. But, in the more limited ſenſe, he ſays, images are ſuch diſcourſes as come from us, when, by a kind of enthuſiaſm, or an extraordinary emotion of the ſoul, we ſeem to ſee the things whereof we ſpeak, and preſent them before the eyes of thoſe who hear us. Images, in rhetoric, have a very different uſe from what they have among the poets; the end principally propoſed in poetry is, aſtoniſhment and ſurpriſe; whereas the thing chiefly aimed at in proſe, is to paint things naturally, and to ſhow them clearly. They have this, however, in common, that they both tend to move, each in its kind. Theſe images, or pictures, are of vaſt uſe, to give weight, magnificence, and ſtrength, to a diſcourſe. They warm and animate it; and, when managed with art, according to Longinus, ſeem, as it were, to tame and ſubdue the hearer, and put him in the power of the ſpeaker.

IMAGE, in optics, a figure in the form of any object, made by the rays of light iſſuing from the ſeveral points of it, and meeting in ſo many other points, either at the bottom of the eye, or on any other ground, or on any tranſparent medium, where there is no ſurface to reflect them. See the article OPTICS.

IMAGE, in a religious ſenſe, is an artificial repreſentation or ſimilitude of ſome perſon or thing, uſed either by way of decoration and ornament, or as an object of religious worſhip and adoration; in which laſt ſenſe, it is uſed indifferently with the word IDOL.

The noble Romans preſerved the images of their anceſtors with a great deal of care and concern, and had them carried in proceſſion at their funerals and triumphs: theſe were commonly made of wax or wood, though ſometimes of marble or braſs. They placed them in the veſtibules of their houſes; and they were to ſtay there, even if the houſes happened to be ſold, it being accounted impious to diſplace them. Appius Claudius was the firſt who brought them into the temples, in the year of Rome 259; and he added inſcriptions to them, ſhowing the origin of the perſons repreſented, and their brave and virtuous achievements. It was not, however, allowed for all, who had the images of their anceſtors in their houſes, to have them carried at their funerals; this was a thing only granted to ſuch as had honourably diſcharged themſelves of their offices; for thoſe who failed in this reſpect, forfeited that privilege; and, in caſe they had been guilty of any great crime, their images were broken in pieces.

The Jews abſolutely condemn all images, and do not ſo much as ſuffer any ſtatues or figures in their houſes, much leſs in their ſynagogues or places of worſhip. We read frequently, in our Engliſh bibles, of *graven images*, and of *molten images*; and theſe words are become ſo familiar, as names of idolatrous images, that, although they are not well choſen to expreſs the Hebrew names, it ſeems not adviſable to change them for others that might more exactly correſpond with the original. The graven image was not a thing wrought in metal by the tool of the workman we ſhould now call an engraver; nor was the molten image an image made of metal, or any other ſubſtance, melted, and ſhaped in a mould. In fact, the graven image and the molten image are the ſame thing, under different names. The images of the ancient idolaters were firſt cut out of wood, by the carpenter, as is very evident from the prophet Iſaiah. This figure of wood was overlaid with plates either of gold or ſilver, or, ſometimes perhaps, of an inferior metal; and in this finiſhed ſtate it was called a *graven image* (i. e. a carved image), in reference to the inner ſolid figure of wood; and a *molten* (i. e. an overlaid, or covered) image, in reference to the outer metalline caſe or covering. And ſometimes both epithets are applied to it at once: *I will cut off the graven and molten image.* Again, *What profiteth the golden and molten image?* Hab. ii. 18. The Engliſh word *molten* conveys a notion of melting, or fuſion; but this is not the caſe with the Hebrew word for which it is given: the Hebrew נסך ſignifies, generally, "to overſpread, or cover all over," in whatever manner, according to the different ſubject, the overſpreading or covering be effected; whether by pouring forth a ſubſtance in fuſion, or by ſpreading a cloth over or before, or by hammering on metalline plates. It is on account of this metalline caſe, that we find a founder employed to make a graven image; and that we read in Iſaiah of a workman that *melteth a graven image*; and in another place we find the queſtion, *who hath molten a graven image?* In theſe two paſſages, the words ſhould be *overlayeth* and *overlaid.* Iſa. xi. 20. xliv. 10.

The uſe and adoration of images are things that have been a long time controverted in the world. It is plain, from the practice of the primitive church, recorded by the earlier fathers, that Chriſtians, for the firſt three centuries after Chriſt, and the greater part of the fourth, neither worſhipped images nor uſed them in their worſhip. However, the greater part of the popiſh divines maintain, that the uſe and worſhip of images were as ancient as the Chriſtian religion itſelf; to prove this, they allege a decree, ſaid to have been made in a council held by the apoſtles at Antioch, commanding the faithful, "that they may not err about the object of their worſhip, to make images of Chriſt and worſhip them." *Baron. ad ann.* 102. But no notice is taken of this decree till 700 years after the apoſtolic times, after the diſpute about images had commenced. The firſt inſtance that occurs in any credible author of images among Chriſtians, is that recorded by Tertullian de Pudicit. c. 10. of certain cups, or chalices, as Bellarmine pretends, on which was repreſented the parable of the good ſhepherd carrying the loſt ſheep on his ſhoulders; but this inſtance only proves, that the church, at that time, did not think emblematical figures unlawful ornaments of cups or chalices. Another inſtance is taken from Euſebius, Hiſt. Eccl. lib. vii. cap. 18. who ſays, that in his time there were to be ſeen two braſs ſtatues in the city of Paneas, or Cæſarea Philippi; the one of a woman on her knees, with her arms ſtretched out, the other of a man over againſt her, with his hand extended to receive her; theſe ſtatues were ſaid to be the images of our Saviour and the woman whom he cured of an iſſue of blood. From the foot of the ſtatue repreſenting our Saviour, ſays the hiſtorian, ſprung up an exotic plant, which, as ſoon as it grew to touch the border of his garment, was ſaid to cure all ſorts of diſtempers. Euſebius, however, vouches none of theſe things; nay, he ſuppoſes that the woman who erected this ſtatue of our Saviour was a pagan, and aſcribes it to a pagan cuſtom. Farther, Philoſtorgius, Eccl. Hiſt. lib. vii. c. 3. expreſsly ſays, that this ſtatue was carefully preſerved by the Chriſtians, "but that they paid no kind of worſhip to it, becauſe it is not lawful for Chriſtians to worſhip braſs or any other matter."

The primitive Chriſtians abſtained from the worſhip of images, not, as the papiſts pretend, from tenderneſs to heathen idolaters, but becauſe they thought it unlawful in itſelf to make any images of the Deity. Some of the fathers, as Tertullian, Clemens Alexandrinus, and Origen, were of opinion, that, by the ſecond commandment, the arts of painting and engraving were rendered unlawful to a Chriſtian, ſtyling them evil and wicked arts. The uſe of images in churches as ornaments, was firſt introduced by ſome Chriſtians in Spain, in the beginning of the fourth century; but the practice was condemned as a dangerous innovation, in a council held at Eliberis in 305. Epiphanius, in a letter preſerved by Jerome, bears ſtrong teſtimony againſt images, and may be conſidered as one of the firſt Iconoclasts. The cuſtom of admitting pictures of ſaints and martyrs into the churches (for this was the firſt ſource of image-worſhip) was rare in the latter end of the fourth century, but became common in the fifth; however, they were ſtill conſidered only as ornaments; and, even in this view, they met with very conſiderable oppoſition. In the following century the cuſtom of thus adorning churches became almoſt univerſal, both in the eaſt and weſt. Petavius expreſsly ſays, that no ſtatues were yet allowed in the churches, becauſe they bore too near a reſemblance to the idols of the Gentiles. Towards the cloſe of the fourth or beginning of the fifth century, images, which were introduced by way of ornament, and then uſed as an aid to devotion, began to be actually worſhipped. However, it continued to be the doctrine of the church in the ſixth and in the beginning of the ſeventh century, that images were to be uſed only as helps to devotion, and not as objects of worſhip. The worſhip of them was condemned in the ſtrongeſt terms by pope Gregory the Great; as appears by two letters of his written in 601. From this time to the beginning of the eighth century, there occurs no ſingle inſtance of any worſhip given or allowed to be given to images by any council or aſſembly of biſhops whatever. But they were commonly worſhipped by the monks and populace in the beginning of the eighth century; inſomuch, that in the year 726, when Leo publiſhed his famous edict, it had already ſpread into all the provinces ſubject to the empire.

The Lutherans condemn the Calviniſts for breaking the images in the churches of the Catholics, looking on it as a kind of ſacrilege; and yet they condemn the Romaniſts (who are profeſſed image-worſhippers) as idolaters; nor can theſe laſt keep pace with the Greeks, who go far beyond them in this point; which has occaſioned abundance of diſputes among them. See Iconoclast, p. 753 of this volume.

*To* IM'AGE, *v. a.* To copy by the fancy; to imagine.—How are immaterial ſubſtances to be *imaged*, which are ſuch things whereof we can have no notion? *Dryden.*

Fate ſome future bard ſhall join
In ſad ſimilitude of griefs to mine,
Condemn'd whole years in abſence to deplore,
And *image* charms he muſt behold no more. *Pope.*

IM'AGERY, *ſ.* [from *image.*] Senſible repreſentations; pictures; ſtatues:

When in thoſe oratories might you ſee
Rich carvings, portraitures, and *imagery*;
Where ev'ry figure to the life expreſs'd
The godhead's pow'r. *Dryden.*

Show; appearance.—Things of the world fill the imaginative part with beauties and fantaſtic *imagery. Taylor.*

What can thy *imagery* of ſorrow mean?
Secluded from the world, and all its care,
Haſt thou to grieve or joy, to hope or fear? *Prior.*

Forms of the fancy; falſe ideas; imaginary phantaſms.—It might be a mere dream which he ſaw; the *imagery* of a melancholic fancy, ſuch as muſing men miſtake for a reality. *Atterbury.*—Repreſentations in writing; ſuch deſcriptions as force the image of the thing deſcribed upon the mind.—I wiſh there may be in this poem any inſtance of good *imagery. Dryden.*

IMA'GINABLE, *adj.* [*imaginable*, Fr. from *imagine.*] Poſſible to be conceived.—It is not *imaginable* that men will be brought to obey what they cannot eſteem. *South.*—Men ſunk into the greateſt darkneſs *imaginable* retain ſome ſenſe and awe of a deity. *Tillotſon.*

IMA'GINABLENESS, *ſ.* The ſtate of being imaginable.

IMA'GINANT, *adj.* Imagining; forming ideas.—We will enquire what the force of imagination is, either upon the body *imaginant* or upon another body. *Bacon.*

IMA'GINARINESS, *ſ.* The ſtate of being imaginary. *Scott.*

IMA'GINARY, *adj.* [*imaginaire*, Fr. from *imagine.*] Fancied; viſionary; exiſting only in the imagination.—Fortune is nothing elſe but a power *imaginary*, to which the ſucceſſes of human actions and endeavours were for their variety aſcribed. *Raleigh.*

Why wilt thou add, to all the griefs I ſuffer,
*Imaginary* ills and fancied tortures? *Addiſon.*

Imaginary *or* Impossible Quantities, in algebra, are the even roots of negative quantities; which expreſſions are imaginary, or impoſſible, or oppoſed to real quantities; as $\sqrt{-aa}$, or $\sqrt[4]{-a^4}$, &c. For, as every even power of any quantity whatever, whether poſitive or negative, is neceſſarily poſitive, or having the ſign +, becauſe + by +, or — by —, give equally +; from hence it follows, that every even power, as the ſquare for inſtance, which is negative, or having the ſign —, has no poſſible root; and therefore the even roots of ſuch powers or quantities are ſaid to be impoſſible or imaginary. See the article Algebra, vol. i. p. 303.

IMAGINA'TION, *ſ.* [*imaginatio*, Lat. *imagination*, Fr. from *imagine.*] Fancy; the power of forming ideal pictures; the power of repreſenting things abſent to one's ſelf or others.—*Imagination* I underſtand to be the repreſentation of an individual thought. *Imagination* is of three kinds: joined with belief of that which is to come; joined with memory of that which is paſt; and of things preſent, or as if they were preſent: for I comprehend in this *imagination* feigned and at pleaſure, as if one ſhould imagine ſuch a man to be in the veſtments of a pope, or to have wings. *Bacon.*

O whither ſhall I run, or which way fly
The ſight of this ſo horrid ſpectacle,
Which erſt my eyes beheld, and yet behold!
For dire *imagination* ſtill purſues me. *Milton.*

Conception; image in the mind; idea.—Sometimes deſpair darkens all her *imagination*; ſometimes the active paſſion of love cheers and clears her invention. *Sidney.*

Princes have but their titles for their glories,
An outward honour for an inward toil;
And, for unfelt *imaginations*,
They often feel a world of reſtleſs cares. *Shakeſpeare.*

Contrivance; ſcheme.—Thou haſt ſeen all their vengeance, and all their *imaginations* againſt me. *Lam.* iii. 60.—An unſolid or fanciful opinion.—We are apt to think that ſpace, in itſelf, is actually boundleſs; to which *imagination*, the idea of ſpace, of itſelf, leads us. *Locke.*

IMA'GINATIVE, *adj.* Fantaſtic; full of imagination.—Lay fetters and reſtraints upon the *imaginative* and fantaſtic part, becauſe our fancy is uſually pleaſed with the entertainment of ſhadows and gauds. *Taylor.*

IMA'GINATIVENESS, *ſ.* Fantaſticalneſs; ſuſpiciouſneſs, jealouſy. *Scott.*

*To* IMA'GINE, *v. a.* [*imaginer*, Fr. *imaginor*, Lat.] To fancy; to paint in the mind.—What are our ideas of eternity and immenſity, but the repeated additions of certain ideas of *imagined* parts of duration and expanſion, with the infinity of number, in which we can come to no end of addition? *Locke.*

Look what notes and garments he doth give thee,
Bring them, I pray thee, with *imagin'd* ſpeed. *Shakeſpeare.*

To ſcheme; to contrive.—They intended evil againſt thee, they *imagined* a miſchievous device. *Pſalm* xxi. 11.

IMA'GINER, *ſ.* One who forms ideas.—The juggler took upon him to know that ſuch an one ſhould point in ſuch a place of a garter that was held up; and ſtill he did it, by firſt telling the *imaginer*, and after bidding the actor think. *Bacon.*

IMA'GINES, *ſ. pl.* [With the Romans.] The images of anceſtors. *Scott.*

IMA'GINING, *ſ.* The act of forming in the imagination.

IMA'GLIN, a ſmall iſland in the ſtraits between the weſtern coaſt of America and the eaſt point of Ruſſia. Lat. 65. 40. N. lon. 207. 30. E. Ferro.

IMA'GNA, (Vale of), in Italy, ſo called from the rivulet Imagna; containing nineteen pariſhes, and 13,000 inhabitants.

IMA'GO, *ſ.* In natural hiſtory, is a name given by Linnæus to the third ſtate of inſects, when they appear in their proper ſhape and colours, and undergo no more transformation. See ENTOMOLOGY, vol. vi.

I'MAM, or IMAN, a miniſter in the Mahometan church, anſwering to a pariſh prieſt among us. The word properly ſignifies what we call a prelate, *antiſtes*, one who preſides over others; but the Muſſulmen frequently apply it to a perſon who has the care and intendancy of a moſque, who is always there at firſt, and reads prayers to the people, which they repeat after him.

IMAM is alſo applied, by way of excellence, to the four chiefs or founders of the four principal ſects in the Mahometan religion. But the Mahometans do not agree among themſelves about this *imamate*, or dignity of the *imam*. Some think it of divine right, and attached to a ſingle family, as the pontificate of Aaron. Others hold, that it is indeed of divine right, but deny it to be ſo attached to any ſingle family, as that it may not be tranſferred to another. They add, that the imam is to be clear of all groſs ſins; and that otherwiſe he may be depoſed, and his dignity may be conferred on another. However this be, it is certain, that, after an imam has once been owned as ſuch by the Muſſulmen, he who denies that his authority comes immediately from God is accounted impious; he who does not obey him is a rebel; and he who pretends to contradict what he ſays is eſteemed a fool, among the orthodox of that religion. The imams, however, have no outward mark of diſtinction; their habit is the ſame with that of the Turks in common, except that the turban is a little larger, and folded ſomewhat differently.

IM'AUS, in ancient geography, the largeſt mountain of Aſia (Strabo); and a part of Taurus (Pliny); from which the whole of India runs off into a vaſt plain, reſembling Egypt. It extends far and wide through Scythia, as far as to the Mare Glaciale, dividing it into the Hither, or *Scythia intra Imaum*, and into the Farther, or *Scythia extra Imaum*, (Ptolemy;) and alſo ſtretching out along the north of India to the eaſtern ocean, ſeparates it from Scythia. It had various names according to the different countries it run through: Poſtellus thinks it is the *Sephar* of Scripture.

*To* IMBA'LM, *v. a.* To embalm.

*To* IM'BANK, *v. a.* To incloſe with a bank, to keep up with banks.

IMBANK'ING, *ſ.* The act of incloſing with banks.

IMBANK'MENT, *ſ.* [from *imbank*.] That which is incloſed with a bank; the bank that incloſes.

IMBAR'GO, *ſ.* An embargo. *Scott.*

*To* IM'BARK, *v. a.* To embark. *Scott.*

IMBARK'ATION, *ſ.* An embarkation. *Scott.*

*To* IM'BASE, *v. a.* To embaſe.

*To* IM'BATTLE, *v. a.* To embattle. *Scott.*

IMBE'CILE, *adj.* [*imbecilis*, Lat. *imbecile*, Fr.] Weak; feeble; wanting ſtrength of either mind or body.

*To* IMBE'CILE, *v. a.* [corruptly written *embezzle*.] To weaken a ſtock or fortune by clandeſtine expences or unjuſt appropriations.—Princes muſt in a ſpecial manner be guardians of pupils and widows, not ſuffering their perſons to be oppreſſed, or their ſtates *imbeciled*. *Taylor.*

IMBE'CILENESS, *ſ.* Imbecility, weakneſs. *Scott.*

IMBECIL'ITY, *ſ.* Weakneſs; feebleneſs of mind or body.—We that are ſtrong muſt bear the *imbecility* of the impotent, and not pleaſe ourſelves. *Hooker.*

Strength would be lord of *imbecility*,
And the rude ſon would ſtrike his father dead. *Shakeſpeare.*

IMBEZ'ZLING, *ſ.* The act of miſapplying money or effects.

*To* IM'BIBE, *v. a.* [*imbibo*, Lat. *imbiber*, Fr.] To drink in; to draw in.—A pot of aſhes will receive more hot water than cold, foraſmuch as the warm water *imbibeth* more of the ſalt. *Brown.*

The torrent mercileſs *imbibes*
Commiſſions, perquiſites, and bribes. *Swift.*

To admit into the mind.—Thoſe that have *imbibed* this error, have extended the influence of this belief to the whole goſpel, which they will not allow to contain any thing but promiſes. *Hammond.*—To drench; to ſaturate; to ſoak.—This ſenſe, though unuſual, perhaps unexampled, is neceſſary in Engliſh, unleſs the word *imbue* be adopted, which our writers ſeem not willing to receive.—Metals, corroded with a little acid, turn into ruſt, which is an earth taſteleſs and indiſſolvable in water; and this earth, *imbibed* with more acid, becomes a metallic ſalt. *Newton.*

IMBI'BEMENT, *ſ.* The act of imbibing. *Phillips.*

IMBI'BER, *ſ.* That which drinks or ſucks.—Salts are ſtrong *imbibers* of ſulphureous ſteams. *Arbuthnot.*

IMBI'BING, *ſ.* The act of drinking in.

IMBIBI'TION, *ſ.* The act of ſucking or drinking in.—Moſt powders grow more coherent by mixture of water than of oil; the reaſon is the congruity of bodies, which maketh a perfecter *imbibition* and incorporation. *Bacon.*

*To* IMBIT'TER, *v. a.* To make bitter.—To deprive of pleaſure; to make unhappy.—Is there any thing that more *imbitters* the enjoyments of this life than ſhame. *South.*—To exaſperate.

IMBIT'TERING, *ſ.* The act of making bitter.

IMBO'AGED, *adj.* [from *imbogare*, barb. Lat.] Cloſe pent.—All the vacation he lies *imboaged* behind the lattice of ſome blind ale-houſe. *Overbury.*

*To* IMBOD'Y, *v. a.* To condenſe to a body.—To inveſt with matter; to make corporeal.—Though aſſiduity in the moſt fixed cogitation be no trouble to immaterialized ſpirits, yet is it more than our *imbodied* ſouls can bear without laſſitude. *Glanville.*

An opening cloud reveals
An heav'nly form *imbody'd*, and array'd
With robes of light. *Dryden.*

To bring together into one maſs or company; to incorporate:

I by vow am ſo *embodied* yours,
That ſhe which marries you muſt marry me. *Shakeſpeare.*

To incloſe. *Improper.*—In thoſe ſtrata we ſhall meet with the ſame metal or mineral *imbodied* in ſtone, or lodged in coal, that elſewhere we found in marle. *Woodward.*

*To* IMBOD'Y, *v. n.* To unite into one maſs; to coaleſce.—The idea of white which ſnow yielded yeſterday, and another idea of white from another ſnow to-day, put together in your mind, *imbody* and run into one. *Locke.*

The ſoul grows clotted by contagion,
*Imbodies* and imbrutes, 'till ſhe quite loſe
The divine property of her firſt being. *Milton.*

*To* IMBO'IL, *v. n.* To exeſtuate; to effervesce; to move with violent agitation like hot liquor in a caldron. *Not in uſe*:

With whoſe reproach and odious menace,
The knight *imboiling* in his haughty heart,
Knit all his forces, and 'gan ſoon unbrace,
His graſping hold. *Fairy Queen.*

*To* IMBOL'DEN, *v. a.* To raiſe to confidence; to encourage.—I was the more *imboldened*, becauſe I found I had a ſoul congenial to his. *Dryden.*

Nor flight was left, nor hopes to force his way;
*Imbolden'd* by deſpair, he ſtood at bay. *Dryden.*

IMBOL'DENING, *ſ.* The act of making confident.

IMBOR'DERING, *ſ.* The act of furniſhing with a border.

*To* IMBO'SOM, *v. a.* To hold on the boſom; to cover fondly with the folds of one's garment; to hide under any cover:

The Father infinite,
By whom in bliſs *imboſom'd* ſat the Son. *Milton.*

To admit to the heart, or to affection:

But glad deſire, his late *imboſom'd* gueſt,
Yet but a babe, with milk of ſight he nurſt. *Sidney.*

IMBO'SOMING, *ſ.* The act of putting into the boſom.

*To* IMBO'UND, *v. a.* To incloſe; to ſhut in:

That ſweet breath,
Which was *imbounded* in this beauteous clay. *Shakeſpeare.*

*To* IMBOW', *v. a.* To arch; to vault.—*Imbowed* windows be pretty retiring places for conference; they keep both the wind and ſun off. *Bacon.*

Let my due feet never fail
To walk the ſtudious cloiſter's pale,
And love the high *imbowed* roof,
With antic pillar maſſy proof. *Milton.*

*To* IMBOW'ER, *v. a.* To cover with a bower; to ſhelter with trees:

And ſtooping thence to Ham's *imbowering* walks,
In ſpotleſs peace retir'd. *Thomſon.*

IMBOW'ERING, *ſ.* The act of covering with the ſhade of trees.

IMBOW'ING, *ſ.* The act of forming arches.

IMBOW'MENT, *ſ.* Arch; vault.—The roof all open, not ſo much as any *imbowment* near any of the walls left. *Bacon.*

IMBRA'CERY, *ſ.* A law term; the crime of tampering with a jury.

*To* IMBRAN'GLE, *v. a.* To intangle. *A low word*:

With ſubtle cobweb cheats
They're catch'd in knotted law, like nets;
In which, when once they are *imbrangled*,
The more they ſtir, the more they're tangled. *Hudibras.*

IMBRICA'RIA, *ſ.* in botany, a genus of the claſs pentandria, order monogynia. Eſſential generic characters—Petals five; ſtigma capitate; capſule covered with the calyx, two-celled, many-ſeeded.

*Species.* 1. Imbricaria crenulata: leaves obovate, wedge-form, crenulate towards the tip; petals and calyx denticulate. 2. Imbricaria ciliata: leaves linear, three-ſided, ciliate; calyxes ciliate; germ five-ſided. Both natives of New South Wales. *Linn. Tranſ.* iii. 257.

IM'BRICATED, *adj.* [from *imbrex*, Lat.] Indented with concavities; bent and hollowed like a roof or gutter-tile; placed over each other at the edges, like the tiles of a houſe. A word uſed chiefly in natural hiſtory, as in botany and ichthyology.

IMBRICA'TION, *ſ.* Concave indenture.—All is guarded with a well-made tegument, adorned with neat *imbrications*, and many other fineries. *Derham.*

IM'BRO, an iſland in the Grecian Archipelago, mountainous and woody, with plenty of game; it is about twenty miles in circumference, and contains five villages, two of which are defended by caſtles. Lat. 40. 10. N. lon. 43. 30. E. Ferro.

IMBROCA'DO, *ſ.* [Spaniſh.] Cloth of gold or ſilver.

IMBRO'CUS, *ſ.* In old records, a brook, a drain, a water-courſe.

*To* IMBROI'DER, *v. a.* To embroider.

*To* IMBROW'N, *v. a.* To make brown; to darken; to obſcure; to cloud.—*Imbrown* the ſlope and nod on the parterre. *Pope.*

*To* IMBRU'E, *v. a.* To ſteep; to ſoak; to wet much or long. This ſeems indifferently written with *im* or *em.*—The mercileſs Turks, *embrued* with the Chriſtian blood, were weary of ſlaughter, and began greedily to ſeek after the ſpoil. *Knolles.*

At me, as at a mark, his bow he drew,
Whoſe arrows in my blood their wings *imbrue.* *Sandys.*

To pour; to emit moiſture. *Obſolete*:

Some bathed kiſſes, and did oft *imbrue*
The ſugar'd liquor through his melting lips. *Fairy Queen.*

*To* IMBRU'TE, *v. a.* To degrade to brutality:

I, who erſt contended
With gods to ſit the higheſt, am now conſtrain'd
Into a beaſt; and mix with beſtial ſlime,
This eſſence to incarnate and *imbrute.* *Milton.*

*To* IMBRU'TE, *v. n.* To ſink down to brutality:

The ſoul grows clotted by contagion,
Imbodies and *imbrutes*, 'till ſhe quite loſe
The divine property of her firſt being. *Milton.*

IMBST, or YMBST, a town of Germany, in the county of Tyrol; nine miles ſouth-ſouth-eaſt of Reutte.

*To* IMBU'E, *v. a.* [*imbuo*, Lat.] To tincture deep; to imbibe or ſoak with any liquor or die.—I would render this treatiſe intelligible to every rational man, however little verſed in ſcholaſtic learning; among whom I expect it will have a fairer paſſage than among thoſe that are deeply *imbued* with other principles. *Digby.*

*To* IMBUR'SE, *v. a.* [*bourſe*, Fr.] To ſtock with money.

IMBUR'SEMENT, *ſ.* Money laid out; money laid up in ſtock.

IMGNA'EL, a town of Norway, in the dioceſe of Drontheim: fifty-ſix miles north-north-eaſt of Romſdael.

IM'HOFF (John-William), an eminent genealogiſt, was a German of a noble family, who devoted himſelf to the ſtudy of hiſtory, politics, and particularly the deſcents and alliances of all the great houſes in Europe. He died in 1728, having left many voluminous monuments of his labour. Theſe are, 1. De Notitia Procerum Germaniæ, 2 vols. folio. 2. Hiſtoria Genealogica Italiæ & Hiſpaniæ, folio. 3. Familiarum Italiæ, Hiſpaniæ, Portugalliæ, Magnæ Britanniæ, cum Appendice; each a volume folio. 4. Recherches ſur les Grands d'Eſpagne, 8vo.

IMIRET'TA, a country of Aſia, bounded on the north by Circaſſia, on the eaſt by Perſia, on the ſouth by Georgia, and on the weſt by Mingrelia, about eighty miles from north to ſouth, and nearly as much from eaſt to weſt; the country is poor and mountainous. The inhabitants are in general wanderers and vagabonds; it could formerly ſupply an army of 20,000 men, chiefly foot; at preſent it is but thinly peopled, partly on account of the great number of children purchaſed by the Turks, and an impoſition on them to furniſh annually fourſcore young men between ten and twenty years of age. The real title of the prince is *meppe* though he arrogates to himſelf that of king of kings. There are but few towns; Kutatis ſeems the principal.

IMITABIL'ITY, *ſ.* [*imitabilis*, Lat.] The quality of being imitable.—According to the multifariouſneſs of this *imitability*, ſo are the poſſibilities of being. *Norris.*

IM'ITABLE, *adj.* Worthy to be imitated; deſerving to be copied.—How could the moſt baſe men, and ſeparate from all *imitable* qualities, attain to honour but by an obſervant ſlaviſh courſe? *Raleigh.*—Poſſible to be imitated; within reach of imitation.—The characters of men placed in lower ſtations of life are more uſeful, as being *imitable* by greater numbers. *Atterbury.*

IM'ITABLENESS, *ſ.* The ſtate or quality of being imitable.

IM'ITARY, *adj.* Belonging to imitation. *Shakeſpeare.*

*To* IM'ITATE, *v. a.* [*imitor*, Lat. *imiter*, Fr.] To copy; to endeavour to reſemble.—We *imitate* and practiſe to make ſwifter motions than any out of your muſkets. *Bacon.*

I would careſs ſome ſtable-man of note,
And *imitate* his language and his coat. *Man of Taſte.*

To counterfeit:

This hand appear'd a ſhining ſword to wield,
And that ſuſtain'd an *imitated* ſhield. *Dryden.*

To purſue the courſe of a compoſition, ſo as to uſe parallel images and examples.—For ſhame! what *imitate* an ode! *Gay.*

IM'ITATING, *ſ.* The act or art of copying.

IMITA'TION, *ſ.* [*imitatio*, Lat. *imitation*, Fr.] The act of copying; attempt to reſemble; that which is offered as a copy.—Since a true knowledge of nature gives us pleaſure, a lively *imitation* of it, either in poetry or painting, muſt produce a much greater; for both theſe arts are not only true *imitations* of nature, but of the beſt nature. *Dryden.*—A method of tranſlating looſer than paraphraſe, in which modern examples and illuſtrations are uſed for ancient, or domeſtic for foreign.—In the way of *imitation*, the tranſlator not only varies from the words and ſenſe, but forſakes them as he ſees occaſion; and, taking only ſome general hints from the original, runs diviſions on the ground-work. *Dryden.*

IM'ITATIVE, *adj.* Inclined to copy; as, Man is an *imitative* being.—Aiming at reſemblance; as, Painting is an *imitative* art.—Formed after ſome original;

This temple, leſs in form, with equal grace,
Was *imitative* of the firſt in Thrace. *Dryden.*

IM'ITATOR, *ſ.* One that copies another; one that endeavours to reſemble another.—*Imitators* are but a ſervile kind of cattle, ſays the poet. *Dryden.*

IM'ITATRIX, *ſ.* A woman that imitates; a female copyiſt.

IMITAZZIO'NE, *ſ.* In muſic, that kind of compoſition in which one part is made to imitate the other.

IMIZI'MIS, a town of Africa, in the empire of Morocco, on the Atlas mountains: ſixty miles ſouth-weſt of Morocco.

IM'LAH, [Gr. plenitude.] A man's name.

IM'LIAT, a river of Ruſſia, which runs into the Mijas eight miles ſouth-weſt of Imliatſkaia.

IMLIATSKA'IA, a town of Ruſſia, in the government of Upha, on the river Imliat: ſixty miles eaſt-north-eaſt of Tcheliabinſk.

IM'LING, a town of Germany, in the archduchy of Auſtria: five miles north-weſt of Schwannaſtatt.

IMMAC'ULATE, *adj.* [*immaculatus*, Lat. *immaculé*, Fr.] Spotleſs; pure; undefiled.—The king, whom catholics count a ſaint-like and *immaculate* prince, was taken away in the flower of his age. *Bacon.*

Were but my ſoul as pure
From other guilts as that, Heav'n did not hold
One more *immaculate*. *Denham.*

Pure; limpid:

Thou clear, *immaculate*, and ſilver, fountain,
From whence this ſtream, through muddy paſſages,
Hath had his current, and defil'd himſelf. *Shakeſpeare.*

IMMAC'ULATENESS, *ſ.* The ſtate of being immaculate; purity. *Scott.*

IM'MAH, [Hebrew.] The name of a man.

*To* IMMAN'ACLE, *v. a.* To fetter; to confine:

Thou can'ſt not touch the freedom of my mind
With all thy charms, although this corporal rind
Thou haſt *immanacled*. *Milton.*

IMMA'NE, *adj.* [*immanis*, Lat.] Vaſt; prodigiouſly great.

IM'MANENT, *adj.* [*immanent*, Fr. from *in* and *maneo*, Lat.] Intrinſic; inherent; internal.—Judging the infinite eſſence by our narrow ſelves, we aſcribe intellections, volitions, and ſuch-like *immanent*, actions, to that nature which hath nothing in common with us. *Glanville.*

IMMAN'IFEST, *adj.* Not manifeſt: not plain. *Not in uſe.*—A time not much unlike that which was before time, *immanifeſt* and unknown. *Brown.*

IMMAN'ITY, *ſ.* [*immanitas*, Lat.] Barbarity; ſavageneſs:

It was both impious and unnatural,
That ſuch *immanity* and bloody ſtrife
Should reign among profeſſors of one faith. *Shakeſpeare.*

IMMAN'SUETE, *adj.* [from the Lat. *in*, contrary to, and *manſuetus*, tractable.] Wild; untractable. *Not much uſed. Cole.*

IMMAN'UEL, [Heb. God with us.] The name given to Chriſt; the Son of God incarnate.

IMMARCES'SIBLE, *adj.* [*in* and *marceſco*, Lat.] Unfading.

IMMAR'TIAL, *adj.* Not warlike:

My pow'rs are unfit,
Myſelf *immartial*. *Chapman.*

*To* IMMA'SK, *v. a.* To cover; to diſguiſe.—I have caſes of buckram for the nonce, to *immaſk* our noted outward garments. *Shakeſpeare.*

IMMATE'RIAL, *adj.* [*immateriel*, Fr. *in* and *materia*, Lat.] Incorporeal; diſtinct from matter; void of matter.—Angels are ſpirits *immaterial* and intellectual, the glorious inhabitants of thoſe ſacred palaces, where there is nothing but light and immortality; no ſhadow of matter

ter for tears, diſcontentments, griefs, and uncomfortable paſſions, to work upon; but all joy, tranquillity, and peace, even for ever and ever. *Hooker.*

As then the ſoul a ſubſtance hath alone,
Beſides the body, in which ſhe is confin'd;
So hath ſhe not a body of her own,
But is a ſpirit, and *immaterial* mind. *Davies.*

Unimportant; without weight; impertinent; without relation. This ſenſe has crept into the converſation and writings of barbarians; but ought to be utterly rejected.

IMMATERIAL'ITY, *ſ.* Incorporeity; diſtinctneſs from body or matter.—When we know cogitation is the prime attribute of a ſpirit, we infer its *immateriality*, and thence its immortality. *Watts.*

*To* IMMATE'RIALIZE, *v. a.* To make void of matter; to make incorporeal.

IMMATE'RIALIZED, *adj.* Diſtinct from matter; incorporeal.—Though aſſiduity in the moſt fixed cogitation be no trouble to *immaterialized* ſpirits, yet is it more than our embodied ſouls can bear without laſſitude. *Glanville.*

IMMATE'RIALLY, *adv.* In a manner not depending upon matter.—The viſible ſpecies of things ſtrike not our ſenſes *immaterially*; but, ſtreaming in corporal rays, do carry with them the qualities of the object from whence they flow, and the medium through which they paſs. *Brown.*

IMMATE'RIALNESS, *ſ.* Diſtinctneſs from matter.

IMMATE'RIATE, *adj.* Not conſiſting of matter; incorporeal; wanting body.—It is a virtue which may be called incorporeal and *immateriate*, whereof there be in nature but few. *Bacon.*

IMMATU'RE, *adj.* [*immaturus*, Lat.] Not ripe. Not perfect; not arrived at fulneſs or completion.—The land-enterpriſe of Panama was an ill-meaſured and *immature* counſel, grounded upon a falſe account, that the paſſages were no better fortified than Drake had left them. *Bacon.*

This is your time for faction and debate,
For partial favour, and permitted hate:
Let now your *immature* diſſenſion ceaſe,
Sit quiet. *Dryden.*

Haſty; early; come to paſs before the natural time.—We are pleaſed, and call not that death *immature*, if a man lives till ſeventy. *Taylor.*

IMMATU'RELY, *adv.* Too ſoon; too early; before ripeneſs or completion.

IMMATU'RENESS, or IMMATU'RITY, *ſ.* Unripeneſs; incompleteneſs; a ſtate ſhort of completion.—I might reaſonably expect a pardon from the ingenuous for faults committed in an *immaturity* of age and judgment. *Glanville.*

IMMATU'RITY, *ſ.* Unripeneſs; a ſtate ſhort of completion.

IMMEABIL'ITY, *ſ.* [*immeabilis*, Lat.] Want of power to paſs. So it is uſed in the example; but it is rather, incapability of affording paſſage.—From this phlegm proceed white cold tumours, viſcidity, and conſequently *immeability* of the juices. *Arbuthnot.*

IMMEAS'URABLE, *adj.* Immenſe; not to be meaſured; indefinitely extenſive.—Churches reared up to an height *immeaſurable*, and adorned with far more beauty in their reſtoration than their founders before had given them. *Hooker.*

From the ſhore
They view'd the vaſt *immeaſurable* abyſs,
Outrageous as a ſea, dark, waſteful, wild. *Milton.*

IMMEAS'URABLY, *adv.* Immenſely; beyond all meaſure.—The Spaniards *immeaſurably* bewail their dead. *Spenſer.*

There ye ſhall be fed, and fill'd
*Immeaſurably*; all things ſhall be your prey. *Milton.*

IMMEAS'URED, *adj.* Out of meaſure:

Bright ſcolopendraes arm'd with ſilver ſcales,
Mighty monoceros with *immeaſured* tayles. *Spenſer.*

IMMECHAN'ICAL, *adj.* Not according to the laws of mechanics.—We have nothing to do to ſhow any thing that is *immechanical*, or not according to the eſtabliſhed laws of nature. *Cheyne.*—Nothing will clear a head poſſeſſed of *immechanical* notions. *Mead.*

IMME'DIACY, *ſ.* [from *immediate.*] Perſonal greatneſs; power of acting without dependance:

He led our pow'rs,
Bore the commiſſion of my place and perſon,
The which *immediacy* may well ſtand up,
And call itſelf your brother. *Shakeſpeare.*

IMME'DIATE, *adj.* [*immediat*, Fr. from *in* and *medius*, Lat.] Being in ſuch a ſtate with reſpect to ſomething elſe as that there is nothing between them; proximate; with nothing intervening.—Moſes mentions the *immediate* cauſes of the deluge, the rains and the waters; and St. Peter mentions the more remote and fundamental cauſes, that conſtitution of the heavens. *Burnet.*—Not acting by ſecond cauſes.—It is much to be aſcribed to the *immediate* will of God, who giveth and taketh away beauty at his pleaſure. *Abbot.*—Inſtant; preſent with regard to time. *Prior* therefore ſhould not have written *more* immediate:

*Immediate* are my needs, and my relief,
Muſt not be toſt and turn'd to me in words,
But find ſupply *immediate.* *Shakeſpeare.*

IMME'DIATELY, *adv.* Without the intervention of any other cauſe or event.—God's acceptance of it, either *immediately* by himſelf, or mediately by the hands of the biſhop, is that which veſts the whole property of a thing in God. *South.*—Inſtantly; at the time preſent; without delay:

Her father hath commanded her to ſlip
Away with Slender, and with him at Eaton
*Immediately* to marry. *Shakeſpeare.*

IMME'DIATENESS, *ſ.* Preſence with regard to time; exemption from ſecond or intervening cauſes.

IMMED'ICABLE, *adj.* [*immedicabilis*, Lat.] Not to be healed; incurable:

My griefs ferment and rage,
Nor leſs than wounds *immedicable*
Rankle and feſter, and gangrene
To black mortification. *Milton.*

IMMEM'ORABLE, *adj.* [*immemorabilis*, Lat.] Not worth remembering.

IMMEM'ORIAL, *adj.* [*immemorial*, Fr. from *in* and *memoria*, Lat.] Paſt time of memory; ſo ancient that the beginning cannot be traced.—All the laws of this kingdom have ſome memorials in writing, yet all have not their original in writing; for ſome obtained their force by *immemorial* uſage or cuſtom. *Hale.*—By a long *immemorial* practice, and preſcription of an aged thorough-paced hypocriſy, they come to believe that for a reality, which, at firſt practice of it, they themſelves knew to be a cheat. *South.*

IMMEMO'RIALNESS, *ſ.* The ſtate of being immemorial. *Scott.*

IM'MENDORF, a town of Germany, in the archduchy of Auſtria: eight miles north of Sonneberg.

IM'MENHAUSEN, a town of Germany, on the Upper Rhine, and principality of Heſſe Caſſel: eight miles north-north-weſt of Caſſel, and ſixteen north-eaſt of Naumburg. Lat. 5. 15. N. lon. 26. 52. E. Ferro.

IMMEN'SE, *adj.* [*immenſe*, Fr. *immenſus*, Lat.] Unlimited; unbounded; infinite.—As infinite duration hath no relation unto motion and time, ſo infinite or *immenſe* eſſence hath no relation unto body; but is a thing diſtinct from all corporeal magnitude, which we mean when we ſpeak of immenſity, and of God as of an *immenſe* being. *Grew.*

O goodneſs infinite! goodneſs *immenſe!*
That all this good of evil ſhall produce!

IMMEN'SELY, *adv.* Infinitely; without meaſure.—We ſhall find that the void ſpace of our ſyſtem is *immenſely* bigger than all its corporeal maſs. *Bentley.*

IMMEN'SENESS, *ſ.* Immenſity.

IMMEN'SITY, *ſ.* Unbounded greatneſs; infinity.—He that will conſider the *immenſity* of this fabric, and the great variety that is to be found in this inconſiderable part of it which he has to do with, may think that in other manſions of it there may be other and different intelligent beings. *Locke.*

All theſe illuſtrious worlds,
And millions which the glaſs can ne'er deſcry,
Loſt in the wilds of vaſt *immenſity,*
Are ſuns, are centres. *Blackmore.*

IM'MENSTADT, a town of Germany, in Swabia, and county of Konigſegg, on a ſmall river, which ſoon after joins the Iller: twelve miles ſouth of Kempten, and fourteen ſouth-eaſt of Iſny.

IMMENSURABIL'ITY, *ſ.* Impoſſibility to be meaſured.

IMMEN'SURABLE, *adj.* Not to be meaſured.

IM'MER, [Hebrew.] The name of a man.

IM'MER, the moſt eaſterly iſland of all the New Hebrides in the South Sea. It lies about four leagues from Tanna, and ſeems to be about five leagues in circumference: it is of a conſiderable height, with a flat-top.

IM'MER I'SLAND, one of the New Hebrides, in the South Pacific Ocean. Lat. 19. 16. N. lon. 169. 46. E. Greenwich.

*To* IMMER'GE, *v. a.* [*immergo,* Lat.] To put under water.

IMMER'GING, *ſ.* The act of putting under water.

IMMER'IT, *ſ.* [*immerito,* Lat.] Want of worth; want of deſert. *Demerit* is now moſtly uſed in its ſtead.—When I receive your lines, and find there expreſſions of a paſſion, reaſon and my own *immerit* tell me it muſt not be for me. *Suckling.*

*To* IMMER'SE, *v. a.* [*immerſus,* Lat.] To put under water; to ſink or cover deep.—They obſerved that they were *immerſed* in their rocks, quarries, and mines, in the ſame manner as they are at this day found in all known parts of the world. *Woodward.*

He ſtood
More than a mile *immers'd* within the wood;
At once the wind was laid. *Dryden.*

To keep in a ſtate of intellectual depreſſion.—It is impoſſible to have a lively hope in another life, and yet be deeply *immerſed* in the enjoyments of this. *Atterbury.*

IMMER'SE, *adj.* Buried; covered; ſunk deep.—After long inquiry of things *immerſe* in matter, I interpoſe ſome object which is immateriate, or leſs materiate; ſuch as this of ſounds, that the intellect may become not partial. *Bacon.*

IMMER'SING, *ſ.* The act of putting under water.

IMMER'SION, *ſ.* The act of putting any body into a fluid below the ſurface.—Achilles' mother is ſaid to have dipped him, when he was a child, in the river Styx, which made him invulnerable all over, excepting that part which the mother held in her hand during this *immerſion.* *Addiſon.*—The ſtate of ſinking below the ſurface of a fluid; the ſtate of being overwhelmed or loſt in any reſpect.—Many perſons, who, through the heat of their luſts and paſſions, through the contagion of ill example, or too deep an *immerſion* in the affairs of life, ſwerve from the rules of their holy faith; yet would, upon extraordinary warning, be brought to comply with them. *Atterbury.*

IMMERSION, in aſtronomy, is when a ſtar or planet comes ſo near the ſun, that it cannot be ſeen; being as it were enveloped and hid in the rays of that luminary. Immerſion alſo denotes the beginning of an eclipſe, or of an occultation, when the body, or any part of it, juſt begins to diſappear, either behind the edge of another body, or in its ſhadow. As, in an eclipſe of the moon, when ſhe begins to be darkened by entering into the ſhadow of the earth; or the beginning of an eclipſe of the ſun, when the moon's diſc juſt begins to cover him; or the beginning of the eclipſes of any of the ſatellites, as thoſe of Jupiter, by entering into his ſhadow; or, laſtly, the beginning of an occultation of any ſtar or planet, by paſſing behind the body of the moon or another planet. In all theſe caſes, the darkened body is ſaid to immerge, or to be immerged, or begin to be hid, by dipping as it were into the ſhade. In like manner, when the darkened body begins to appear again, it is ſaid to emerge, or come out of darkneſs again. See the article ASTRONOMY, vol. ii. p. 396.

IMMETHOD'ICAL, *adj.* [from *in,* Lat. contrary to, and *methodus,* a method.] Confuſed; without regularity; without method.—M. Bayle compares the anſwering of an *immethodical* author to the hunting of a duck: when you have him full in your ſight, he gives you the ſlip, and becomes inviſible. *Addiſon.*

IMMETHOD'ICALLY, *adv.* Without method; without order.

IMMETHOD'ICALNESS, *ſ.* Want of method; the ſtate or quality of being immethodical.

*To* IMMI'GRATE, *v. a.* [from *in,* Lat. into, and *migro,* to wander.] To paſs into; to come into. *Scott.*

IM'MIGRATING, *ſ.* The act of paſſing into.

IM'MINENCE, *ſ.* Any ill depending; immediate or near danger. *Not in uſe:*

I do not ſpeak of flight, of fear, of death;
But dare all *imminence,* that gods and men
Addreſs their dangers in. *Shakeſpeare.*

IM'MINENT, *adj.* [Fr. from *imminens,* Lat.] Impending; at hand; threatening. *Always in an ill ſenſe.*—What dangers at any time are *imminent,* what evils hang over our heads, God doth know, and not we. *Hooker.*

Theſe ſhe applies for warnings and portents
Of evils *imminent;* and on her knee
Hath begg'd, that I will ſtay at home to-day. *Shakeſpeare.*

IM'MINENTNESS, *ſ.* The ſtate of being imminent. *Scott.*

*To* IMMIN'GLE, *v. a.* To mingle; to mix; to unite:

Some of us, like thee, through ſtormy life
Toil'd tempeſt-beaten, ere we could attain
This holy calm, this harmony of mind,
Where purity and peace *immingle* charms. *Thomſon.*

IMMINU'TION, *ſ.* [from *imminuo,* Lat.] Diminution; decreaſe.—Theſe revolutions are as exactly uniform as the earth's are, which could not be, were there any place for chance, and did not a Providence continually overſee and ſecure them from all alteration or *imminution.* *Ray.*

IMMISCIBIL'ITY, *ſ.* Incapacity of being mingled.

IMMIS'CIBLE, *adj.* Not capable of being mingled. *Clariſſa.*

IMMIS'ERABLE, *adj.* [from *in,* Lat. contrary to, and *miſerabilis,* pitiable.] Void of pity; unworthy to be pitied. *Not uſed.* *Bailey.*

IMMIS'SION, *ſ.* [*immiſſio,* Lat.] The act of ſending in; contrary to emiſſion.

*To* IMMIT', *v. n.* [*immitto,* Lat.] To ſend in.

IMMI'TIGABLE, *adj.* Not to be mitigated.—Did ſhe mitigate theſe *immitigable,* theſe iron-hearted, men? *Harris.*

IMMIT'TING, *ſ.* The act of ſending in.

*To* IMMIX', *v. a.* To mingle:

Samſon, with theſe *immixt,* inevitably
Pull'd down the ſame deſtruction on himſelf. *Milton.*

IMMIX'ABLE, *adj.* Impoſſible to be mingled.—Fill a glaſs ſphere with ſuch liquors as may be clear, of the ſame colour, and *immixable.* *Wilkins.*

IMMOBIL'ITY, *ſ.* [*immobilité*, Fr. from *immobilis*, Lat.] Unmoveableneſs; want of motion; reſiſtance to motion.—The courſe of fluids through the vaſcular ſolids muſt in time harden the fibres, and aboliſh many of the canals; from whence dryneſs, weakneſs, *immobility*, and debility of the vital force. *Arbuthnot.*

IMMOD'ERATE, *adj.* [*immoderé*, Fr. *immoderatus*, Lat.] Exceſſive; exceeding the due mean.—One means, very effectual for the preſervation of health, is a quiet and cheerful mind, not afflicted with violent paſſions, or diſtracted with *immoderate* cares. *Ray.*

IMMOD'ERATELY, *adv.* In an exceſſive degree.—The heat weakened more and more the arch of the earth, ſucking out the moiſture that was the cement of its parts, drying it *immoderately*, and chapping it. *Burnet.*

IMMOD'ERATENESS, *ſ.* Exceſs; the ſtate or quality of being immoderate. *Scott.*

IMMODERA'TION, *ſ.* Want of moderation; exceſs.

IMMOD'EST, *adj.* Wanting ſhame; wanting delicacy or chaſtity.—She railed at herſelf, that ſhe ſhould be ſo *immodeſt* to write to one that ſhe knew would flout her. *Shakeſpeare.*—Unchaſte; impure:

*Immodeſt* deeds you hinder to be wrought;
But we proſcribe the leaſt *immodeſt* thought. *Dryden.*

Obſcene:

'Tis needful that the moſt *immodeſt* word
Be look'd upon and learn'd; which once attain'd,
Comes to no farther uſe
But to be known and hated. *Shakeſpeare.*

*Immodeſt* words admit of no defence,
For want of decency is want of ſenſe. *Roſcommon.*

Unreaſonable; exorbitant; arrogant.

IMMOD'ESTLY, *adj.* Without modeſty; impudently; obſcenely.

IMMOD'ESTY, *ſ.* Want of modeſty; indecency.—It was a piece of *immodeſty*. *Pope.*

*To* IM'MOLATE, *v. a.* [*immolo*, Lat. *immoler*, Fr.] To ſacrifice; to kill in ſacrifice.—Theſe courtiers of applauſe being oftentimes reduced to live in want, theſe coſtly trifles ſo engroſſing all that they can ſpare, that they frequently enough are forced to *immolate* their own deſires to their vanity. *Boyle.*—To offer in ſacrifice:

Now *immolate* the tongues, and mix the wine,
Sacred to Neptune, and the pow'rs divine. *Pope.*

IM'MOLATING, *ſ.* The act of offering in ſacrifice, or of killing for ſacrifice.

IMMOLA'TION, *ſ.* [*immolation*, Fr. from *immolate.*] The act of ſacrificing.—In the picture of the *immolation* of Iſaac, or Abraham ſacrificing his ſon, Iſaac is deſcribed as a little boy. *Brown.*—A ſacrifice offered.—We make more barbarous *immolations* than the moſt ſavage heathens. *Decay of Piety.*

IMMO'MENT, *adj.* [*in* and *moment.*] Trifling; of no importance or value. *A barbarous word:*

I ſome lady-trifles have reſerv'd,
*Immoment* toys, things of ſuch dignity
As we greet modern friends withal. *Shakeſpeare.*

IMMOR'AL, *adj.* Wanting regard to the laws of natural religion; as, A flatterer of vice is an *immoral* man.—Contrary to honeſty; diſhoneſt; as, Deſertion of a calumniated friend is an *immoral* action.

IMMORAL'ITY, *ſ.* Diſhoneſty; want of virtue; contrariety to virtue.—Such men are put into the commiſſion of the peace who encourage the groſſeſt *immoralities*, to whom all the bawds of the ward pay contribution. *Swift.*

IMMOR'ALLY, *adv.* In a manner contrary to morality; diſhoneſtly; wickedly.

IMMORIG'EROUS, *adj.* [from *in*, Lat. contrary to, and *morigerus*, obedient.] Diſobedient. *But little uſed. Scott.*

IMMOR'TAL, *adj.* Exempt from death; being never to die.—To the King eternal, *immortal*, inviſible, the only wiſe God, be glory for ever. 1 *Tim.* i. 17.

Her body ſleeps in Capulet's monument,
And her *immortal* part with angels lives. *Shakeſpeare.*

Never-ending; perpetual:

Give me my robe, put on my crown: I have
*Immortal* longings in me. *Shakeſpeare.*

IMMOR'TAL FLOW'ER. See GNAPHALIUM.

IMMORTAL'ITY, *ſ.* Exemption from death: life never to end.—This corruptible ſhall put on incorruption, and this mortal, *immortality. Corinth.*

He th' *immortality* of ſouls proclaim'd,
Whom th' oracle of men the wiſeſt nam'd. *Denham.*

Exemption from oblivion.

*To* IMMOR'TALIZE, *v. a.* To make immortal; to perpetuate; to exempt from death:

For mortal things deſire their like to breed,
That ſo they may their kind *immortalize.* *Davies.*

To exempt from oblivion.—Drive them from Orleans, and be *immortaliz'd. Shakeſpeare.*

*To* IMMOR'TALIZE, *v. n.* To become immortal:

Fix the year preciſe,
When Britiſh bards begin t' *immortalize.* *Pope.*

IMMOR'TALIZING, *ſ.* The act of making immortal.

IMMOR'TALLY, *adv.* With exemption from death; without end.—What pity 'tis that he cannot wallow *immortally* in his ſenſual pleaſures! *Bentley.*

There is your crown;
And he that wears the crown *immortally*,
Long guard it yours! *Shakeſpeare.*

IMMO'VEABLE, *adj.* Not to be forced from its place.—We ſhall not queſtion his removing the earth, when he finds an *immoveable* baſe to place his engine upon. *Brown.*—Not liable to be carried away; real in law.—When an executor meddles with the *immoveable* eſtate, before he has ſeized on the moveable goods, it may be then appealed from the execution of ſentence. *Ayliffe.*—Unſhaken; unaffected.—How much happier is he, who, centring on himſelf, remains *immoveable*, and ſmiles at the madneſs of the dance about him! *Dryden.*

IMMO'VEABLENESS, *ſ.* The ſtate or quality of being immoveable.

IMMO'VEABLY, *adv.* In a ſtate not to be ſhaken.—*Immoveably* firm to their duty, when they could have no proſpect of reward. *Atterbury.*

IMMU'NITY, *ſ.* [*immunité*, Fr. *immunitas*, Lat.] Diſcharge from any obligation.—Of things harmleſs whatſoever there is, which the whole church doth obſerve, to argue for any man's *immunity* from obſerving the ſame, it were a point of moſt inſolent madneſs. *Hooker.*—Privilege; exemption from onerous duties.—Granting great *immunities* to the commons, they prevailed ſo far as to cauſe Palladius to be proclaimed ſucceſſor. *Sidney.*—Freedom.—Common apprehenſions entertain the antidotal condition of Ireland, conceiving only in that land an *immunity* from venomous creatures. *Brown.*

But this annex'd condition of the crown,
*Immunity* from errors, you diſown. *Dryden.*

*To* IMMU'RE, *v. a.* [*in* and *murus*, Lat. *emurer*, old French.] To incloſe within walls; to confine; to ſhut up; to impriſon.—At the firſt deſcent on ſhore he was not *immured* with a wooden veſſel, but he did countenance the landing in his long-boat. *Wotton.*

Though a foul fooliſh priſon her *immure*
On earth, ſhe, when eſcap'd, is wiſe and pure. *Denham.*

IMMU'RE, *ſ.* A wall; an incloſure:

Their vow is made
To ranſack Troy; within whoſe ſtrong *immures*
The raviſh'd Helen, Menelaus' queen,
With wanton Paris ſleeps. *Shakeſpeare.*

IMMU'RING, *ſ.* The act of incloſing with or within walls.

IMMU'SICAL, *adj.* Inharmonious; wanting proportion of ſound.—All ſounds are either muſical, which are ever equal, or *immuſical,* which are ever unequal, as the voice in ſpeaking, and whiſperings. *Bacon.*

IMMUTABIL'ITY, *ſ.* [*immutabilitas,* Lat. *immutabilité,* Fr. from *immutable.*] Exemption from change; invariableneſs; unchangeableneſs.—The *immutability* of God they ſtrive unto, by working after one and the ſame manner. *Hooker.*

IMMU'TABLE, *adj.* Unchangeable; invariable; unalterable.—By two *immutable* things, in which it was impoſſible for God to lie, we have a ſtrong conſolation. *Heb.* vi.

Thy threat'nings, Lord, as thine, thou may'ſt revoke;
But, if *immutable* and fix'd they ſtand,
Continue ſtill thyſelf to give the ſtroke,
And let not foreign foes oppreſs thy land. *Dryden.*

IMMU'TABLY, *adv.* Unalterably; invariably; unchangeably.—His love is like his eſſence, *immutably* eternal. *Boyle.*

IMMUTA'TION, *ſ.* In rhetoric, the hypallage, a figure in which the caſes or order of words in a ſentence are changed.

IM'NA, or IMNAH, [Hebrew.] The name of a man.

IMO'LA, a town of Italy, in the ſtate of the Church, and province of Romagna, ſituated on an iſland formed by the river Salerno, ſurrounded with walls, towers, and ditches, and defended with a ſtrong caſtle; the ſee of a biſhop, ſuffragan of Ravenna. It contains ſixteen churches, and ſeventeen convents: eighteen miles ſouth-eaſt of Bologna, and forty north-north-eaſt of Florence. Lat. 44. 22. N. lon. 29. 18. E. Ferro.

IMOS'CHI, the name of a territory in Italy, which lies between Vergoraz and Almiſſa. It is twenty miles in length, and fifteen in breadth; containing forty villages, and 12,600 inhabitants. It is entirely ſurrounded with high mountains, where riſes the rivulet Svaja, which ſerves as a boundary between the territories of Venice and that of the Ottoman Porte. Sidewards lies the lake Proloſaz, with a village of the ſame name. The chief place of this territory is Imoſchi, a ſmall fortreſs, with a village of the ſame appellation; the former is built on a hill, and only acceſſible on one ſide: it has likewiſe a monaſtery of the Franciſcan order. Here the Roman municipal town *Novanium* is ſuppoſed to have been built.

IMP, *ſ.* [Welſh, a ſhoot, a ſprout, a ſprig.] A ſon; the offspring; progeny.—That noble *imp* your ſon. *Shakeſpeare.*

And thou, moſt dreadful *imp* of higheſt Jove,
Fair Venus' ſon. *Fairy Queen.*

A ſubaltern devil; a puny devil.—Such we deny not to be the *imps* and limbs of Satan. *Hooker.*

The ſerpent, after long debate, irreſolute
Of thoughts reſolv'd, his final ſentence choſe,
Fit veſſel, fitteſt *imp* of fraud, in whom
To enter, and his dark ſuggeſtions hide
From ſharpeſt ſight. *Milton.*

*To* IMP, *v. a.* To lengthen or enlarge with any thing adſcititious. It is originally a term uſed by falconers, who repair a hawk's wing with adſcititious feathers:

If then we ſhall ſhake off our ſlaviſh yoke,
*Imp* out our drooping country's broken wings. *Shakeſp.*

IM'PACH, a town of Germany, in the archduchy of Auſtria: ſix miles weſt-north-weſt of Crems.

IM'PACABLE, *adj.* [from *impacatus,* Lat.] Not to be appeaſed:

That freed from bands of *impacable* fate
And powre of death, they live for ay above. *Spenſer.*

*To* IMPACT', *v. a.* [*impactus,* Lat.] To drive cloſe or hard.—They are angular; but of what particular figure is not eaſy to determine, becauſe of their being *impacted* ſo thick and confuſedly together. *Woodward.*

IMPACT'ING, *ſ.* The act of driving cloſe together.

*To* IMPA'INT, *v. a.* To paint; to decorate with colours. *Not in uſe.*

Never yet did inſurrection want
Such water-colours to *impaint* his cauſe. *Shakeſpeare.*

*To* IMPAIR', *v. a.* [*empirer,* Fr. to make worſe.] To diminiſh; to injure; to make worſe; to leſſen in quantity, value, or excellence.—To change any ſuch law, muſt needs, with the common ſort, *impair* and weaken the force of thoſe grounds whereby all laws are made effectual. *Hooker.*

That ſoon refreſh'd him weary'd, and repair'd
What hunger, if aught hunger had *impair'd,*
Or thirſt. *Milton.*

*To* IMPAI'R, *v. n.* To be leſſened or worn out.—Fleſh may *impair,* quoth he; but reaſon can repair. *Fairy Queen.*

IMPAI'R, *ſ.* Diminution; decreaſe. *Not uſed.*—A loadſtone, kept in undue poſition, that is, not lying on the meridian, or with its poles inverted, receives in longer time *impair* in activity and exchange of faces, and is more powerfully preſerved by ſite than duſt of ſteel. *Brown.*

IMPAIR'ER, *ſ.* What impairs.—Immoderate labour and immoderate ſtudy are equally the *impairers* of health. *Warburton.*

IMPAIR'ING, *ſ.* A diminution; an injury. *Not much uſed. Scott.*

IMPAIR'MENT, *ſ.* Diminution; injury.—His poſterity, at this diſtance, and after ſo perpetual *impairment,* cannot but condemn the poverty of Adam's conception, that thought to obſcure himſelf from his Creator in the ſhade of the garden. *Brown.*

*To* IMPA'LE, *v. a.* To empale, to incloſe with pales, to puniſh by driving a ſtake through the body. *Scott.*

IMPA'LED, *adj.* In heraldry, marſhalled in pale; borne as the arms of a man and his wife, one the right and the other on the left ſide of the eſcutcheon.

IMPA'LEMENT, *ſ.* An empalement; an ancient and barbarous cuſtom of puniſhing malefactors by driving a ſtake through their bodies.

IMPAL'PABLE, *adj.* Not to be perceived by touch.—If beaten into an *impalpable* powder, when poured out, it will emulate a liquor, by reaſon that the ſmallneſs of the parts do make them eaſy to be put into motion. *Boyle.*

IMPANA'TION, *ſ.* [from *in,* Lat. into, and *panis,* bread.] In the Lutheran church, the ſuppoſed ſubſiſtence of the body of Chriſt with the ſpecies of bread in the Lord's Supper.

IMPAN'NEL, *ſ.* & *adj.* See EMPANNEL, vol. vi.

*To* IMPAR'ADISE, *v. a.* To put in a place or ſtate reſembling paradiſe in felicity.—This *imparadiſed* neighbourhood made Zelmane's ſoul cleave unto her, both through the ivory caſe of her body, and the apparel which did overcloud it. *Sidney.*

Thus theſe two,
*Imparadis'd* in one another's arms,
The happier Eden, ſhall enjoy their fill
Of bliſs on bliſs. *Milton.*

IMPAR'ADISING, *ſ.* The act of placing in paradiſe; the act of making happy.

IMPARASYLLAB'IC, *adj.* [from *impar,* Lat. unequal, and *ſyllabus,* a ſyllable.] Having unequal ſyllables.

IMPARGAMEN'TUM, *ſ.* In old records, the right of impounding cattle.

IMPAR'ITY, *ſ.* [*imparitas, impar,* Lat.] Inequality; diſproportion.—Some bodies are hard, ſome ſoft: the hardneſs is cauſed chiefly by the jejuneneſs of the ſpirits, and their *imparity* with the tangible parts. *Bacon.*—Oddneſs; indiviſibility into equal parts.—What verity is there in that numeral conceit, in the lateral diviſion of man, by even and odd; and ſo by parity or *imparity* of letters in men's names, to determine misfortunes on either ſide of their bodies? *Brown.*

*To* IMPAR'K, *v. a.* To incloſe with a park; to ſever from a common.

IMPARK'ING, *ſ.* The act of incloſing in a park.

*To* IMPARL', *v. n.* To confer with; a law-term.

IMPAR'LANCE, *ſ.* [from the Fr. *parler*, to ſpeak.] In common law, is taken for a petition, in court, of a day to conſider or adviſe what anſwer the defendant ſhall make to the action of the plaintiff; being a continuance of the cauſe till another day, or a longer time given by the court.

Imparlance is ſaid to be when the court gives the party leave to anſwer at another time, without the aſſent of the other party. *Com. Dig. Pleader, D.* 1. But the more common ſignification of imparlance is, *time to plead.* 2 *Shaw.* 310 2 *Mod.* 62. And it is either *general*, without ſaving to the defendant any exception, which is always to another term, *Mod.* 28; or *ſpecial*, which is ſometimes to another day in the ſame term. 6 *Mod.* 8. The *general imparlance* is of courſe where the defendant is not bound to plead the ſame term; but a *ſpecial imparlance* is not allowed without leave of the court. *R. E.* 5 *Ann.* A ſpecial imparlance is with a ſaving of all exceptions to the writ or count, which may be granted by the prothonotary; or they may be ſtill more ſpecial with a ſaving of all exceptions whatſoever, which are granted at the diſcretion of the court, and are called *general ſpecial imparlances.* 12 *Mod.* 529.

A *general imparlance* is ſet down and entered in general terms, without any ſpecial clauſe, thus; *And now at this day, to wit, on Thurſday next after the Octave of St. Hilary, in the ſame term, until which day the aforeſaid C. D. the defendant, had licence to imparl to the bill aforeſaid, and then to anſwer, &c.*

*Special imparlance*, is where the party deſires a farther day to anſwer, adding alſo theſe words; *Saving all advantages, as well to the juriſdiction of the court, as to the writ and declaration, &c. Kitch.* 200. This imparlance is had on the declaration of the plaintiff; and ſpecial imparlance is of uſe where the defendant is to plead ſome matters which cannot be pleaded after a general imparlance. 5 *Rep.* 75.

Imparlance is generally to the next term; and, if the plaintiff amend his declaration after delivered or filed, the defendant may imparl to the next term, if the plaintiff do not pay coſts; but if he pay coſts, which are accepted, the defendant cannot imparl. Alſo, if the plaintiff declares againſt the defendant, but doth not proceed in three terms after, the defendant may imparl to the next term. 2 *Lill. Abr.* 35. If the writ be returnable on the laſt day of term, the defendant is of courſe entitled to an imparlance, but muſt plead in four days of the next term, provided a rule be given either in a town or country cauſe.

There are many caſes wherein imparlances are not allowed; no imparlance is granted in a *homine replegiando*; or in an aſſiſe, unleſs on good cauſe ſhown; nor ſhall there be an imparlance in an action of ſpecial *clauſum fregit*; though it is allowed in general actions of treſpaſs. *Hil.* 9 *W. III. Salk.* 186. Where an attorney, or other privileged perſon of the court, ſues another, the defendant cannot imparl, but muſt plead preſently; if the plaintiff ſues out a ſpecial original, wherein the cauſe of action is expreſſed, and the defendant is taken on a ſpecial capias, he ſhall not have an imparlance, but ſhall plead as ſoon as the rules are out. 2 *Lil.* 35, 36.

The defendant cannot have oyer of a deed in a common caſe after imparlance; and a tender after imparlance is naught. 2 *Lev.* 190. *Lutw.* 238. If it appears upon the record, that an imparlance was due, and denied, it is error; but then ſuch error muſt appear on the record. 3 *Salk.* 168. It has been held, that, if the defendant doth not appear on a *dies datus*, the plaintiff ſhall not have judgment by default, as he may on imparlance, becauſe the *dies datus* is not ſo ſtrong againſt him as an imparlance; and therefore the plaintiff muſt take proceſs againſt the defendant for not appearing at the time. *Moor* 79. 2 *Nelſ.* 947.

Where a defendant is arreſted by proceſs out of the king's bench; in which the cauſe of action is ſpecially expreſſed; or a copy of proceſs is delivered, and the plaintiff hath declared; the defendant ſhall not have liberty of imparlance, without leave firſt granted, but ſhall plead within the time allowed a defendant proſecuted by original writ. *R. Hil.* 2 *Geo. II.* And upon all proceſſes, returnable the firſt or ſecond return of any term, the declaration ſhall be delivered with notice to plead in eight days after delivery, where the defendant lives above twenty miles from London, &c. without any imparlance; and, on default of pleading, the plaintiff may ſign judgment. *R. Trin.* 5 & 6 *Geo. II.* See the article PLEADING.

IMPARSONNE', *adj.* A law term; inducted, inducted into a benefice.

*To* IMPART', *v. a.* [*impartior*, Lat.] To grant; to give:

High ſtate and honours to others *impart*,
But give me your heart. *Dryden.*

To make known; to ſhow by words or tokens.—As in confeſſion the revealing is for the eaſe of a man's heart, ſo ſecret-men come to the knowledge of many things, while men rather diſcharge than *impart* their minds. *Bacon.*

Gentle lady,
When firſt I did *impart* my love to you,
I freely told you, all the wealth I had
Ran in my veins. *Shakeſpeare.*

To communicate; to grant as to a partaker:

I find thee knowing of thyſelf;
Expreſſing well the ſpirit within thee free,
My image, not *imparted* to the brute. *Milton.*

IMPART'ANCE, *ſ.* A grant; a communication. *Shakeſpeare.*

IMPAR'TIAL, *adj.* Equitable; free from regard to party; indifferent; diſintereſted; equal in diſtribution of juſtice; juſt. It is uſed as well of actions as perſons; an *impartial* judge; an *impartial* ſentence:

Succeſs I hope, and fate I cannot fear:
Alive or dead, I ſhall deſerve a name;
Jove is *impartial*, and to both the ſame. *Dryden.*

IMPARTIAL'ITY, *ſ.* Equitableneſs; juſtice; indifference.—A pious and well-diſpoſed will gives not only diligence but alſo *impartiality* to the underſtanding in its ſearch into religion, which is abſolutely neceſſary to give ſucceſs unto our inquiries into truth; it being ſcarce poſſible for that man to hit the mark, whoſe eye is ſtill glancing upon ſomething beſide it. *South.*

IMPAR'TIALLY, *adv.* Equitably; with indifferent and unbiaſſed judgment; without regard to party or intereſt; juſtly; honeſtly.—Since the Scripture promiſes eternal happineſs and pardon of ſin, upon the ſole condition of faith and ſincere obedience, it is evident that he only can plead a title to ſuch a pardon, whoſe conſcience *impartially* tells him that he has performed the required condition. *South.*

IMPAR'TIBLE, *adj.* [Fr. from *impart.*] Communicable; to be conferred or beſtowed. This word is elegant, though uſed by few writers.—The ſame body may be conceived to be more or leſs *impartible* than it is active or heavy. *Digby.*

IMPAS'SABLE, *adj.* Not to be paſſed; not admitting paſſage; impervious.—There are in America many high and *impaſſable* mountains, which are very rich. *Raleigh.*

Over this gulf
*Impaſſable*, impervious, let us try
To found a path from hell to that new world. *Milton.*

IMPASSIBIL'ITY, *ſ.* Exemption from ſuffering; inſuſceptibility of injury from external things.—Two divinities might have pleaded their prerogative of *impaſſibility*, or at leaſt not have been wounded by any mortal hand. *Dryden.*

IMPAS'SIBLE, *adj.* [*impaſſible*, Fr. *in* and *paſſio*, Lat.]

Incapable of ſuffering; exempt from the agency of external cauſes; exempt from pain.—If the upper ſoul check what is conſented to by the will, in compliance with the fleſh, and can then hope that, after a few years of ſenſuality, that rebellious ſervant ſhall be eternally caſt off, drop into a perpetual *impaſſible* nothing, take a long progreſs into a land where all things are forgotten, this would be ſome colour. *Hammond.*

Secure of death, I ſhould contemn thy dart,
Though naked, and *impaſſible* depart. *Dryden.*

IMPAS'SIBLENESS, *ſ.* Impaſſibility; exemption from pain.—How ſhameleſs a partiality is it, thus to reſerve all the ſenſualities of this world, and yet cry out for the *impaſſibleneſs* of the next? *Decay of Piety.*

IMPAS'SIONED, *adj.* Diſordered by paſſion:

So, ſtanding, moving, or to height upgrown,
The tempter, all *impaſſion'd*, thus began. *Milton.*

IMPAS'SIVE, *adj.* Exempt from the agency of external cauſes:

She told him what thoſe empty phantoms were,
Forms without bodies, and *impaſſive* air. *Dryden.*

IMPASTA'TION, *ſ.* In maſonry, the formation of any thing from a kind of paſte or mortar; that which is formed from a kind of paſte or mortar.

IMPAS'TED, *adj.* Concreted as into paſte. This word is not in uſe:

Horribly trickt
With blood of fathers, mothers, daughters, ſons,
Bak'd and *impaſted* with the parching fires. *Shakeſpeare.*

IMPA'TIENCE, *ſ.* [*impatience*, Fr. *impatientia*, Lat.] Inability to ſuffer pain; rage under ſuffering.—All the power of his wits has given way to his *impatience*. *Shakeſpeare.*—Vehemence of temper; heat of paſſion.—Fie! how *impatience* lowreth in your face! *Shakeſpeare.*—Inability to ſuffer delay; eagerneſs:

No further with your din
Expreſs *impatience*. *Shakeſpeare.*

IMPA'TIENS, *ſ.* [impatient of the touch; ſo named from the elaſticity of the fruit.] BALSAM; in botany, a genus of the claſs ſyngeneſia, order monogamia, natural order of corydales, (gerania, *Juſſ.*) The generic characters are—Calyx: perianthium two-leaved, very ſmall; leaflets roundiſh-acuminate, equal, placed towards the ſides of the flower, coloured, deciduous. Corolla: five-petalled, ringent; petals unequal; of which the ſuperior is roundiſh, flat, upright, ſlightly trifid; conſtituting the upper lip. Lower pair reflex, very large, outwardly larger, obtuſe, irregular, conſtituting the lower lip. Intermediate pair oppoſite, riſing from the baſe of the upper petal. Nectary one-leafed, receiving in the manner of a hood the baſe of the flower, oblique at the mouth, riſing outwardly, ending in a horn at the baſe. Stamina: filaments five, very ſhort, narrower towards the baſe, incurved; anthers as many, connate, divided at the baſe. Piſtillum: germ ſuperior, ovate-acuminate; ſtyle none. Stigma ſimple, ſhorter than the anthers. Pericarpium: capſule one-celled, five-valved, ſpringing open elaſtically, the valves rolling ſpirally. Seeds: ſeveral, roundiſh, fixed to a columnar receptacle.—*Eſſential Character.* Calyx two-leaved; corolla five-petalled, irregular, with a cowled nectary; capſules ſuperior, five-valved.

*Species.* I. With one-flowered peduncles. 1. Impatiens Chinenſis, or Chineſe balſam: peduncles one-flowered, ſolitary, leaves oppoſite, ovate, nectaries bowed. This is an annual plant, one foot high, upright, round, alternately branched, red. Native of China.

2. Impatiens latifolia, or broad-leaved balſam: peduncles one-flowered, ſolitary, leaves ovate, ſerratures, lanceolate, nectaries longer than the flower. This alſo is an annual plant. Native of the Eaſt Indies.

3. Impatiens roſmarinifolia, or roſemary-leaved balſam: peduncles one-flowered, ſolitary; leaves oppoſite, linear. Koenig ſent it from Ceylon.

4. Impatiens Capenſis, or Cape balſam: peduncles one-flowered, ſolitary; leaves ovate, notches piliferous. 5. Impatiens bifida, or bifid balſam: peduncles one-flowered, ſolitary; leaves oblong, ſerrate; nectaries very long, bifid. Natives of the Cape of Good Hope.

6. Impatiens oppoſitifolia, or oppoſite-leaved balſam: peduncles one-flowered, aggregate; leaves oppoſite, linear. This is an upright plant, with a ſucculent jointed ſtem. Flowers ſmall, with a nectary much ſhorter than the petals. Native of the iſland of Ceylon. Annual.

7. Impatiens cornuta, or horned balſam: peduncles one-flowered, aggregate; leaves lanceolate, nectaries longer than the flower. This is alſo an annual plant. Stem a foot high, roundiſh. In its leafing this reſembles the next ſpecies, but the flowers are much ſmaller, with ſpurs five times longer, and on very long peduncles. In Burman's figure, the peduncles are ſome ſolitary, others two, and others three, together: the engraver, by miſtake, has placed ſome of them below the leaf. The Ceyloneſe call it *kudaelu kola*, from *kudaelu*, a ſwallow, and *kola*, a leaf. Native not only of Ceylon, but of Cochin-china, where the inhabitants uſe a decoction of the leaves as a waſh, to their head and hair, to which this plant, which is a common weed in their gardens, gives a very ſweet odour.

8. Impatiens balſamina, garden balſam, or balſamine: peduncles one-flowered, aggregate; leaves lanceolate, the upper ones alternate; nectaries ſhorter than the flower. An annual plant, riſing a foot and half high, and dividing into many ſucculent branches. Leaves long, ſerrate. The flowers come out from the joints of the ſtem, upon ſlender peduncles about an inch long, each ſuſtaining a ſingle flower; but there are two, three, or four, of theſe peduncles ariſing from the ſame joint. In its wild ſtate, it is about two feet high, with an upright, round, hiſpid, juicy, white ſtem, and aſcending branches. Flowers red or white. Capſule ovate-oblong lanuginous, as ſhown on the BOTANY Plate VIII. fig. 45. vol. iii. p. 250. Native of the Eaſt Indies, China, Cochin-china, and Japan; the Japaneſe uſe the juice prepared with alum, for dying their nails red. It was cultivated by Gerarde in 1596.

By culture, ſays Mr. Martyn, this plant is very much enlarged, and becomes very branching. I have ſeen the ſtem ſeven inches in circuit, and all the parts large in proportion, branched from top to bottom, loaded with its party-coloured flowers, and thus forming a moſt beautiful buſh. The varieties which cultivation has produced in this elegant flower are numerous. White, purple, red, ſtriped and variegated of theſe different colours, ſingle and double of each. Mr. Miller ſpeaks particularly of two varieties, which perhaps may belong to ſome of the other ſpecies. Firſt, the *immortal eagle*, a moſt beautiful plant from the Eaſt Indies. The flowers double, much larger than thoſe of the common ſort, ſcarlet and white, or purple and white; and, there being many of theſe, the plant is very valuable. Secondly, the *cockſpur*, from the Weſt Indies; which has ſingle flowers, as large as the other, but never more than half double, and only with red and white ſtripes. This is apt to grow to a very large ſize before it flowers, which is very late in autumn, ſo that in bad ſeaſons there will be ſcarcely any flowers, and the ſeeds ſeldom ripen.

9. Impatiens mutilia, or mutilated balſam: peduncles one-flowered; leaves lanceolate, ſerrate, oppoſite, nectaries mutilated. Stem annual, a foot and half high, upright, round, with aſcending branches. Flowers ſcarlet. Cultivated in Cochin-china, probably from China.

10. Impatiens cochleata, or ſpiral balſam: peduncles one-flowered; leaves oblong, ſubſerrate; oppoſite, nectaries ſpiral, root creeping. Stem annual, a foot high, upright, jointed, red, almoſt without branches. Flowers ſcarlet, very handſome, but not ſweet. Cultivated in China.

II. With many-flowered peduncles. 11. Impatiens triflora, or three-flowered balſam: peduncles three-flowered, ſolitary; leaves narrow lanceolate. Burman ſays it is a native of Ceylon: Mr. Miller adds, and of many parts of India; but that, the flowers being ſmaller than thoſe of the common ſort, this is not worth cultivating for beauty. Burman however ſays, that they are large and very elegant.

12. Impatiens noli tangere, or common yellow balſam: peduncles many-flowered, ſolitary; leaves ovate, joints of the ſtem ſwelling. Root annual. Stem a foot high, upright; ſtem and branches pale yellowiſh green, ſmooth and ſhining, ſomewhat tranſparent, thickeſt at the joints, ſucculent and brittle. Flowers yellow; the lateral petals ſpotted with red, by cultivation changing to pale yellow or purpliſh. Seeds rather large, angular, ſtriated, ovate. When the ſeeds are ripe, upon touching the capſule, they are thrown out with conſiderable force. Hence the Latin names of *impatiens* and *noli tangere*, and the Engliſh name of *quick in hand*, (alive as it were in the hand.) Gerarde calls it *codded arſmart*, and Parkinſon, *wild mercury*. The elaſticity of the ſeed-veſſel has furniſhed names in moſt of the European languages. In the day-time the leaves are expanded, but at night they hang pendent, contrary to what is obſerved in moſt plants, which, from a deficiency of moiſture, or a too great perſpiration from heat, commonly droop their leaves during the day. The whole plant is conſiderably acrid, and no quadruped, except perhaps the goat, is ſaid to eat it. Notwithſtanding this, it was formerly conſidered as diuretic and vulnerary, and was given to relieve the hæmorrhoids and the ſtrangury. Boerhaave regarded it as poiſonous. It is now conſigned wholly to the flower-garden, where however it is not often ſeen. It is the only ſpecies of Impatiens wild in Europe. It is alſo found in Canada. With us it occurs in Wales, and the northern counties of England, in moiſt ſhady places, and by the banks of rivulets; as on the banks of Winander-mere near Ambleſide, near Rydall-hall, and between both places, in Weſtmoreland; in Saterthwait-pariſh, and by the ſide of Coniſton-lake, in Lancaſhire; and about Bingley in Yorkſhire. Flowering in July and Auguſt.

*Propagation and Culture.* The ſeeds of theſe plants ſhould be ſown on a moderate hot-bed in the ſpring, and, when the plants are come up about an inch high, they ſhould be tranſplanted on another moderate hot-bed at about four inches diſtance each way, obſerving to ſhade them from the ſun till they have taken new root; after which they ſhould have a large ſhare of free air admitted to them, at all times when the weather is favourable, to prevent their drawing up tall and weak; they will require to be often refreſhed with water, but it ſhould not be given to them in too great plenty; for, as their ſtems are very ſucculent, they are apt to rot with much moiſture. When the plants are grown ſo large as to touch each other, they ſhould be carefully taken up with balls of earth to their roots, and each planted into a ſeparate pot filled with light rich earth, and plunged into a very moderate hot-bed under a deep frame, to admit the plants to grow, ſhading them from the ſun until they have taken freſh root; then they ſhould have a large ſhare of air admitted to them every day, and by degrees hardened ſo as to bear the open air, into which part of the plants may be removed in July, placing them in a warm ſituation; where, if the ſeaſon proves favourable, they will flower and make a fine appearance; but it will be proper to keep part of the plants either in a glaſs caſe or a deep frame, in order to get good ſeeds, becauſe thoſe in the open air will not ripen their ſeeds until the ſummer proves very warm; and the plants in ſhelter muſt have a good ſhare of free air every day, otherwiſe they will grow pale and ſickly; nor ſhould they have too much of the ſun in the middle of the day, in very hot weather, for that occaſions their leaves hanging, and their requiring water, which is often very hurtful; therefore, if the glaſſes are ſhaded in the middle of the day for three or four hours, the plants will thrive better, and continue longer in beauty, than when they are expoſed to the great heat. Thoſe who are curious to preſerve theſe plants in perfection, pull off all the ſingle and plain-coloured flowers from the plants which they preſerve for ſeeds, leaving only thoſe flowers which are double and of good colours; where this is carefully done, they may be continued without the leaſt degeneracy conſtantly. Parkinſon ſays it is a very tender plant, and muſt be ſown carefully in a pot of earth, and tended and watered in the heat of ſummer, and all little enough to bring it to perfection. In his time (1629) its native place was not known here, and the ſeeds were imported from Italy. The other ſorts may be treated in the manner above directed, being annual plants from the ſame countries; but, if the ſeeds of the common European ſort be permitted to ſcatter, they generally ſucceed better than when they are ſown; for, unleſs ſown in the autumn ſoon after they are ripe, they rarely grow. The plants require no care but to keep them clean from weeds, and thin them where they are too cloſe. It delights in a ſhady ſituation and moiſt ſoil.

IMPA'TIENT, *adj.* Not able to endure; incapable to bear; with *of:*

Fame, *impatient of* extremes, decays
Not more by envy than exceſs of praiſe. *Pope.*

Furious with pain; unable to bear pain:

The tortur'd ſavage turns around,
And flings about his foam, *impatient of* the wound. *Dryd.*

Vehemently agitated by ſome painful paſſion; with *at* before the occaſion; with *of*, impatience is referred more to the thing, with *at*, to the perſon.—To be *impatient at* the death of a perſon, concerning whom it was certain he muſt die, is to mourn becauſe thy friend was not born an angel. *Taylor's Rule of Living.*—Hot; haſty.—The *impatient* man will not give himſelf time to be informed of the matter that lies before him. *Addiſon.*—Eager; ardently deſirous; not able to endure delay; with *for* before the thing deſired:

The mighty Cæſar waits his vital hour,
*Impatient for* the world, and graſps his promis'd pow'r.
*Dryden.*

Not to be borne:

Ay me! deare lady, which the ymage art
Of ruefull pity and *impatient* ſmart. *Spenſer.*

IMPA'TIENTLY, *adv.* [from *impatient.*] With rage, under uneaſineſs.—Paſſionately; ardently.—He conſidered one thing ſo *impatiently*, that he would not admit any thing to be worth conſideration. *Clarendon.*—Eagerly; with great deſire.

IMPA'TIENTNESS, *ſ.* The ſtate of being impatient. *Scott.*

IMPATRONIZA'TION, *ſ.* [from *impatronize.*] The act of putting into the full poſſeſſion of a benefice.

*To* IMPAT'RONIZE, *v. a.* To gain to one's ſelf the power of any ſeigniory.—This word is not uſual.—The ambition of the French king was to *impatronize* himſelf of the duchy. *Bacon.*

*To* IMPAWN', *v. a.* To impignorate; to pawn; to give as a pledge; to pledge:

Go to the king, and let there be *impawn'd*
Some ſurety for a ſafe return again. *Shakeſpeare.*

*To* IMPE'ACH, *v. a.* [*empecher*, Fr.] To hinder; to impede. *This ſenſe is little in uſe.*—His ſons did *impeach* his journey to the Holy Land, and vexed him all the days of his life. *Davies.*

Each door he open'd without any breach;
There was no bar to ſtop, nor foe him to *impeach*. *Spenſer.*

To accuſe by public authority.—They were both *impeached* by a houſe of commons. *Addiſon.*—Great diſſentions were kindled among the nobles and commons, on account of Coriolanus, whom the latter had *impeached*. *Swift.*

IMPE'ACH, *ſ.* Hindrance; let; impediment:

Why, what an intricate *impeach* is this!
If here you hous'd him, here he would have been;
If he were mad, he would not plead ſo coldly. *Shakeſpeare.*

IMPE'ACHABLE, *adj.* Accuſable; chargeable.—Had God omitted by poſitive laws to give religion to the world, the wiſdom of his providence had been *impeachable. Grew.*

IMPE'ACHER, *ſ.* An accuſer; one who brings an accuſation againſt another.—Many of our fierceſt *impeachers* would leave the delinquent to the merciful indulgence of a Saviour. *Government of the Tongue.*

IMPE'ACHING, *ſ.* The act of accuſing.

IMPE'ACHMENT, *ſ.* Hindrance; let; impediment; obſtruction. *Not in uſe*—Tell us what things, during your late continuance there, are moſt offenſive, and the greateſt *impeachment* to the good government thereof. *Spenſer.*

Tell thy king I do not ſeek him now;
But could be willing to march on to Calais
Without *impeachment.* *Shakeſpeare.*

Public accuſation; charge preferred.—The lord Somers, though his accuſers would gladly have dropped their *impeachment,* was inſtant with them for the proſecution. *Addiſon.*

The king provoked to it by the queen,
Deviſ'd *impeachment* to impriſon him. *Shakeſpeare.*

IMPEACHMENT, in law, the accuſation and proſecution of a perſon for treaſon, or other crimes and miſdemeanors. Any member of the houſe of commons may not only impeach any one of their own body, but alſo any lord of parliament, &c. And thereupon articles are exhibited on behalf of the commons, and managers appointed to make good their charge and accuſation; which being done in the proper judicature, ſentence is paſſed, &c. And it is obſerved, that the ſame evidence is required in an impeachment in parliament as in the ordinary courts of juſtice; but not in bills of attainder. An impeachment before the lords by the commons of Great Britain, in parliament, is a proſecution of known and eſtabliſhed law, and hath been frequently put in practice; being a preſentment to the moſt high and ſupreme court of criminal juriſdiction, by the moſt ſolemn grand inqueſt of the whole kingdom. A commoner cannot however be impeached before the lords for any capital offence, but only for high miſdemeanors. *Rot. Parl.* 4 *Edw.* III. *n.* 2 *&* 6. 2 *Brad. Hiſt.* 190. *Selden Judic. in Parl. ch.* 1.

A peer may be impeached for any crime. The articles of impeachment are a kind of bills of indictment, found by the houſe of commons, and afterwards tried by the lords; who are, in caſes of miſdemeanors, conſidered not only as their own peers, but as the peers of the whole nation. This is a cuſtom derived to us from the conſtitution of the ancient Germans; who in their great councils ſometimes tried capital accuſations relating to the public. See *Tac. de Mor. Germ.* 12.

By ſtatute 12 and 13 Will. III. c. 2, it is enacted, that no pardon under the great ſeal ſhall be pleadable to an impeachment by the commons in parliament. But the king may pardon after conviction on an impeachment. 4 *Comm.* 400. and ſee the article PARDON.

On the impeachment of Warren Haſtings for malconduct as governor-general of India, the trial of which laſted, by adjournment, for ſeven years, from 1787 to 1794, it was ſolemnly determined that an impeachment is not abated, or put an end to, by the prorogation or diſſolution of parliament. And a ſtatute was paſſed to prevent prorogation or diſſolution from having the effect of putting a ſtop to the previous proceedings in the houſe of commons.

IMPEACHMENT of WASTE, [*impetitio vaſti,* Lat. from the Fr. *empeſchment,* i. e. hindrance.] A reſtraint from committing of waſte upon lands or tenements; or a demand of recompence for waſte done by a tenant who hath but a particular eſtate in the land granted. He that hath a leaſe to hold *without impeachment of waſte,* hath by that ſuch an intereſt given him in the land, &c. that he may make waſte without being *impeached* for it; that is, without being queſtioned, or any demand of recompence for the waſte done. 11 *Rep.* 82. *b.*

*To* IMPE'ARL, *v. a.* To form in reſemblance of pearls:

Innumerable as the ſtars of night.
Or ſtars of morning, dew-drops, which the ſun
*Impearls* on every leaf and ev'ry flow'r. *Milton.*

To decorate as with pearls.—The dews of the morning *impearl* every thorn, and ſcatter diamonds on the verdant mantle of the earth. *Digby.*

IMPECCABIL'ITY, *ſ.* [*impeccabilité,* Fr. from *impeccable.*] Exemption from ſin; exemption from failure.—Infallibility and *impeccability* are two of his attributes. *Pope.*

IMPEC'CABLE, *adj.* [*impeccable,* Fr. *in* and *pecco,* Lat.] Exempt from poſſibility of ſin.—That man pretends he never commits any act prohibited by the word of God, and then that were a rare charm to render him *impeccable,* or this is the means of conſecrating every ſin of his. *Hammond.*

IMPEC'CANCE, *ſ.* Impeccability. *Scott.*

*To* IMPE'DE, *v. a.* [*impedio,* Lat.] To hinder; to let; to obſtruct.—All the forces are muſtered to *impede* its paſſage. *Decay of Piety.*

The way is open, and no ſtop to force
The ſtars return, or to *impede* their courſe. *Creech.*

IMPED'IMENT, *ſ.* [*impedimentum,* Lat.] Hindrance; let; impeachment; obſtruction; oppoſition.—The life is led moſt happily wherein all virtue is exerciſed without *impediment* or let. *Hooker.*

But for my tears,
The moiſt *impediments* unto my ſpeech,
I had foreſtall'd this dear and deep rebuke. *Shakeſpeare.*

IMPEDIMENTS, in law, are ſuch hindrances as put a ſtop or ſtay to a perſon's ſeeking for his right by a due courſe of law. Perſons under impediments are thoſe under age or coverture, *non compos mentis,* in priſon, beyond ſea, &c. who, by a ſaving in our laws, have time to claim and proſecute their rights, after the impediments are removed, in caſe of fines levied, &c.

IMPE'DING, *ſ.* The act of hindering.

*To* IMPEL', *v. a.* [*impello,* Lat.] To drive on towards a point; to urge forward; to preſs on.—The ſurge *impell'd* me on a craggy coaſt. *Pope.*

A mightier pow'r the ſtrong direction ſends,
And ſev'ral men *impels* to ſev'ral ends. *Pope.*

IMPEL'LENT, *adj.* Impulſive, driving forward.

IMPEL'LENT, *ſ.* [*impellens,* Lat.] An impulſive power; a power that drives forward.—How ſuch a variety of motions ſhould be regularly managed, in ſuch a wilderneſs of paſſages, by mere blind *impellents* and material conveyances, I have not the leaſt conjecture. *Glanville.*

*To* IMPEN'D, *v. n.* [*impendeo,* Lat.] To hang over:

Deſtruction ſure o'er all your heads *impends*;
Ulyſſes comes, and death his ſteps attends. *Pope.*

To be at hand; to preſs nearly. It is uſed in an ill ſenſe.—It expreſſes our deep ſorrow for our paſt ſins, and our lively ſenſe of God's *impending* wrath. *Smalridge.*

No ſtory I unfold of public woes,
Nor bear advices of *impending* foes. *Pope.*

IMPEN'DENCE, *ſ.* [from *impendent.*] The ſtate of hanging over; near approach.—Good ſometimes is not ſafe to be attempted, by reaſon of the *impendence* of a greater ſenſible evil. *Hale.*

IMPEN'DENT, *adj.* [*impendens,* Lat.] Imminent; hanging over; preſſing cloſely. In an ill ſenſe.—If the evil feared or *impendent* be a greater ſenſible evil than the good, it over-rules the appetite to averſion. *Hale.*

Dreadful in arms, on Landen's glorious plain
Place Ormond's duke *impendent* in the air;
Let his keen ſabre comet-like appear. *Prior.*

IMPENETRABIL'ITY, *ſ.* [*impenetrabilité*, Fr. from *impenetrable.*] Quality of not being pierceable, or permeable.—All bodies, ſo far as experience reaches, are either hard, or may be hardened; and we have no other evidence of univerſal *impenetrability*, beſides a large experience, without an experimental exception. *Newton.*—Inſuſceptibility of intellectual impreſſion.

IMPEN'ETRABLE, *adj.* [from *impenetrabilis*, Lat.] Not to be pierced; not to be entered by any external force:

With hard'ning cold, and forming heat,
The cyclops did their ſtrokes repeat,
Before th' *impenetrable* ſhield was wrought. *Dryden.*

Impervious; not admitting entrance.—The mind frights itſelf with any thing reflected on in groſs: things, thus offered to the mind, carry the ſhow of nothing but difficulty in them, and are thought to be wrapped up in *impenetrable* obſcurity. *Locke.*

Deep into ſome thick covert would I run,
*Impenetrable* to the ſtars or ſun. *Dryden.*

Not to be taught; not to be informed.—Not to be affected; not to be moved.—Some will never believe a propoſition in divinity, if any thing can be ſaid againſt it; they will be credulous in all affairs of life, but *impenetrable* by a ſermon of the goſpel. *Taylor.*

It is the moſt *impenetrable* cur
That ever kept with men. *Shakeſpeare.*

IMPEN'ETRABLENESS, *ſ.* The ſtate of being impenetrable.

IMPEN'ETRABLY, *adv.* With hardneſs to a degree incapable of impreſſion:

Blunt the ſenſe, and fit it for a ſkull
Of ſolid proof, *impenetrably* dull. *Pope.*

IMPEN'ITENCE, or IMPENITENCY, *ſ.* [*impenitence*, Fr. *in* and *penitence.*] Obduracy; want of remorſe for crimes; final diſregard of God's threatenings or mercy.—Where one man ever comes to repent, a thouſand end their days in final *impenitence. South.*

IMPEN'ITENT, *adj.* Finally negligent of the duty of repentance; obdurate.—Our lord in anger hath granted ſome *impenitent* men's requeſt; as, on the other ſide, the apoſtle's ſuit he hath of favour and mercy not granted. *Hooker.*

They died
*Impenitent*, and left a race behind
Like to themſelves. *Milton.*

IMPEN'ITENTLY, *adv.* Obdurately; without repentance.—The condition required of us is a conſtellation of all the goſpel graces, every one of them rooted in the heart, though mixed with much weakneſs and perhaps with many ſins, ſo they be not wilfully and *impenitently* lived and died in. *Hammond.*

What crowds of theſe, *impenitently* bold,
In ſounds and jingling ſyllables grown old,
Still run on poets! *Pope.*

IMPEN'ITENTNESS, *ſ.* The ſtate of impenitence. *Scott.*

IMPEN'NOUS, *adj.* [*in* and *penna*, Lat.] Wanting wings.—It is generally received an earwig hath no wings, and is reckoned amongſt *impennous* inſects; but he that ſhall, with a needle, put aſide the ſhort and ſheathy caſes on their back, may draw forth two wings, larger than in many flies. *Brown.*

IMPEN'SIBLE, *adj.* [from *in*, Lat. contrary to, and *penſum*, expence.] Free from expence, having no reward. *Not much uſed. Bailey.*

IM'PERATE, *adj.* [*imperatus*, Lat.] Done with conſciouſneſs; done by direction of the mind.—The elicit internal acts of any habit may be quick and vigorous, when the external *imperate* acts of the ſame habit utterly ceaſe. *South.*

IMPER'ATIVE, *adj.* [*imperatif*, Fr. *imperativus*, Lat.] Commanding; expreſſive of command.—The verb is formed in a different manner, to ſignify the intention of commanding, forbidding, allowing, diſallowing, intreating; which likewiſe, from the principal uſe of it, it is called the *imperative* mood. *Clarke.*

IMPER'ATIVELY, *adv.* In a commanding ſtyle; authoritatively.

IMPERATO'RIA, *ſ.* [ſo named from its ſuppoſed imperial virtues in medicine.] MASTERWORT; in botany, a genus of the claſs pentandria, order digynia, natural order of umbellatæ or umbelliferæ. The generic characters are —Calyx: umbel univerſal flat-ſpreading; partial unequal; involucre univerſal none; partial very ſlender, with one or two leaflets, almoſt the length of the umbel; perianthium proper obſcure. Corolla: univerſal uniform; floſcules all fertile; proper of five petals, inflex-emarginate, nearly equal. Stamina: filaments five, capillary; antheræ roundiſh. Piſtillum: germ inferior; ſtyles two, reflex; ſtigmas obtuſe. Pericarpium: none: fruit roundiſh, compreſſed, gibboſe in the middle, margined, bipartile. Seeds: two, ovate, marked on one ſide with two furrows, ſurrounded by a broad margin.—*Eſſential Character.* Fruit roundiſh, compreſſed, gibboſe in the middle, ſurrounded by a margin; petals inflex-emarginate.

Imperatoria oſtruthium, a ſingle ſpecies. The root is as thick as a man's thumb, running obliquely in the ground; it is fleſhy, aromatic, and has a ſtrong acrid taſte, biting the tongue and mouth like pellitory of Spain; the leaves ariſe immediately from the root; they have foot-ſtalks ſeven or eight inches long, dividing into three very ſhort ones at the top, each ſuſtaining a trilobate leaf, indented on the border; the foot-ſtalks are deeply channelled, and when broken emit a rank odour. The flower-ſtalks riſe about two feet high, and divide into two or three branches, each being terminated by a pretty large umbel of white flowers, whoſe petals are ſplit; theſe are ſucceeded by oval compreſſed ſeeds, ſomewhat like thoſe of dill, but larger. It flowers in June, and the ſeeds ripen in Auguſt. The fruit is elliptic, emarginate at top and bottom, membranaceous-winged. Seeds compreſſed, ſurrounded at the ſides with a very broad rim, and marked on the back with three white acute-angled ribs, not winged; the ventral part is flat, painted with two brown bowed fillets. Native of many parts of the Alps, Auſtria, Styria, Tyrol, Sileſia, Dauphiné; obſerved by Ray above the Grand Chartreuſe; and found by Mr. Lightfoot in Scotland, upon the banks of the Clyde in ſeveral places, particularly about Ardencaple; and in the Iſle of Bute, near Mountſtewart. The root is warm and aromatic; a ſudorific, diuretic, and ſialagogue; recommended in dropſy, and debilities of the ſtomach and bowels; an infuſion of it in wine is ſaid to have cured quartans that have reſiſted the bark. When chewed, it excites a copious flow of ſaliva, with a warm and not diſagreeable ſenſation in the gums; and frequently cures the rheumatic tooth-ache.

*Propagation and Culture.* This plant is cultivated in gardens to ſupply the markets. It may be propagated either by ſeeds, or by parting the roots; if you would propagate it by ſeeds, they ſhould be ſown in autumn ſoon after they are ripe, on a bed or border, in a ſhady ſituation; obſerving not to ſow the ſeeds too thick, nor ſhould they be covered too deep. In the ſpring the plants will appear, when they ſhould be carefully weeded; and, if the ſeaſon ſhould prove very dry, they ſhould be now and then refreſhed with water, which will greatly promote their growth. Towards the beginning of May, if you find the plants come up too cloſe together, you ſhould prepare a moiſt ſhady border, and thin the plants carefully, leaving them about ſix inches aſunder; and plant thoſe which you draw up into the border about the ſame diſtance apart every way, being careful to water them duly, if the ſeaſon ſhould prove dry, until they have taken root; after which time theſe plants (as alſo thoſe remaining in the ſeed-beds) will require no other culture but to keep them clear from weeds; which may be eaſily effected, by hoeing the ground between the plants now and then in dry weather; and ſtirring the ground will be of great ſervice to the plants. The following autumn theſe plants ſhould be tranſplanted where they are deſigned to remain, which ſhould be in a rich moiſt ſoil and a ſhady ſituation, where they will thrive much better than if too much expoſed to the ſun, or in a dry ſoil, where they will require a conſtant ſupply of water in dry weather. Theſe plants muſt not be leſs than two feet diſtant every way. When they are rooted they require only to be kept clear from weeds; and in the ſpring, before they ſhoot, to have the ground gently dug between them, ſo as not to cut or bruiſe the roots. With this management they will continue ſeveral years, and produce ſeeds in plenty. If you would propagate this plant by offsets, the roots ſhould be parted at Michaelmas, and planted in a ſhady ſituation, at the ſame diſtance as has been directed for the ſeedling plants, obſerving to water them until they have taken root, after which they muſt be managed as the ſeedlings. See Adonis.

IMPERATO'RIUS, *ſ.* [Latin.] A Roman gold coin in value about fifteen ſhillings.

IMPERCEPTIBIL'ITY, *ſ.* Imperceptibleneſs. *Scott.*

IMPERCEP'TIBLE, *adj.* [*imperceptible*, Fr. *in* and *perceptible.*] Not to be diſcovered; not to be perceived; ſmall; ſubtle; quick or ſlow, ſo as to elude obſervation.—Some things are in their nature *imperceptible* by our ſenſe; yea, and the more refined parts of material exiſtence, which, by reaſon of their ſubtilty, eſcape our perception. *Hale.*

IMPERCEP'TIBLENESS, *ſ.* The quality of eluding obſervation.—Many excellent things there are in nature, which, by reaſon of their ſubtilty and *imperceptibleneſs* to us, are not ſo much as within any of our faculties to apprehend. *Hale.*

IMPERCEP'TIBLY, *adv.* In a manner not to be perceived.—Upon reading of a fable we are made to believe we adviſe ourſelves; the moral inſinuates itſelf *imperceptibly*; we are taught by ſurpriſe, and become wiſer and better unawares. *Addiſon.*

IMPER'FECT, *adj.* [*imparfait*, Fr. *imperfectus*, Lat.] Not complete; not abſolutely finiſhed; defective.—Uſed either of perſons or things.—Opinion is a light, vain, crude, and *imperfect*, thing, ſettled in the imagination, but never arriving at the underſtanding, there to obtain the tincture of reaſon. *Ben Jonſon.*—The ancients were *imperfect* in the doctrine of meteors, by their ignorance of gunpowder and fire-works. *Brown.*

The ſtill-born ſounds upon the palate hung,
And dy'd *imperfect* on the falt'ring tongue. *Dryden.*

Frail; not completely good; as, Our beſt worſhip is *imperfect.*

Imperfect Number, is that whoſe aliquot parts taken all together do not make a ſum that is equal to the number itſelf, but either exceed it or fall ſhort of it; being a redundant number in the former caſe, and a defective number in the latter. Thus, 12 is a redundant imperfect number, becauſe the ſum of all its aliquot parts, 1, 2, 3, 4, 6, makes 16, which exceeds the number 12. And 10 is a defective imperfect number, becauſe its aliquot parts, 1, 2, 5, taken all together, make only 8, which is leſs than the number 10 itſelf.

Imperfect Tense, in grammar, a tenſe that denotes ſome preterite caſe, or denotes the thing to be at that time preſent, and not quite finiſhed; as *ſcribebam*, I was writing. See the article Grammar, vol. viii.

IMPERFEC'TION, *ſ.* Defect; failure; fault, whether phyſical or moral; whether of perſons or things.—Laws, as all other things human, are many times full of *imperfection*; and that which is ſuppoſed behoveful unto men, proveth oftentimes moſt pernicious. *Hooker.*—*Imperfections* would not be half ſo much taken notice of, if vanity did not make proclamation of them. *L'Eſtrange.*

IMPER'FECTLY, *adv.* Not completely; not fully; not without failure.—Thoſe would hardly underſtand language or reaſon to any tolerable degree; but only a little and *imperfectly* about things familiar. *Locke.*

Should ſinking nations ſummon you away,
Maria's love might juſtify your ſtay;
*Imperfectly* the many vows are paid,
Which for your ſafety to the gods were made. *Stepney.*

IMPER'FECTNESS, *ſ.* The ſtate of being imperfect. *Scott.*

IMPER'FORABLE, *adj.* [*in* and *perforo*, Lat.] Not to be bored through.

IMPER'FORATE, *adj.* Not pierced through; without a hole.—Sometimes children are born *imperforate*; in which caſe a ſmall puncture, dreſſed with tent, effects the cure. *Sharp.*

IMPER'IAL, *adj.* [*imperial*, Fr. *imperialis*, Lat.] Royal; poſſeſſing royalty:

Aim he took
At a fair veſtal, throned in the Weſt;
But I might ſee young Cupid's fiery ſhaft
Quench'd in the chaſte beams of the wat'ry moon,
And the *imperial* vot'reſs paſſed on
In maiden meditation, fancy-free. *Shakeſpeare.*

Betokening royalty; marking ſovereignty:

My due from thee is this *imperial* crown,
Which, as immediate from thy place and blood,
Derives itſelf to me. *Shakeſpeare.*

Belonging to an emperor or monarch; regal; royal; monarchical:

To tame the proud, the fetter'd ſlaves to free,
Theſe are *imperial* arts, and worthy thee. *Dryden.*

IMPERIA'LE, a city of Chili, in South America, ſix leagues from the South Sea, having the river Canton to the ſouth and another river to the weſt, both navigable. It is ſituated on a riſing ſteep neck of land, hard to be aſcended. In 1600, it was taken by the Indians, after a year's ſiege; moſt of the inhabitants having periſhed by famine. They burnt the town, and then laid ſiege to Soſorno. In this war, Valdivia, Argol, Santa Cruz, Chilla, and Villa Rica, were taken. After which they became ſo confident of their ſtrength, that they fought the Spaniards bravely, and in ſome meaſure revenged the cruelties they had committed upon their countrymen. The Spaniards afterwards built a town here called *Conception*; which ſee. Lat. 38. 42. S. lon. 73. 25. W.

IMPERIA'LI (John Baptiſt), a celebrated phyſician of Vicenza, where he was born in 1568. He compoſed ſeveral eſteemed works both in proſe and verſe, written in good Latin; and died in 1623.

IMPE'RIALIST, *ſ.* [from *imperial.*] One that belongs to an emperor.—The *imperialiſts* imputed the cauſe of ſo ſhameful a flight unto the Venetians. *Knolles.*

*To* IMPER'IL, *v.a.* [from *peril.*] To endanger:

He never thought
For ſuch a hag, that ſeemed worſe than naught,
His perſon to *imperil* ſo in fight. *Spenſer.*

IMPE'RIOUS, *adj.* [*imperieux*, Fr. *imperioſus*, Lat.] Commanding; tyrannical; authoritative; haughty; arrogant; aſſuming command.—Recollect what diſorder haſty or *imperious* words from parents or teachers have cauſed. *Locke.*

This *imperious* man will work us all
From princes into pages. *Shakeſpeare.*

Powerful; aſcendant; overbearing.—A man, by a vaſt and *imperious* mind, and a heart large as the ſand upon the ſea-ſhore, could command all the knowledge of nature and art. *Tillotſon.*

IMPE'RIOUSLY, *adv.* [from *imperious.*] With arrogance of command; with inſolence of authority.—It is not to inſult and domineer, to look diſdainfully, and revile *imperiouſly*, that procures an eſteem from any one. *South.*

The ſage, tranſported at th' approaching hour,
*Imperiouſly* thrice thunder'd on the floor! *Garth.*

IMPE'RIOUSNESS, *ſ.* [from *imperious.*] Authority; air of command.—So would he uſe his *imperiouſneſs*, that we had a delightful fear and awe, which made us loth to loſe our hopes. *Sidney.*—Arrogance of command.—*Imperiouſneſs* and ſeverity is but an ill way of treating men, who have reaſon of their own to guide them. *Locke.*

IMPER'ISHABLE, *adj.* [*imperiſſable*, Fr. *in* and *periſh.*] Not to be deſtroyed:

We find this our empyreal form
Incapable of mortal injury,
*Imperiſhable*; and, though pierc'd with wound,
Soon cloſing, and by native vigour heal'd. *Milton.*

IMPERSEV'ERANT, *adj.* Perſevering.—This *imperſeverant* thing loves him in my deſpight. *Shakeſpeare.*

IMPER'SONAL, *adj.* [*imperſonel*, Fr. *imperſonalis*, Lat.] Not varied according to the perſons.—*Imperſonals* be declined throughout all moods and tenſes; a verb *imperſonal* hath no nominative caſe before it. *Accidence.*

IMPER'SONALLY, *adv.* According to the manner of an imperſonal verb.

IMPER'SONATED, *adj.* Made perſons of.—In which the *imperſonated* vices and virtues appeared. *Warton.*

IMPERSPIC'UOUS, *adj.* [from *in*, Lat. contrary to, and *perſpicuus*, clear.] Wanting clearneſs. *Bailey.*

IMPERSUA'SIBLE, *adj.* [*in* and *perſuaſibilis*, Lat.] Not to be moved by perſuaſion.—Every pious perſon ought to be a Noah, a preacher of righteouſneſs; and, if it be his fortune to have as *imperſuaſible* an auditory, if he cannot avert the deluge, it will yet deliver his own ſoul, if he cannot benefit other men's. *Decay of Piety.*

IMPER'TINENCE, or IMPER'TINENCY, *ſ.* [*impertinence*, Fr. from *impertinent.*] That which is of no preſent weight; that which has no relation to the matter in hand.—Some, though they lead a ſingle life, yet their thoughts do end with themſelves, and account future times *impertinencies*. *Bacon.*—Folly; rambling thought:

O, matter and *impertinency* mixt,
Reaſon and madneſs! *Shakeſpeare.*

Troubleſomeneſs; intruſion.—We ſhould avoid the vexation and *impertinence* of pedants, who affect to talk in a language not to be underſtood. *Swift.*—Trifle; thing of no value.—I envy your felicity, delivered from the gilded *impertinencies* of life, to enjoy the moments of a ſolid contentment. *Evelyn.*—Nothing is more eaſy than to repreſent as *impertinencies* any parts of learning that have no immediate relation to the happineſs or convenience of mankind. *Addiſon.*—There are many ſubtle *impertinencies* learnt in the ſchools, and many painful trifles, even among the mathematical theorems and problems. *Watts.*

IMPER'TINENT, *adj.* [*impertinent*, Fr. *in* and *pertinens*, Lat.] Of no relation to the matter in hand; of no weight.—The contemplation of things that are *impertinent* to us, and do not concern us, are but a mere ſpecious idleneſs. *Tillotſon.*—Importunate; intruſive; meddling; fooliſh; trifling; negligent of the preſent purpoſe.—'Tis not a ſign two lovers are together, when they can be ſo *impertinent* as to enquire what the world does. *Pope.*

IMPER'TINENT, *ſ.* A trifler; a meddler; an intruder; one who enquires or interpoſes where he has no right or call.—Governors would have enough to do to trouble their heads with the politics of every meddling officious *impertinent*. *L'Eſtrange.*

IMPER'TINENTLY, *adv.* Without relation to the preſent matter.—Troubleſomely; officiouſly; intruſively.—I have had joy given me as prepoſterouſly, and as *impertinently*, as they give it to men who marry where they do not love. *Suckling.*

IMPER'TINENTNESS, *ſ.* The ſtate of being impertinent; nonſenſe; extravagance. *Scott.*

IMPERTRANSIBIL'ITY, *ſ.* [*in* and *pertranſeo*, Lat.] Impoſſibility to be paſſed through.—I willingly declined thoſe many ingenious reaſons given by others; as of the *impertranſibility* of eternity, and impoſſibility therein to attain to the preſent limit of antecedent ages. *Hale.*

IMPERTUR'BABLE, *adj.* [from *in*, Lat. contrary to, *per*, through, and *turbo*, to diſturb.] Impoſſible to be diſturbed; incapable of being diſturbed.

IMPERTUR'BED, *adj.* Undiſturbed; calm. *Bailey.*

IMPERVES'TIGABLE, *adj.* [from *in*, Lat. contrary to, *per*, through, and *veſtigo*, to trace.] Incapable of being found out; unſearchable. *Not much uſed. Cole.*

IMPER'VIOUS, *adj.* [*impervius*, Lat.] Unpaſſable; impenetrable.—The cauſe of reflection is not the impinging of light on the ſolid or *impervious* parts of bodies. *Newton.*

From the damp earth *impervious* vapours riſe,
Increaſe the darkneſs and involve the ſkies. *Pope.*

Inacceſſible. Perhaps improperly uſed:

A river's mouth *impervious* to the wind,
And clear of rocks. *Pope.*

IMPER'VIOUSNESS, *ſ.* The ſtate of not admitting any paſſage.

IMPET'IBLE, *adj.* [from *in*, Lat. contrary to, and *peto*, to fetch.] Incapable of being come at. *Scott.*

IMPETI'GINES, *ſ.* [from *impeto*, Lat. to infeſt.] Diſeaſes which occaſion blemiſhes on the ſkin. In Dr. Cullen's ſyſtem, the impetigines are an order of the *cachexiæ*, defined diſorders from a general bad habit, manifeſting themſelves principally by disfiguring the ſkin and other external parts of the body. The itch, though affecting the ſkin, is placed in the claſs *locales*, ſince it is unconnected with the general habit.

IMPETIGINOS'ITY, *ſ.* [from *impetigo.*] The ſtate of being impetiginous.

IMPETIG'INOUS, *adj.* [from *impetigo*, Lat.] Scurfy; covered with ſmall ſcabs.

IMPET'IGO, *ſ.* [Latin.] A kind of ringworm; a cutaneous foulneſs; the ſcurvy; the itch.

IM'PETRABLE, *adj.* [*impetrabilis*, from *impetro*, Lat. *impetrable*, Fr.] Poſſible to be obtained.

*To* IM'PETRATE, *v. a.* To obtain by intreaty.

IMPETRA'TION, *ſ.* The act of obtaining by prayer or intreaty.—The bleſſed ſacrament is the myſtery of the death of Chriſt, and the application of his blood, which was ſhed for the remiſſion of ſins; and is the great means of *impetration*, and the meritorious cauſe of it. *Taylor.*

IMPETRATION was more particularly uſed in our ſtatutes for the pre-obtaining of benefices and church-offices in England from the court of Rome, which did belong to the diſpoſal of the king and other lay patrons of the realm; the penalty whereof is the ſame with that of proviſors. 25 *Edw.* III. ſt. 6. and 38 *Edw.* III. ſt. 2.

IMPETUOS'ITY, *ſ.* [*impetuoſité*, Fr. from *impetuous.*] Violence; fury; vehemence; force.—The mind gives not only licence, but incitation, to the other paſſions to take their freeſt range, and act with the utmoſt *impetuoſity*. *Decay of Piety.*

IMPET'UOUS, *adj.* [*impeteux*, Fr. from *impetus*, Lat.] Violent; forcible; fierce:

Their virtue, like their Tyber's flood,
Rolling its courſe, deſign'd their country's good;
But oft the torrent's too *impetuous* ſpeed
From the low earth tore ſome polluted weed. *Prior.*

Vehement of mind; paſſionate.—The king, 'tis true, is noble, but *impetuous*. *Rowe.*

IMPET'UOUSLY, *adv.* [from *impetuous.*] Violently; vehemently: both of men and things:

They view the windings of the hoary Nar;
Through rocks and woods *impetuouſly* he glides,
While froth and foam the fretting ſurface hides. *Addiſon.*

IMPET'UOUSNESS, *ſ.* [from *impetuous.*] Violence; fury; vehemence of paſſion.—I wiſh all words or rage might vaniſh in that breath that utters them; that, as they reſemble the wind in fury and *impetuouſneſs*, ſo they might in tranſientneſs. *Decay of Piety.*

IM'PETUS, *ſ.* [Latin.] Violent tendency to any point; violent effort.—Why did they not continue their deſcent 'till they were contiguous to the ſun, whither both mutual attractions and *impetus* carried them? *Bentley.*

IMPIC'TURED, *adj.* Painted:

His pallid face, *impictured* with death,
She bathed oft with tears, and dried oft. *Spenſer.*

IMPIER'CEABLE, *adj.* Impenetrable; not to be pierced:

Exceeding rage inflam'd the furious beaſt;
For never felt his *impierceable* breaſt
So wond'rous force from hand of living wight. *Spenſer.*

IMPIER'MENT, *ſ.* In old ſtatutes, the act of impairing; damage done to any thing.—To the *impierment* and diminution of their good names. *Stat.* 23 *Hen.* VIII. *c.* 9.

IMPI'ETY, *ſ.* [*impieté*, Fr. *impietas*, Lat.] Irreverence to the Supreme Being; contempt of the duties of religion:

To keep that oath were more *impiety*
Than Jephtha's when he ſacrific'd his daughter. *Shakeſp.*

An act of wickedneſs; expreſſion of irreligion. In this ſenſe it has a plural.—If they die unprovided, no more is the king guilty of theſe *impieties* for which they are now viſited. *Shakeſpeare.*—We have a melancholy proſpect of the ſtate of our religion: ſuch amazing *impieties* can be equalled by nothing but by thoſe cities conſumed of old by fire. *Swift.*

*To* IMPIG'NORATE, *v. a.* [*in* and *pignus*, Lat.] To pawn; to pledge.

IMPIG'NORATION, *ſ.* The act of pawning or putting to pledge.

IMPIG'RITY, *ſ.* [from *in*, Lat. contrary to, and *piger*, ſlow.] Quickneſs; alertneſs. *Not much uſed. Bailey.*

IMPIG'ROUS, *adj.* Diligent; ready. *Cole.*

IMP'ING, *ſ.* The act of grafting or lengthening out.

*To* IMPIN'GE, *v. n.* [*impingo*, Lat.] To fall againſt; to ſtrike againſt; to claſh with.—The cauſe of reflection is not the *impinging* of light on the ſolid or impervious parts of bodies. *Newton.*

IMPIN'GING, *ſ.* The act of ſtriking one againſt another with violence.

*To* IMPIN'GUATE, *v. a.* [*in* and *pinguis*, Lat.] To fatten; to make fat.—Frictions alſo do more fill and *impinguate* the body than exerciſe: for that in frictions the inward parts are at reſt. *Bacon.*

IM'PIOUS, *adj.* [*impius*, Lat.] Irreligious; wicked; profane; without reverence of religion.—That Scripture ſtandeth not the church of God in any ſtead to direct, but may be let paſs as needleſs to be conſulted with, we judge it profane, *impious*, and irreligious, to think. *Hooker.*

Then lewd Auchemolus he laid in duſt,
Who ſtain'd his ſtepdame's bed with *impious* luſt. *Dryden.*

IM'PIOUSLY, *adv.* Profanely; wickedly:

The Roman wit, who *impiouſly* divides
His hero and his gods to different ſides,
I would condemn. *Granville.*

IM'PIOUSNESS, *ſ.* Profaneneſs; wickedneſs.

IMPLACABIL'ITY, *ſ.* [from *implacable.*] Inexorableneſs; irreconcileable enmity; unappeaſable malice.

IMPLA'CABLE, *adj.* [*implacabilis*, Lat. *implacable*, Fr.] Not to be pacified; inexorable; malicious; conſtant in enmity.—The French are the moſt *implacable* and the moſt dangerous enemies of the Britiſh nation. *Addiſon.*

Darah bears a generous mind:
But to *implacable* revenge inclin'd;
A bounteous maſter, but a deadly foe. *Dryden.*

IMPLA'CABLENESS, *ſ.* The ſtate of being implacable.

IMPLA'CABLY, *adv.* With malice not to be pacified; inexorably.—An order was made for diſarming all the papiſts; upon which, though nothing was after done, yet it kept up the apprehenſions in the people of dangers, and diſinclined them from the queen, whom they began every day more *implacably* to hate, and conſequently to diſoblige. *Clarendon.*—It is once uſed by Dryden in a kind of mixed ſenſe of a tyrant's love:

I love,
And 'tis below my greatneſs to diſown it:
Love thee *implacably*, yet hate thee too. *Dryden.*

*To* IMPLA'NT, *v. a.* [*in* and *planto*, Lat.] To infix; to inſert; to place; to engraft; to ſettle; to ſet; to ſow. The original meaning, of putting a vegetable into the ground to grow, is not often uſed.—There grew to the outſide of the arytenoides another cartilage, capable of motion by the help of ſome muſcles that were *implanted* in it. *Ray.*

See, Father! what firſt-fruits on earth are ſprung,
From thy *implanted* grace in man! *Milton.*

IMPLANTA'TION, *ſ.* The act of ſetting or planting; the act of infixing or ſettling.

IMPLANT'ING, *ſ.* The act of infixing.

IMPLAU'SIBLE, *adj.* [*in* and *plauſible.*] Not ſpecious; not likely to ſeduce or perſuade.—Nothing can better improve political ſchool-boys than the art of making plauſible or *implauſible* harangues againſt the very opinion for which they reſolve to determine. *Swift.*

*To* IMPLEA'D, *v. a.* [from *plaider*, Fr. to plead.] To ſue; to proſecute by a courſe of law. *Scott.*

IMPLE'ADING, *ſ.* The act of proſecuting by a courſe of law.

IMPLE'ASING, *adj.* Diſpleaſing.—*Impleaſing* to all, as all to him. *Overbury.*

IM'PLEMENT, *ſ.* [*implementum*, from *impleo*, Lat.] Something that fills up vacancy, or ſupplies wants.—Unto life many *implements* are neceſſary; more, if we ſeek ſuch a life as hath in it joy, comfort, delight, and pleaſure. *Hooker.*—Inſtrument of manufacture; tools of a trade; veſſels of a kitchen.—Wood hath coined ſeventeen thouſand pounds, and hath his tools and *implements* to coin ſix times as much. *Swift.*

IMPLE'TION, *ſ.* [*impleo*, Lat.] The act of filling; the ſtate of being full.—Theophraſtus conceiveth, upon a plentiful *impletion*, there may ſucceed a diſruption of the matrix. *Brown.*

IM'PLEX, *adj.* [*implexus*, Lat.] Intricate; entangled; complicated; oppoſed to *ſimple.*—Every poem is either *ſimple* or *implex*: it is called *ſimple* when there is no change of fortune in it; *implex*, when the fortune of the chief actor changes from bad to good, or from good to bad. *Spectator.*

*To* IM'PLICATE, *v. a.* [*impliquer*, Fr. *implico*, Lat.] To entangle; to embarraſs; to involve; to infold.—The ingredients of ſaltpetre do ſo mutually *implicate* and hinder each other, that the concrete acts but very languidly. *Boyle.*

IM'PLICATING, *ſ.* The act of infolding; the act of including another in a particular tranſaction or accuſation.

IMPLICA'TION, *ſ.* Involution; entanglement.—Three principal cauſes of firmneſs are the groſſneſs, the quiet contact, and the *implication*, of the component parts. *Boyle.*—Inference not expreſſed, but tacitly inculcated.—Though civil cauſes, according to ſome men, are of leſs moment than criminal, yet the doctors are, by *implication*, of a different opinion. *Ayliffe.*

IMPLICATION, in law, is a neceſſary inference of ſomething not directly declared; between parties in deeds, agreements, &c. ariſing from what is admitted or expreſſed.

When the law giveth any thing to a man, it giveth, *implicitly* (or rather *impliedly*) whatſoever is neceſſary for the enjoying the ſame. It is a general rule, that, where an eſtate is to be raiſed by implication, *it muſt be a neceſſary and inevitable implication,* and ſuch as that the words can have no other conſtruction whatſoever. *Talb.* 3. An implication cannot be intended by deed, unleſs there are *apt* words; but otherwiſe in a will. *Brownl.* 153. An implied intent muſt not, without clear expreſſion, alter the equitable general law. 1 *Chan. Caſ.* 297. An eſtate by implication was never thought of in a deed, nor in a will but in a caſe of neceſſity. 4 *Mod.* 156. No implication ſhall be allowed againſt an expreſs eſtate *limited by expreſs words.* 1 *Salk.* 226. An expreſs eſtate for life cannot be enlarged by implication, but by expreſs words it may. 2 *Vern.* 449.

The want of words in ſome caſes may be helped by *implication*; and ſo one word or thing, or one eſtate given, ſhall be implied by another. There is an *implication* in wills and deviſes of lands, whereby eſtates are gained; as if a huſband deviſes the goods in his houſe to his wife, and that after her deceaſe his ſon ſhall have them, and his houſe; though the houſe be not deviſed to the wife by expreſs words, yet it has been held, that ſhe hath an eſtate for life in it by *implication,* becauſe no other perſon could then have it, the ſon and heir being excluded, who was to have nothing till after her deceaſe. 1 *Ventr.* 223.

Eſtates for life, and eſtates tail, may be raiſed by *implication* in wills; a teſtator had *three* ſons, the eldeſt ſon dying, leaving his wife with child, to whom the father deviſed an annuity, *in ventre ſa mere*, and, if his middle ſon died before he had any iſſue of his body, remainder over, &c. And it was reſolved, that ſuch ſon had an eſtate-tail *by implication. Moor* 127. It is ſaid a fee-ſimple eſtate ſhall not ariſe by implication in a will; though there is a perpetual charge impoſed by the deviſor on the deviſee, &c. *Bridgm.* 103. Alſo it hath been adjudged, that, where a particular eſtate is deviſed by will expreſsly, a contrary intent ſhall not be *implied* by any ſubſequent clauſe. See title *Will.*

*Implication is either neceſſary* or *poſſible*; and, wherever an eſtate is raiſed by that means in a will, it muſt be by a *neceſſary implication*; for the deviſee muſt neceſſarily have the thing deviſed, and no other perſon can have it. 1 *Salk.* 236. 2 *Nelſ. Abr.* 494.

IMPLI'CIT, *adj.* [*implicite*, Fr. *implicitus*, Lat.] Entangled; infolded; complicated. This ſenſe is rare.—In his woolly fleece I cling *implicit. Pope.*

The humble ſhrub,
And buſh with frizzled hair *implicit.* *Thomſon.*

Inferred; tacitly compriſed; not expreſſed.—In the firſt eſtabliſhment of ſpeech there was an *implicit* compact, founded upon common conſent; that ſuch and ſuch words ſhould be ſigns, whereby they would expreſs their thoughts one to another. *South.*—Reſting upon another; connected with another over which that which is connected to it has no power; truſting without reſerve or examination. Thus, by *implicit* credulity, I may believe a letter yet not opened, when I am confident of the writer's veracity.—There be falſe peaces or unities, when the peace is grounded but upon an *implicit* ignorance; for all colours will agree in the dark. *Bacon.*

No longer by *implicit* faith we err,
Whilſt every man's his own interpreter. *Denham.*

IMPLI'CITLY, *adv.* By inference compriſed, though not expreſſed.—The divine inſpection into the affairs of the world doth neceſſarily follow from the nature and being of God; and he that denies this, doth *implicitly* deny his exiſtence; he may acknowledge what he will with his mouth, but in his heart he hath ſaid there is no God. *Bentley.*—By connexion with ſomething elſe; dependently; with unreſerved confidence or obedience.—Learn not to diſpute the methods of his providence; but humbly and *implicitly* to acquieſce in and adore them. *Atterbury.*

My bluſhing muſe with conſcious fear retires,
And whom they like *implicitly* admires. *Roſcommon.*

IMPLI'CITNESS, *ſ.* The ſtate of being implicit; implication; dependance on the judgment or authority of another. *Scott.*

IMPLORA'TOR, *ſ.* One that implores any thing.—Mere *implorators* of unholy ſuits. *Shakeſpeare.*

*To* IMPLO'RE, *v. a.* [*implorer*, Fr. *imploro*, Lat.] To call upon in ſupplication; to ſolicit:

They ſhip their oars, and crown with wine
The holy goblet to the pow'rs divine,
*Imploring* all the gods that reign above. *Pope.*

To aſk; to beg:

Do not ſay 'tis ſuperſtition, that
I kneel and then *implore* her bleſſing. *Shakeſpeare.*

IMPLO'RE, *ſ.* The act of begging; intreaty; ſolicitation. *Not in uſe:*

Urged ſore
With piercing words and pitiful *implore,*
Him haſty to ariſe. *Fairy Queen.*

IMPLO'RER, *ſ.* [from *implore.*] Solicitor.

IMPLO'RING, *ſ.* The act of aſking with ſorrowful ſolicitation.

IMPLU'MED, *adj.* [*implumis*, Lat.] Without feathers.

IMPLU'VIOUS, *adj.* [from *in*, Lat. and *pluo*, to rain.] Wet with rain. *Not much uſed.*

*To* IMPLY', *v. a.* [*impliquer*, Fr. *implico*, Lat.] To infold; to cover; to intangle. *Not in uſe:*

His courage ſtout,
Striving to looſe the knot that faſt him ties,
Himſelf in ſtraighter bonds too raſh *implies.* *Fairy Queen.*

To involve or compriſe as a conſequence or concomitant.—That it was in uſe among the Greeks, the word triclinium *implieth. Brown.*—What follows next is no objection; for that *implies* a fault. *Dryden.*

Bows the ſtrength of brawny arms *imply*,
Emblems of valour, and of victory. *Dryden.*

IMPLY'ING, *ſ.* The act of compriſing, or of making implication.

*To* IMPOI'SON, *v. a.* [*empoiſoner*, Fr. It might be written *empoiſon.*] To corrupt with poiſon:

One doth not know
How much an ill word doth *impoiſon* liking. *Shakeſpeare.*

To kill with poiſon. This is rare. See EMPOISON:

A man by his own alms *impoiſon'd*,
And with his charity ſlain. *Shakeſpeare.*

IMPOI'SONING, *ſ.* The act of corrupting with poiſon.

IMPOLAR'ILY, *adv.* [*in* and *polar.*] Not according to the direction of the poles. *Not much uſed.*—Being *impolarily* adjoined unto a more vigorous loadſtone, it will, in a ſhort time, exchange its poles. *Brown.*

IMPOLI'TE, *adj.* [from *in*, Lat. contrary to, and *politus*, poliſhed.] Unpoliſhed; rude; coarſe. *Scott.*

IMPOLI'TELY, *adv.* In an unpoliſhed manner; rudely; coarſely. *Scott.*

IMPOLI'TENESS, *ſ.* Want of politeneſs.—The *impoliteneſs* of his manners ſeemed to atteſt his ſincerity. *Cheſterfield.*

IMPOL'ITIC, or IMPOLIT'ICAL, *adj.* [*in* and *politic.*] Imprudent; indiſcreet; void of art or forecaſt.—He that exhorteth to beware of an enemy's policy, doth not give counſel to be *impolitic*; but rather to uſe all prudent foreſight and circumſpection, leſt our ſimplicity be over-reached by cunning ſlights. *Hooker.*

IMPOLIT'ICALLY, or IMPOL'ITICLY, *adv.* Without art or forecaſt.

IMPOL'ITICNESS, *ſ.* The ſtate or quality of being impolitic. *Scott.*

IMPON'DEROUS, *adj.* [*in* and *ponderous.*] Void of perceptible weight.—It produces viſible and real effects by *imponderous* and inviſible emiſſions. *Brown.*

*To* IMPO'NE, *v. a.* [from *impono*, Lat.] To put down by way of ſtaking a wager.—The king, ſir, hath wagered with him ſix Barbary horſes; againſt which he has *imponed*, as I take it, ſix French rapiers and poniards. *Shakeſpeare.*

*To* IMPOO'R, *v. a.* To make poor:

Neither waves, nor thieves, nor fire,
Nor have rots *impoor'd* this fire. *W. Browne.*

IMPOP'ULAR. *adj.* Unpopular, not pleaſing to the people. *Bolingbroke.*

IMPORCA'TION, *ſ.* [from *imporco*, Lat. to make a baulk.] The act of making a baulk, or falſe ridge, in ploughing. *Scott.*

IMPOROS'ITY, *ſ.* [*in* and *porous.*] Abſence of interſtices; compactneſs; cloſeneſs.—The poroſity or *imporoſity* betwixt the tangible parts, and the greatneſs or ſmallneſs of the pores. *Bacon.*

IMPO'ROUS, *adj.* Free from pores; free from vacuities or interſtices; cloſe of texture; completely ſolid.—It has its earthly and ſalinous parts ſo exactly reſolved, that its body is left *imporous*, and not diſcreted by atomical terminations. *Brown.*—If atoms ſhould deſcend plumb down with equal velocity, being all perfectly ſolid and *imporous*, they would never the one overtake the other. *Ray.*

IMPO'ROUSNESS, *ſ.* Cloſeneſs of texture; imporoſity. *Scott.*

*To* IMPOR'T, *v. a.* [*importo*, Lat.] To carry into any country from abroad; oppoſed to *export*:

For Elis I would ſail with utmoſt ſpeed,
T' *import* twelve mares, which there luxurious feed. *Pope.*

To imply: to infer.—Himſelf not only comprehended all our neceſſities, but in ſuch ſort alſo framed every petition as might moſt naturally ſerve for many; and doth, though not always require, yet always *import*, a multitude of ſpeakers together. *Hooker.*—To produce in conſequence:

Something he left imperfect in the ſtate,
Which ſince his coming forth is thought of, which
*Imports* the kingdom ſo much fear and danger,
That his return was moſt requir'd. *Shakeſpeare.*

[*Importer, importe*, Fr. Imperſonally.] To be of moment: as, It *imports*, it is of weight or conſequence.—Number in armies *importeth* not much, where the people is of weak courage. *Bacon.*

This to attain, whether heav'n move, or earth,
*Imports* not, if thou reckon right. *Milton.*

IMPO'RT, *ſ.* Importance; moment; conſequence:—When there is any diſpute, the judge ought to appoint the ſum according to the eloquence and ability of the advocate, and in proportion to the *import* of the cauſe. *Ayliffe.*

What occaſion of *import*
Hath all ſo long detain'd you from your wife? *Shakeſp.*

Tendency.—Add to the former obſervations made about vegetables a third of the ſame *import* made in mineral ſubſtances. *Boyle.*—Any thing imported from abroad. In this ſenſe it is accented on the firſt ſyllable.—With regard to the general account of England's foreign balance, the exports have been computed at ſeven millions ſterling, and its *imports* at five. *Guthrie.*

IMPOR'TABLE, *adj.* Unſupportable; not to be endured. A word accented by Spenſer on the firſt ſyllable. It is uſed in the Apocrypha:

Both at once him charge on either ſide,
With hideous ſtrokes and *importable* power,
That forced him his ground to traverſe wide,
And wiſely watch to ward that deadly ſtour. *Fairy Queen.*

IMPOR'TANCE, *ſ.* [French.] Thing imported or implied; rare.—A notable paſſion of wonder appeared in them; but the wiſeſt beholder, that knew no more but ſeeing, could not ſay if the *importance* were joy or ſorrow. *Shakeſpeare.*—Matter; ſubject. *Not in uſe.*—It had been pity you ſhould have been put together with ſo mortal a purpoſe, as then each bore, upon *importance* of ſo ſlight a nature. *Shakeſpeare.*—Conſequence; moment:

Thy own *importance* know,
Nor bound thy narrow views to things below. *Pope.*

Importunity. An improper uſe peculiar to Shakeſpeare:

Maria writ
The letter at ſir Toby's great *importance*;
In recompence whereof he hath married her. *Shakeſpeare.*

IMPOR'TANT, *adj.* [*important*, Fr.] Momentous; weighty; of great conſequence.—The moſt *important* and preſſing care of a new and vigorous king was his marriage, for mediate eſtabliſhment of the royal line. *Wotton.*

*Important* truths ſtill let your fables hold,
And moral myſteries with art unfold. *Granville.*

Momentous; forcible; of great efficacy.—This ſeems to be the meaning here:

He fiercely at him flew,
And with *important* outrage him aſſail'd:
Who, ſoon prepar'd to field, his ſword forth drew,
And him with equal valour countervail'd. *Fairy Queen.*

Importunate. A corrupt uſe of the word:

Great France
My mourning and *important* tears hath pitied. *Shakeſpeare.*

IMPORTA'TION, *ſ.* [from *import.*] The act or practice of importing, or bringing into a country from abroad; oppoſed to *exportation.*—The king's reaſonable profit ſhould not be neglected upon *importation* and exportation. *Bacon.*

IMPOR'TER, *ſ.* One that brings in from abroad.—It is impoſſible to limit the quantity that ſhall be brought in, eſpecially if the *importers* of it have ſo ſure a market as the Exchequer. *Swift.*

IMPORT'ING, *ſ.* The act of introducing commodities from abroad; the act or ſtate of conveying a particular meaning.

IMPORT'LESS, *adj.* Of no moment or conſequence. This is a word not in uſe, but not inelegant:

We leſs expect
That matter needleſs, of *importleſs* burthen,
Divide thy lips. *Shakeſpeare.*

IMPORTU'NACY, *ſ.* The act of importuning:

Art thou not aſham'd
To wrong him with thy *importunacy*? *Shakeſpeare.*

IMPOR'TUNATE, *adj.* [*importunus*, Lat. *importun*, Fr.] Unſeaſonable and inceſſant in ſolicitations; not to be repulſed.—I was in debt to my *importunate* buſineſs; but he would not hear my excuſe. *Shakeſpeare.*

IMPOR'TUNATELY, *adv.* With inceſſant ſolicitation; pertinaciouſly in petition.—Their pertinacy is ſuch, that, when you drive them out of one form, they aſſume another; and are ſo *importunately* troubleſome, as makes many think it impoſſible to be freed from them. *Duppa.*

IMPOR'TUNATENESS, *ſ.* [from *importunate.*] Inceſſant ſolicitation.—She with more and more *importunateneſs* craved, which, in all good manners, was either of us to be deſired, or not granted. *Sidney.*

*To* IMPOR'TUNE, *v. a.* [*importuner*, Fr. *importunus*, Lat. Accented anciently on the ſecond ſyllable.] To teaze; to haraſs with ſlight vexation, perpetually recurring; to moleſt.—If he eſpied any lewd gaiety in his fellow-ſervants, his maſter ſhould ſtraightways know it, and not reſt free from *importuning*, until the fellow had put away his fault. *Carew.*

The bloom of beauty other years demands,
Nor will be gather'd by ſuch wither'd hands:
You *importune* it with a falſe deſire. *Dryden.*

[Accented on the ſecond ſyllable, and uſed by Spenſer for] To import:

But the ſage wizard telles, as he has redd,
That it *impórtunes* death and dolefull dreryhedd. *F. Queen.*

[Accented on the laſt ſyllable.] To require:

We ſhall write to you,
As time and our concerns ſhall *importúne*,
How it goes with us. *Shakeſpeare.*

IMPORTU'NE, *adj.* [*importunus*, Lat. anciently with the accent on the ſecond ſyllable.] Conſtantly recurring; troubleſome by frequency.—Henry, king of England, needed not to have beſtowed ſuch great ſums, nor ſo to have buſied himſelf with *importune* and inceſſant labour, to compaſs my death and ruin, if I had been a feigned perſon. *Bacon.*

All that charge did fervently apply,
With greedy malice and *impórtune* toil;
And planted there their huge artillery,
With which they daily made moſt dreadful battery. *Sp.*

Troubleſome; vexatious.—If the upper ſoul can check what is conſented to by the will, in compliance with the fleſh, and can then hope, that, after a few years of ſenſuality, that *importune* rebellious ſervant ſhall be eternally caſt off, this would be ſome colour for that novel perſuaſion. *Hammond.*

And th' armies of their creatures, all and ſome,
Do ſerve to them, and with *impórtune* might
War againſt us, the vaſſals of their will. *Spenſer.*

Unſeaſonable; coming, aſking, or happening, at a wrong time:

No fair to ſhine
Equivalent, or ſecond! which compell'd
Me thus, though *importúne* perhaps, to come
And gaze and worſhip thee. *Milton.*

IMPORTU'NELY, *adv.* Troubleſomely; inceſſantly:

The palmer bent his ear unto the noiſe,
To weet what call'd ſo *importunely*:
Again he heard a more efforced voice,
That bade him come in haſte. *Fairy Queen.*

Unſeaſonably; improperly.—The conſtitutions that the apoſtles made concerning deacons and widows, are with much importunity, but very *importunely*, urged by the diſciplinarians. *Sanderſon.*

IMPORTU'NING, *ſ.* The act of haraſſing with inceſſant ſolicitations.

IMPOR'TUNITY, *ſ.* [*importunitas*, Lat. *importunité*, Fr.] Inceſſant ſolicitation.—Overcome with the *importunity* of his wife, a woman of a haughty ſpirit, he altered his former purpoſe. *Knolles.*

Thrice I deluded her, and turn'd to ſport
Her *importunity*. *Milton.*

IMPOR'TUOUS, *adj.* [from *in*, Lat. contrary to, and *portus*, a harbour.] Void of ports; having no harbours. *Scott.*

*To* IMPO'SE, *v. a.* [*impoſer*, Fr. *impoſitum*, Lat.] To lay on as a burthen or penalty.—If a ſon do fall into a lewd action, the imputation, by your rule, ſhould be *impoſed* on the father. *Shakeſpeare.*

To tyrants others have their country ſold,
*Impoſing* foreign lords for foreign gold. *Dryden.*

To enjoin as a duty or law.—What good or evil is there under the ſun, what action correſpondent or repugnant unto the law which God hath *impoſed* upon his creatures, but in or upon it God doth work, according to the law which himſelf hath eternally propoſed to keep? *Hooker.*

Thou on the deep *impoſeſt* nobler laws,
And by that juſtice haſt remov'd the cauſe. *Waller.*

To fix on; to impute to.—This cannot be allowed, except we impute that unto the firſt cauſe which we *impoſe* not on the ſecond; or what we deny unto nature, we impute unto nativity itſelf. *Brown.*—To obtrude fallaciouſly:

Our poet thinks not fit
T' *impoſe* upon you what he writes for wit. *Dryden.*

Among printers. To put the pages on the ſtone, and fit on the chaſes, in order to carry the forms to preſs.

*To* IMPO'SE *on.* To put a cheat on; to deceive.—Phyſicians and philoſophers have ſuffered themſelves to be ſo far *impoſed upon* as to publiſh chemical preparations they never tried. *Boyle.*—He that thinks the word centaur ſtands for ſome real being, *impoſes on* himſelf, and miſtakes words for things. *Locke.*

IMPO'SE, *ſ.* Command; injunction. *Not in uſe:*

According to your ladyſhip's *impoſe*
I am thus early come. *Shakeſpeare.*

IMPO'SEABLE, *adj.* To be laid as obligatory on any body.—They were not ſimply *impoſeable* on any particular man, farther than he was a member of ſome church. *Hammond.*

IMPOS'ER, *ſ.* One who enjoins as a law; one who lays any thing on another as a hardſhip.—The univerſities' ſufferings might be manifeſted to all nations, and the *impoſer* of theſe oaths might repent. *Walton.*

IMPO'SING, *ſ.* The act of obtruding; the act of enjoining. With printers, laying pages on the ſtone to be formed into forms.

IMPO'SING-STONE, *ſ.* The ſtone upon which forms are impoſed. See the article PRINTING.

IMPO'SITION, *ſ.* [*impoſition*, Fr. *impoſitus*, Lat.] The act of laying one thing on another.—The ſecond part of confirmation is the prayer and benediction of the biſhop, made more ſolemn by the *impoſition* of hands. *Hammond.*—The act of annexing.—The firſt *impoſition* of names was grounded, among all nations, upon future good hope conceived of children. *Camden.*—Injunction of any thing as a law or duty.—Their determination is to trouble you with no more ſuit; unleſs you may be won by ſome other ſort than your father's *impoſition*, depending on the caſkets. *Shakeſpeare.*

From *impoſition* of ſtrict laws, to free
Acceptance of large grace; from ſervile fear
To filial; works of law, to works of faith. *Milton.*

Conſtraint; oppreſſion.—A greater load has been laid on us than we have been able to bear, and the groſſeſt *impoſitions* have been ſubmitted to, in order to forward the dangerous deſigns of a faction. *Swift.*—Cheat; fallacy; impoſture.—Being well acquainted with his hand, I had no reaſon to ſuſpect an *impoſition* in this letter. *Smollet.*—A ſupernumerary exerciſe enjoined ſcholars as a puniſhment:

Theſe *impoſitions* were ſupply'd,
To light my pipe, or pleaſe my pride. *Progr. of Diſcontent.*

The act of laying pages on the ſtone, and fixing them in a chaſe.

*Impoſition of hands*, an eccleſiaſtical action by which a biſhop lays his hand on the head of a perſon, in ordination, confirmation, or in uttering a bleſſing. This practice is alſo frequently obſerved by the diſſenters at the ordination of their miniſters, when all the miniſters preſent place their hands on the head of him whom they are ordaining, while one of them prays for a bleſſing on him and his future labours. This ſome of them retain as an ancient practice, juſtified by the example of the apoſtles, when no extraordinary gifts are conveyed. However, they are not agreed as to the propriety of this ceremony; nor do they conſider it as an eſſential part of ordination. Impoſition of hands was a Jewiſh ceremony, introduced not by any divine authority, but by cuſtom; it being the practice among thoſe people, whenever they prayed to God for any perſon, to lay their hands on his head. Our Saviour obſerved the ſame cuſtom, both when he conferred his bleſſing on children and when he cured the ſick; adding prayer to the ceremony. The apoſtles likewiſe laid hands on thoſe upon whom they beſtowed the Holy Ghoſt. The prieſts obſerved the ſame cuſtom when any one was received into their body. And the apoſtles themſelves underwent the impoſition of hands afreſh every time they entered upon any new deſign. In the ancient church, impoſition of hands was even practiſed on perſons when they married, which cuſtom the Abyſſinians ſtill obſerve.

IMPOSITI'TIOUS, *adj.* Firſt impoſed; radical; primitive. *Bailey.*

IMPOS'ITIVE, *adj.* Impoſed; unnatural. *Cole.*

IMPOSSIBIL'ITY, *ſ.* [*impoſſibilité*, Fr. from *impoſſible.*] Impracticability; the ſtate of being not feaſible.—Simple Philoclea, it is the *impoſſibility* that doth torment me; for unlawful deſires are puniſhed after the effect of enjoying, but impoſſible deſires in the deſire itſelf. *Sidney.*

Let the mutinous winds
Strike the proud cedars 'gainſt the fiery ſun,
Murdering *impoſſibility*, to make
What cannot be, ſlight work. *Shakeſpeare.*

That which cannot be done.—Though men do, without offence, wiſh daily that the affairs, which with evil ſucceſs are paſt, might have fallen out much better; yet to pray that they may have been any other than they are, this being a manifeſt *impoſſibility* in itſelf, the rules of religion do not permit. *Hooker.*

*Impoſſibilities!* oh no, there's none,
Could I bring thy heart captive home. *Cowley.*

IMPOS'SIBLE, *adj.* [French.] Not to be done; not to be attained; impracticable.—It is *impoſſible* the mind ſhould be ſtopped any where in its progreſs in this ſpace, how far ſoever it extends its thoughts. *Locke.*

I my own thoughts deceive,
With hope of things *impoſſible* to find. *Walſh.*

IMPOS'SIBLE, *ſ.* [from the *adj.*] An impoſſibility. *Obſolete.*

IMPOS'SIBLY, *adv.* In an impoſſible manner.

IM'POST, *ſ.* [*impôt*, Fr. from *impoſitum*, Lat.] A tax; a toll; a cuſtom paid.—Taxes and *impoſts* upon merchants do ſeldom good to the king's revenue; for that that he wins in the hundred, he loſeth in the ſhire. *Bacon.*—Impoſt is properly the tax received by the prince for ſuch merchandiſes as are *brought into any haven* within his dominions from foreign nations. It may therefore in ſome ſort be diſtinguiſhed from *cuſtoms*, becauſe cuſtoms are rather that profit the prince maketh of wares *ſhipped out*; yet they are frequently confounded. *Cowel.*—In architecture, [from *impoſte*, Fr.] That part of a pillar, in vaults and arches, on which the weight of the whole building lieth. *Ainſworth.*

IMPOS'TEM, *ſ.* See IMPOSTHUME.

*To* IMPOST'HUMATE, *v. n.* [from *impoſthume.*] To form an abſceſs; to gather; to form a cyſt or bag containing matter.—The bruiſe *impoſthumated*, and afterwards turned to a ſtinking ulcer, which made every body ſhy to come near her. *Arbuthnot.*

*To* IMPOST'HUMATE, *v. a.* To afflict with an impoſthume.—They would not fly that ſurgeon, whoſe lancet threatens none but the *impoſthumated* parts. *Decay of Piety.*

IMPOST'HUMATING, *ſ.* The act of forming into an abſceſs.

IMPOSTHUMA'TION, *ſ.* The act of forming an impoſthume; the ſtate in which an impoſthume is formed.—He that maketh the wound bleed inwards, endangereth malign ulcers and pernicious *impoſthumations. Bacon.*

IMPOST'HUME, *ſ.* [This ſeems to have been formed by corruption from *impoſtem*, as South writes it; and *impoſtem* to have been written erroneouſly for *apoſtem*, αποςτημα, an abſceſs.] A collection of purulent matter in a bag or cyſt.—Now rotten diſeaſes, ruptures, catarrhs, and bladders full of *impoſthumes*, make prepoſterous diſcoveries. *Shakeſpeare.*—An error in the judgment is like an *impoſtem* in the head, which is always noiſome, and frequently mortal. *South.*

IMPOS'TOR, *ſ.* [*impoſteur*, Fr. from *impoſe*; *impoſitor*, Lat.] One who cheats by a fictitious character.—Shame and pain, poverty and ſickneſs, yea death and hell itſelf, are but the trophies of thoſe fatal conqueſts got by that grand *impoſtor*, the devil, over the deluded ſons of men. *South.*

IMPOS'TURE, *ſ.* Cheat; fraud; ſuppoſitiouſneſs; cheat committed by giving to perſons or things a falſe character.—We know how ſucceſsful the late uſurper was, while his army believed him real in his zeal againſt kingſhip; but, when they found out the *impoſture*, upon his aſpiring to the ſame himſelf, he was preſently deſerted, and never able to crown his uſurped greatneſs with that title. *South.*

Form new legends,
And fill the world with follies and *impoſtures.* *Johnſon.*

IM'POTENCE, or IM'POTENCY, *ſ.* [*impotentia*, Lat.] Want of power; inability; imbecility; weakneſs.—God is a friend and a father, whoſe care ſupplies our wants, and defends our *impotence*, and from whoſe compaſſion in Chriſt we hope for eternal glory hereafter. *Rogers.*—This is not a reſtraint or *impotency*, but the royal prerogative of the moſt abſolute king of kings; that he wills to do nothing but what he can; and that he can do nothing which is repugnant to his divine goodneſs. *Bentley.*—Ungovernableneſs of paſſion. A Latin ſignification; *animi impotentia:*

Will he, ſo wiſe, let looſe at once his ire,
Belike through *impotence*, or unaware,
To give his enemies their wiſh, and end
Them in his anger, whom his anger ſaves,
To puniſh endleſs? *Milton.*

Incapacity of propagation:

Dulneſs with obſcenity muſt prove
As hateful, ſure, as *impotence* in love. *Pope.*

Impotence with reſpect to men is the ſame as ſterility in women; that is, an inability of propagating the ſpecies; but in the cauſes and the circumſtances theſe ſtates greatly differ. In each caſe there is a failure of propagation; but, in each, there is by no means an unfitneſs for the venereal act. Sterility in women, indeed, often ariſes, like impotence in men, from a coldneſs of conſtitution, which admits not of due excitement; but, it is alſo owing to the cauſes which ſeparate the fœtus almoſt as ſoon as formed. From men who are impotent no impregnation takes place.

The great cauſes of impotence in men are organic defects and debility. In generation, the ſemen muſt be carried to the uterus, and perhaps to the fallopian tube; but in this ultimate deſtination it is apparently aſſiſted by the action of the womb itſelf. To carry it to this organ requires a free paſſage through the urethra, no inconſiderable activity in the ejaculatory muſcles, and the full diſtenſion of the corpora cavernoſa. The free paſſage is ſometimes prevented by ſtrictures in the urethra, and ſometimes, as in a caſe recorded by Petit, by a faulty direction of the orifices through which the ſemen paſſes. A natural phymoſis has been found alſo an obſtruction to the free diſcharge of the ſeminal fluid. A ſevere priapiſm ſeems occaſionally to conſtrict the cavity of the urethra, or of the entrance of the vaſa deferentia; for in this diſeaſe there is no emiſſion, and the feelings are thoſe of violent pain rather than of pleaſure. Intoxication, in ſome men, will produce this violent ſpaſm, and unfit them for the completion of the venereal act.

Debility, however, from too frequent or unnatural indulgences, is the moſt common cauſe, ſhown by an imperfect erection of the penis, or too weak a diſcharge of the ſemen; the latter is often a conſequence of the former. In ſome weak habits the diſcharge immediately follows the ſlighteſt irritation, either of the parts or of the mind. Dreams ſo imperfect as ſcarcely to be remembered will occaſion it; and this ariſes from the increaſe of irritability, in conſequence of debility. From its remote cauſe, tonics, and the moſt ſtimulant nutriments, are employed; but the only remedies are thoſe which leſſen irritability, viz. camphor, opium, and henbane, or hemlock. Waſhing the penis and ſcrotum, morning and evening, with cold water, and daſhing the water againſt theſe parts from a bidet, are often uſeful; but it is neceſſary to remove every alluring or enticing object; to guard againſt every laſcivious thought. When impotence ariſes from ſo great a debility as to admit of the diſcharge of ſemen by the efforts to relieve the belly, the ſtrongeſt tonics and aſtringents are required. It has been ſuppoſed by ſome authors, that, in ſuch caſes, the ſemen wants its uſual ſtimulating properties, as it is obſerved to be unuſually fluid; but of this there is no evidence; and, as the diſcharge is ſo readily excited, we think it more probable that its fluidity depends on its not being allowed to ſtagnate.

Mr. Hunter has, we think, refined unneceſſarily on this ſubject, by ſtating one cauſe of impotence to be a want of correſpondence in the ſucceſſive actions of ſecretion and diſcharge. If the firſt is too rapid for that erected ſtate of the penis which renders the ejaculation effectual, it conſtitutes this diſeaſe as certainly as when the action of the muſcles of the latter is too quick for the former. Debility, and its conſequent ſtate of irritability, is ſufficient to explain all the circumſtances of the caſe without ſuch recondite reſearches. In general, where there are correſponding actions of two connected parts, it is very unuſual to find them ſeparated. Each may be weakened; but from habit each will partake of the diſeaſe, and will act together as before, but with diminiſhed power.

The ſtate of the mind, it is obſerved, has a conſiderable influence on the powers of the body, particularly in the venereal act. The body, Mr. Hunter remarks, ſhould not only be in a ſtate of health, but the mind free from apprehenſions, anxiety, and diſtreſs. The mere anxiety of excelling in this act has been no uncommon cauſe of diſappointment. A ſtate of hope, a conſciouſneſs of crime, a recollection of former failures, equally enervate the body. Such cauſes of impotence are to be clearly diſtinguiſhed from real defects, ſince an alteration in circumſtances, by which anxiety, diſtreſs, &c. are removed, will relieve the complaint. Greater confidence, from having once ſucceeded, will alone break the charm, and all will be well. The mind is more intimately connected with the genital ſyſtem, chiefly in men, though in a certain degree in the other ſex, than has been imagined. The apprehenſion of weakneſs, in this moſt important of functions, really produces it. The imagination broods over fancied ills, till the whole ſyſtem is really diſordered. In this ſtate every quack is tried in ſucceſſion, till tired nature decays into a hectic, is overwhelmed in a dropſy, or the mind ſinking in imbecility, or mania, offers a melancholy ſpectacle of what degradation human nature can ſuffer. All this diſtreſs might be removed if the patient had the reſolution to tell his grief to a friend, or a phyſician of character and judgment. A well-regulated plan of medicine and diet would contribute to relieve the bodily complaint, while the mind, conſoled with the proſpect of returning health, would aſſiſt in realiſing the prediction. Many ſuch inſtances we have known where the diſeaſe has been radically removed, and the deſponding patient become a happy huſband, and the delighted father of a numerous and healthy offspring.

We have ſo mixed the medical directions with the deſcriptions of the diſeaſe, that we have little to add on this part of the ſubject. We may however again repeat, that, except in impotence from great relaxation, tonics and aſtringents are of little avail. Where it ariſes from too great irritability, a cooling diet, abſtaining from laſcivious thoughts or objects, with ſedatives, are the beſt remedies. There is no opinion more inconvenient in its effects than that which dictates a full, nutritious, and ſtimulant, diet. We have often had occaſion to repeat, that no cauſe of weakneſs is ſo frequent and obſtinate as that which ariſes from *fulneſs of the circulating ſyſtem*, and no plan by medicine more injurious than conſtringing over-diſtended veſſels by tonics. But, where the fulneſs is not conſiderable, cold bathing, both general and topical, is highly uſeful.

To abſtain from, or to indulge, venereal pleaſures, is equally injurious. A moderate uſe is ſalutary; and, when the confidence that the power is not wholly loſt be once eſtabliſhed, the power itſelf is ſoon regained.

IM'POTENCY, in law, is a canonical diſability, to avoid marriage in the ſpiritual court. The marriage is not void *ab initio*, but voidable only by ſentence of ſeparation, but to be actually made during the life of the parties. See the article MARRIAGE.

IMPOTENCY, *Property by reaſon of.* A qualified property may ſubſiſt with relation to animals *feræ naturæ, ratione impotentiæ*, on account of their own inability. As when hawks, herons, or other birds, build in my trees, or coneys or other creatures make their neſts or burrows in my land, and have young ones there; I have a qualified property in thoſe young ones, till ſuch time as they can fly or run away, and then my property expires. *Carta de Foreſtâ*; (9 *Hen.* III. *c.* 13;) but till then it is in ſome caſes treſpaſs, and in others felony, for a ſtranger to take them away. 7 *Rep.* 17. 2 *Comm.* 394. See the article GAME.

IM'POTENT, *adj.* Weak; feeble; wanting force; wanting power.—We that are ſtrong muſt bear the imbecility of the *impotent*, and not pleaſe ourſelves. *Hooker.*

Although in dreadful whirls we hung,
High on the broken wave,
I knew thou wert not ſlow to hear,
Nor *impotent* to ſave. *Addiſon.*

Diſabled by nature or diſeaſe.—In thoſe porches lay a great multitude of *impotent* folk, of blind, halt, and withered. *John* v. 3.

I have learn'd that fearful commenting
Is leaden ſervitor to dull decay;
Delay leads *impotent* and ſnail-pac'd beggary. *Shakeſpeare.*

Without power of reſtraint:

With jealous eyes at diſtance ſhe had ſeen,
Whiſp'ring with Jove, the ſilver-footed queen;
Then, *impotent* of tongue, her ſilence broke,
Thus turbulent in rattling tone ſhe ſpoke. *Dryden.*

Without power of propagation.—He told beau Prim, who is thought *impotent*, that his miſtreſs would not have him, becauſe he is a ſloven, and had committed a rape. *Tatler.*

IM'POTENT, *ſ.* [from the *adj.*] One that languiſhes under diſeaſe:

Your taſk ſhall be
With all the fierce endeavour of your wit,
To enforce the pained *impotent* to ſmile. *Shakeſpeare.*

IM'POTENTLY, *adv.* Without power:

Proud Cæſar, 'midſt triumphal cars,
The ſpoils of nations, and the pomp of wars,
Ignobly vain, and *impotently* great,
Shew'd Rome her Cato's figure drawn in ſtate. *Pope.*

*To* IMPOV'ERISH, *v. a.* To empoveriſh, to make poor.

IMPOV'ERISHMENT, *ſ.* Empoveriſhment, the ſtate of being made poor. *Scott.*

*To* IMPOU'ND, *v. a.* [*in* and *pound.* See POUND.] To incloſe as in a pound; to ſhut in; to confine.—The great care was rather how to *impound* the rebels, that none of them might eſcape, than that any doubt was made to vanquiſh them. *Bacon.*—To ſhut up in a pinfold.—Seeing him wander about, I took him up for a ſtray, and *impounded* him, with intention to reſtore him to the right owner. *Dryden.*

England
Hath taken and *impounded* as a ſtray
The king. *Shakeſpeare.*

IMPOUND'AGE, *ſ.* The act of impounding cattle.

IMPOUND'ING, *ſ.* The act of ſhutting up in a pound.

*To* IMPOW'ER. See EMPOWER.

IMPRAC'TICABLE, *adj.* [*impraticable*, Fr. *in* and *practicable.*] Not to be performed; unfeaſible: impoſſible.—Had there not been ſtill remaining bodies, the legitimate offsprings of the antediluvian earth, 'twould have been an extravagant and *impracticable* undertaking to have gone about to determine any thing concerning it. *Woodward.*—Untractable; unmanageable; ſtubborn:

That fierce *impracticable* nature
Is govern'd by a dainty-fingur'd girl. *Rowe.*

IMPRAC'TICABLENESS, *ſ.* Impoſſibility.—I do not know a greater mark of an able miniſter than that of rightly adapting the ſeveral faculties of men, nor is any thing more to be lamented than the *impracticableneſs* of doing this. *Swift.*—Untractableneſs; ſtubborneſs.

*To* IM'PRECATE, *v. a.* [*imprecor*, Lat.] To call for evil upon himſelf or others.

IM'PRECATING, *ſ.* The act of calling for evil.

IMPRECA'TION, *ſ.* [*imprecatio*, Lat. *imprecation*, Fr. from *imprecate.*] Curſe; prayer by which any evil is wiſhed to another or himſelf.—Sir John Hotham, uncurſed by any *imprecation* of mine, paid his own and his eldeſt ſon's heads. *King.*

With *imprecations* thus he fill'd the air,
And angry Neptune heard th' unrighteous pray'r. *Pope.*

IM'PRECATORY, *adj.* Containing wiſhes of evil.

IMPRE'CIABLE, *adj.* [from *in*, Lat. contrary to, and *pretium*, a prize.] Having no value. *Not uſed. Cole.*

*To* IMPRE'GN, *v. a.* [*in* and *prægno*, Lat.] To fill with young; to fill with any matter or quality; to make pregnant:

In her ears the ſound
Yet rung of his perſuaſive words *impregn'd*
With reaſon to her ſeeming. *Milton.*

Th' unfruitful rock itſelf, *impregn'd* by thee,
Forms lucid ſtones. *Thomſon.*

IMPREG'NABLE, *adj.* [*impregnable*, Fr.] Not to be ſtormed; not to be taken.—Two giants kept themſelves in a caſtle, ſeated upon the top of a rock, *impregnable*, becauſe there was no coming to it but by one narrow path, where one man's force was able to keep down an army. *Sidney.*

Let us be back'd with God, and with the ſeas,
Which he had given for fence *impregnable*,
And with their helps alone defend ourſelves. *Shakeſpeare.*

Unſhaken; unmoved; unaffected; invincible.—The man's affection remains wholly unconcerned and *impregnable*; juſt like a rock, which, being plied continually by the waves, ſtill throws them back again, but is not at all moved. *South.*

IMPREG'NABLENESS, *ſ.* The ſtate of being impregnable.

IMPREG'NABLY, *adv.* In ſuch a manner as to defy force or hoſtility.—A caſtle ſtrongly ſeated on a high rock joineth by an iſthmus to the land, and is *impregnably* fortified. *Sandys.*

*To* IMPREG'NATE, *v. a.* [*in* and *prægno*, Lat.] To fill with young; to make prolific.—Hermaphrodites, although they include the parts of both ſexes, cannot *impregnate* themſelves. *Brown.*—To fill; to ſaturate.

IMPREG'NATE, *adj.* Filled with young:

*Impregnate*, from their loins they ſhed
A ſlimy juice. *Dryden.*

With native earth their blood the monſters mix'd;
The blood, endu'd with animating heat,
Did in the *impregnate* earth new ſons beget. *Dryden.*

IMPREG'NATING, *ſ.* The act of making prolific; the act of ſaturating.

IMPREGNA'TION, *ſ.* The act of making prolific; fecundation.—They ought to refer matters unto counſellors, which is the firſt begetting or *impregnation*; but when they are elaborate in the womb of their counſel, and grow ripe to be brought forth, then they take the matter back into their own hands. *Bacon.*—That with which any thing is impregnated.—What could implant in the body ſuch peculiar *impregnations*, as ſhould have ſuch power? *Derham.*

For the proceſs of impregnation, and the growth and appearance of the child in the womb, ſee ANATOMY of the Gravid Uterus, vol. i. p. 641–652. and for an account of the various ſyſtems upon that ſubject, ſee the ſame article, p. 643. and the articles ANIMALCULE, CONCEPTION, and GENERATION.

The word *impregnation* is alſo uſed, in pharmacy, for communicating the virtues of one medicine to another, whether by mixture, coction, digeſtion, ſaturation, &c.

IMPREG'NING, *ſ.* The act of making prolific.

IMPREJU'DICATE, *adj.* [*in*, *præ*, and *judico*, Lat.] Unprejudiced; not prepoſſeſſed; impartial.—The ſolid reaſon of one man with *imprejudicate* apprehenſions, begets as firm a belief as the authority or aggregated teſtimony of many hundreds. *Brown.*

IMPREPARA'TION, *ſ.* [*in* and *preparation.*] Unpreparedneſs; want of preparation.—*Impreparation* and unreadineſs when they find in us, they turn it to the ſoothing-up of themſelves. *Hooker.*

IMPRESCRIP'TIBLE, *adj.* [from *in*, Lat. contrary to, and *præſcribo*, to preſcribe.] Surpaſſing the bounds of preſcription. *Cole.*

*To* IMPRESS', *v. a.* [*impreſſum*, Lat.] To print by preſſure; to ſtamp:

When God from earth form'd Adam in the Eaſt,
He his own image on the clay *impreſt.* *Denham.*

To fix deep.—We ſhould dwell upon the arguments, and *impreſs* the motives of perſuaſion upon our own hearts, 'till we feel the force of them. *Watts.*—To mark, as impreſſed by a ſtamp:

So foul and ugly, that exceeding fear
Their viſages *impreſt*, when they approached near. *Spenſer.*

To force into ſervice. This is generally now ſpoken and written *preſs.*—Ormond ſhould contribute all he could for the making thoſe levies of men, and for *impreſſing* of ſhips. *Clarendon.*

His age has charms in it, his title more,
To pluck the common boſoms on his ſide,
And turn our *impreſt* launces in our eyes
Which do command them. *Shakeſpeare.*

IMPRESS', *ſ.* [from the verb.] Mark made by preſſure.—They having taken the *impreſſes* of the inſides of theſe ſhells with that exquiſite niceneſs, as to expreſs even the fineſt lineaments of them. *Woodward.*

This weak *impreſs* of love is as a figure
Trenched in ice, which with an hour's heat
Diſſolves to water. *Shakeſpeare.*

Effects of one ſubſtance or another.—How objects are repreſented to myſelf I cannot be ignorant; but in what manner they are received, and what *impreſſes* they make upon the differing organs of another, he only knows that feels them. *Glanville.*—Mark of diſtinction; ſtamp.—God, ſurveying the works of the creation, leaves us this general *impreſs* or character upon them, that they were exceeding good. *South.*—Device; motto:

To deſcribe emblazon'd ſhields,
*Impreſſes* quaint, capariſons, and ſteeds,
Baſes, and tinſels, trappings. *Milton.*

Act of forcing any into ſervice; compulſion; ſeizure. Now commonly *preſs.*—Ajax was here the voluntary, and you as under an *impreſs. Shakeſpeare.*

Your ſhips are not well mann'd;
Your mariners are muliteers, reapers, people
Ingroſt by ſwift *impreſs.* *Shakeſpeare.*

IM'PRESS-MONEY. *ſ.* The money paid for a man who is preſſed into the public ſervice.

IMPRESS'ING, *ſ.* The act of forcing into the public ſervice. *Clarendon.*

The power of impreſſing ſea-faring men for the ſea-ſervice by the king's commiſſion, has been a matter of ſome diſpute, and ſubmitted to with great reluctance; though it hath very clearly and learnedly been ſhown by ſir Michael Foſter, that the practice of impreſſing, and granting powers to the admiralty for that purpoſe, is of very ancient date, and hath been uniformly continued by a regular ſeries of precedents to the preſent time; whence he concludes it to be part of the common law. The difficulty ariſes from hence, that no ſtatute has expreſsly declared this power to be in the crown, though many of them very ſtrongly imply it. The ſtatute 2 Ric. II. c. 4, ſpeaks of mariners being arreſted and retained for the king's ſervice, as of a thing well known, and practiſed without diſpute; and provides a remedy againſt their running away. By a later ſtatute, if any waterman, who uſes the river Thames, ſhall hide himſelf during the execution of any commiſſion of preſſing for the king's ſervice, he is liable to heavy penalties. By another, (5 Eliz. c. 5.) no fiſherman ſhall be taken by the queen's commiſſion to ſerve as a mariner; but the commiſſion ſhall be firſt brought to two juſtices of the peace, inhabiting near the ſea-coaſt where the mariners are to be taken, to the intent that the juſtices may chooſe out and return ſuch a number of able-bodied men, as in the commiſſion are contained, to ſerve her majeſty. And, by others, eſpecial protections are allowed to ſeamen in particular circumſtances, to prevent them from being impreſſed. Ferrymen are alſo ſaid to be privileged from being impreſſed, at common law. All which do moſt evidently imply a power of impreſſing to reſide ſomewhere; and, if any where, it muſt, from the ſpirit of our conſtitution, as well as from the frequent mention of the king's commiſſion, reſide in the crown alone. After all, however, this method of manning the navy is to be conſidered as only defenſible from public neceſſity, to which all private conſiderations muſt give way. Thus, in the caſe of the king *v.* Tubbs, lord Mansfield ſaid, "The power of preſſing is founded upon immemorial uſage allowed for ages. If not, it can have no ground to ſtand upon; nor can it be vindicated or juſtified by any reaſon but the ſafety of the ſtate. The practice is deduced from that trite maxim of the conſtitutional law of England, That private miſchief had better be ſubmitted to, than public detriment and inconvenience ſhould enſue. Though it be a legal power, it may, like many others, be abuſed in the exerciſe of it." And in that caſe the defendant was brought up by *habeas corpus*, upon the ground that he was entitled to an exemption; but the court held that the exemption was not made out, and he was remanded to the ſhip from whence he had been brought.

The following perſons are exempted from being impreſſed: apprentices for three years; the maſter, mate, and carpenter, and one man for every 100 tons, of veſſels employed in the coal-trade; all under eighteen years of age, and above fifty-five; foreigners in merchant-ſhips and privateers; landmen betaking themſelves to ſea for two years; ſeamen in the Greenland fiſhery, and harpooners, employed, during the interval of the fiſhing ſeaſon, in the coal-trade, and giving ſecurity to go to the fiſhing next ſeaſon.

IMPRESS'IBLE, *adj.* What may be impreſſed.—The differences of *impreſſible* and not *impreſſible*, figurable and not figurable, are plebeian notions. *Bacon.*

IMPRESS'ION, *ſ.* [*impreſſio*, Lat. *impreſſion*, Fr.] The act of preſſing one body upon another.—Senſation is ſuch an *impreſſion* or motion, made in ſome part of the body, as produces ſome perception in the underſtanding. *Locke.*—Mark made by preſſure; ſtamp:

Like to a chaos, or unlick'd bear-whelp,
That carries no *impreſſion* like the dam. *Shakeſpeare.*

Image fixed in the mind.—Were the offices of religion ſtript of all the external decencies, they would not make a due *impreſſion* on the mind. *Atterbury.*—Efficacious agency; operation; influence.—We lie open to the *impreſſions* of flattery, which we admit without ſcruple, becauſe we think we deſerve it. *Atterbury.*—Effect of an attack.—Such a defeat of near two hundred horſe, ſeconded with two thouſand foot, may ſurely endure a compariſon with any of the braveſt *impreſſions* in ancient times. *Wotton.*—Edition; number printed at once; one courſe of printing.—For ten *impreſſions*, which his works have had in ſo many years, at preſent a hundred books are ſcarcely purchaſed once a twelvemonth. *Dryden.*—*Impreſſion*, however, properly denotes the edition of a book, regarding the mechanical part only; whereas *edition*, beſides this, takes in the care of the editor, who corrected or augmented the copy, adding notes, &c. to render the work more uſeful.

IMPRESS'IVE, *adj.* Suited to make impreſſion; making impreſſion.

IMPRESS'URE, *ſ.* The mark made by preſſure; the dint; the impreſſion:

Lean but upon a ruſh,
The cicatrice and capable *impreſſure*
Thy palm ſome moments keeps. *Shakeſpeare.*

IMPRI'MERIE, *ſ.* [French.] A printing-houſe.—You have thoſe conveniencies for a great *imprimerie*, which other univerſities cannot boaſt of. *Lord Arlington.*

IMPRI'MING, *ſ.* [from *in* and *prime.*] An eſſay; a beginning.—Hence, impriming, with hunters, is the rouſing or diſlodging of a wild beaſt; a ſeparation from the herd.

IMPRI'MIS, *adv.* [Latin.] In the firſt place; before the reſt.

*To* IMPRIN'T, *v. a.* [*imprimer*, Fr.] To mark upon any ſubſtance by preſſure.—Having ſurveyed the image of God in the ſoul of man, we are not to omit thoſe characters of majeſty that God *imprinted* upon the body. *South.*

She amidſt his ſpacious meadows flows;
Inclines her urn upon his fatten'd lands,
And ſees his num'rous herds *imprint* her ſands. *Prior.*

To ſtamp words on paper by the uſe of types; to fix on the mind or memory.—There is a kind of conveying of effectual and *imprinting* paſſages amongſt compliments, which is of ſingular uſe. *Bacon.*—We have all thoſe ideas in our underſtandings which we can make the objects of our thoughts, without the help of thoſe ſenſible qualities which firſt *imprinted* them. *Locke.*—Retention is the power to revive again in our minds thoſe ideas, which, after *imprinting*, have diſappeared. *Locke.*—By familiar acquaintance he has got the ideas of thoſe two different things diſtinctly *imprinted* on his mind. *Locke.*

*To Imprint in* is leſs proper.—When we ſet before our eyes a round globe, the idea *imprinted in* our mind is of a flat circle, variouſly ſhadowed. *Locke.*

IM'PRINT, *ſ.* Any words ſtamped on paper with types. By a late act of parliament, the name and place of abode of the printer is to be annexed to every printed paper, whether book, pamphlet, or handbill, in any way publiſhed or exhibited to the public eye, under a penalty of 20l. for every copy ſo publiſhed. The lines containing theſe particulars are commonly called the *imprint*.

IMPRINT'ING, *ſ.* The act of impreſſion; an impreſſion. *Locke.*

*To* IMPRIS'ON, *v. a.* [*empriſonner*, Fr. *in* and *priſon*.] To ſhut up; to confine; to keep from liberty; to reſtrain in place.—If a man *impriſons* himſelf in his cloſet, and employs reaſon to find out the nature of the corporeal world, without experiments, he will frame a ſcheme of chimeras. *Watts.*

Now we are in the ſtreet, he firſt of all,
Improvidently proud, creeps to the wall;
And, ſo *impriſon'd* and hemm'd in by me,
Sells for a little ſtate his liberty. *Donne.*

IMPRIS'ONING, *ſ.* The act of ſhutting up in priſon.

IMPRIS'ONMENT, *ſ.* [*empriſonnement*, Fr. from *impriſon*.] Confinement; clauſure; ſtate of being ſhut in priſon.—Count Serini, ſtill cloſe priſoner in this caſtle, loſt his ſenſes by his long *impriſonment* and afflictions. *Addiſon.*

From retentive cage
When ſullen Philomel eſcapes, her notes
She varies, and of paſt *impriſonment*
Sweetly complains. *Phillips.*

No perſon is to be impriſoned but as the law directs, either by the command or order of a court of record, or by lawful warrant; or the king's proceſs, on which one may be lawfully detained. And, at common law, a perſon could not be impriſoned unleſs he were guilty of ſome force and violence, for which his body was ſubject to impriſonment, as one of the higheſt executions. Where the law gives power to impriſon, in ſuch caſe it is juſtifiable, provided he that does it in purſuance of a ſtatute exactly purſues the ſtatute in the manner of doing it; for otherwiſe it would be deemed falſe impriſonment, and of conſequence it is unjuſtifiable. Every warrant of commitment for impriſoning a perſon, ought to run, "till delivered by due courſe of law," and not "until farther order;" which has been held ill; and thus it alſo is, where one is impriſoned on a warrant not mentioning any cauſe for which he is committed. See FALSE IMPRISONMENT, vol. vii. p. 205.

IMPROBABIL'ITY, *ſ.* [from *improbable*.] Unlikelihood; difficulty to be believed.—As to the *improbabilities* of a ſpirit appearing, I boldly anſwer him, that an heroic poet is not tied to the bare repreſentation of what is true, or exceeding probable. *Dryden.*

IMPROB'ABLE, *adj.* [*improbable*, Fr. *improbabilis*, Lat. *in* and *probable*.] Unlikely; incredible.—This account of party-patches will appear *improbable* to thoſe who live at a diſtance from the faſhionable world. *Addiſon.*

IMPROB'ABLY, *adv.* Without likelihood.—In a manner not to be approved. *Obſolete.*—Ariſtotle tells us, if a drop of wine be put into ten thouſand meaſures of water, the wine, being overpowered, will be turned into water: he ſpeaks very *improbably*. *Boyle.*

*To* IM'PROBATE, *v. a.* [*in* and *probo*, Lat.] Not to approve. *Ainſworth.*

IMPROBA'TION, *ſ.* Act of diſallowing. *Ainſworth.*

IMPROB'ITY, *ſ.* [*improbitas*, *improbus*, Lat.] Want of honeſty; diſhoneſty; baſeneſs.—We balance the *improbity* of the one with the *improbity* of the other. *L'Eſtrange.*

IMPRO'CEROUS, *adj.* [from *in*, Lat. contrary to, and *procerus*, tall.] Low of ſtature. *Cole.*

IMPROCREABIL'ITY, *ſ.* Incapacity of procreation. *Bailey.*

IMPRO'CREABLE, *adj.* Incapable of being produced by procreation. *Bailey.*

IMPRO'CREATE, *adj.* Unbegotten.

IMPRO'CREATED, *adj.* Unbegotten. *Scott.*

IMPROLIF'ICAL, *adj.* [from *in*, Lat. contrary to, and *proles*, an offspring.] Barren; unfruitful. *Cole.*

*To* IMPROLIF'ICATE, *v. a.* [from *in* and *prolific*.] To impregnate; to fecundate. *Brown.*

IMPROMIS'CUOUS, *adj.* [from *in*, Lat. contrary to, and *promiſcuus*, confuſed.] Unmixed; void of confuſion. *Cole.*

IMPROMP'TU, *ſ.* A Latin word frequently uſed among the French, and ſometimes in Engliſh, to ſignify a piece made off-hand, or *extempore*, without any previous meditation, by mere force and vivacity of imagination.—Far different is the caſe with a writer of *impromptus*. *Shenſtone.*

IMPROP'ER, *adj.* [*impropre*, Fr. *improprius*, Lat.] Not well adapted; unqualified.—As every ſcience requires a peculiar genius, ſo likewiſe there is a genius peculiarly *improper* for every one. *Burnet.*—Unfit; not conducive to the right end.—The methods uſed in an original diſeaſe would be very *improper* in a gouty caſe. *Arbuthnot.*—Not juſt; not accurate:

He diſappear'd, was rarify'd;
For 'tis *improper* ſpeech to ſay he dy'd;
He was exhal'd. *Dryden.*

*To* IMPROP'ERATE, *v. a.* [from *in*, Lat. and *propero*, to do quickly.] To upbraid; to nickname; to haſten. *Cole.*

IMPROP'ERLY, *adv.* Not fitly; incongruouſly. Not juſtly; not accurately.—They aſſuring me of their aſſiſtance in correcting my faults where I ſpoke *improperly*, I was encouraged. *Dryden.*

*Improperly* we meaſure life by breath;
Such do not truly live who merit death. *Dryden.*

*To* IMPRO'PRIATE, *v. a.* [*in* and *proprius*, Lat.] To convert to private uſe; to ſeize to himſelf.—For the pardon of the reſt, the king thought it not fit it ſhould paſs by parliament; the better, being matter of grace, to *impropriate* the thanks to himſelf. *Bacon.*—To put the poſſeſſions of the church into the hands of laics.—Mrs. Gulſton, being poſſeſſed of the *impropriate* parſonage of Bardwell in Suffolk, did procure from the king leave to annex the ſame to the vicarage. *Spelman.*

IMPRO'PRIATING, *ſ.* The act of converting to private uſe.

IMPROPRIA'TION, *ſ.* An *impropriation* is properly ſo called when the church land is in the hands of a layman; and an appropriation is when it is in the hands of a biſhop, college, or religious houſe; though ſometimes theſe terms are confounded. *Ayliffe.*

IMPROPRIAT'OR, *ſ.* A layman that has the poſſeſſion of the lands of the church.—Where the vicar leaſes his glebe, the tenant muſt pay the great tythes to the rector or *impropriator*. *Ayliffe.*

IMPROPRI'ETY, *ſ.* [*impropriété*, Fr. from *improprius*, Lat.] Unfitneſs; unſuitableneſs; inaccuracy; want of juſtneſs.—Many groſs *improprieties*, however authorized by practice, ought to be diſcarded. *Swift.*

IMPROS'PEROUS, *adj.* Unhappy; unfortunate; not ſucceſsful.—This method is in the deſign probable, how *improſperous* ſoever the wickedneſs of men hath rendered the ſucceſs of it. *Hammond.*

Seven revolving years are wholly run,
Since the *improſperous* voyage we begun. *Dryden.*

IMPROS'PEROUSLY, *adv.* Unhappily; unſucceſsfully; with ill fortune.—This experiment has been but very *improſperouſly* attempted. *Boyle.*

IMPROS'PEROUSNESS, *ſ.* [from *improſperous*.] Ill fortune.—The effect of theſe threatnings of God we daily ſee in the ſtrange *improſperouſneſs* of ill gotten eſtates. *Whole Duty of Man.*

IMPRO'VABLE, *adj.* [from *improve*.] Capable of being advanced from a good to a better ſtate; capable of melioration.—Animals are not *improvable* beyond their proper genius; a dog will never learn to mew, nor a cat to bark. *Grew.*

IMPRO'VABLENESS, *ſ.* Capableneſs of being made better.

IMPRO'VABLY, *adv.* In a manner that admits of melioration.

*To* IMPRO'VE, *v. a.* [*in* and *probus*; *quaſi probum facere. Skinner.*] To advance any thing nearer to perfection; to raiſe from good to better.—We *amend* a bad, but *improve* a good, thing.—I love not to *improve* the honour of the living by impairing that of the dead. *Denham.*

Heaven ſeems *improv'd* with a ſuperior ray,
And the bright arch reflects a double day. *Pope.*

[*In* and *prove*; *improver*, Fr. *improbo*, Lat.] To diſprove. *Now diſuſed.*—Though the prophet Jeremy was unjuſtly accuſed, yet doth not that *improve* any thing that I have ſaid. *Whitgiſt.*

*To* IMPRO'VE, *v. n.* To advance in goodneſs.—We take care to *improve* in our frugality and diligence; virtues which become us, particularly in time of war. *Atterbury.*

IMPRO'VEMENT, *ſ.* Melioration; advancement of any thing from good to better.—Some virtues tend to the preſervation of health, and others to the *improvement* and ſecurity of eſtates. *Tillotſon.*—Act of improving; ſomething added or changed for the better; ſometimes with *on.*—The parts of Sinon, Camilla, and ſome few others, are *improvements on* the Greek poet. *Addiſon.*—Progreſs from good to better.—There is a deſign of publiſhing the hiſtory of architecture, with its ſeveral *improvements* and decays. *Addiſon.*—Inſtruction; edification.—I look upon your city as the beſt place of *improvement*; from the ſchool we go to the univerſity, but from the univerſities to London. *South.*—Effect of melioration.—Love is the greateſt of human affections, and friendſhip the nobleſt and moſt refined *improvement* of love. *South.*

IMPRO'VER, *ſ.* One that makes himſelf or any thing elſe better.—Homer is like a ſkilful *improver*, who places a beautiful ſtatue ſo as to anſwer ſeveral viſtas. *Pope.*—Any thing that meliorates.—Chalk is a very great *improver* of moſt lands. *Mortimer.*

IMPROVI'DED, *adj.* [*improviſus*, Lat. *imprevu*, Fr.] Unforeſeen; unexpected; unprovided againſt:

She ſuborned hath
This crafty meſſenger with letters vain,
To work new woe and *improvided* ſcath,
By breaking off the band betwixt us twain. *Spenſer.*

IMPROV'IDENCE, *ſ.* [from *improvident.*] Want of forethought; want of caution.—The *improvidence* of my neighbour muſt not make me inhuman. *L'Eſtrange.*

IMPROV'IDENT, *adj.* [*improvidus*, Lat.] Wanting forecaſt; wanting care to provide:

When men well have fed, the blood being warm,
Then are they moſt *improvident* of harm. *Daniel.*

IMPROV'IDENTLY, *adv.* Without forethought; without care:

Now we are in the ſtreet, he firſt of all,
*Improvidently* proud, creeps to the wall;
And, ſo impriſon'd and hemm'd in by me,
Sells for a little ſtate his liberty. *Donne.*

IMPRO'VING, *ſ.* The act of making better.

IMPROVIS'ION, *ſ.* [*in* and *proviſion.*] Want of forethought.—Her *improviſion* would be juſtly accuſable. *Brown.*

IMPRU'DENCE, *ſ.* [*imprudence*, Fr. *imprudentia*, Lat.] Want of prudence; indiſcretion; negligence; inattention to intereſt:

Where good with bad were match'd, who of themſelves
Abhor to join; and by *imprudence* mix'd,
Produce prodigious births of body and mind. *Milton.*

IMPRU'DENT, *adj.* [*imprudeut*, Fr. *imprudens*, Lat.] Wanting prudence; injudicious; indiſcreet; negligent.—There is no ſuch *imprudent* perſon as he that neglects God and his ſoul. *Tillotſon.*

IMPRU'DENTLY, *adv.* Without prudence, injudiciouſly, negligently.

IMPRU'DENTNESS, *ſ.* The ſtate of being inprudent. *Scott.*

IMPRUDIAMEN'TUM, *ſ.* In old records, the improvement of lands by culture.

IM'PUDENCE, or IM'PUDENCY, *ſ.* [*impudence*, Fr. *impudentia*, Lat.] Shameleſſneſs; immodeſty.—Nor did Noah's infirmity juſtify Cham's *impudency*, or exempt him from that curſe of being ſervant of ſervants. *King Charles.*

I ne'er heard yet
That any of theſe bolder vices wanted
Leſs *impudence* to gainſay what they did,
Than to perform it firſt. *Shakeſpeare.*

IM'PUDENT, *adj.* [*impudent*, Fr. *impudens*, Lat.] Shameleſs; wanting modeſty.—It is not a confident brow, nor the throng of words that come with ſuch more than *impudent* ſawcineſs from you, can thruſt me from a level conſideration. *Shakeſpeare.*

When we behold an angel, not to fear
Is to be *impudent*. *Dryden.*

Unchaſte; immodeſt.

IM'PUDENTLY, *adv.* [from *impudent.*] Shameleſsly; without modeſty:

Why ſhould ſoft Fabius *impudently* bear
Names gain'd by conqueſt in the Gallic war?
Why lays he claim to Hercules his ſtrain,
Yet dares be baſe, effeminate, and vain? *Dryden.*

IM'PUDENTNESS, *ſ.* The ſtate or quality of being impudent.

IMPUDI'CITY, *ſ.* [from *in*, Lat. contrary to, and *pudens*, baſhful.] Lewdneſs, obſcenity.

*To* IMPU'GN, *v. a.* [*impugner*, Fr. *impugno*, Lat.] To attack; to aſſault by law or argument.—I cannot think myſelf engaged to diſcourſe of lots, as to their nature, uſe, and allowableneſs; and that not only in matters of moment and buſineſs, but alſo of recreation, which is *impugned* by ſome, though better defended by others. *South.*

Of a ſtrange nature is the ſuit you follow;
Yet in ſuch rule, that the Venetian law
Cannot *impugn* you. *Shakeſpeare.*

To tranſgreſs the rules of:

Why hath thy hand too bold itſelfe embrew'd
In blood of knight, the which by thee is ſlaine,
By thee no knight; which armes *impugneth* plaine. *Spenſ.*

IMPU'GNER, *ſ.* One that attacks or invades.

IMPUIS'SANCE, *ſ.* [French.] Impotence; inability; weakneſs; feebleneſs.—As he would not truſt Ferdinando and Maximilian for ſupports of war, ſo the *impuiſſance* of the one, and the double proceeding of the other, lay fair for him for occaſions to accept of peace. *Bacon.*

IM'PULSE, *ſ.* [*impulſus*, Lat.] Communicated force; the effect of one body acting upon another.—Bodies, from the *impulſe* of a fluid, can only gravitate in proportion to their ſurfaces, and not according to their quantity of matter, which is contrary to experience. *Cheyne.*—Influence acting upon the mind; motive; idea impreſſed.—Theſe were my natural *impulſes* for the undertaking; but there was an accidental motive, which was full as forcible. *Dryden.*—Sometimes accented on the laſt ſyllable:

Mean time, by Jove's *impúlſe*, Mezentius arm'd,
Succeeded Turnus. *Dryden.*

Hoſtile impreſſion:

Like two great rocks againſt the raging tide,
Unmov'd the two united chiefs abide,
Suſtain the *impulſe*, and receive the war. *Prior.*

IMPUL'SED, *adj.* Impelled, driven on, forced forward. *Scott.*

IMPUL'SION, *ſ.* [*impulſion*, Fr. *impulſus*, Lat.] The agency of body in motion upon body.—To the *impulſion* there is requiſite the force of the body that moveth, and the reſiſtance of the body that is moved; and, if the body be too great, it yieldeth too little; and, if it be too ſmall, it reſiſteth too little. *Bacon.*—Influence operating upon the mind:

But thou didſt plead
Divine *impulſion*, prompting how thou might'ſt
Find ſome occaſion to infeſt our foes. *Milton.*

IMPUL'SIVE, *adj.* [*impulſif*, Fr. from *impulſe*.] Having the power of impulſe; moving; impellent.—What is the fountain or *impulſive* cauſe of this prevention of ſin? It is perfectly free grace. *South.*

Nature and duty bind him to obedience;
But, thoſe being placed in a lower ſphere,
His fierce ambition, like the higheſt mover,
Has hurried with a ſtrong *impulſive* motion
Againſt their proper courſe. *Denham.*

IMPUL'SIVE, *ſ.* [from the *adj.*] Motive.—I was conducted from thence to another enquiry, namely, to what end, and upon what *impulſives*, when all was equally every man's in common, men did rather think it fitting, that every man ſhould have his incloſure. *Hobbes.*

IMPU'NITIVE, *adj.* [from *in*, Lat. contrary to, and *punio*, to puniſh.] Unpuniſhable. *Not much uſed.*

IMPU'NITIVELY, *adv.* Without puniſhment. *Cole.*

IMPU'NITY, *ſ.* [*impunité*, Fr. *impunitas*, Lat.] Freedom from puniſhment; exemption from puniſhment.—Men, potent in the commonwealth, will employ their ill-gotten influence towards procuring *impunity*, or extorting undue favours for themſelves or dependents. *Atterbury.*

IMPU'RE, *adj.* [*impur*, Fr. *impurus*, Lat.] Defiled with guilt; unholy: of men:

No more can *impure* man retain and move
In that pure region of a worthy love,
Than earthly ſubſtance can unforc'd aſpire,
And leave his nature to converſe with fire. *Donne.*

Contrary to ſanctity; unhallowed; unholy: of things:

Hypocrites auſterely talk,
Condemning as *impúre*, what God has made
Pure, and commands to ſome, leaves free to all. *Milton.*

Unchaſte.—One could not deviſe a more proper hell for an *impure* ſpirit, than that which Plato has touched upon. *Addiſon.*

If black ſcandal, or foul-fac'd reproach,
Attend the ſequel of your impoſition,
Your meer enforcement ſhall acquittance me
From all the *impure* blots and ſtains thereof. *Shakeſpeare.*

Feculent; foul with extraneous mixtures; droſſy.

IMPU'RELY, *adv.* With impurity.

IMPU'RENESS, or IMPURITY, *ſ.* [*impureté*, Fr. *impuritas*, Lat. from *impure*.] Want of ſanctity; want of holineſs.—Act of unchaſtity.—Foul *impurities* reigned among the monkiſh clergy. *Atterbury.*—Feculent admixture.—Cleanſe the alimentary duct by vomiting and clyſters, the *impurities* of which will be carried into the blood. *Arbuthnot.*

IMPURITY, in the law of Moſes, is any legal defilement. Of theſe there were ſeveral ſorts. Some were voluntary, as the touching a dead body, or any animal that died of itſelf, or any creature that was eſteemed unclean; or the touching things holy by one who was not clean, or was not a prieſt; the touching one who had a leproſy, one who had a gonorrhœa, or who was polluted by a dead carcaſe, &c. Sometimes theſe impurities were involuntary; as when any one inadvertently touched bones, or a ſepulchre, or any thing polluted; or fell into ſuch diſeaſes as pollute, as the leproſy, &c. The beds, clothes, and movables, which had touched any thing unclean, contracted alſo a kind of impurity, and in ſome caſes communicated it to others. Theſe legal pollutions were generally removed by bathing, and laſted no longer than the evening. The perſon polluted plunged over head in the water, and either had his clothes on when he did ſo, or waſhed himſelf and his clothes ſeparately. Other pollutions continued ſeven days, as that which was contracted by touching a dead body. That of women in their monthly courſes laſted till this was over with them. Other impurities laſted forty or fifty days; as that of women who were lately delivered, who were unclean forty days after the birth of a boy, and fifty after the birth of a girl. Others again laſted till the perſon was cured. Many of theſe pollutions were expiated by ſacrifices; and others by a certain water or lye made with the aſhes of a red heifer, ſacrificed on the great day of expiation. When the leper was cured, he went to the temple, and offered a ſacrifice of two birds, one of which was killed and the other ſet at liberty. He who had touched a dead body, or had been preſent at a funeral, was to be purified with the water of expiation, and this upon pain of death. The woman who had been delivered, offered a turtle and a lamb for her expiation; or if ſhe was poor, two turtles or two young pigeons. Theſe impurities, which the law of Moſes has expreſſed with the greateſt accuracy and care, were only figures of other more important impurities, ſuch as the ſins and iniquities committed againſt God, or faults committed againſt our neighbour. The ſaints and prophets of the Old Teſtament were ſenſible of this; and our Saviour, in the goſpel, has ſtrongly inculcated, that they are not outward and corporeal pollutions which render us unacceptable to God, but ſuch inward pollutions as infect the ſoul, and are violations of juſtice, truth, and charity.

*To* IMPUR'PLE, *v. a.* [*empourprer*, Fr. from *purple*.] To make red; to colour as with purple:

Now in looſe garlands, thick thrown off, the bright
Pavement, that like a ſea of jaſper ſhone,
*Impurpled* with celeſtial roſes, ſmil'd. *Milton.*

IMPUR'PLING, *ſ.* The act of tinging with a purple colour.

IMPU'TABLE, *adj.* [from *impute*.] Chargeable upon any one; that of which one may be accuſed.—The firſt ſort of fooliſhneſs is *imputable* to them. *South.*—Accuſable; chargeable with a fault. *Not proper.*—If the wife departs from her huſband, through any default of his, as on the account of cruelty, then he ſhall be compelled to allow her alimony; for the law deems her to be a dutiful wife as long as the fault lies at his door, and ſhe in no wiſe *imputable*. *Ayliffe.*

IMPU'TABLENESS, *ſ.* The quality of being imputable.—'Tis neceſſary to the *imputableneſs* of an action, that it be avoidable. *Norris.*

IMPUTA'TION, *ſ.* [*imputation*, Fr. from *impute*.] Attribution of any thing; generally of ill.—I have formerly ſaid that I could diſtinguiſh your writings from thoſe of any other's; 'tis now time to clear myſelf from any *imputation* of ſelf-conceit on that ſubject. *Dryden.*

Truſt to me, Ulyſſes;
Our *imputation* ſhall be oddly pois'd
In this wild action. *Shakeſpeare.*

Sometimes of good.—If I had a ſuit to maſter Shallow, I would humour his men with the *imputation* of being near their maſter. *Shakeſpeare.*—Cenſure; reproach.—Whatſoever happens, they alſo the leaſt feel that ſcourge of vulgar *imputation*, which, notwithſtanding, they deſerve. *Hooker.*—Hint; ſlight notice.—Anthonio is a good man.—Have you heard any *imputation* to the contrary?—No, no; my meaning is to have you underſtand me that he is ſufficient. *Shakeſpeare.*

IMPU'TATIVE, *adj.* That which may impute. *Ainſworth.*

*To* IMPU'TE, *v. a.* [*imputer*, Fr. *imputo*, Lat.] To charge upon; to attribute; generally ill; ſometimes good.—Men in their innovations ſhould follow the example of time, which innovateth but quietly, and by degrees ſcarce to be perceived; for otherwiſe, whatſoever is new and unlooked-for, ever mends ſome, and impairs others; and he that is holpen takes it for a fortune, and thanks the time; and he that is hurt for a wrong, *imputeth* it to the author. *Bacon.*—To reckon to one what does not properly belong to him :

Thy merit
*Imputed* ſhall abſolve them who renounce
Their own both righteous and unrighteous deeds. *Milton.*

IMPUT'ER, *ſ.* He that imputes.

IMPU'TING, *ſ.* The act of ſetting that to the account of another which does not properly belong to him.

IMPUTRESCIBIL'ITY, *ſ.* [from *imputreſcible.*] The ſtate or quality of being incorruptible. *Scott.*

IMPUTRES'CIBLE, *adj.* [from *in*, Lat. contrary to, and *putreſco*, to grow rotten.] Incorruptible. *Bailey.*

IMPU'TRIBLE, *adj.* Free from putrefaction, incorruptible. *Bailey.*

IM'RAH, [Hebrew.] A man's name.

IM'RI, [Hebrew.] A man's name.

IM'UM, *ſ.* In aſtrology, the fourth or loweſt houſe in the figure of the heavens.

IN, *prep.* [Latin.] Noting the place where any thing is preſent; not without :

*In* ſchool of love are all things taught we ſee;
There learn'd this maid of arms the direful guiſe. *Fairfax.*

Noting the ſtate or thing preſent at any time.—The other is only by error and miſconceit named the ordinance of Jeſus Chriſt; no one proof is yet brought forth, whereby it may clearly appear to be ſo *in* very deed. *Hooker.*

Like one of two contending *in* a prize,
That thinks he hath done well in people's eyes. *Shakeſ.*

Noting the time.—When we would conſider eternity *a parte ante*, what do we but, beginning from ourſelves and the preſent time we are *in*, repeat *in* our minds the ideas of years or ages paſt? *Locke.*—Noting power.—To feed men's ſouls, quoth he, is not *in* man. *Hubb.*—Noting proportion.—I cannot but lament the common courſe, which, at leaſt, nine *in* ten of thoſe who enter into the miniſtry are obliged to enter. *Swift.*—According to.—*In* all likelihood I brought all my limbs out of the bed, which, 'tis probable, he has not done off the breach. *Collier.*—Concerning.—I only conſider what he, who is allowed to have carried this argument fartheſt, has ſaid *in* it. *Locke.*—For the ſake. *A ſolemn phraſe:*

Now, *in* the names of all the gods at once,
Upon what meat does this our Cæſar feed,
That he is grown ſo great? *Shakeſpeare.*

Noting cauſe:

King Henry, by the title right or wrong,
Lord Clifford vows to fight *in* thy defence. *Shakeſpeare.*

In *that.* Becauſe.—Some things they do *in that* they are men; *in that* they are wiſe men, and chriſtian men, ſome things; ſome things *in that* they are men miſled, and blinded with error. *Hooker.*

In *as much.* Since; ſeeing that.—Thoſe things are done voluntarily by us, which other creatures do naturally, *in as much* as we might ſtay our doing of them if we would. *Hooker.*

IN, *adv.* Within ſome place; not out.—How infamous is the falſe, fraudulent, and unconſcionable, perſon; eſpecially if he be arrived at that conſummate and robuſt degree of falſehood as to play *in* and out, and ſhow tricks with oaths, the ſacredeſt bonds which the conſcience of man can be bound with. *South.*—Engaged to any affair.—Theſe pragmatical flies value themſelves for being *in* at every thing, and are found at laſt to be juſt good for nothing. *L'Eſtrange.*

We know the worſt can come; 'tis thought upon;
We cannot ſhift, being *in*, we muſt go on. *Daniel.*

Placed in ſome ſtate:

Poor rogues talk of court news,
Who loſes and who wins; who's *in*, who's out. *Shakeſp.*

Noting immediate entrance.—Go to thy fellows; bid them cover the table, ſerve *in* the meat, and we will come *in* to dinner. *Shakeſpeare.*—Into any place.—Is it not more eligible to come *in* with a ſmooth gale, than to be toſſed at ſea with a ſtorm? *Collier.*

Next fill the hole with its own earth again,
And trample with thy feet, and tread it *in*. *Dryden.*

Cloſe; home.—The poſture of left-handed fencers is ſo different from that of the right-handed, that you run upon their ſwords if you puſh forward; and they are *in* with you, if you offer to fall back without keeping your guard. *Tatler.*

In has commonly in compoſition a negative or privative ſenſe, as in the Latin; ſo, *active* denotes that which acts, *inactive* that which does not act. *In* before *r* is changed into *r*; as *irregular:* before *l* into *l*; as *illative:* and into *m* before ſome other conſonants; as *improbable*. *Johnſon.*

I'NA, king of Weſſex. See the article ENGLAND, vol. vi. p. 547.

INABIL'ITY, *ſ.* Impuiſſance; impotence; want of power.—Neither ignorance nor *inability* can be pretended; and what plea can we offer to divine juſtice to prevent condemnation? *Rogers.*

INAB'STINENCE, *ſ.* Intemperance; want of power to abſtain; prevalence of appetite:

Diſeaſes dire, of which a monſtrous crew
Before thee ſhall appear, that thou may'ſt know
What miſery the *inabſtinence* of Eve
Shall bring on man. *Milton.*

INACCES'SIBLE, *adj.* Not to be reached; not to be approached.—There ſhall we ſee the ends and uſes of theſe things, which here were either too ſubtile for us to penetrate, or too remote and *inacceſſible* for us to come to any diſtant view of. *Ray.*

Whate'er you are,
That in this deſart *inacceſſible*,
Under the ſhade of melancholy boughs,
Loſe and neglect the creeping hours of time. *Shakeſpeare.*

INACCES'SIBLENESS, *ſ.* The ſtate of being inacceſſible.

INAC'CURACY, *ſ.* Want of exactneſs.—It does not then proceed from any peculiar irregularity or difficulty of our language, that the general practice, both of ſpeaking and of writing it, is chargeable with *inaccuracy*. *Lowth.*

INAC'CURATE, *adj.* Not exact; not accurate. It is uſed ſometimes of perſons, but more frequently of performances.—Leland is alſo *inaccurate* at leaſt, in repreſenting the edition of Thynne as coming next after that by Caxton. *Tyrwhitt.*

IN'ACHI, a name given to the Greeks, particularly the Argives, from king Inachus.

INA'CHIA, a name given to Peloponneſus, from the river Inachus.

INACH'IDÆ, the name of the eight firſt ſucceſſors of Inachus, on the throne of Argos.

INA'CHIUM, a town of Peloponneſus.

IN'ACHUS, a ſon of Oceanus and Tethys, father of Io. He founded the kingdom of Argos, and was ſucceeded by his ſon Phoroneus, B. C. 1807. and gave his name to a river of Argos, of which he became the tutelar deity. He reigned ſixty years. *Virgil.*

INAC'TION, *ſ.* Ceſſation from labour; forbearance of labour.—The times and amuſements paſt are not more like a dream to me than thoſe which are preſent; I lie in a refreſhing kind of *inaction*. *Pope.*

INAC'TIVE, *adj.* Not buſy; not diligent; idle; indolent; ſluggiſh.—Benalcazar, governor of St. Michael, an able and enterpriſing officer, was aſhamed of remaining *inactive*. *Robertſon.*—Unfavourable to activity:

Not the vain viſions of *inactive* ſchools;
Not fancy's maxims, not opinion's rules,
E'er form'd the man, whoſe gen'rous warmth extends
T' enrich his country. *Shenſtone.*

INAC'TIVELY, *adv.* Idly; without labour; without motion; ſluggiſhly.—In ſeaſons of perfect freedom, mark how your ſon ſpends his time; whether he *inactively* loiters it away, when left to his own inclination. *Locke.*

INAC'TIVENESS, *ſ.* The ſtate of inaction.

INACTIV'ITY, *ſ.* Idleneſs; reſt; ſluggiſhneſs.—A doctrine which manifeſtly tends to diſcourage the endeavours of men to introduce a lazy *inactivity*, and neglect of the ordinary means of grace. *Rogers.*

Virtue, conceal'd within our breaſt,
Is *inactivity* at beſt. *Swift.*

INAD'EQUATE, *adj.* Not equal to the purpoſe; defective; falling below the due proportion.—*Inadequate* ideas are ſuch, which are but a partial or incomplete repreſentation of thoſe archetypes to which they are referred. *Locke.*

Remorſe for vice
Not paid, or paid *inadequate* in price,
What farther means can reaſon now direct? *Dryden.*

INAD'EQUATELY, *adv.* Defectively; not completely.—Theſe pores they may either exactly fill, or but *inadequately*. *Boyle.*

INAD'EQUATENESS, *ſ.* The ſtate of being inadequate.

INADVER'TENCE, or INADVER'TENCY, *ſ.* [*inadvertance*, Fr. from *inadvertent.*] Careleſſneſs; negligence; inattention.—There is a difference between them, as between *inadvertency* and deliberation, between ſurpriſe and ſet purpoſe. *South.*—Act or effect of negligence.—The productions of a great genius, with many lapſes and *inadvertencies*, are infinitely preferable to the works of an inferior kind of author, which are ſcrupulouſly exact. *Addiſon.*

INADVER'TENT, *adj.* [*in* and *advertens*, Lat.] Negligent; careleſs.

INADVER'TENTLY, *adv.* Careleſsly; negligently.—Worthy perſons, if *inadvertently* drawn into a deviation, will endeavour inſtantly to recover their loſt ground. *Clariſſa.*

INADVER'TENTNESS, *ſ.* The ſtate or quality of being inadvertent. *Scott.*

INAD'ULABLE, *adj.* [from *in*, Lat. contrary to, and *adulor*, to flatter.] Incapable of being flattered. *Not uſed. Cole.*

INAFFABIL'ITY, *ſ.* Reſervedneſs in converſation. *Cole.*

INAFF'ABLE, *adj.* Reſerved; ſour; unpleaſant in converſation. *Scott.*

INAFFECTA'TION, *ſ.* The ſtate of being void of affectation. *Scott.*

INAGU'A, GREAT and LITTLE, two ſmall iſlands in the Windward Paſſage, north-weſt of the iſland of St. Domingo, and north-eaſt of the iſland of Cuba.

INAID'ABLE, *adj.* Not to be aſſiſted:

Labouring art can never anſwer nature
From her *inaidable* eſtate. *Shakeſpeare.*

INA'LIENABLE, *adj.* That cannot be alienated or granted to another.

INA'LIENABLENESS, *ſ.* The ſtate of being inalienable. *Scott.*

INALIMEN'TAL, *adj.* Affording no nouriſhment.—Dulcoration importeth a degree to nouriſhment; and the making of things *inalimental* to become alimental, may be an experiment of great profit for making new victual. *Bacon.*

INAM'AMES, a river in the eaſt of Aſia, as far as which Semiramis extended her empire. *Polyænus.*

INAM'BULATE, *v. a.* [from *in*, Lat. on, and *ambulo*, to walk.] To walk up and down. *Not uſed. Cole.*

INA'MIABLE, *adj.* [from *in*, Lat. contrary to, and *amiabilis*, lovely.] Unlovely; unworthy of love. *Scott.*

INA'MIABLENESS, *ſ.* Unlovelineſs; the want of amiable qualities. *Scott.*

INAMISSIBIL'ITY, *ſ.* [from *inamiſſible.*] The ſtate of being inamiſſible. *Scott.*

INAMIS'SIBLE, *adj.* [*inamiſſible*, Fr. *in* and *amiſſum*, Lat.] Not to be loſt.—Theſe advantages are *inamiſſible*. *Hammond.*

INAMIS'SIBLENESS, *ſ.* The ſtate of being inamiſſible. *Scott.*

INAMORA'TO, *ſ.* [from *in*, Lat. and *amor*, love.] A lover; one who is enamoured.

INA'NE, *adj.* [*inanis*, Lat.] Empty; void. It is uſed licentiouſly for a ſubſtantive.—We ſometimes ſpeak of place in the great *inane*, beyond the confines of the world. *Locke.*

INANIL'OQUENT, *adj.* [from *inanis*, Lat. vain, and *loquor*, to ſpeak.] Speaking to no purpoſe. *Not uſed. Bailey.*

INANIL'OQUOUS, *adj.* Speaking to no purpoſe; babbling. *Bailey.*

*To* INAN'IMATE, *v. a.* [*in* and *animo*, Lat.] To animate; to quicken:

There is a kind of world remaining ſtill,
Though ſhe which did *inanimate* and fill
The world be gone; yet in this laſt long night
Her ghoſt doth walk, that is, a glimmering light. *Donne.*

INAN'IMATE, or INANIMATED, *adj.* [*inanimatus*, Lat. *inanimé*, Fr.] Void of life; without animation.—The ſpirits of animate bodies are all in ſome degree kindled; but *inanimate* bodies have ſpirits no whit inflamed. *Bacon.*

The golden goddeſs, preſent at the pray'r,
Well knew he meant the *animated* fair,
And gave the ſign of granting. *Dryden.*

INANI'TION, *ſ.* [Fr. from *inanis*, Lat.] Emptineſs of body; want of fullneſs in the veſſels of the animal.—Weakneſs which attends fevers proceeds from too great fullneſs in the beginning, and too great *inanition* in the latter end, of the diſeaſe. *Arbuthnot.*

INAN'ITY, *ſ.* Emptineſs; void ſpace.—This opinion excludes all ſuch *inanity*, and admits no vacuities but ſo little ones as no body whatever can come to, but will be bigger than they, and muſt touch the corporal parts which thoſe vacuities divide. *Digby.*

INAP'PETENCY, *ſ.* [*in* and *appetentia*, Lat.] Want of ſtomach or appetite.

INAP'PLICABLE, *adj.* Not to be put to a particular uſe.

INAPPLICABIL'ITY, *ſ.* Unfitneſs for the particular purpoſes.

INAP'PLICABLENESS, *ſ.* The ſtate or quality of being inapplicable. *Scott.*

INAPPLICA'TION, *ſ.* Indolence; negligence.

INAPPRE'CIABLE, *adj.* Incapable of being compared; not reducible to a ſtandard.

INAP'TITUDE, *ſ.* Unfitneſs.—The evil of a moral and almoſt phyſical *inaptitude* of the man to the function, muſt be the greateſt we can conceive to happen in the management of human affairs. *Burke.*

INAR'ABLE, *adj.* [*in* and *aro*, Lat.] Not capable of tillage.

*To* INA'RCH, and INARCHING. See the article HORTICULTURE, in this Volume.

INARGENTA'TION, *ſ.* [from *in*, Lat. and *argentum*, ſilver.] The act or proceſs of gilding with ſilver.

INAR'IME, an iſland near Campania, with a mountain, under which Jupiter confined the giant Typhœus. It is now called *Iſchia*, and is remarkable for its fertility and population. There was formerly a volcano in the middle of the iſland. *Virgil.*

INARTIC'ULATE, *adj.* Not uttered with diſtinctneſs, like that of the ſyllables of human ſpeech.—By the harmony of words we elevate the mind to a ſenſe of devotion;

votion; as our ſolemn muſic, which is *inarticulate* poeſy, doth in churches. *Dryden.*

INARTIC'ULATELY, *adv.* Not diſtinctly.

INARTIC'ULATENESS, *ſ.* Confuſion of ſounds; want of diſtinctneſs in pronouncing.

INARTIFI'CIAL, *adj.* Contrary to art.—I have ranked this among the effects: and it may be thought *inartificial* to make it the cauſe alſo. *Decay of Piety.*

INARTIFI'CIALLY, *adv.* Without art; in a manner contrary to the rules of art.—This lofty humour is clumſily and *inartificially* managed, when it is affected by thoſe of a ſelf-denying profeſſion. *Collier.*

INARTIFI'CIALNESS, *ſ.* The want of art. *Scott.*

IN'ARUS, a town of Egypt, in whoſe neighbourhood the town of Naucratis was built by the Mileſians.—A tyrant of Egypt, who died B. C. 456.

INATTENDU'E ISLAND, (the *Gower Iſland* of Carteret,) ſo named by Surville, lies on the north ſide of the iſlands of Arſacides, 2° 4′ eaſt of Port Praſlin.

INATTEN'TION, *ſ.* Diſregard; negligence; neglect; heedleſſneſs.—Perſons keep out of the reach of the reproofs of the miniſtry, or hear with ſuch *inattention* or contempt, as renders them of little effect. *Rogers.*

Thus novel lays attract our raviſh'd ears;
But old, the mind with *inattention* hears. *Pope.*

INATTEN'TIVE, *adj.* Heedleſs; careleſs; negligent; regardleſs.—If we indulge the frequent roving of paſſions, we ſhall procure an unſteady and *inattentive* habit. *Watts.*

INATTENT'IVELY, *adv.* Careleſsly; with inattention.

INAUD'IBLE, *adj.* Not to be heard; void of ſound:

Let's take the inſtant by the forward top;
For we are old, and on our quick'ſt decrees
Th' *inaudible* and noiſeleſs foot of time
Steals, ere we can effect them. *Shakſpeare.*

INAU'DIBLY, *adv.* In a manner not to be heard.

*To* INAU'GURATE, *v. a.* [*inauguro*, Lat.] To conſecrate; to inveſt with a new office by ſolemn rites; to begin with good omens; to begin.—Thoſe beginnings of years were propitious to him, as if kings did chuſe remarkable days to *inaugurate* their favours, that they may appear acts as well of the time as of the will. *Wotton.*

INAU'GURATING, *ſ.* The act of ſetting any thing apart to ſacred uſe.

INAUGURA'TION, *ſ.* [*inauguration*, Fr. *inauguro*, Lat.] Inveſtiture by ſolemn rites. The coronation of an emperor or king, or the conſecration of a prelate; ſo called from the ceremonies uſed by the Romans, when they were received into the college of augurs.

*To* INAU'RATE, *v. a.* [from *aurum*, Lat. gold.] To gild with gold. *Scott.*

INAU'RATING, *ſ.* The act of gilding any thing with gold.

INAURA'TION, *ſ.* The act of gilding or covering with gold.—The Romans had the art of gilding after our manner; but ſome ſort of their *inauration*, or gilding, muſt have been dearer than ours. *Arbuthnot.*

INAUSPI'CIOUS, *adj.* Ill-omened; unlucky; unfortunate:

Oh here
I will ſet up my everlaſting reſt;
And ſhake the yoke of *inauſpicious* ſtars
From this world-wearied fleſh. *Shakeſpeare.*

INAUSPI'CIOUSLY, *adv.* With ill omens, with bad ſucceſs.

INAUSPI'CIOUSNESS, *ſ.* The ſtate or quality of being inauſpicious. *Scott.*

INBATZ'KOI NOVIM'SKOI, a town of Ruſſia, in the government of Tobolſk, on the Eniſei: 124 miles ſouth of Turuchanſk. Lat. 63. 40. N. lon. 107. E. Ferro.

INBATZ'KOI VERCH'NEI, a town of Ruſſia, in the government of Tobolſk: 168 miles ſouth of Turuchanſk.

INBE'ING, *ſ.* Inherence; inſeparableneſs.—When we ſay the bowl is round, the boy is witty, theſe are proper or inherent modes; for they have a ſort of *inbeing* in the ſubſtance itſelf, and do not ariſe from the addition of any other ſubſtance to it. *Watts.*

IN'BORN, *adj.* Innate; implanted by nature.—All paſſions being *inborn* within us, we are almoſt equally judges of them. *Dryden.*

Some, Caroline, to Heaven's dictates true,
Thy *inborn* worth with conſcious eyes ſhall ſee,
And ſlight th' imperial diadem for thee. *Addiſon.*

INBRE'ATHED, *adj.* Inſpired; infuſed by inſpiration:

Bleſt pair of ſyrens, pledges of heaven's joy,
Sphere-born harmonious ſiſters, Voice and Verſe,
Wed your divine ſounds, and mixt power employ,
Dead things with *inbreath'd* ſenſe able to pierce. *Milton.*

IN'BRED, *adj.* Produced within; hatched or generated within.—A man thinks better of his children than they deſerve; but there is an impulſe of tenderneſs, and there muſt be ſome eſteem for the ſetting of that *inbred* affection at work. *L'Eſtrange.*

But he unmov'd contemns their idle threat;
And *inbred* worth doth boaſting valour ſlight. *Dryden.*

IN'CA, or Ynca, *ſ.* A name given by the natives of Peru to their kings and the princes of the blood. Pedro de Cieca, in his Chronicles of Peru, gives the origin of the incas; and ſays, that that country was, for a long time, the theatre of all manner of crimes, of war, diſſention, and the moſt dreadful diſorders, till at laſt two brothers appeared, one of whom was called *Mango Capa*; of this perſon the Peruvians relate many wonderful ſtories. He built the city of Cuſco, made laws, eſtabliſhed order and harmony by his wiſe regulations; and he and his deſcendants took the name of *inca*, which ſignifies king or great lord. Theſe incas became ſo powerful, that they rendered themſelves maſters of all the country from Paſto to Chili, and from the river Maule on the ſouth to the river Augaſmago on the north; theſe two rivers forming the bounds of their empire, which extended above thirteen hundred leagues in length. This they enjoyed till the diviſions between inca Guaſcar and Atabalipa; which the Spaniards laying hold of, made themſelves maſters of the country, and deſtroyed the empire of the incas. See Peru.

IN'CA's LOOKING-GLASS, the Marcaſitæ hexaëdriæ teſſalaris Wallerij Syſt. Mineralog. tom. ii. p. 132. edit. Vindob. 1778. This was poliſhed into various ornaments by the Peruvians for their incas. A drawing of it, as cut into mirrors, and found in the ſepulchres of the incas, is given in Don Ulloa's Voyage. See alſo Condamine's Voyage to Italy.

*To* INCA'GE, *v. a.* To coop up; to ſhut up; to confine in a cage, or any narrow ſpace:

And yet *incaged* in ſo ſmall a verge,
Thy waſte is no whit leſſer than thy lord's. *Shakeſpeare.*

INCA'GING, *ſ.* The act of putting into a cage.

INCALES'CENCE, or Incales'cency, *ſ.* [*incaleſco*, Lat.] The ſtate of growing warm; warmth; incipient heat.—The oil preſerves the ends of the bones from *incaleſcency*, which they, being ſolid bodies, would neceſſarily contract from a ſwift motion. *Ray.*

INCALES'CENT, *adj.* Growing hot by ſome inteſtine motion, growing warm by fermentation

INCAMERA'TION, *ſ.* A term uſed in the chancery of Rome, for the uniting of lands, revenues, or other rights, to the pope's domain.

INCAMP', *v. n.* To encamp, to pitch tents for the accommodation of an army.

INCAMP'MENT, *ſ.* An encampment. *Scott.*

INCANDES'CENCE, *ſ.* [*incandeſco*, Lat.] A very ſtrong flaming heat.

INCANTA'TION, *ſ.* [Fr. from *incanto*, Lat.] Charms uttered by ſinging; enchantment.—The great wonders of witches, their carrying in the air, and transforming themſelves into other bodies, reported to be wrought, not by *incantations* or ceremonies, but by anointing themſelves all over, move a man to think that theſe fables are the effects of imagination; for ointments, if laid on any thing thick, by ſtopping of the pores, ſhut in the vapours, and ſend them to the head extremely. *Bacon.*

The nuptial rites his outrage ſtraight attends;
The pow'r deſir'd is his transfigur'd friends:
The *incantation* backward ſhe repeats,
Inverts her rod, and what ſhe did defeats. *Garth.*

INCANTA'TOR, *ſ.* One that uſes incantation. *Cole.*

INCAN'TATORY, *adj.* [from *incanto*, Lat.] Dealing by enchantment; magical.—Fortune-tellers, jugglers, geomancers, and the like *incantatory* impoſtors, daily delude them. *Brown.*

*To* INCAN'TON, *v. a.* To unite to a canton or ſeparate community.—When the cantons of Bern and Zurich propoſed the incorporating Geneva in the cantons, the Roman Catholics, fearing the Proteſtant intereſt, propoſed the *incantoning* of Conſtance as a counterpoiſe. *Addiſon.*

INCAN'TONING, *ſ.* The act of uniting to a canton.

INCAPABIL'ITY, or INCA'PABLENESS, *ſ.* Inability natural; diſqualification legal.—You have nothing to urge but a kind of *incapability* in yourſelf to the ſervice. *Suckling.*

INCA'PABLE, *adj.* Wanting room to hold or contain: with *of* before the thing to be contained. Wanting power; wanting underſtanding; unable to comprehend, learn, or underſtand:

*Incapable* and ſhallow innocents!
You cannot gueſs who cauſ'd your father's death. *Shakeſp.*

Not able to admit or have any thing.—Wilmot, when he ſaw Goring put in the command, thought himſelf *incapable* of reparation. *Clarendon.*—Unable; not equal to any thing:

Is not your father grown *incapable*
Of reaſonable affairs? is he not ſtupid
With age? *Shakeſpeare.*

Diſqualified by law.—Their lands are almoſt entirely taken from them, and they are rendered *incapable* of purchaſing any more. *Swift.*—In converſation it is uſual to ſay a man is *incapable of* falſehood, or *incapable of* generoſity, or of any thing good or bad. *Johnſon.*

INCA'PABLENESS, *ſ.* Incapacity.

INCAPA'CIOUS, *adj.* Narrow; of ſmall content.—Souls that are made little and *incapacious*, cannot enlarge their thoughts to take in any great compaſs of times or things. *Burnet.*

INCAPA'CIOUSNESS, *ſ.* Narrowneſs; want of containing ſpace.

*To* INCAPA'CITATE, *v. a.* To diſable; to weaken.—Nothing of conſequence ſhould be left to be done in the laſt *incapacitating* hours of life. *Clariſſa.*—To diſqualify.—Monſtroſity could not *incapacitate* from marriage. *Arbuthnot.*

INCAPA'CITATING, *ſ.* The act of rendering incapable.

INCAPA'CITY, *ſ.* Inability; want of natural power; want of power of body; want of comprehenſiveneſs of mind.—The inactivity of the ſoul is its *incapacity* to be moved with any thing common. *Arbuthnot.*

*To* INCAR'CERATE, *v. a.* [*incarcero*, Lat.] To impriſon; to confine. It is uſed in the Scots law to denote impriſoning or confining in a gaol; otherwiſe it is ſeldom found.—Contagion may be propagated by bodies that eaſily *incarcerate* the infected air; as woollen clothes. *Harvey.*

INCAR'CERATING, *ſ.* The act of impriſoning.

INCARCERA'TION, *ſ.* Impriſonment; confinement.

*To* INCAR'N, *v. a.* [*incarno*, Lat.] To cover with fleſh.—The fleſh will ſoon ariſe in that cut of the bone, and make exfoliation of what is neceſſary, and *incarn* it. *Wiſeman.*

*To* INCAR'N, *v. n.* To breed fleſh.—The ſlough came off, and the ulcer happily *incarned*. *Wiſeman.*

*To* INCAR'NADINE, *v. a.* [Fr. from *incarnadino*, Ital. pale red.] To dye red:

Will all great Neptune's ocean waſh this blood
Clean from my hand? No, this my hand will rather
The multitudinous ſea *incarnadine*,
Making the green one red. *Shakeſpeare.*

*To* INCAR'NATE, *v. a.* [*incarner*, Fr. *incarno*, Lat.] To clothe with fleſh; to embody with fleſh:

I, who erſt contended
With gods to ſit the higheſt, am now conſtrain'd
Into a beaſt, and mix with beſtial ſlime,
This eſſence to *incarnate* and imbrute. *Milton.*

INCAR'NATE, *part. adj.* Clothed with fleſh; embodied with fleſh.—A moſt wiſe ſufficient means of redemption and ſalvation, by the ſatisfactory death and obedience of the *incarnate* Son of God, Jeſus Chriſt, God bleſſed for ever. *Sanderſon.*

Here ſhalt thou ſit *incarnate*, here ſhalt reign
Both God and man. *Milton.*

It may be doubted whether Swift underſtood this word:

But he's poſſeſt,
*Incarnate* with a thouſand imps. *Swift.*

In Scotland *incarnate* is applied to any thing tinged of a deep red colour, from its reſemblance to a fleſh-colour. *Johnſon.*

INCARNA'TION, *ſ.* The act of aſſuming body.—Upon the Annunciation, or our Lady-day, meditate on the *incarnation* of our bleſſed Saviour. *Taylor.*—The ſtate of breeding fleſh.—The pulſation under the cicatrix proceeded from the too lax *incarnation* of the wound. *Wiſeman.*

INCARNATION, in theology, ſignifies the act whereby the Son of God aſſumed the human nature; or the myſtery by which Jeſus Chriſt, the eternal word, was made man, in order to accompliſh the work of our ſalvation. The era uſed among Chriſtians, whence they number their years, is the time of the incarnation, that is, of Chriſt's conception in the virgin's womb. This era was firſt eſtabliſhed by Dionyſius Exiguus, about the beginning of the ſixth century, till which time the era of Diocleſian had been in uſe. Some time after this, it was conſidered, that the years of a man's life were not numbered from the time of his conception, but from that of his birth; which occaſioned them to poſtpone the beginning of this era for the ſpace of one year, retaining the cycle of Dionyſius entire in every thing elſe. At Rome they reckon their years from the incarnation or birth of Chriſt, that is, from the 25th of December, which cuſtom has obtained from the year 1431. In France, and ſeveral other countries, they alſo reckon from the incarnation; but then they differ from each other in the day of the incarnation, fixing it, after the primitive manner, not to the day of the birth, but of the conception, of our Saviour. The Florentines retain the day of the birth, and begin their year from Chriſtmas. See CHRONOLOGY.

INCAR'NATIVE, *ſ.* A medicine that generates fleſh.—I deterged the abſceſs, and incarned by the common *incarnative*. *Wiſeman.*

INCAR'NING, *ſ.* The act of covering with fleſh.

INCARTA'TION, *ſ.* In chemiſtry, the depart; a method of ſeparating gold from ſilver.

INCARVILLE'A, *ſ.* in botany, a genus of the claſs didynamia, order angioſperma. Eſſential generic characters—Calyx five-cleft; corolla tubular, five-cleft, unequal, with the orifice ſwelling; antheræ two of them with two awns, two awnleſs; ſilique two-celled; ſeeds with membranaceous wings.

Incarvillea ſinenſis: a ſingle ſpecies. The ſtem herbaceous, branched, ſtriate; leaves in jagged pinnate ſegments; flowers in looſe ſpikes, terminal, purple. Inhabits China.

*To* INCA'SE, *v.a.* To cover; to incloſe; to inwrap:

Rich plates of gold the folding-doors *incaſe*,
The pillars ſilver. *Pope.*

INCA'SING, *ſ.* The act of including in a caſe.

INCASSAN', a canton or diſtrict of Africa, on the Gold Coaſt; the country is mountainous, and abounds in foreſts; among the trees is one the wood of which is yellow, and much eſteemed in cabinet-work and furniture; there is a ſmall bay on the coaſt, with convenience of landing, and good anchorage.

INCAS'TELLATED, *adj.* [from *caſtellum*, Lat. a caſtle.] Built round with ſtone-work in the form of a little caſtle. *Scott.*

INCAV'ATED, *adj.* [from *cavo*, Lat. to hollow.] Made hollow. *Scott.*

INCAU'TIOUS, *adj.* Uncautious; negligent; heedleſs.—His rhetorical expreſſions may eaſily captivate any *incautious* reader. *Keil* v. *Burnet.*

INCAU'TIOUSLY, *adv.* Unwary; heedleſsly; negligently.—A ſpecies of palſy invades ſuch as *incautiouſly* expoſe themſelves to the morning air. *Arbuthnot.*

INCENA'DA' DE BARRAGAN, a town of South America, in Braſil, ſituated on the weſt bank of the river Barragan, at its union with the Plata; veſſels which draw more than twelve feet water cannot come up to this town. The houſes are built without regularity; and the inhabitants are, in general, lazy and poor: twenty miles weſt of Buenos Ayres.

INCEN'DIARY, *ſ.* [*incendiarius*, from *incendo*, Lat. *incendiaire*, Fr.] One who ſets houſes or towns on fire in malice or for robbery.—Fire too frequently involves in the common calamity perſons unknown to the *incendiary*. *Blackſtone.*—One who inflames factions, or promotes quarrels.—*Incendiaries* of figure and diſtinction, who are the inventors and publiſhers of groſs falſehoods, cannot be regarded but with the utmoſt deteſtation. *Addiſon.*

Incendiary, in law, is applied to one who is guilty of maliciouſly ſetting fire to another's dwelling-houſe, and all outhouſes that are parcel thereof, though not contiguous to it or under the ſame roof, as barns and ſtables. A bare intent or attempt to do this, by actually ſetting fire to a houſe, unleſs it abſolutely burns, does not fall within the deſcription of *incendit et compuſſit*. But the burning and conſuming of any part is ſufficient; though the fire be afterwards extinguiſhed. It muſt alſo be a *malicious burning*; otherwiſe it is only a treſpaſs. This offence is called *arſon* in our law.

Among the ancients, criminals of this kind were to be burnt. The puniſhment of *arſon* was death by our ancient Saxon laws and by the Gothic conſtitutions; and in the reign of Edward I. incendiaries were burnt to death. The ſtat. 8 Hen. VI. c. 6. made the wilful burning of houſes, under ſpecial circumſtances, high treaſon; but it was reduced to felony by the general acts of Edward VI. and Queen Mary. This offence was denied the benefit of clergy by 21 Hen. VIII. c. 1. which ſtatute was repealed by 1 Edw. VI. c. 12; and arſon was held to be ouſted of clergy, with reſpect to the principal, by inference from the ſtat. 4 and 5 P. and M. c. 4. which expreſsly denied it to the acceſſory; though now it is expreſsly denied to the principal alſo, by 9 Geo. I. c. 22.

IN'CENSE, *ſ.* [*incenſum*, Lat. a thing burnt; *encens*, Fr.] Perfumes exhaled by fire in honour of ſome god or goddeſs:

Numa the rites of ſtrict religion knew;
On ev'ry altar laid the *incenſe* due. *Prior.*

Incense, or Frankincense, in the materia medica, &c. a dry reſinous ſubſtance, known among authors by the names *thus* and *olibanum*. With this the Pagans did, and the Roman Catholics do ſtill, perfume their temples, altars, &c. The burning of incenſe made part of the daily ſervice of the ancient Jewiſh church. The prieſts drew lots to know who ſhould offer it; the deſtined perſon took a large ſilver diſh, in which was a cenſer full of incenſe; and, being accompanied by another prieſt carrying ſome live coals from the altar, went into the temple. There, in order to give notice to the people, they ſtruck upon an inſtrument of braſs placed between the temple and the altar; and, being returned to the altar, he who brought the fire left it there, and went away. Then the offerer of incenſe, having ſaid a prayer or two, waited the ſignal, which was the burning of the holocauſt; immediately upon which he ſet fire to the incenſe, the whole multitude continuing all the time in prayer. The quantity of incenſe offered each day was half a pound in the morning and as much at night. One reaſon of this continual burning of incenſe might be, that the multitude of victims that were continually offered up would have made the temple ſmell like a ſlaughter-houſe, and conſequently have inſpired the comers rather with diſguſt and averſion than awe and reverence, had it not been overpowered by the agreeable fragrance of thoſe perfumes.

*To* IN'CENSE, *v. a.* To perfume with incenſe.

*To* INCEN'SE, *v. a.* [*incenſus*, Lat.] To enkindle to rage; to inflame with anger; to enrage; to provoke; to irritate to anger: to heat; to fire; to make furious; to exaſperate:

If 'gainſt yourſelf you be *incens'd*, we'll put you,
Like one that means his proper harm, in manacles. *Shakeſp.*

INCEN'SEMENT, *ſ.* Rage; heat; fury.—His *incenſement* at this moment is ſo implacable, that ſatisfaction can be none but by pangs of death. *Shakeſpeare.*

INCEN'SING, *ſ.* The act of making angry; the act of offering incenſe to any one.

INCEN'SION, *ſ.* The act of kindling; the ſtate of being on fire.—Sena loſes its windineſs by decocting; and ſubtile or windy ſpirits are taken off by *incenſion* or evaporation. *Bacon.*

INCEN'SOR, *ſ.* A kindler of anger; an inflamer of paſſions.—Many prieſts were impetuous and importunate *incenſors* of the rage. *Hayward.*

INCEN'SORY, *ſ.* The veſſel in which incenſe is burnt and offered. *Ainſworth.*

INCEN'TIVE, *ſ.* [*incentivum*, Lat.] That which kindles.—Their unreaſonable ſeverity was not the leaſt *incentive* that blew up into thoſe flames the ſparks of diſcontent. *King Charles.*—That which provokes; that which encourages; incitement; motive; encouragement; ſpur. It is uſed of that which incites, whether to good or ill: with *to*.—Even the wiſdom of God hath not ſuggeſted more preſſing motives, more powerful *incentives to* charity, than theſe, that we ſhall be judged by it at the laſt dreadful day. *Atterbury.*

INCEN'TIVE, *adj.* Inciting; encouraging: with *to*.—Competency is the moſt *incentive to* induſtry; too little makes men deſperate, and too much careleſs. *Decay of Piety.*

INCEP'TION, *ſ.* [*inceptio*, Lat.] Beginning.—The *inception* of putrefaction hath in it a maturation. *Bacon.*

INCEP'TIVE, *adj.* [*inceptivus*, Lat.] Noting beginning.—An *inceptive* and deſitive propoſition; as, The fogs vaniſh as the ſun riſes; but the fogs have not yet begun to vaniſh, therefore the ſun is not yet riſen. *Locke.*

INCEP'TIVE, *adj.* A word uſed by Dr. Wallis to expreſs ſuch moments, or firſt principles, as, though of no magnitude themſelves, are yet capable of producing ſuch as are. Thus a point has no magnitude itſelf, but is inceptive of a line which it produces by its motion, So a line, though it have no breadth, is yet inceptive of breadth; that is, it is capable, by its motion, of producing a ſurface which has breadth, &c.

INCEP'TOR, *ſ.* A beginner; one who is in his rudiments.

INCER'ATED, *adj.* [from *cera*, Lat. wax.] Covered with wax. *Scott.*

INCERA'TION, *ſ.* The act of covering with wax.

INCER'NING, *ſ.* [from *incerno*, Lat. to ſift.] The act of ſifting. *Not uſed. Cole.*

INCER'TAIN, *adj.* [from *incertus*, Lat.] Full of uncertainty.—With words confuſ'd *incertain* tales they told. *Fairfax.*

INCER'TAINTY, *ſ.* Uncertainty.—Notwithſtanding that vulgar imputation of *incertaintie. Davies.*

INCER'TITUDE, *ſ.* [*incertitude*, Fr. *incertitudo*, Lat.] Uncertainty: doubtfulneſs.

INCES'SANT, *adj.* [*in* and *ceſſans*, Lat.] Unceaſing; unintermitted; continual; uninterrupted:

If, by pray'r
*Inceſſant*, I could hope to change the will
Of him who all things can, I would not ceaſe
To weary him with my aſſiduous cries. *Milton.*

INCES'SANTLY, *adv.* Without intermiſſion; continually.—The Chriſtians, who carried their religion through ſo many perſecutions, were *inceſſantly* comforting one another with the example and hiſtory of our Saviour and his apoſtles. *Addiſon.*

Both his hands, moſt filthy feculent,
Above the water were of high extent,
And fain'd to waſh themſelves *inceſſantly*. *Fairy Queen.*

INCES'SANTNESS, *ſ.* The ſtate or quality of being inceſſant. *Scott.*

IN'CEST, *ſ.* [*inceſte*, Fr. *inceſtum*, Lat.] Unnatural and criminal conjunction of perſons within degrees prohibited. —He who entered in the firſt act a young man, like Pericles prince of Tyre, muſt not be in danger in the fifth act of committing *inceſt* with his daughter. *Dryden.*

Is't not a kind of *inceſt* to take life
From their own ſiſter's ſhame. *Shakeſpeare.*

Some are of opinion, that marriage ought to be permitted between kinsfolks, to the end that the affection ſo neceſſary in marriage might be heightened by this double tie; yet the rules of the church have formerly extended this prohibition even to the ſeventh degree; but time has now brought it down to the third.

All nations look on inceſt with horror, Perſia and Egypt alone excepted. In the hiſtory of the ancient kings of thoſe countries, we meet with inſtances of the brother's marrying the ſiſter; the reaſon was, becauſe they thought it too mean to join in alliance with their own ſubjects, and ſtill more ſo to have married into any foreign family.

INCES'TUOUS, *adj.* Guilty of inceſt; guilty of unnatural cohabitation.—We may eaſily gueſs with what impatience the world would have heard an *inceſtuous* Herod diſcourſing of chaſtity. *South.*

Hide me, thou bloody hand,
Thou perjure, and thou ſimular of virtue,
That art *inceſtuous.* *Shakeſpeare.*

INCES'TUOUSLY, *adv.* With unnatural love.—Macareus and Canace, ſon and daughter to Æolus, god of the winds, loved each other *inceſtuouſly. Dryden.*

INCES'TUOUSNESS, *ſ.* The ſtate of being inceſtuous.

INCH, *ſ.* [ince, Sax. *uncia*, Lat.] A meaſure of length ſuppoſed equal to three grains of barley laid end to end; the twelfth part of a foot.—A foot is the ſixth part of the ſtature of man, a ſpan one eighth of it, and a thumb's-breadth or *inch* one ſeventy-ſecond. *Holder.*

The ſun ſhould never miſs, in all his race,
Of time one minute, or one *inch* of ſpace. *Blackmore.*

A proverbial name for a ſmall quantity.—The commons were growing by degrees into power and property, gaining ground upon the patricians *inch* by *inch. Swift.*

The plebeians have got your fellow-tribune;
They'll give him death by *inches.* *Shakeſpeare.*

A nice point of time.—Beldame, I think, we watch'd you at an *inch. Shakeſpeare.*

*To* INCH, *v. a.* To drive by inches:

Valiant they ſay, but very popular;
He gets too far into the ſoldiers' graces,
And *inches* out my maſter. *Dryden.*

To deal out by inches; to give ſparingly. *Ainſworth.*—To advance or retire a little at a time.

INCH, an iſland of Ireland, in Lough Swilly, about five miles in circumference: ſix miles north-weſt of Londonderry.

INCH, a town or village of Scotland, in the county of Wigton, in which are ſome mineral and ſulphurous ſprings: three miles eaſt of Stranrawer.

INCH, a town of Scotland, in the county of Aberdeen; ten miles north-weſt of Inverary.

INCH OF CAN'DLE, the manner of ſelling goods by merchants; which is done thus: Firſt, notice is to be given upon the Exchange, or other public place, of the time of ſale; and, in the mean time, the goods to be ſold or divided into lots, printed papers of which, and the conditions of ſale, are alſo forthwith publiſhed; and, when the goods are expoſed to ſale, a ſmall piece of wax-candle, about an inch long, is burning, and the laſt bidder when the candle goes out is entitled to the lot or parcel ſo expoſed. This mode is ſubject to the ſame regulations and duties as any other public ſale; for which ſee the article AUCTIONEER, vol. ii. p. 547.

INCH-COLM, or COLUM'BA, the iſle of Columba, an iſland ſituated on the Frith of Forth in Scotland, and famous for its monaſtery.

This monaſtery was founded about 1123, by Alexander I. on the following occaſion. In paſſing the Frith of Forth he was overtaken with a violent ſtorm, which drove him to this iſland, where he met with the moſt hoſpitable reception from a poor hermit, then reſiding here in the chapel of St. Columba, who, for the three days that the king continued there tempeſt-bound, entertained him with the milk of his cow, and a few ſhell-fiſh. His majeſty, from the ſenſe of the danger he had eſcaped, and in gratitude to the ſaint to whom he attributed his ſafety, vowed ſome token of reſpect; and accordingly founded here a monaſtery of Auguſtines, and dedicated it to St. Columba. Allan de Mortimer, lord of Aberdour, who attended Edward III. in his Scotch expedition, beſtowed half of thoſe lands on the monks of this iſland, for the privilege of a family burial-place in their church. The buildings made in conſequence of the piety of Alexander were very conſiderable. There are ſtill to be ſeen a large ſquare tower belonging to the church, the ruins of the church, and of ſeveral other buildings. The wealth of this place in the time of Edward III. proved ſo ſtrong a temptation to his fleet, then lying in the Forth, as to ſuppreſs all the horror of ſacrilege and reſpect to the ſanctity of the inhabitants. The Engliſh landed, and ſpared not even the furniture more immediately conſecrated to divine worſhip. But vengeance overtook them; for in a ſtorm which inſtantly followed, many of them periſhed; thoſe who eſcaped, ſtruck with the juſtice of the judgment, vowed to make ample recompence to the injured ſaint. The tempeſt ceaſed; and they made the promiſed atonement. The Daniſh monument, figured by ſir Robert Sibbald, lies on the ſouth-eaſt ſide of the building, on a riſing ground. It is of a rigid form, and the ſurface ornamented with ſcale-like figures. At each end is the repreſentation of a human head.

INCH-GAR'VIE, a ſmall iſland, alſo lying in the Frith of Forth. See FORTH.

INCH-KEITH, a ſmall iſland ſituated in the ſame frith, midway between the port of Leith and Kinghorn on the oppoſite ſhore.

This iſland is ſaid to derive its name from the gallant Keith who ſo greatly ſignalized himſelf by his valour in 1010, in the battle of Barry, in Angus, againſt the Danes; after which he received in reward the barony of Keith, in Lothian, and this little iſle. In 1549 the Engliſh fleet, ſent by Edward VI. to aſſiſt the lords of the congregation againſt the queen-dowager, landed, and began to fortify this iſland, of the importance of which they grew ſenſible after their neglect of ſecuring the port of Leith, ſo lately in their power. They left here five companies to cover the workmen under the command of Cotterel; but their operations were ſoon interrupted by M. Deſſe, general of the French auxiliaries, who took the place, after a gallant defence on the part of the Engliſh. The Scots kept poſſeſſion for ſome years; but at laſt the fortifications were deſtroyed by act of parliament, to prevent it from being of any uſe to the former. The French gave it the name of *l'Iſle des Chevaux*, from its property of ſoon fattening horſes. In 1497, by order of council, all venereal patients in the neighbourhood of the capital were tranſported there, *ne quid detrimenti reſpublica caperet.*

INCH-KEN'NETH, a ſmall iſland near the weſt coaſt of Scotland: one mile and a half weſt of Mull.

INCH-MAR'NOCH, a ſmall iſland near the weſt coaſt of the Iſle of Bute, where are the ruins of a chapel. The extent of this little iſle is about a mile; has a hundred and twenty acres of arable land, forty of bruſh wood, near three hundred of moor, with ſtrata of coral and ſhells on the weſt ſide.

INCH-POINT, a cape of Ireland, between Dingle Bay and Caſtlemain Harbour, in the county of Kerry: thirteen miles eaſt of Dingle.

*To* INCHAI'N. See *To* ENCHAIN, vol. vi.

*To* INCHA'NT. See *To* ENCHANT.

INCHAN'TER. See ENCHANTER.

INCHANT'MENT, *ſ.* See ENCHANTMENT.

INCHANT'RESS, *ſ.* See ENCHANTRESS.

*To* INCHA'SE. See *To* ENCHASE.

IN'CHED, *adj.* [with a word of number before it.] Containing inches in length or breadth.—Poor Tom, proud of heart to ride on a bay trotting horſe over four-*inched* bridges. *Shakeſpeare.*

IN'CHENHOFEN, a town of Germany, in Upper Bavaria: three miles north of Aicha, and thirteen ſouth-eaſt of Rain.

INCH'ING, *ſ.* The act of meaſuring by inches.

IN'CHIPIN, *ſ.* Some of the inſide of a deer. *Ainſworth.*

INCH'MEAL, *ſ.* A piece an inch long:

All th' infections that the ſun ſucks up
From bogs, fens, flats, on Proſpero fall, and make him
By *inchmeal* a diſeaſe! *Shakeſpeare.*

*To* IN'CHOATE, *v. a.* [*inchoo*, Lat.] To begin to commence.—It is neither a ſubſtance perfect, nor a ſubſtance *inchoate*, or in the way of perfection. *Raleigh.*

INCHOA'TION, *ſ.* Inception; beginning.—The ſetting on foot ſome of thoſe arts in thoſe parts would be looked upon as the firſt *inchoation* of them, which yet would be but their reviving. *Hale.*

IN'CHOATIVE, *adj.* Inceptive; noting inchoating or beginning.

IN'CHOATIVE, *ſ.* In grammar, a word which notes the beginning of action; an inceptive.

INCH'OFER (Melchior), a learned German Jeſuit, was born at Vienna in the year 1584. At the commencement of his academic ſtudies he devoted his principal attention to the ſcience of juriſprudence, in which he became a diſtinguiſhed proficient at the age of twenty-three. He then determined to enter into the ſociety of the Jeſuits, and for that purpoſe went to Rome, where he was admitted to his noviciate in the year 1607. Here he ſeems to have relinquiſhed his legal purſuits, and to have employed his time in the ſtudy of philoſophy, theology, and the mathematics. Afterwards he filled the chair of profeſſor in thoſe faculties, during ſeveral years, at Meſſina in Sicily. At that place he publiſhed, in 1630, a work which ſhows that, whatever ſtock of learning he poſſeſſed, it was not unaccompanied with a ſufficient portion of credulity. It was entitled, *Epiſtolæ B. Mariæ Virginis ad Meſſanenſes Veritas vindicata*, folio; or, The Bleſſed Virgin Mary's Letter to the People of Meſſina proved to be genuine. In conſequence of complaints which were preferred againſt him before the Congregation of the Index at Rome, on account of this publication, he was obliged to repair to that city; where his judges were ſo well ſatiſfied with the reaſons which he offered in defence of what he had advanced, that, in the plenitude of their wiſdom, they gave their ſanction to a new impreſſion of the work, with ſome trifling alterations, and a change of the title into, *Conjectatio ad Epiſt. B. Mar. &c.* or, A Conjecture concerning the Bleſſed Virgin Mary's Letter, &c. Inchofer continued ſome years at Rome, where, to his honour, he created many enemies by the zeal and ſpirit with which he expoſed the immoral and barbarous practice of forming *caſtrati* for the ſervice of the orcheſtra and the ſtage. He alſo became diſguſted with the intrigues and ſelfiſhneſs of the order to which he belonged. Thus circumſtanced, he retired to Macerata, and afterwards to Milan, where he ſpent his time in ſtudy till his death, in 1648, when he was about ſixty-four years of age. He was the author of, 1. Tractatus Syllepticus, in quo quid de Terræ Soliſque Motu vel Statione ſecundum Sacram Scripturam & SS. Patrum ſentiendum, &c. oſtenditur, 1633, 4to. 2. De ſacra Latinitate, de variis Linguæ Latinæ myſteriis, ex Origine, Progreſſu, Fine, &c. 1635, 4to. 3. Hiſtoria trium Magorum, 1639, which is ſaid to reflect little credit on his critical ſkill. 4. Annalium Eccleſiaſticorum Regni Hungariæ, tom. i. 1644, folio; which, from the learning and curious reſearch diſplayed in it, has occaſioned regret that the author did not live to complete his plan; and other pieces to which he did not give his name. He is alſo thought to have been the author of, 5. A ſevere ſatire againſt the Jeſuits, entitled, Lucii Cornelii Europæi Monarchia Solipſorum, which was firſt publiſhed at Venice, and afterwards in Holland, in the year 1648.

INCHOU', a town of China, of the third rank, in the province of Se-tchuen: ten miles north-eaſt of Pan.

INCH'TURE, a town of Scotland, in the county of Perth, in the road between Perth and Dundee: nine miles eaſt of Perth.

INCIC'URABLE, *adj.* [from the Lat. *in*, contrary to, and *cicur*, tame.] Incapable of being tamed. *Scott.*

*To* INCI'DE, *v. a.* [from *incido*, to cut, Lat.] Medicines are ſaid to *incide* which conſiſt of pointed and ſharp particles; as acids, and moſt ſalts, by which the particles of other bodies are divided from one another: thus expectorating medicines are ſaid to *incide* or cut the phlegm. *Quincy.*

IN'CIDENCE, or INCIDENCY, *ſ.* [*incidence*, Fr. from *incido*, Lat. to fall.] The direction with which one body ſtrikes upon another, and the angle made by that line, and the plane ſtruck upon, is called the angle of *incidence*. In the occurſions of two moving bodies, their *incidence* is ſaid to be perpendicular or oblique, as their directions or lines of motion make a ſtraight line or an oblique angle at the point of contact. *Quincy.*—In mirrors there is the like angle of *incidence*, from the object of the glaſs, and from the glaſs to the eye. *Bacon.*—In equal *incidences* there is a conſiderable inequality of refractions, whether it be that ſome of the incident rays are refracted more and others leſs conſtantly, or one and the ſame ray is by refraction diſturbed. The permanent whiteneſs argues, that in like *incidences* of the ray there is no ſuch ſeparation of the emerging rays. *Newton.*—[*Incidens*, Lat.] Accident; hap; caſualty:

What *incidency* thou doſt gueſs of harm declare,
Is creeping towards me. *Shakeſpeare.*

IN'CIDENT, *adj.* [Fr. from *incidens,* Lat.] Caſual; fortuitous; occaſional; happening accidentally; iſſuing in beſide the main deſign; happening beſide expectation.—As the ordinary courſe of common affairs is diſpoſed of by general laws, ſo likewiſe men's rarer *incident* neceſſities and utilities ſhould be with ſpecial equity conſidered. *Hooker.*—Happening; apt to happen.—Conſtancy is ſuch a firmneſs of friendſhip as overlooks all thoſe failures of kindneſs, that through paſſion, *incident* to human nature, a man may be guilty of. *South.*

IN'CIDENT, *ſ.* Something happening beſide the main deſign; caſualty.—No perſon, no *incident* in the play, but muſt be of uſe to carry on the main deſign. *Dryden.*

INCIDENT, in law, is a thing appertaining to, or following another, that is more worthy or principal. Thus a court-baron is inſeparably incident to a manor; and a court of pie-powder to a fair; theſe are ſo inherent to their principals, that by the grant of one the other is granted; and they cannot be extinct by releaſe, or ſaved by exception, but in ſpecial caſes. *Kitch.* 36. *Co. Lit.* 151.

Rent is incident to a reverſion; timber-trees are incident to the freehold, and alſo deeds and charters, and a way to lands; fealty is incident to tenures; diſtreſs to rent and amercements, &c. *Co. Lit.* 151. Tenant for life or years hath, incident to his eſtate, eſtovers of wood. *Co. Lit.* 41. And there are certain incidents to eſtates-tail; as to be diſpuniſhable of waſte, to ſuffer a recovery, &c. *Co. Lit.* 224. 10 *Rep.* 38, 39. Incidents are needful to the well-being of that to which they are incident; and the law is tender of them. *Hob.* 39, 40. If a man, either by grant or preſcription, has a right to a wreck thrown on another's land, of conſequence he has a right to a way over the ſame land to take it; and the very poſſeſſion of the wreck is in him before ſeiſure. 6 *Mod.* 149. See 14 *Vin. Abr.* title INCIDENTS.

INCIDENT, in a poem, is an epiſode, or particular action, joined to the principal action, or depending on it. A good comedy is to be full of agreeable incidents, which divert the ſpectators, and form the intrigue. The poet ought always to make choice of ſuch incidents as are ſuſceptible of ornament ſuitable to the nature of his poem. The variety of incidents well conducted makes the beauty of an heroic poem, which ought always to take in a certain number of incidents to ſuſpend the cataſtrophe, that would otherwiſe break out too ſoon.

INCIDEN'TAL, *adj.* Incident; caſual; happening by chance; not intended; not deliberate; not neceſſary to the chief purpoſe.—By ſome, religious duties ſcarce appear to be regarded at all, and by others only as an *incidental* buſineſs, to be done when they have nothing elſe to do. *Rogers.*

INCIDEN'TALLY, *adv.* Beſide the main deſign; occaſionally.—Theſe general rules are but occaſionally and *incidentally* mentioned in Scripture, rather to manifeſt unto us a former, than to lay upon us a new, obligation. *Sanderſon.*

INCIDEN'TALNESS, *ſ.* Caſualty; the ſtate of being incidental.

IN'CIDENTLY, *adv.* Occaſionally; by the bye; by the way.—It was *incidently* moved amongſt the judges what ſhould be done for the king himſelf, who was attainted; but reſolved that the crown takes away defects. *Bacon.*

IN'CIDENTNESS, *ſ.* A liableneſs to happen. *Scott.*

*To* INCIN'ERATE, *v. a.* [*in* and *cineres,* Lat.] To burn to aſhes.—By baking, without melting, the heat indurateth, then maketh fragile; laſtly, it doth *incinerate* and calcinate. *Bacon.*

INCIN'ERATING, *ſ.* The act of reducing to aſhes.

INCINERA'TION, *ſ.* The act of burning any thing to aſhes.—I obſerved in the fixt ſalt of urine, brought by depuration to be very white, a taſte not unlike common ſalt, and very differing from the cauſtic lixiviate taſte of other ſalts made by *incineration.* *Boyle.*

INCIPA'TION, *ſ.* [from *cœpio,* Lat. to begin.] The act of beginning; a beginning. *Cole.*

*To* INCIR'CLE. See *To* ENCIRCLE.

INCIR'CLING, *ſ.* The act of incloſing in a circle.

INCIRCUMSPEC'TION, *ſ.* Want of caution; want of heed.—An unexpected way of deluſion, whereby he more eaſily led away the *incircumſpection* of their belief. *Brown.*

INCI'SED, *adj.* [*inciſer;* Fr. *inciſus,* Lat.] Cut; made by cutting: as, an *inciſed* wound.—I brought the *inciſed* lips together. *Wiſeman.*

INCIS'ION, *ſ.* [*inciſion,* Fr. *inciſio,* Lat.] A cut; a wound made with a ſharp inſtrument.—The reception of one is as different from the admiſſion of the other, as when the earth falls open under the *inciſions* of the plough, and when it gapes to drink in the dew of heaven, or the refreſhments of a ſhower. *South.*—Diviſion of viſcoſities by medicines.—Abſterſion is a ſcouring off, or *inciſion,* of viſcous humours, and making them fluid, and cutting between them and the part; as in nitrous water, which ſcoureth linen. *Bacon.*

INCI'SIVE, *adj.* Having the quality of cutting or dividing.—The colour of many corpuſcules will cohere by being precipitated together, and be deſtroyed by the effuſion of very piercing and *inciſive* liquors. *Boyle.*

INCI'SOR, *ſ.* Cutter; tooth in the forepart of the mouth.—The *inciſors* of the upper jaw are larger and broader than thoſe of the lower. *Berdmore.*

INCI'SOR, *adj.* Having the quality of cutting.

INCI'SURE, *ſ.* A cut; an aperture.—In ſome creatures it is wide, in ſome narrow, in ſome with a deep *inciſure* up into the head, for the better catching and holding of prey, and comminuting of hard food. *Derham.*

INCITABIL'ITY, *ſ.* [from *incito,* Lat. to ſtir up to action.] In a practical view, it has appeared neceſſary to make a diſtinction between this term and IRRITABILITY; becauſe, though it is allowed that to thoſe two powers the exiſtence of a machine in a living ſtate, and the action of its moving ſolids with reſpect to their continuance, are entirely owing; yet they do in ſome degree certainly exiſt independent of each other. By *incitability* is meant that power in the brain and nervous ſyſtem which may be excited to action by mental affections, as well as local irritation, and which produces thoſe affections we call ſympathy; by *irritability,* that power which may be put into action by material ſtimulus, locally exerted, yet is obedient to the influence of the nerves in general, and cannot in the living machine exiſt for any conſiderable time without this union. More ſtrictly, incitability is confined to the nervous, and irritability to the nerving, fibres. See IRRITABILITY.

INCITA'TION, *ſ.* [*incitatio,* Lat.] Incitement; incentive; motive; impulſe; the act of inciting; the power of inciting. Dr. Ridley defines magnetical attraction to be a natural *incitation* and diſpoſition conforming unto contiguity, an union of one magnetical body unto another. *Brown.*

INCITA'TUS, a horſe of the emperor Caligula, made high prieſt.

*To* INCI'TE, *v. a.* [*incito,* Lat. *inciter,* Fr.] To ſtir up; to puſh forward in a purpoſe; to animate; to ſpur; to urge on.—Antiochus, when he *incited* Pruſias to join in war, ſet before him the greatneſs of the Romans, comparing it to a fire, that took and ſpread from kingdom to kingdom. *Bacon.*

No blown ambition doth our arms *incite;*
But love, dear love, and our ag'd father's right. *Shakeſ.*

INCI'TEMENT, *ſ.* Motive; incentive; impulſe; inciting cauſe.—Hartlib ſeems ſent hither by ſome good providence, to be the occaſion and *incitement* of great good to this iſland. *Milton.*

If thou muſt reform the ſtubborn times,
From the long records of a diſtant age
Derive *incitements* to renew thy rage. *Pope.*

INCI'TING, *ſ.* The act of ſtirring up.

INCIV'IL, *adj.* [French.] Unpoliſhed. See UNCIVIL.

INCIVIL'ITY, *ſ.* Want of courteſy; rudeneſs.—He does offend againſt that reverence which is due to the common apprehenſions of mankind, whether true or not, which is the greateſt *incivility*. *Tillotſon.*—Act of rudeneſs. *In this ſenſe it has a plural.*—Abſtain from diſſolute laughter, uncomely jeſts, loud talking and jeering, which, in civil account, are called indecencies and *incivilities*. *Taylor.*

INCIV'ILLY, *adj.* Uncivilly, rudely. *Scott.*

INCLAMA'TION, *ſ.* [from *in*, Lat. upon, and *clamo*, to call.] The act of calling upon. *Bailey.*

INCLAMITA'TION, *ſ.* [from *in*, Lat. upon, and *clamito*, to cry out.] The act of calling upon frequently, a repeated call. *Not uſed.* *Cole.*

INCLAU'SA, *ſ.* In old records, an incloſure near a houſe.

IN'CLE, *ſ.* Inkle, a kind of tape.

INCLEM'ENCY, *ſ.* [*inclemence*, Fr. *inclementia*, Lat.] Unmercifulneſs; cruelty; ſeverity; harſhneſs; roughneſs:

And though by tempeſts of the prize bereft,
In heaven's *inclemency* ſome eaſe we find:
Our foes we vanquiſh'd by our valour left. *Dryden.*

INCLEM'ENT, *adj.* [*in* and *clemens*, Lat.] Unmerciful; unpitying; void of tenderneſs; harſh. It is uſed oftener of things than of men:

Propitious to my wants, a veſt ſupply,
To guard the wretched from th' *inclement* ſky. *Pope.*

INCLI'NABLE, *adj.* [*inclinabilis*, Lat.] Having a propenſion of will; favourably diſpoſed; willing; tending by diſpoſition: ſometimes with *to*.—People are not always *inclinable to* the beſt. *Spenſer.*—A marvel it were, if a man of capacity could eſpy in the whole ſcripture nothing which might breed a probable opinion, that divine authority was the ſame way *inclinable*. *Hooker.*

Deſire,
*Inclinable* now grown *to* touch or taſte,
Solicited her longing eye. *Milton.*

Having a tendency.—If ſuch a cruſt naturally fell, then it was more likely and *inclinable to* fall this thouſand years than the laſt; but, if the cruſt was always gradually nearer and nearer to falling, that plainly evinces that it had not endured eternally. *Bentley.*

INCLINA'TION, *ſ.* [*inclinaiſon*, Fr. from *inclinatio*, Lat.] Tendency towards any point: with *to*.—The two rays, being equally refracted, have the ſame *inclination to* one another after refraction which they had before; that is, the *inclination* of half a degree anſwering to the ſun's diameter. *Newton.*—Natural aptneſs.—Though moſt of the thick woods are grubbed up ſince the promontory has been cultivated, there are ſtill many ſpots of it which ſhow the natural *inclination* of the ſoil leans that way. *Addiſon.*—Propenſion of mind; favourable diſpoſition; incipient deſire.—A mere *inclination to* a thing is not properly a willing of that thing; and yet, in matters of duty, men frequently reckon it for ſuch.—Love; affection; regard. In this ſenſe it admits *for*.—We have had few knowing painters, becauſe of the little *inclination* which princes have *for* painting. *Dryden.*—Diſpoſition of mind:

Bid him
Report the features of Octavia, her years,
Her *inclination*. *Shakeſpeare.*

The tendency of the magnetical needle to the eaſt or weſt. See MAGNETISM.—[In pharmacy.] The act by which a clear liquor is poured off from ſome fæces or ſediment by only ſtooping the veſſel, which is alſo called decantation. *Quincy.*

INCLINATION, in geometry, mechanics, or phyſics, denotes the mutual tendency of two lines, planes, or bodies, towards one another; ſo that their directions make at the point of concourſe ſome certain angle.

*Inclination of the Axis of the Earth*, is the angle it makes with the plane of the ecliptic; or the angle between the planes of the equator and ecliptic.

*Inclination of the Orbit of a Planet*, is the angle formed by the planes of the ecliptic and of the orbit of the planet. See the article ASTRONOMY, vol ii. p. 350 & ſeq.

INCLI'NATORILY, *adv.* Obliquely; with inclination to one ſide or the other; with ſome deviation from north and ſouth.—Whether they be refrigerated *inclinatorily*, or ſomewhat equinoxially, that is, toward the eaſtern or weſtern points, they diſcover ſome verticity. *Brown.*

INCLI'NATORY, *adj.* Having a quality of inclining to one or other.—If that *inclinatory* virtue be deſtroyed by a touch from the contrary pole, that end which before was elevated will then decline. *Brown.*

*To* INCLI'NE, *v. n.* [*inclino*, Lat. *incliner*, Fr.] To bend; to lean; to tend toward any part: with *to* or *towards*.—Her houſe *inclineth unto* death, and her paths *unto* the dead. *Prov.* ii. 18.

Still *to* this place
My heart *inclines*, ſtill hither turn my eyes;
Hither my feet unbidden find their way. *Rowe.*

To be favourably diſpoſed to; to feel deſire beginning.—Their hearts *inclined to* follow Abimelech. *Judges.*

*To* INCLI'NE, *v. a.* To give a tendency or direction to any place or ſtate:

The timely dew of ſleep,
Now falling with ſoft ſlumb'rous weight, *inclines*
Our eye-lids. *Milton.*

A tow'ring ſtructure to the palace join'd;
To this his ſteps the thoughtful prince *inclin'd*. *Pope.*

To turn towards any thing, as deſirous or attentive.—*Incline* our hearts to keep this law. *Com. Prayer.*

But that from us aught ſhould aſcend to heav'n
So prevalent, as to concern the mind
Of God high-bleſt, or to *incline* his will,
Hard to belief may ſeem; yet this will prayer. *Milton.*

To bend; to incurvate:

With due reſpect my body I *inclin'd*,
As to ſome being of ſuperior kind. *Dryden.*

INCLI'NED PLANE, in mechanics, is a plane inclined to the horizon, or making an angle with it. It is one of the ſimple mechanic powers, and the double inclined plane makes the wedge. See the article MECHANICS.

INCLI'NER, *ſ.* An inclined dial.

INCLI'NING, *ſ.* The act of leaning from a perpendicular direction; the act of turning the deſires.

*To* INCLIP', *v. a.* To graſp; to incloſe; to ſurround:

Whate'er the ocean pales, or ſky *inclips*,
Is thine, if thou wilt ha't. *Shakeſpeare.*

INCLIP'PING, *ſ.* The act of incloſing as in an embrace.

*To* INCLOIS'TER, *v. a.* To ſhut up in a cloiſter.

INCLOI'STERING, *ſ.* The act of ſhutting up in a cloiſter.

*To* INCLO'SE, *v. a.* See *To* ENCLOSE, vol. vi.

INCLO'SING, *ſ.* The act of ſhutting in, or of fencing round.

INCLO'SURE, *ſ.* Any thing incloſed, as a letter in a cover, a piece of ground ſeparated on all ſides from another. See ENCLOSURE. The hedges, pales, gates, &c. by which lands are parted off or ſurrounded. Throwing down incloſures is an offence puniſhable by our ancient laws and ſtatutes. But if the lord of a manor incloſe part of the waſte or common, and doth not leave ſufficient for the commoners, they may break down ſuch incloſures, or have writ of aſſiſe. Large waſtes or commons in the weſt-riding of the county of York, with the conſent of the lords of manors, &c. may be incloſed, a ſixth part whereof ſhall be for the benefit of poor clergymen, whoſe livings are under 40l. a-year, to be ſettled in truſtees, who may grant leaſes for twenty-one years, &c. 12 *Ann. c.* 4. Incloſures deſtroyed in the night, to be made good by the neighbouring towns. 13 *Edw.* I. *ſtat.* 1. *c.* 46; 3 & 4 *Edw.* VI. *c.* 3. Throwing down incloſures in the night, to be puniſhed with treble damages. 3 & 4 *Edw.* VI. *c.* 3. 22 & 23 *Car.* II. *c.* 7. Taking away gates, pales, poſts, ſtiles, or hedge-wood, or deſtroying them, how puniſhed, &c. ſee *ſtats.* 43 *Eliz. c.* 7. 15 *Car.* II. *c.* 2. 9 *Geo.* III. 29.

*To* INCLOU'D, *v. a.* To darken to obſcure:

In their thick breaths,
Rank of groſs diet, ſhall we be *inclouded*,
And forc'd to drink their vapour. *Shakeſpeare.*

INCLOUD'ING, *ſ.* The act of darkening as in a cloud.

*To* INCLU'DE, *v. a.* [*includo*, Lat.] To incloſe; to ſhut in; as, The ſhell *includes* a pearl.—To compriſe; to comprehend.—Inſtead of enquiring whether he be a man of virtue, the queſtion is only whether he be a Whig or a Tory; under which terms all good and ill qualities are *included. Swift.*

INCLU'DING, *ſ.* The act of taking in, or of compriſing.

INCLU'SION, *ſ.* The act of including; a rhetorical figure in which the ſame word is repeated to give it the greater force.

INCLU'SIVE, *adj.* [*incluſif*, Fr.] Incloſing; encircling:

Oh! would that the *incluſive* verge
Of golden metal, that muſt round my brow,
Were red-hot ſteel, to ſear me to the brain! *Shakeſpeare.*

Comprehended in the ſum or number: as, From Wedneſday to Saturday *incluſive*; that is, both Wedneſday and Saturday taken into the number. *Johnſon.*

I'll ſearch where ev'ry virtue dwells,
From courts *incluſive* down to cells. *Swift.*

INCLU'SIVELY, *adv.* The thing mentioned reckoned into the account.—All articulation is made within the mouth, from the throat to the lips *incluſively*; and is differenced partly by the organs uſed in it, and partly by the manner and degree of articulating. *Holder.*

INCOAC'T, or INCOACT'ED, *adj.* [from *coactus*, Lat. driven together.] Uncompelled; unconſtrained. *Cole.*

INCOAG'ULABLE, *adj.* Incapable of concretion.

INCOEXIS'TENCE, *ſ.* The quality of not exiſting together; non-aſſociation of exiſtence. An unuſual word.—Another more incurable part of ignorance, which ſets us more remote from a certain knowledge of the coexiſtence or *incoexiſtence* of different ideas in the ſame ſubject, is, that there is no diſcoverable connection between any ſecondary quality and thoſe primary qualities it depends on. *Locke.*

INCOG', *adv.* [corrupted by mutilation from *incognito*, Lat.] Unknown; in private:

But if you're rough, and uſe him like a dog,
Depend upon it, he'll remain *incog.* *Addiſon.*

INCO'GITANCY, *ſ.* [*incogitantia*, Lat.] Want of thought.—Next to the ſtupid and merely vegetable ſtate of *incogitancy*, we may rank partial and piece-meal conſideration. *Decay of Piety.*

INCO'GITANT, *adj.* Void of thought.

INCO'GITANTNESS, *ſ.* Incogitancy. *Scott.*

INCO'GITATIVE, *adj.* Wanting the power of thought.—Purely material beings, as clippings of our beards, and ſenſible, thinking, perceiving, beings, ſuch as we find ourſelves, we will call cogitative and *incogitative* beings. *Locke.*

INCOG'NITO, *adv.* [*incognitus*, Lat.] In a ſtate of concealment:

'Twas long ago
Since gods came down *incognito.* *Prior.*

INCOGNOS'CIBLE, *adj.* [from *in*, Lat. contrary to, and *cognoſco*, to know.] Incapable of being known. *Scott.*

INCOHE'RENCE, or INCOHE'RENCY, *ſ.* Want of coheſion; looſeneſs of material parts.—If plaſter be beaten into an impalpable powder, when poured out it will emulate a liquor, by reaſon that the ſmallneſs and *incoherence* of the parts do both make them eaſy to be put into motion, and makes the pores they intercept ſo ſmall, that they interrupt not the unity or continuity of the maſs. *Boyle.*—Want of connection; incongruity; inconſequence of argument; want of dependence of one part upon another.—*Incoherences* in matter, and ſuppoſitions without proofs, put handſomely together, are apt to paſs for ſtrong reaſon. *Locke.*

INCOHE'RENT, *adj.* Wanting coheſion; looſe; not fixed to each other.—Had the ſtrata of ſtone become ſolid, but the matter whereof they conſiſt continued lax and *incoherent*, they had conſequently been as pervious as thoſe of marle or gravel. *Woodward.*—Inconſequential; inconſiſtent; having no dependence of one part upon another.—We have inſtances of perception whilſt we are aſleep, and retain the memory of them; but how extravagant and *incoherent* are they, and how little conformable to the perfection of a rational being! *Locke.*

INCOHE'RENTLY, *adv.* Inconſiſtently; inconſequentially.—The character of Eurylochus is the imitation of a perſon confounded with fears, ſpeaking irrationally and *incoherently. Broome.*

INCOHE'RENTNESS, *ſ.* Inconſiſtency; want of coheſion.

INCO'HIBLE, *adj.* [from *in*, Lat. contrary to, and *cohibeo*, to reſtrain.] Incapable of being reſtrained. *Cole.*

INCOLU'MITY, *ſ.* [*incolumitas*, Lat.]. Safety; ſecurity. *Very little in uſe.*—The parliament is neceſſary to aſſert and preſerve the national rights of a people, with the *incolumity* and welfare of a country. *Howel.*

INCOMBUSTIBIL'ITY, *ſ.* The quality of reſiſting fire ſo that it cannot conſume.—The ſtone in the Apennines is remarkable for its ſhining quality, and the amianthus for its *incombuſtibility. Ray.*

INCOMBUS'TIBLE, *adv.* Not to be conſumed by fire.—It agrees in this common quality aſcribed unto both, of being *incombuſtible*, and not conſumable by fire. *Wilkins.*

INCOMBUSTIBLE CLOTH. See ASBESTUS.

INCOMBUS'TIBLENESS, *ſ.* The quality of not being waſted by fire.

IN'COME, *ſ.* Revenue; produce of any thing.—Thou who repineſt at the plenty of thy neighbour, and the greatneſs of his *incomes*, conſider what are frequently the diſmal conſequences of all this. *South.*

No fields afford
So large an *income* to the village lord. *Dryden.*

INCOMMENSURABIL'ITY, *ſ.* The ſtate of one thing with reſpect to another, when they cannot be compared by any common meaſure.—Ariſtotle mentions the *incommenſurability* of the diagonal of a ſquare to its ſide. *Reid.*

INCOMMEN'SURABLE, *adj.* [Fr. from *in*, *con*, and *menſurabilis*, Lat.] Not to be reduced to any meaſure common to both; not to be meaſured together, ſuch as that the proportion of one to the other can be told.—Our diſputations about vacuum or ſpace, *incommenſurable* quantities, in the infinite diviſibility of matter, and eternal duration, will lead us to ſee the weakneſs of our nature. *Watts.*

INCOMMENSURABLE LINES, NUMBERS, *or* QUANTITIES, are ſuch as have no common meaſure, or no line, number, or quantity, of the ſame kind, that will meaſure or divide them both without a remainder. Thus the numbers 15 and 16 are incommenſurable, becauſe, though 15 can be meaſured by 3 and 5, and 16 by 2, 4, and 8, there is yet no ſingle number that will divide or meaſure them both.

Euclid demonſtrates (prop. 117, lib. 10.) that the ſide of a ſquare and its diagonal are incommenſurable to each other. And Pappus, prop. 17, lib. 4, ſpeaks of incommenſurable angles. It is commonly ſuppoſed that the diameter and circumference of a circle are incommenſurable to each other; at leaſt their commenſurability has never been proved. And Dr. Barrow ſurmiſes even that they are infinitely incommenſurable, or that all poſſible powers of them are incommenſurable.

INCOMMEN'SURABLENESS, *ſ.* The ſtate or quality of being incommenſurable; incommenſurability.

INCOMMEN'SURATE, *adj.* [*in*, *con*, and *menſura*, Lat.] Not admitting one common meaſure.—The diagonal line and ſide of a quadrate, which, to our apprehenſion, are *incommenſurate*, are yet commenſurable to the infinite comprehenſion of the divine intellect. *More.*

INCOMMEN'SURATENESS, *ſ.* The ſtate or quality of being incommenſurate.

INCOMMISCIBIL'ITY, *ſ.* The ſtate or quality of being incommiſcible.

INCOMMIS'CIBLE, *adj.* [from *in*, Lat. contrary to, and *commiſceo*, to mix.] Incapable of being mixed. *Cole.*

*To* INCOM'MODATE, or *To* Incommo'de, *v. a.* [*incommodo*, Lat. *incommoder*, Fr.] To be inconvenient to; to hinder or embarraſs without very great injury.

*To* INCOMMO'DE, *v. a.* [from *in*, Lat. contrary to, *con* with, and *modus*, a form.] To put to inconvenience; to diſturb the order without doing much injury.—A gnat, planted upon the horn of a bull, begged the bull's pardon; but, rather than *incommode* ye, ſays he, I'll remove. *L'Eſtrange.*

INCOMMO'DING, *ſ.* The act of putting to ſome inconvenience.

INCOMMO'DIOUS, *adj.* Inconvenient; vexatious without great miſchief.—Things of general benefit, (for in this world what is ſo perfect that no inconvenience doth ever follow it?) may by ſome accident be *incommodious* to a few. *Hooker.*

INCOMMO'DIOUSLY, *adv.* Inconveniently; not at eaſe.

INCOMMO'DIOUSNESS, *ſ.* Inconvenience.—Diſeaſes, diſorders, and the *incommodiouſneſs* of external nature, are inconſiſtent with happineſs. *Burnet.*

INCOMMOD'ITY, *ſ.* [*incommodité*, Fr. *incommoditas*, Lat.] Inconvenience; trouble.—If iron can be incorporated with flint or ſtone, without over-great charge, or other *incommodity*, the cheapneſs doth make the compound ſtuff profitable. *Bacon.*

INCOMMUNICABIL'ITY, *ſ.* The quality of not being impartible.

INCOMMU'NICABLE, *adj.* Not impartible; not to be made the common right, property, or quality, of more than one.—Light without darkneſs is the *incommunicable* claim of him that dwells in light inacceſſible. *Glanville.*—Not to be expreſſed; not to be told.—Neither did he treat them with theſe peculiarities of favour in the extraordinary diſcoveries of the goſpel only, but alſo of thoſe *incommunicable* revelations of the divine love, in reference to their own perſonal intereſt in it. *South.*

INCOMMU'NICABLENESS, *ſ.* The ſtate or quality of being incommunicable. *Scott.*

INCOMMU'NICABLY, *adv.* In a manner not to be imparted or communicated.—To annihilate is both in reaſon, and by the conſent of divines, as *incommunicably* the effect of a power divine, and above nature, as is creation itſelf. *Hakewill.*

INCOMMU'NICATING, *adj.* Having no intercourſe with each other.—The judgments and adminiſtrations of common juſtice are preſerved from that confuſion that would enſue, if the adminiſtration was by ſeveral *incommunicating* hands, or by provincial eſtabliſhments. *Hale.*

INCOMMU'TABLE, *adj.* [from *in*, Lat. contrary to, and *commuto*, to exchange.] Incapable of being exchanged. *Scott.*

INCOMPACT', or Incompact'ed, *adj.* Not joined; not cohering.—Salt, ſay they, is the baſis of ſolidity and permanency in compound bodies, without which the other four elements might be variouſly blended, but would remain *incompacted*. *Boyle.*

INCOMPACT'ED, *adj.* Incompact; looſe; wanting coherence.

INCOM'PARABLE, *adj.* Excellent above compare; excellent beyond all competition.—My heart would not ſuffer me to omit any occaſion, whereby I might make the *incomparable* Pamela ſee how much extraordinary devotion I bore to her ſervice. *Sidney.*

Now this maſk
Was cried *incomparable*, and th' enſuing night
Made it a fool and beggar. *Shakeſpeare.*

INCOM'PARABLENESS, *ſ.* Excellence beyond compariſon; the ſtate or quality of being incomparable. *Scott.*

INCOM'PARABLY, *adv.* Beyond compariſon; without competition.—Self-preſervation will oblige a man voluntarily to undergo any leſs evil to ſecure himſelf, but from the probability of an evil *incomparably* greater. *South.*—Excellently; to the higheſt degree. *A low phraſe.*—There are the heads of Antoninus Pius, the Fauſtinus, and Marcus Aurelius, all *incomparably* well cut. *Addiſon.*

*To* INCOM'PASS, *v. a.* To encompaſs; to incloſe on every ſide; to ſurround.

INCOM'PASSING, *ſ.* The act of incircling.

INCOMPAS'SIONATE, *adj.* Void of pity; void of tenderneſs.

INCOMPATIBIL'ITY, *ſ.* [properly *incompetibility*, from *in* and *competo*, Lat.] Inconſiſtency of one thing with another.—He overcame that natural *incompatibility*, which hath been noted between the vulgar and the ſovereign favour. *Wotton.*—The reaſon of the ſtreſs reſts not upon the *incompetibility* of exceſs of one infinitude above another, either in intenſion or extenſion; but the *incompetibility* of any multitude to be infinite. *Hale.*

INCOMPAT'IBLE, [rather *incompetible*, as it is ſometimes written.] Inconſiſtent with ſomething elſe; ſuch as cannot ſubſiſt or cannot be poſſeſſed together with ſomething elſe: it is followed by *with*.—Fortune and love have ever been ſo *incompatible*, that it is no wonder, madam, if, having had ſo much of the one for you, I have ever found ſo little of the other for myſelf. *Suckling.*—May not the outward expreſſions of love in many good Chriſtians be greater to ſome other object than to God? Or is this *incompetible with* the ſincerity of the love of God? *Hammond.*—It is ſometimes with *to*.—The repugnancy of infinitude is equally *incompatible to* continued or ſucceſſive motion, and depends upon the impoſſibility of things ſucceſſive with infinitude. *Hale.*

INCOMPAT'IBLY, *adv.* [for *incompetibly*.] Inconſiſtently.

INCOMPEN'SABLE, *adj.* [from *in*, Lat. contrary to, and *compenſo*, to recompence.] Incapable of being compenſated; incapable of recompence.

INCOM'PETENCY, *ſ.* [*incompetence*, Fr. from *incompetent*.] Inability; want of adequate ability or qualification.—Our not being able to diſcern the motion of a ſhadow on a dial-plate, or that of the index upon a clock, ought to make us ſenſible of the *incompetency* of our eyes to diſcern ſome motions of natural bodies incomparably ſlower than theſe. *Boyle.*

INCOM'PETENT, *adj.* Not ſuitable; not adequate; not proportionate. In the civil law it denotes ſome defect of right to do any thing.—An equal attraction on all ſides of all matter, is juſt equal to no attraction at all; and by this means all the motion in the univerſe muſt proceed from external impulſe alone, which is an *incompetent* cauſe for the formation of a world. *Bentley.*

INCOM'PETENTLY, *adv.* Unſuitably; unduly.

INCOMPET'IBLE, and its derivatives; ſee Incompatible.

INCOMPLE'TE, *adj.* Not perfect; not finiſhed.—In *incomplete* ideas we are apt to impoſe on ourſelves, and wrangle with others, eſpecially where they have particular and familiar names. *Locke.*

INCOMPLE'TELY, *adv.* Imperfectly.

INCOMPLE'TENESS, *ſ.* Imperfection; unfiniſhed ſtate.—The *incompleteneſs* of our ſeraphic lover's happineſs, in his fruitions, proceeds not from their want of ſatisfactorineſs, but of an intire poſſeſſion. *Boyle.*

INCOMPLEX', *adj.* [from *in*, Lat. contrary to, and *complexus*, involved.] Uncompounded; ſimple. *Philips.*

INCOMPLI'ANCE, *ſ.* Untractableneſs; impracticableneſs; contradictious temper.—Self-conceit produces peeviſhneſs and *incompliance* of humour in things lawful and indifferent. *Tillotſon.*—Refuſal of compliance.—Conſider the vaſt diſproportion between the worſt inconveniencies that can attend our *incompliance* with men, and the eternal diſpleaſure of an offended God. *Rogers.*

INCOMPO'SED, *adj.* Diſturbed; diſcompoſed; diſordered. *Not much uſed.*—Somewhat *incompoſed* they are in their trimming, and extraordinary tender of their young ones. *Howel.*

IMCOMPO'SEDLY, *adv.* With diſcompoſure. *Scott.*

INCOMPO'SEDNESS, *ſ.* The ſtate of being put out of order; diſcompoſure. *Scott.*

INCOM'POSITE, *adj.* [from *in*, Lat. contrary to, and *compono*, to compoſe.] In arithmetic, uncompounded; ſimple; prime.

INCOMPOSITE NUMBERS, are the ſame with thoſe called by Euclid *prime numbers*, being ſuch as are not compoſed by the multiplication together of other numbers. As 3, 5, 7, 11, &c.

INCOMPOSSIBIL'ITY, *ſ.* Quality of being not poſſible but by the negation or deſtruction of ſomething; inconſiſtency with ſomething.—The manifold *impoſſibilities* and lubricities of matter cannot have the ſame fitneſſes in any modification. *More.*

INCOMPOS'SIBLE, *adj.* Not poſſible together; not poſſible but by the negation of ſomething elſe.

INCOMPREHENSIBIL'ITY, *ſ.* [*incomprehenſibilité*, Fr. from *incomprehenſible.*] Unconceivableneſs; ſuperiority to human underſtanding.

INCOMPREHEN'SIBLE, *adj.* Not to be conceived; not to be fully underſtood.—His precepts tend to the improving and perfecting the moſt valuable part of us, and annexing *incomprehenſible* rewards as an eternal weight of glory. *Hammond.*

Stars that ſeem to roll,
Spaces *incomprehenſible.* *Milton.*

Not to be contained. *Not now uſed.*—Preſence every where is the ſequel of an infinite and *incomprehenſible* ſubſtance; for what can be every where, but that which can no where be comprehended? *Hooker.*

INCOMPREHEN'SIBLENESS, *ſ.* Unconceivableneſs.—I might argue from God's *incomprehenſibleneſs*; if we could believe nothing but what we have ideas of, it would be impoſſible for us to believe God is incomprehenſible. *Watts.*

INCOMPREHEN'SIBLY, *adv.* In a manner not to be conceived.—We cannot but be aſſured that the God, of whom and from whom are all things, is *incomprehenſibly* infinite. *Locke.*

INCOMPREHEN'SIVE, *adj.* Not comprehenſive.

INCOMPREHEN'SIVENESS, *ſ.* The ſtate of being not comprehenſive.

INCOMPRESSIBIL'ITY, *ſ.* Incapacity to be ſqueezed into leſs room.

INCOMPRESS'IBLE, *adj.* Not capable of being compreſſed into leſs ſpace.—Hardneſs is the reaſon why water is *incompreſſible*, when the air lodged in it is exhauſted. *Cheyne.*

INCOMPRES'SIBLENESS, *ſ.* The ſtate or quality of being incompreſſible.

INCONCEAL'ABLE, *adj.* Not to be hid; not to be kept ſecret.—The *inconcealable* imperfections of ourſelves will hourly prompt us our corruption, and loudly tell us we are ſons of earth. *Brown.*

INCONCEIV'ABLE, *adj.* Incomprehenſible; not to be conceived by the mind.—Such are Chriſt's promiſes, divine *inconceivable* promiſes; a bliſs to be enjoyed to all eternity, and that by way of return for a weak obedience of ſome few years. *Hammond.*

INCONCEIV'ABLENESS, *ſ.* The ſtate or quality of being inconceivable.

INCONCEIV'ABLY, *adv.* In a manner beyond comprehenſion; to a degree beyond human comprehenſion.—Does that man take a rational courſe to preſerve himſelf, who refuſes the endurance of thoſe leſſer troubles, to ſecure himſelf from a condition *inconceivably* more miſerable? *South.*

INCONCEP'TIBLE, *adj.* Not to be conceived; incomprehenſible; inconceivable. *A word not uſed.*—It is *inconceptible* how any ſuch man, that hath ſtood the ſhock of an eternal duration without corruption, ſhould after be corrupted. *Hale.*

INCONCIN'NITY *ſ.* [from *in*, Lat. contrary to, and *concinnus*, fit.] Unfitneſs; incompetibility. *Scott.*

INCONCLU'DENT, *adj.* [*in* and *concludens*, Lat.] Inferring no conſequence.—The depoſitions of witneſſes themſelves, as being falſe, various, contrarient, ſingle, *inconcludent. Ayliffe.*

INCONCLU'SIVE, *adj.* Not enforcing any determination of the mind; not exhibiting cogent evidence.

INCONCLU'SIVELY, *adv.* Without any ſuch evidence as determines the underſtanding.

INCONCLU'SIVENESS, *ſ.* Want of rational cogency.—A man, unſkilful in ſyllogiſm, at firſt hearing, could perceive the weakneſs and *inconcluſiveneſs* of a long, artificial, and plauſible, diſcourſe, wherewith ſome others, better ſkilled in ſyllogiſm, have been miſled. *Locke.*

INCONCOCT', or INCONCOCT'ED, *adj.* Unripened; immature; not fully digeſted.—While the body, to be converted and altered, is too ſtrong for the efficient that ſhould convert it, it is all that while crude and *inconcoct*; and the proceſs is to be called crudity and inconcoction. *Bacon.*

INCONCOC'TION, *ſ.* The ſtate of being indigeſted; unripeneſs; immaturity.—While the body, to be converted and altered, is too ſtrong for the efficient that ſhould convert it, it is all that while crude and inconcoct; and the proceſs is to be called crudity and *inconcoction. Bacon.*

INCONCUR'RING, *adj.* Not concurring.—They derive effects not only from *inconcurring* cauſes, but things devoid of all efficiency. *Brown.*

INCONCUSS', *adj.* [from *in*, Lat. contrary to, and *cuſſus*, ſhaken.] Unſhaken. *Not uſed. Bailey.*

INCONCUSS'ABLE, *adj.* Incapable of being ſhaken. *Bailey.*

INCON'DITE, *adj.* [*inconditus*, Lat.] Irregular; rude; unpoliſhed:

Now ſportive youth
Carol *incondite* rhymes with ſuiting notes,
And quaver inharmonious. *Philips.*

INCONDI'TIONAL, *adj.* Without exception; without limitation; without ſtipulation.—From that which is but true in a qualified ſenſe, an *inconditional* and abſolute verity is inferred. *Brown.*

INCONDI'TIONATE, *adj.* Not limited; not reſtrained by any conditions. Abſolute.—They aſcribe to God, in relation to every man, an eternal, unchangeable, and *inconditionate*, degree of election or reprobation. *Boyle.*

INCONFOR'MITY, *ſ.* Incompliance with the practice of others.—We have thought their opinion to be, that utter *inconformity* with the church of Rome was not an extremity whereunto we ſhould be drawn for a time, but the very mediocrity itſelf, wherein they meant we ſhould ever continue. *Hooker.*

INCONFU'SION, *ſ.* Diſtinctneſs. *Not uſed.*—The cauſe of the confuſion in ſounds, and the *inconfuſion* in ſpecies viſible, is, for that the ſight worketh in right lines, and ſo there can be no coincidence in the eye; but ſounds that move in oblique and arcuate lines, muſt needs encounter and diſturb the one the other. *Bacon.*

INCONGEAL'ABLE, *adj.* [from *in*, Lat. contrary to, and *congelo*, to congeal.] Incapable of being congealed. *Scott.*

INCONGEAL'ABLENESS, *ſ.* The impoſſibility of being congealed. *Scott.*

INCON'GRUENCE, *ſ.* Unſuitableneſs; want of adaptation.—Humidity is but relative, and depends upon the congruity or *incongruence* of the component particles of the liquor to the pores of the bodies it touches. *Boyle.*

INCONGRU'ITY, *ſ.* Unſuitableneſs of one thing to another.—The fathers make uſe of this acknowledgment of the *incongruity* of images to the Deity, from thence to prove the *incongruity* of the worſhip of them. *Stillingfleet.* —Inconſiſtency; inconſequence; abſurdity; impropriety. —To avoid abſurdities and *incongruities*, is the ſame law eſtabliſhed for both arts; the painter is not to paint a cloud at the bottom of a picture, nor the poet to place what is proper to the end in the beginning of a poem. *Dryden.*—Diſagreement of parts; want of ſymmetry:

She, whom after what form ſoe'er we ſee,
Is diſcord and rude *incongruity*;
She, ſhe is dead, ſhe's dead. *Donne.*

INCON'GRUOUS, *adj.* Unſuitable; not fitting.—Wiſer heathens condemned the worſhip of God as *incongruous* to a divine nature, and a diſparagement to the deity. *Stillingfleet.*—Inconſiſtent; abſurd.

INCON'GRUOUSLY, *adv.* Improperly; unfitly.

INCONNEX'EDLY, *adv.* Without any connexion or dependance. *Little uſed.*—Others aſcribed hereto, as a cauſe, what perhaps but caſually or *inconnexedly* ſucceeds. *Brown.*

INCONNEX'ION, *ſ.* The want of connexion, the want of coherence. In rhetoric; the aſyndeton.

INCON'SCIONABLE, *adj.* Void of the ſenſe of good and evil: without influence of conſcience. *Not uſed.*—So *inconſcionable* are theſe common people, and ſo little feeling have they of God, or their own ſoul's good. *Spenſer.*

INCON'SEQUENCE, *ſ.* [Fr. from *inconſequentia*, Lat.] Inconcluſiveneſs; want of juſt inference.—This he beſtows the name of many fallacies upon; and runs on with ſhowing the *inconſequence* of it, as though he did in earneſt believe it were an impertinent anſwer. *Stillingfleet.*

INCON'SEQUENT, *adj.* Without juſt concluſion; without regular inference.—The ground he aſſumes is unſound, and his illation from thence deduced *inconſequent.* *Hakewill.*—Men reſt not in falſe apprehenſions without abſurd and *inconſequent* deductions from fallacious foundations, and miſapprehended mediums, erecting concluſions no way inferrible from their premiſes. *Brown.*

INCONSEQUEN'TIAL, *adj.* Not leading to conſequences.—She has ſenſe and ambition; but it is ſtill the ſenſe and ambition of a woman, that is, *inconſequential.* *Cheſterfield.*

INCON'SEQUENTLY, *adv.* Without conſequence, inconcluſively, without force of argument.

INCON'SEQUENTNESS, *ſ.* Inconſequence, incluſiveneſs. *Scott.*

INCONSID'ERABLE, *adj.* Unworthy of notice; unimportant; mean; of little value.—Let no ſin appear ſmall or *inconſiderable* by which an almighty God is offended, and eternal ſalvation endangered. *Rogers.*

INCONSID'ERABLENESS, *ſ.* Small importance.—To thoſe who are thoroughly convinced of the *inconſiderableneſs* of this ſhort dying life, in compariſon of that eternal ſtate which remains for us in another life, the conſideration of a future happineſs is the moſt powerful motive. *Tillotſon.*

INCONSID'ERACY, *ſ.* Thoughtleſſneſs.—This is the the common effect of the *inconſideracy* of youth. *Cheſterfield.*

INCONSID'ERATE, *adj.* [*inconſideré*, Fr. *inconſideratus*, Lat.] Careleſs; thoughtleſs; negligent; inattentive; inadvertent: uſed both of men and things.—It is a very unhappy token of our corruption, that there ſhould be any ſo *inconſiderate* among us as to ſacrifice morality to politics. *Addiſon.*

When thy *inconſiderate* hand
Flings ope this caſement with my trembling name,
Then think this name alive, and that thou thus
In it offend'ſt my genius. *Donne.*

Wanting due regard; with *of* before the ſubject.—He who laid down his life for the redemption of the tranſgreſſions which were under the firſt Teſtament, cannot be ſo *inconſiderate of* our frailties. *Decay of Piety.*

INCONSID'ERATELY, *adv.* Negligently; thoughtleſsly; inattentively.—The king, tranſported with juſt wrath, *inconſiderately* fighting and precipitating the charge, before his whole numbers came up, was ſlain in the purſuit. *Bacon.*

INCONSID'ERATENESS, *ſ.* Careleſſneſs; thoughtleſſneſs; negligence; want of thought; inadvertence; inattention.—If men do know and believe that there is ſuch a being as God, not to demean ourſelves towards him as becomes our relation to him, is great ſtupidity and *inconſiderateneſs.* *Tillotſon.*

INCONSIDERA'TION, *ſ.* Want of thought; inattention; inadvertence.—St. Gregory reckons uncleanneſs to be the parent of blindneſs of mind, *inconſideration*, precipitancy or giddineſs in actions, and ſelf-love. *Taylor.*

INCONSIS'TENCE, or INCONSIS'TENCY, *ſ.* Such oppoſition as that one propoſition infers the negation of the other; ſuch contrariety that both cannot be together.—There is a perfect *inconſiſtency between* that which is of debt, and that which is of free gift. *South.*—Abſurdity in argument or narration; argument or narrative, where one part deſtroys the other; ſelf-contradiction. Incongruity. —Mutability of temper, and *inconſiſtency with* ourſelves, is the greateſt weakneſs of human nature. *Addiſon.*—If a man would regiſter all his opinions upon love, politics, religion, and learning, what a bundle of *inconſiſtencies* and contradictions would appear at laſt. *Swift.*—Unſteadineſs; changeableneſs.

INCONSIS'TENT, *adj.* Incompatible; not ſuitable; incongruous; followed by *with.*—Finding no kind of compliance, but ſharp proteſtations againſt the demands, as *inconſiſtent with* conſcience, juſtice, or religion, the conference broke off. *Clarendon.*—Contrary, ſo as that one infers the negation or deſtruction of the other.—The idea of an infinite ſpace or duration is very obſcure and confuſed, becauſe it is made up of two parts very different, if not *inconſiſtent.* *Locke.*—Abſurd; having parts of which one deſtroys the other.

INCONSIS'TENTLY, *adv.* Abſurdly; incongruouſly; with ſelf-contradiction.

INCONSIS'TENTNESS, *ſ.* Inconſiſtence; incongruity; abſurdity; unſteadineſs.

INCONSIS'TING, *adj.* Not conſiſtent; incompatible with. *Not uſed.*—The perſons and actions of a farce are all unnatural, and the manners falſe; that is, *inconſiſting* with the characters of mankind. *Dryden.*

INCONSO'LABLE, *adj.* Not to be comforted; ſorrowful beyond ſuſceptibility of comfort.—Her women will repreſent to me that ſhe is *inconſolable*, by reaſon of my unkindneſs. *Addiſon.*

INCONSO'LABLENESS, *ſ.* The ſtate of being inconſolable. *Scott.*

INCONSO'LABLY, *adv.* In an inconſolable manner.

INCON'SONANCY, *ſ.* Diſagreement with itſelf.

INCONSPIC'UOUS, *adj.* Indiſcernible; not perceptible by the ſight.—When an excellent experimenter had taken pains in accurately filling up a tube of mercury, we found that yet there remained ſtore of *inconſpicuous* bubbles. *Boyle.*

INCON'STANCY, *ſ.* [*inconſtantia*, Lat. *inconſtance*, Fr. from *inconſtant.*] Unſteadineſs; want of ſteady adherence; mutability of temper or affection.—I have ſuffered more for their ſakes, more than the villainous *inconſtancy* of man is able to bear. *Shakeſpeare.*

Be made the mark
For all the people's hate, the princeſs' curſes,
And his ſon's rage, or the old king's *inconſtancy*. *Denham.*

Diverſity; diſſimilitude.—As much *inconſtancy* and confuſion is there in their mixtures or combinations; for it is rare to find any of them pure and unmixt. *Woodward.*

INCON'STANT, *adj.* [Fr. *inconſtans*, Lat.] Not firm in reſolution; not ſteady in affection; various of inclination; wanting perſeverance: of perſons.—He is ſo naturally *inconſtant*, that I marvel his ſoul finds not ſome way to kill the body. *Sidney.*—Changeable; mutable; variable: of things:

O ſwear not by the moon, th' *inconſtant* moon,
That monthly changes in her circled orb,
Leſt that thy love prove likewiſe variable. *Shakeſpeare.*

INCON'STANTLY, *adv.* Without conſtancy. *Scott.*

INCONSU'MABLE, *adj.* Not to be waſted.—By art were weaved napkins, ſhirts, and coats, *inconſumable* by fire, and wherein they burnt the bodies of kings. *Brown.*

INCONSUMP'TIBLE, *adj.* Not to be ſpent; not to be brought to an end; not to be deſtroyed by fire. This ſeems a more elegant word than *inconſumable*.—Before I give any anſwer to this objection of pretended *inconſumptible* lights, I would gladly ſee the effect undoubtedly proved. *Digby.*

INCONTES'TABLE, *adj.* Not to be diſputed; not admitting debate; uncontrovertible.—Our own being furniſhes us with an evident and *inconteſtable* proof of a Deity; and I believe no body can avoid the cogency of it, who will carefully attend to it. *Locke.*

INCONTES'TABLENESS, *ſ.* The ſtate or quality of being inconteſtable. *Scott.*

INCONTES'TABLY, *adv.* Indiſputably; uncontrovertibly.—Locke ſaw clearly, and proved *inconteſtably*, that the ſenſations we have by taſte, ſmell, and hearing, are not reſemblances of any thing in bodies. *Reid.*

INCONTIG'UOUS, *adj.* Not touching each other; not joined together.—They ſeemed part of ſmall bracelets, conſiſting of equally-little *incontiguous* beads. *Boyle.*

INCON'TINENCE, or INCONT'INENCY, *ſ.* Inability to reſtrain the appetites; unchaſtity.—The words *fine veſte dianam* agree better with Livia, who had the fame of chaſtity, than with either of the Julias, who were both noted for *incontinency*. *Dryden.*

But beauty, like the fair heſperian tree,
Laden with blooming gold, had need the guard
Of dragon-watch with uninchanted eye,
To ſave her bloſſoms, and defend her fruit
From the raſh hand of bold *incontinence*. *Milton.*

INCONTINENCE, in medicine, ſignifies an inability in any of the organs to retain what ſhould not be diſcharged without the concurrence of the will. But incontinence is moſt frequently uſed with regard to an involuntary diſcharge of urine, otherwiſe called *diabetes*.

INCONTINENCE, in the eye of law, is of divers kinds; as in caſes of bigamy, rapes, ſodomy, or getting baſtards; all which are puniſhed by ſtatute. See 25 *Hen.* VIII. 6. 18 *Eliz.* 7. 1 *Jac.* I. 11. Incontinency of prieſts is puniſhable by the ordinary, by impriſonment, &c. 1 *Hen.* VII. 4.

INCON'TINENT, *adj.* Unchaſte; indulging unlawful pleaſure.—In theſe degrees have they made a pair of ſtairs to marriage, which they will climb incontinent, or elſe be *incontinent* before marriage. *Shakeſpeare.*—Men ſhall be lovers of their own ſelves, falſe accuſers, *incontinent*, fierce. 2 *Tim.* iii. 3.

INCON'TINENT, *adv.* Shunning delay; immediately.—He ſays he will return *incontinent*. *Shakeſpeare.*

They ran towards the far rebounded noiſe,
To weet what wight ſo loudly did lament;
Unto the place they came *incontinent*. *Fairy Queen.*

INCON'TINENTLY, *adv.* Unchaſtely; without reſtraint of the appetites.—Immediately; at once. *An obſolete ſenſe. Spenſer.*—The cauſe of this war is no other than that we will not *incontinently* ſubmit ourſelves to our neighbours. *Hayward.*—*Incontinently* I left Madrid, and have been dogged and waylaid through ſeveral nations. *Arbuthnot and Pope.*

INCON'TINENTNESS, *ſ.* Incontinence. *Scott.*

INCONTROVERTIBIL'ITY, *ſ.* The ſtate of being incontrovertible.

INCONTROVER'TIBLE, *adj.* Indiſputable; not to be diſputed.

INCONTROVER'TIBLY, *adv.* To a degree beyond controverſy or diſpute.—The Hebrew is *incontrovertibly* the primitive and ſureſt text to rely upon; and, to preſerve the ſame uncorrupt, there hath been uſed the higheſt caution humanity could invent. *Brown.*

INCONVE'NIENCE, or INCONVENIENCY, *ſ.* [*inconvenient*, Fr.] Unfitneſs; inexpedience.—They plead againſt the *inconvenience*, not the unlawfulneſs, of popiſh apparel; and againſt the *inconvenience*, not the unlawfulneſs, of ceremonies in burial. *Hooker.*—Diſadvantage; cauſe of uneaſineſs; difficulty.—The things of another world, being diſtant, operate but faintly upon us; to remedy this *inconveniency*, we muſt frequently revolve their certainty and importance. *Atterbury.*

INCONVE'NIENT, *adj.* Incommodious; diſadvantageous.—They lean to their old cuſtoms, though they be more unjuſt, and more *inconvenient* for the common people. *Spenſer.*—Unfit; inexpedient.—We are not to look that the church ſhould change her public laws, although it chance that for ſome particular men the ſame be found *inconvenient*, eſpecially when there may be other remedy againſt particular inconveniencies. *Hooker.*

INCONVE'NIENTLY, *adv.* Unfitly; incommodiouſly. Unſeaſonably. *Ainſworth.*

INCONVE'NIENTNESS, *ſ.* The ſtate of being inconvenient. *Scott.*

INCONVER'SABLE, *adj.* Incommunicative; ill qualified by temper for converſation; unſocial.—He is a perſon very *inconverſable*. *More.*

INCONVER'SABLENESS, *ſ.* The ſtate or quality of being inconverſable.

INCONVER'TIBLE, *adj.* Not tranſmutable; incapable of change.—It entereth not the veins, but taketh leave of the permeant parts, and accompanieth the *inconvertible* portion unto the ſiege. *Brown.*

INCONVER'TIBLENESS, *ſ.* The ſtate or quality of being inconvertible. *Scott.*

INCONVIN'CIBLE, *adj.* Not to be convinced; not capable of conviction.

INCONVIN'CIBLY, *adv.* Without admitting conviction.—It is injurious unto knowledge obſtinately and *inconvincibly* to ſide with any one. *Brown.*

INCO'NY, *adj.* [perhaps from *in*, and *conn*, to know.] Unlearned; artleſs. *This ſenſe is uncertain.*—In Scotland it denotes miſchievouſly unlucky: as, He's an *incony* fellow.

*To* INCOR'DIATE, *v. a.* [from *in*, Lat. into, and *cor*, the heart.] To fix in the heart. *Cole.*

INCOR'DING, *ſ.* With farriers, a diſeaſe incident to horſes; a kind of rupture in which the inteſtines fall into the ſheath.

INCORONA'TA, a town of Italy, in the kingdom of Naples, and province of Capitanata; ſixteen miles north of Aſcoli.

INCOR'PORAL, *adj.* Immaterial; diſtinct from matter; diſtinct from body.—Learned men have not reſolved us whether light be corporal or *incorporal*: corporal they ſay it cannot be, becauſe then it would neither pierce the air, nor ſolid diaphanous bodies, and yet every day we ſee the air illightened; *incorporal* it cannot be, becauſe ſometimes it affecteth the ſight with offence. *Raleigh.*

Why do'ſt thou bend thine eye on vacancy,
And with th' *incorporal* air do'ſt hold diſcourſe. *Shakeſp.*

INCORPORAL'ITY, *ſ.* Immaterialneſs; diſtinctneſs from body.

INCOR'PORALLY, *adv.* Without matter; immaterially.

INCOR'PORALNESS, *ſ.* Immateriality, diſtinctneſs from body.

*To* INCOR'PORATE, *v. a.* [*incorporer*, Fr.] To mingle different ingredients ſo as they ſhall make one maſs.—A fifteenth part of ſilver, *incorporate* with gold, will not be recovered, except you put a greater quantity of ſilver to draw it to the leſs. *Bacon.*

Who the ſwelling clouds in bladders ties,
To mollify the ſtubborn clods with rain,
And ſcatter'd duſt *incorporate* again. *Sandys.*

To conjoin inſeparably, as one body.—Villainous thoughts, Roderigo, when theſe mutualities ſo marſhal the way, hard at hand comes the maſter and main exerciſe, the *incorporate* concluſion. *Shakeſpeare.*

Upon my knees I charm you, by that vow
Which did *incorporate* and make us one. *Shakeſpeare.*

To form into a corporation, or body politic. In this ſenſe they ſay in Scotland, the *incorporate* trades in any community.—The apoſtle affirmeth plainly of all men chriſtian, that be they Jews or Gentiles, bond or free, they are all *incorporated* into one company, they all make but one body. *Hooker.*—To unite; to aſſociate.—The Romans did not ſubdue a country to put the inhabitants to fire and ſword, but to *incorporate* them into their own community. *Addiſon.*

Your moſt grave belly was deliberate,
Not raſh, like his accuſers, and thus anſwer'd:
True is it, my *incorporate* friends, quoth he,
That I receive the general food at firſt,
Which you do live upon. *Shakeſpeare.*

To work into another maſs.—All this learning is ignoble and mechanical among them, and the Confutian only eſſential and *incorporate* in their government. *Temple.*—To embody; to give a material form.—The idolators, who worſhipped their images as gods, ſuppoſed ſome ſpirit to be *incorporated* therein, and ſo to make together with it a perſon fit to receive worſhip. *Stillingfleet.*—Courteſy, that ſeemed *incorporated* in his heart, would not be perſuaded by danger to offer any offence. *Sidney.*

*To* INCOR'PORATE, *v. n.* To unite with ſomething elſe. It is commonly followed by *with.*—Painters' colours and aſhes do better *incorporate with* oil. *Bacon.*—It is not univerſally true, that acid ſalts and oils will not *incorporate* or mingle. *Boyle.*

Thy ſoul
In real darkneſs of the body dwells,
Shut out from outward light,
T' *incorporate with* gloomy night. *Milton.*

Sometimes it has *into.*—It finds the mind unprepoſſeſſed with any former notions, and ſo eaſily gains upon the aſſent, grows up with it, and *incorporates into* it. *South.*

INCOR'PORATE, *adj.* Immaterial; unbodied. This is now diſuſed to avoid confuſion, *incorporate* being rather uſed of things mingled.—Moſes forebore to ſpeak of angels, and things inviſible and *incorporate. Raleigh.*

INCOR'PORATEDNESS, *ſ.* The ſtate or condition of being incorporated.

INCOR'PORATING, *ſ.* The act of uniting in one maſs.

INCORPORA'TION, *ſ.* Union of divers ingredients in one maſs.—Make proof of the *incorporation* of iron *with* flint; for, if it can be incorporated without over-great charge, the cheapneſs of the flint doth make the compound ſtuff profitable. *Bacon.*—This, with ſome little additional, may further the intrinſic *incorporation. Bacon.*—Formation of a body politic. Adoption; union; aſſociation; with *into.*—In him we actually are, by our actual *incorporation into* that ſociety which hath him for their head. *Hooker.*

INCORPORATION, or *Body corporate.* See CORPORATION, vol. v. p. 222.

INCORPO'REAL, *adj.* [*incorporalis*, Lat. *incorporel*, Fr. from *in* and *corporeal.*] Immaterial; unbodied.—It is a virtue which may be called *incorporeal* and immateriate, whereof there be in nature but few. *Bacon.*

Thus *incorporeal* ſpirits to ſmalleſt forms
Reduc'd their ſhapes immenſe. *Milton.*

INCORPO'REALLY, *adv.* [from *incorporeal.*] Immaterially; without body.—Hearing ſtriketh the ſpirits more immediately than the other ſenſes, and more *incorporeally* than the ſmelling. *Bacon.*

INCORPORE'ITY, *ſ.* Immateriality; diſtinctneſs from body.

*To* INCOR'PSE, *v. a.* To incorporate; to unite into one body. *Not uſed:*

He grew unto his ſeat,
As he had been *incorps'd* and demy-natur'd
With the brave horſe. *Shakeſpeare.*

INCORRECT', *adj.* Not nicely finiſhed; not exact; inaccurate; full of faults:

The piece you think is *incorrect*: why take it;
I'm all ſubmiſſion; what you'd have it, make it. *Pope.*

INCORRECT'LY, *adv.* Inaccurately; not exactly.—Even in common converſation, a man, who ſpeaks properly and accurately, will have a great advantage over thoſe who ſpeak *incorrectly. Cheſterfield.*

INCORRECT'NESS, *ſ.* Inaccuracy; want of exactneſs.

INCORRIGIBIL'ITY, *ſ.* Incorrigibleneſs, the ſtate of being incorrigible.

INCOR'RIGIBLE, *adj.* [Fr. from *in* and *corrigible.*] Bad beyond correction; depraved beyond amendment by any means; erroneous beyond hope of inſtruction: of perſons.—Whilſt we are *incorrigible*, God may in vengeance continue to chaſtiſe us with the judgment of war. *Smalridge.*

Provok'd by thoſe *incorrigible* fools,
I left declaiming in pedantic ſchools. *Dryden.*

Not capable of amendment: of things.—The loſs is many times irrecoverable, and the inconvenience *incorrigible. More.*

INCOR'RIGIBLENESS, *ſ.* Hopeleſs depravity; badneſs beyond all means of amendment.—I would not have chiding uſed, much leſs blows, 'till obſtinacy and *incorrigibleneſs* make it abſolutely acceſſary. *Locke.*

INCOR'RIGIBLY, *adv.* To a degree of depravity beyond all means of amendment:

Some men appear *incorrigibly* mad,
They cleanlineſs and company renounce. *Roſcommon.*

INCORRUPT', or INCORRUPT'ED, *adj.* Free from foulneſs or depravation:

Sin, that firſt
Diſtemper'd all things, and, of *incorrupt*,
Corrupted. *Milton.*

Pure of manners; honeſt; good. It is particularly applied to a man above the power of bribes.

INCORRUPTIBIL'ITY, *ſ.* [*incorruptibilité*, Fr. from *incorruptible.*] Inſuſceptibility of corruption; incapacity of decay.—Philo, in his book of the world's *incorruptibility*, allegeth the verſes of a Greek tragic poet. *Hakewill.*

INCORRUPT'IBLE, *adj.* Not capable of corruption; not admitting of decay.—Our bodies ſhall be changed into *incorruptible* and immortal ſubſtances, our ſouls be entertained with the moſt raviſhing objects, and both continue happy throughout all eternity. *Wake.*

In ſuch abundance lies our choice,
As leaves a great ſtore of fruit untouch'd,
Still hanging *incorruptible.* *Milton.*

INCORRUPT'IBLENESS, *ſ.* The ſtate or quality of being incorruptible.

INCORRUPT'IBLES, *ſ.* The name of a ſect which ſprang out of the Eutychians. Their diſtinguiſhing tenet was, that the body of Jeſus Chriſt was incorruptible; by which they meant, that, after and from the time wherein he was formed in the womb of his holy mother, he was not ſuſceptible of any change or alteration; not even of any natural and innocent paſſions, as of hunger, thirſt, &c. ſo that he ate without any occaſion, before his death, as well as after his reſurrection. And hence it was that they took their name.

INCORRUPT'IBLY, *adv.* In a manner not to be corrupted.

INCORRUP'TION, *ſ.* Incapacity of corruption.—So alſo is the reſurrection of the dead; it is ſown in corruption, it is raiſed in *incorruption.* 1 *Cor.*

INCORRUPT'NESS, *ſ.* Purity of manners; honeſty; integrity.—Probity of mind, integrity, and *incorruptneſs* of manners, is preferable to fine parts and ſubtile ſpeculations. *Woodward.*—Freedom from decay or degeneration.

INCRASSAN'TIA, *ſ. plu.* With phyſicians, medicines adapted to improve or thicken the blood and juices. *Scott.*

*To* INCRAS'SATE, *v. a.* [*in* and *craſſus*, Lat.] To thicken; the contrary to attenuate.—If the cork be too light to ſink under the ſurface, the body of water may be attenuated with ſpirits of wine; if too heavy, it may be *incraſſated* with ſalt. *Brown.*

INCRAS'SATING, *ſ.* The act of making thick; incraſſation.

INCRASSA'TION, *ſ.* The act of thickening. The ſtate of growing thick.—Nothing doth conglaciate but water; for the determination of quickſilver is fixation, that of milk coagulation, and that of oil *incraſſation. Brown.*

INCRAS'SATIVE, *adj.* Having the quality of thickening.

INCRAS'SATIVE, *ſ.* A medicine which has the power of thickening the blood and juices.—The two latter indicate reſtringents to ſtaunch, and *incraſſatives* to thicken, the blood. *Harvey.*

*To* INCRE'ASE, *v. n.* [*in* and *creſco*, Lat.] To grow more in number, or greater in bulk; to advance in quantity or value, or in any quality capable of being more or leſs.—Hear and obſerve to do it, that it may be well with thee, and that ye may *increaſe* mightily. *Deut.* vi. 3.

Henry in knots involv'd his Emma's name
Upon this tree; and, as the tender mark,
Grew with the year, and widen'd with the bark,
Venus had heard the virgin's ſoft addreſs,
That as the wound the paſſion might *increaſe*. *Prior.*

To be fertile.—Fiſhes are more numerous or *increaſing* than beaſts or birds, as appears by their numerous ſpawn. *Hale.*

*To* INCRE'ASE, *v. a.* [See Encrease.] To make more or greater.—He hath *increaſed* in Judah mourning and lamentations. *Sam.*

Hye thee from this ſlaughter-houſe,
Leſt thou *increaſe* the number of the dead. *Shakeſpeare.*

INCRE'ASE, *ſ.* Augmentation; the ſtate of growing more or greater:

Hail, bards triumphant! born in happier days,
Whoſe honours with *increaſe* of ages grow,
As ſtreams roll down, enlarging as they flow. *Pope.*

Increment; that which is added to the original ſtock.—Take thou no uſury of him, nor *increaſe. Levit.*—Produce.—The *increaſe* of the threſhing-floor, and the *increaſe* of the wine-preſs. *Numb.*

As Heſiod ſings, ſpread waters o'er thy field,
And a moſt juſt and glad *increaſe* 'twill yield. *Denham.*

Generation:

Into her womb convey ſterility;
Dry up in her the organs of *increaſe*,
And from her derogate body never ſpring
A babe. *Shakeſpeare.*

Progeny.—All the *increaſe* of thy houſe ſhall die in the flower of their age. *Samuel.*

Him young Thoaſa bore, the bright *increaſe*
Of Phorcys. *Pope.*

The ſtate of waxing, or growing full-orbed. Uſed of the moon.—Seeds, hair, nails, hedges, and herbs, will grow ſooneſt, if ſet or cut in the *increaſe* of the moon. *Bacon.*

INCRE'ASER, *ſ.* He who increaſes. That which increaſes.—Whether civil government be ſuch a nurſe and *increaſer* of bleſſings. *Burke.*

INCRE'ASING, *ſ.* The act of growing.

INCREA'TE, or Increa'ted, *adj.* Not created.—Since the deſire is infinite, nothing but the abſolute and *increated* infinite can adequately fill it. *Cheyne.*

INCREDIBIL'ITY, *ſ.* [*incredibilité*, Fr.] The quality of ſurpaſſing belief.—For objects of *incredibility*, none are ſo removed from all appearance of truth as thoſe of Corneille's Andromeda. *Dryden.*

INCRED'IBLE, *adj.* [*incredibilis*, Lat.] Surpaſſing belief; not to be credited.—The ſhip Argo, that there might want no *incredible* thing in this fable, ſpoke to them. *Raleigh.*

Preſenting things impoſſible to view,
They wander through *incredible* to true. *Granville.*

INCRED'IBLENESS, *ſ.* Quality of being not credible.

INCRED'IBLY, *adv.* In a manner not to be believed

INCREDU'LITY, *ſ.* [*incredulité*, Fr.] Quality of not believing; hardneſs of belief.—He was more large in the deſcription of Paradiſe, to take away all ſcruple from the *incredulity* of future ages. *Raleigh.*

INCRED'ULOUS, *adj.* [*incredule*, Fr. *incredulus*, Lat.] Hard of belief; refuſing credit.—I am not altogether *incredulous* but there may be ſuch candles as are made of ſalamander's wool, being a kind of mineral which whiteneth in the burning, and conſumeth not. *Bacon.*

INCRED'ULOUSNESS, *ſ.* Hardneſs of belief; incredulity.

INCRE'MABLE, *adj.* [*in* and *cremo*, Lat.] Not conſumable by fire.—If from the ſkin of the ſalamander theſe *incremable* pieces are compoſed. *Brown.*

IN'CREMENT, *ſ.* [*incrementum*, Lat.] Act of growing greater.—Divers conceptions are concerning the Nile's *increment*, or inundation. *Brown.*—Increaſe; matter added.—This ſtratum is expanded at top, ſerving as the ſeminary that furniſheth matter for the formation and *increment* of animal and vegetable bodies. *Woodward.*—Produce:

The orchard loves to wave
With winter winds: the looſen'd roots now drink
Large *increment*, earneſt of happy years. *Philips.*

Increment, in the mathematics, is the ſmall increaſe of a variable quantity. Newton, in his Treatiſe on Fluxions, calls theſe by the name of *moments*, and obſerves that they are proportional to the velocity or rate of increaſe of the flowing or variable quantities in an indefinitely ſmall time; he denotes them by ſubjoining a cipher, o, to the flowing quantity whoſe moment or increment it is; thus $x$o the moment of $x$. In the doctrine of increments, by Dr. Brooke Taylor and Mr. Emerſon, they are denoted by points below the variable quantities; as $\underset{.}{x}$. Some have alſo denoted them by accents underneath the letter, as $\underset{,}{x}$; but it is now more uſual to expreſs them by accents over the letter; as $\overset{,}{x}$.

The *Method of* Increments is a branch of analytics, in which a calculus is founded on the properties of the ſucceſſive values of variable quantities, and their differences, or increments.

The inventor of the method of increments was the learned Dr. Taylor, who in the year 1715 publiſhed a treatiſe upon it; and afterwards gave ſome farther account and explication of it in the Philoſ. Tranſ. as applied to the finding the ſums of ſeries. And another ingenious and eaſy treatiſe on the ſame was publiſhed by Mr. Emerſon,

ſon, in the year 1763. The method is nearly allied to Newton's Doctrine of Fluxions, and ariſes out of it. Alſo the Differential Method of Mr. Stirling, which he applies to the ſummation and interpolation of ſeries, is of the ſame nature as the Method of Increments, but not ſo general and extenſive.

From the method of increments, Mr. Emerſon obſerves, "the principal foundation of the method of fluxions may eaſily be derived. For as, in the method of increments, the increment may be of any magnitude, ſo, in the method of fluxions, it muſt be ſuppoſed infinitely ſmall; whence all preceding and ſucceſſive values of the variable quantity will be equal; from which equality the rules for performing the principal operations of fluxions are immediately deduced. That I may give the reader," continues he, "a more perfect idea of the nature of this method; ſuppoſe the abſciſſa of a curve be divided into any number of equal parts, each part of which is called the increment of the abſciſſa; and imagine ſo many parallelograms to be erected thereon, either circumſcribing the curvilineal figure, or inſcribed in it; then the finding the ſum of all theſe parallelograms is the buſineſs of the *method of increments*. But, if the parts of the abſciſſa be taken infinitely ſmall, then theſe parallelograms degenerate into the curve; and then it is the buſineſs of the *method of fluxions* to find the ſum of all, or the area of the curve. So that the method of increments finds the ſum of any number of finite quantities; and the method of fluxions the ſum of any infinite number of infinitely ſmall ones; and this is the eſſential difference between theſe two methods." Again, "There is ſuch a near relation between the method of fluxions and that of increments, that many of the rules for the one with little variation ſerve alſo for the other. And here, as in the method of fluxions, ſome queſtions may be ſolved, and the integrals found, in finite terms; whilſt in others we are forced to have recourſe to infinite ſeries for a ſolution. And the like difficulties will occur in the method of increments as uſually happen in fluxions. For whilſt ſome fluxionary quantities have no fluents, but what are expreſſed by ſeries; ſo ſome increments have no integrals, but what infinite ſeries afford; which will often, as in fluxions, diverge and become uſeleſs."

By means of the method of increments, many curious and uſeful problems are eaſily reſolved, which ſcarcely admit of a ſolution in any other way. As, ſuppoſe ſeveral ſeries of quantities be given, whoſe terms are all formed according to ſome certain law, which is given; the method of increments will find out a general ſeries, which comprehends all particular caſes, and from which all of that kind may be found. The method of increments is alſo of great uſe in finding any term of a ſeries propoſed; for, the law being given by which the terms are formed, by means of this general law the method of increments will help us to this term, either expreſſed in finite quantities, or by an infinite ſeries. Another uſe of the method of increments, is to find the ſums of ſeries; which it will often do in finite terms. And when the ſum of a ſeries cannot be had in finite terms, we muſt have recourſe to infinite ſeries; for, the integral being expreſſed by ſuch a ſeries, the ſum of a competent number of its terms will give the ſum of the ſeries required. This is equivalent to transforming one ſeries into another, converging quicker: and ſometimes a very few terms of this ſeries will give the ſum of the ſeries ſought. For the proceſs, ſee the article ALGEBRA, vol. i. p. 314.

INCREMEN'TUM, *ſ.* [Latin.] A figure in rhetoric in which the ſenſe riſes in every member of a ſentence.

INCREMEN'TUM, *ſ.* In old records, an improvement of land; an advanced rent; a piece of land taken in from the common.

*To* IN'CREPATE, *v. a.* [*increpo*, Lat.] To chide; to reprehend.

INCREPA'TION, *ſ.* [*increpatio*, Lat.] Reprehenſion; chiding.—The admonitions, fraternal or paternal, of his fellow-chriſtians, or of the governors of the church, than more public reprehenſions and *increpations*. *Hammond.*

INCRES'CENT, *adj.* [from *increſco*, Lat. to increaſe.] In heraldry, increaſing as the moon before the full.

INCRES'SANT, *adj.* Increaſing as the moon before the full.

INCRIM'INATE, *v. a.* [from *in*, Lat. and *criminor*, to accuſe.] To recriminate. *Scott.*

*To* INCRO'ACH, *v. n.* To encroach.

INCRO'ACHINGNESS, *ſ.* The act of encroaching; a diſpoſition to encroach. *Scott.*

INCRO'ACHMENT, *ſ.* An encroachment. *Scott.*

INCRUEN'TOUS, *adj.* [from *in*, Lat. contrary to, and *cruentus*, bloody.] Void of blood; untainted with blood. *Scott.*

*To* INCRUST', or INCRUST'ATE, *v. a.* [*incruſto*, Lat. *incruſter*, Fr.] To cover with an additional coat adhering to the internal matter.—The finer part of the wood will be turned into air, and the groſſer ſtick baked and *incruſtate* upon the ſides of the veſſel. *Bacon.*

Save but our army; and let Jove *incruſt*
Swords, pikes, and guns, with everlaſting ruſt. *Pope.*

INCRUS'TATING, *ſ.* The act of covering with a kind of cruſt.

INCRUSTA'TION, *ſ.* [Fr. from *incruſto*, Lat.] An adherent covering; ſomething ſuperinduced.—Having ſuch a prodigious ſtock of marble, their chapels are laid over with ſuch a rich variety of *incruſtations* as cannot be found in any other part. *Addiſon.*

*To* IN'CUBATE, *v. n.* [*incubo*, Lat.] To ſit upon eggs.

INCUBA'TING, *ſ.* The act of ſitting on eggs.

INCUBA'TION, *ſ.* The act of ſitting upon eggs to hatch them.—When the whole tribe of birds by *incubation* produce their young, it is a wonderful deviation, that ſome few families ſhould do it in a more novercal way. *Derham.*

INCU'BITURE, *ſ.* Incubation.

IN'CUBUS, *ſ.* [from *incubo*, Lat. to lie on; called alſo *ephialtes*, from εφαλλομαι, Gr. to leap upon; *epibole*, from επιϐαλλω, to preſs on; becauſe the patient imagines that ſomething leaps or preſſes upon him; and *babuzicarius*, from βαϐαζω, to ſpeak inarticulately, becauſe, in his diſtreſs, he mutters indiſtinctly.] The NIGHT-MARE.—The *incubus* is an inflation of the membranes of the ſtomach, which hinders the motion of the diaphragma, lungs, and pulſe, with a ſenſe of a weight oppreſſing the breaſt. *Floyer.*

Incubus is ſynonymous with *oneirodynia* in Cullen's ſyſtem. It always happens during ſleep; the patient ſuddenly feels a ſenſe of weight, a dread of ſuffocation, an oppreſſion as from ſomebody falling upon him, with an intent to deprive him of life, not ſuffering him to cry out; hence it is uſual with theſe patients to mourn with a confuſed inarticulate voice; they move with difficulty; but, on the firſt motion, the diſtreſſing feelings vaniſh.

This diſorder hath been ſuppoſed to proceed from a ſtagnation of blood in the brain and lungs: but it is a nervous affection, chiefly from indigeſtion; and thoſe whoſe nerves are weak, who lead ſedentary lives, feed heartily, and ſup late, are the moſt ſubject to it. Wind is a frequent cauſe; deep thought, anxiety, or any oppreſſion of mind, equally produce it. It is ſaid that none are attacked with the ephialtes but when laid on their backs. If the patient hath a ſanguine plethora, bleeding, a ſpare diet, and aloetic purges, relieve the complaint. A ſlight ſupper, cheerfulneſs before bed-time, and due exerciſe during the day, are the beſt remedies; but, if theſe fail, the fetid gums, with camphor joined to opium, at bed-time, will ſucceed.

*To* INCUL'CATE, *v. a.* [*inculco*, Lat. *inculquer*, Fr.] To impreſs by frequent admonitions; to enforce by conſtant repetition.—Manifeſt truth may deſerve ſometimes to be *inculcated*, becauſe we are too apt to forget it. *Atterbury*.

INCUL'CATING, *ſ*. The act of inforcing by repeated admonitions.

INCULCA'TION, *ſ*. The act of impreſſing by frequent admonition; admonitory repetition.

INCUL'PABLE, *adj*. Unblameable; not reprehenſible.—Ignorance, ſo far as it may be reſolved into natural inability, is as to men at leaſt *inculpable*, and conſequently not the object of ſcorn, but pity. *South*.

INCUL'PABLENESS, *ſ*. The ſtate of being blameleſs.

INCUL'PABLY, *adv*. Unblameably; without blame.—As to errors or infirmities, the frailty of man's condition has invincibly, and therefore *inculpably*, expoſed him. *South*.

*To* INCUL'PATE, *v. a*. To blame; to include one in the fault of another.

INCULT', *adj*. [from *in*, Lat. contrary to, and *cultus*, cultivated.] Uncultivated; untilled:

Her foreſts huge,
*Incult*, robuſt, and tall, by Nature's hand
Planted of old. *Thomſon*.

INCUM'BENCY, *ſ*. [from *incumbent*.] The act of lying upon another.—The ſtate of keeping a benefice.—Theſe fines are only to be paid to the biſhop during his *incumbency* in the ſame ſee. *Swift*.

INCUM'BENT, *adj*. [*incumbens*, Lat.] Reſting upon; lying upon.—The aſcending parcels of air, having now little more than the weight of the *incumbent* water to ſurmount, were able both ſo to expand themſelves as to fill up that part of the pipe which they pervaded, and by preſſing every way againſt the ſides of it, to lift upwards with them what water they found above them. *Boyle*.

With wings expanded wide ourſelves we'll rear,
And fly *incumbent* on the duſky air. *Dryden*.

Impoſed as a duty.—All men, truly zealous, will perform thoſe good works that are *incumbent* on all Chriſtians. *Spratt*.

INCUM'BENT, *ſ*. He who is in preſent poſſeſſion of a benefice.—In many places the whole eccleſiaſtical dues are in lay hands, and the *incumbent* lieth at the mercy of his patron. *Swift*.—He who is reſident on his benefice; he is called *incumbent*, becauſe he does, or at leaſt ought to, bend his whole ſtudy to diſcharge the cure of his church. *Co. Litt*. 119.

*To* INCUM'BER, *v. a*. [*encombrer*, Fr.] To embarraſs. See ENCUMBER:

My cauſe is call'd, and that long look'd-for day
Is ſtill *incumber'd* with ſome new delay. *Dryden*.

INCUM'BERING, *ſ*. The act of embarraſſing.

INCUM'BRANCE, *ſ*. A cloy; an embarraſſment.

INCUNEA'TION, *ſ*. [from *in*, Lat. into, and *cuneus*, a wedge.] The act of forcing in like a wedge. *Bailey*.

*To* INCUR', *v. a*. [*incurro*, Lat.] To become liable to a puniſhment or reprehenſion.—I have *incurred* diſpleaſure from inferiors for giving way to the faults of others. *Hayward*.

They, not obeying,
*Incurr'd* (what could they leſs?) the penalty;
And, manifold in ſin, deſerv'd to fall. *Milton*.

To occur; to preſs on the ſenſes: with *to* or *into*.—The motions of the minute parts of the bodies are inviſible, and *incur* not *to* the eye; but yet they are to be deprehended by experience. *Bacon*.—The mind of man, even in ſpirituals, acts with corporeal dependance; and ſo is he helped or hindered in its operations according to the different quality of external objects that *incur into* the ſenſes. *South*.

INCURABIL'ITY, *ſ*. [*incurabilité*, Fr. from *incurable*.] Impoſſibility of cure; utter inſuſceptibility of remedy.—We'll inſtantly open a door to the manner of a proper and improper conſumption, together with the reaſon of the *incurability* of the former, and facile cure of the other. *Harvey*.

INCU'RABLE, *adj*. [Fr. from *in* and *curable*.] Not admitting remedy; not to be removed by medicine; irremediable; hopeleſs.—A ſchirrus is not abſolutely *incurable*, becauſe it has been known that freſh paſture has cured it in cattle. *Arbuthnot*.

Stop the rage betime,
Before the wound do grow *incurable*;
For, being green, there is great hope of help. *Shakeſpeare*.

INCU'RABLENESS, *ſ*. State of not admitting any cure.

INCU'RABLY, *adv*. Without remedy.—We cannot know it is or is not, being *incurably* ignorant. *Locke*.

INCU'RIOUS, *adj*. Negligent; inattentive.—The Creator did not beſtow ſo much ſkill upon his creatures, to be looked upon with a careleſs *incurious* eye. *Derham*.

He ſeldom at the Park appear'd;
Yet, not *incurious*, was inclin'd
To know the converſe of mankind. *Swift*.

INCU'RIOUSNESS, *ſ*. Want of curioſity.—Young people have frequently an *incuriouſneſs* about them. *Cheſterfield*.

INCUR'RING, *ſ*. The act of becoming liable to.

INCUR'SION, *ſ*. [from *incurro*, Lat.] Attack; miſchievous occurrence.—Sins of daily *incurſion*, and ſuch as human frailty is unavoidably liable to. *South*.—Invaſion without conqueſt; inroad; ravage.—The incurſions of the Goths diſordered the affairs of the Roman empire. *Arbuthnot*.

The Parthian king hath gather'd all his hoſt
Againſt the Scythian, whoſe *incurſions* wild
Have waſted Sogdiana. *Milton*.

*To* INCUR'VATE, *v. a*. [from *in*, Lat. into, and *curvo*, to bend.] To bend, to make crooked.

INCUR'VATING, *ſ*. The act of making crooked.

INCURVA'TION, *ſ*. [from *incurvo*, Lat.] The act of bending or making crooked.—State of being bent; curvity; crookedneſs.—One part moving while the other reſts, one would think, ſhould cauſe an *incurvation* in the line. *Glanville*.—Flexion of the body in token of reverence.—He made uſe of acts of worſhip which God hath appropriated; as *incurvation*, and ſacrifice. *Stillingfleet*.

*To* INCUR'VATE, *v. a*. [*incurvo*, Lat.] To bend; to crook.—Sir Iſaac Newton has ſhown, by ſeveral experiments of rays paſſing by the edges of bodies, that they are *incurvated* by the action of theſe bodies. *Cheyne*.

INCUR'VITY, *ſ*. Crookedneſs; the ſtate of bending inward.—The *incurvity* of a dolphin muſt be taken not really, but in appearance, when they leap above water, and ſuddenly ſhoot down again: ſtraight bodies, in a ſudden motion, protruded obliquely downward, appear crooked. *Brown*.

IN'CUS, *ſ*. [Latin.] An anvil, the block of iron on which the ſmith forges his work. In anatomy, a bone of the inner part of the ear.

INCUS'SION, *ſ*. [from *in*, Lat. into, and *quatio cuſſus*, to ſhake.] The act of ſhaking with ſome degree of violence. *Scott*.

INDAG'ABLE, *adj*. [from *indago*, Lat. to ſearch.] Capable of being ſearched. *Cole*.

*To* IN'DAGATE, *v. a*. [*indago*, Lat.] To ſearch; to beat out.

INDAGA'TION, *ſ*. Search; enquiry; examination.—Paracelſus directs us, in the *indagation* of colours, to have an eye principally upon ſalts. *Boyle*.—Part hath been diſcovered by himſelf, and ſome by human *indagation*. *Brown*.

INDAGA'TOR, *ſ*. A ſearcher; an enquirer; an examiner.—The number of the elements of bodies requires to be ſearched into by ſuch ſkilful *indagators* of nature. *Boyle*.

*To* INDAM'AGE, *v. a.* To endamage.

INDAM'AGEMENT, *ſ.* An endamagement.

*To* INDANGER, *v. a.* To endanger.

INDAPOUR', a ſeaport of the iſland of Sumatra, ſituated on the ſouth-weſt coaſt. Lat. 1. 30. S. lon. 100. 50. E. Greenwich.

*To* INDART', *v. a.* [from *in* and *dart.*] To dart in, to ſtrike in:

I'll look to like, if looking liking move;
But no more deep will I *indart* my eye,
Than your conſent gives ſtrength to make it fly. *Shakeſ.*

INDE'A, a town of Africa, in the kingdom of Yamina, on the river of the ſame name.

*To* INDE'AR, *v. a.* To endear, to render dear to.

INDEAR'MENT, *ſ.* An endearment; the act of rendering dear.

*To* INDEBT', *v. a.* To put into debt; to oblige; to put under obligation.—Forgive us our ſins, for we forgive every one that is *indebted* to us. *Luke* xi. 4.

He for himſelf,
*Indebted* and undone, has nought to bring. *Milton.*

INDEBT'ED, *part. adj.* Obliged by ſomething received; bound to reſtitution; having incurred a debt. It has *to* before the perſon to whom the debt is due, and *for* before the thing received.—If the courſe of politic affairs cannot in any good courſe go forward without fit inſtruments, and that which fitteth them be their virtues, let polity acknowledge itſelf *indebted to* religion; godlineſs being the chiefeſt top and well-ſpring of all true virtues, even as God is of all things. *Hooker.*—Let us repreſent to our ſouls the love and beneficence for which we daily ſtand *indebted to* God. *Rogers.*

INDE'CENCY, *ſ.* [*indecence,* Fr.] Any thing unbecoming; any thing contrary to good manners; ſomething wrong, but ſcarcely criminal.—He will in vain endeavour to reform *indecency* in his pupil which he allows in himſelf. *Locke.*

INDE'CENT, *adj.* Unbecoming; unfit for the eyes or ears.—Characters, where obſcene words were proper in their mouths, but very *indecent* to be heard. *Dryden.*

INDE'CENTLY, *adv.* Without decency; in a manner contrary to decency.—He was the eaſy and profuſe dupe of women, and in ſome inſtances *indecently* ſo. *Cheſterfield.*

INDE'CENTNESS, *ſ.* Indecency.

INDECID'UOUS, *adj.* Not falling; not ſhed. Uſed of trees that do not ſhed their leaves in winter.—We find the ſtatue of the ſun framed with rays about the head, which were the *indeciduous* and unſhaken locks of Apollo. *Brown.*

INDEC'IMABLE, *adj.* [from *in,* Lat. contrary to, and *decimo,* to tithe.] Exempt from tithes, not liable to pay tithes. *Scott.*

INDECIS'ION, *ſ.* Want of determination.—The term *indeciſion* in a man's character implies an idea very nicely different from irreſolution; yet it has a tendency to produce it. *Shenſtone.*—*Indeciſion* is the natural accomplice of violence. *Burke.*

INDECLI'NABLE, *adj.* [Fr. from *indeclinabilis,* Lat.] Not varied by terminations.—Pondo is an *indeclinable* word, and when it is joined to numbers it ſignifies *libra.* *Arbuthnot.*

INDEC'OROUS, *adj.* [*indecorus,* Lat.] Indecent; unbecoming.—What can be more *indecorous* than for a creature to violate the commands, and trample upon the authority, of that awful excellence to whom he owes his life? *Norris.*

INDEC'OROUSNESS, *ſ.* Indecency. *Scott.*

INDECO'RUM, *ſ.* [Latin.] Indecency; ſomething unbecoming:

The ſoft addreſs, the caſtigated grace,
Are *indecorums* in the modern maid. *Young.*

INDEE'D, *adv.* In reality; in truth; in verity.—Though ſuch aſſemblies he had *indeed* for religion's ſake, hurtful nevertheleſs they may prove, as well in regard of their fitneſs to ſerve the turn of heretics and ſuch as privily will venture to inſtil their poiſon into new minds. *Hooker.*—Above common rate. This uſe is emphatical.—Such ſons of Abraham, how highly ſoever they may have the luck to be thought of, are far from being Iſraelites *indeed. South.*

I were a beaſt, *indeed,* to do you wrong,
I who have lov'd and honour'd you ſo long. *Dryden.*

This is to be granted that. A particle of connection.—This limitation, *indeed,* of our author will ſave thoſe the labour who would look for Adam's heir amongſt the race of brutes; but will very little contribute to the diſcovery of one next heir amongſt men. *Locke.*

Some ſons *indeed,* ſome very few, we ſee,
Who keep themſelves from this infection free. *Dryden.*

It is uſed ſometimes as a ſlight aſſertion or recapitulation in a ſenſe hardly perceptible or explicable, and, though ſome degree of obſcure power is perceived, might, even where it is properly enough inſerted, be omitted without miſs.—I ſaid I thought it was confederacy between the juggler and the two ſervants; tho' *indeed* I had no reaſon ſo to think. *Bacon.*—It is uſed to note conceſſion in compariſons.—Againſt theſe forces were prepared to the number of near one hundred ſhips; not ſo great of bulk *indeed,* but of a more nimble motion. *Bacon.*

INDEFATIGABIL'ITY, *ſ.* Indefatigableneſs.

INDEFAT'IGABLE, *adj.* [*in* and *defatigo,* Lat.] Unwearied; not tired; not exhauſted by labour.—The ambitious perſon muſt riſe early and ſit up late, and purſue his deſign with a conſtant *indefatigable* attendance; he muſt be infinitely patient and ſervile. *South.*

Who ſhall ſpread his airy flight,
Upborne with *indefatigable* wings,
Over the vaſt abrupt? *Milton.*

INDEFAT'IGABLENESS, *ſ.* Perſiſtency.—Becauſe they come ſhort of his *indefatigableneſs. Parnel.*

INDEFAT'IGABLY, *adv.* Without wearineſs.—A man *indefatigably* zealous in the ſervice of the church and ſtate, and whoſe writings have highly deſerved of both. *Dryden.*

INDEFE'ASIBLE, *adj.* A law term: incapable of being defeated; irreverſible. See INDEFEISIBLE.

INDEFECTIBIL'ITY, *ſ.* [from *indefectible.*] The quality of ſuffering no decay; of being ſubject to no defect.

INDEFEC'TIBLE, *adj.* [*in* and *defectus,* Lat.] Unfailing; not liable to defect or decay.

INDEFEI'SIBLE, *adj.* [*indefaiſible,* Fr.] Not to be cut off; not to be vacated; irrevocable.—So *indefeiſible* is our eſtate in thoſe joys, that, if we do not ſell it in reverſion, we ſhall, when once inveſted, be beyond the poſſibility of ill huſbandry. *Decay of Piety.*

INDEFEN'SIBLE, *adj.* [*in* and *indefenſus,* Lat.] What cannot be defended or maintained.—As they extend the rule of conſulting Scripture to all the actions of common life, even ſo far as to the taking up of a ſtraw, ſo it is altogether falſe or *indefenſible. Sanderſon.*

INDEF'INITE, *adj.* [*indefinitus,* Lat. *indefini,* Fr.] Not determined; not limited; not ſettled.—Though a poſition ſhould be wholly rejected, yet that negative is more pregnant of direction than an *indefinite;* as aſhes are more generative than duſt. *Bacon.*—Large beyond the comprehenſion of man, though not abſolutely without limits.—Though it is not infinite, it may be *indefinite;* though it is not boundleſs in itſelf, it may be ſo to human comprehenſion. *Spectator.*

INDEFI'NITELY, *adv.* Without any ſettled or determinate limitation.—We obſerve that cuſtom, whereunto St. Paul alludeth, and whereof the fathers of the church in their writings make often mention, to ſhow *indefinitely* what was done; but not univerſally to bind for ever all prayers unto one only faſhion of utterance. *Hooker.*—We conceive no more than the letter beareth; that is, four times, or *indefinitely* more than thrice. *Brown.*—A duty to which all are *indefinitely* obliged, upon ſome occaſions, by the expreſs command of God. *Smalridge.*—To a degree indefinite.—If the word be *indefinitely* extended, that is, ſo far as no human intellect can fancy any bounds of it, when they ſee what muſt be the leaſt part. *Ray.*

INDEF'INITENESS, *ſ.* The ſtate or quality of being indefinite.

INDEFIN'ITUDE, *ſ.* Quantity not limited by our underſtanding, though yet finite.—They ariſe to a ſtrange and prodigious multitude, if not *indefinitude*, by their various poſitions, combinations, and conjunctions. *Hale.*

IN'DEH SOU', a town of Aſiatic Turkey, in the province of Natolia: 100 miles eaſt of Kiutaja.

INDELIB'ERATE, or Indelib'erated, *adj.* [*indeliberé*, Fr. *in* and *deliberate.*] Unpremeditated; done without conſideration.—Actions proceeding from blandiſhments, or ſweet perſuaſions, if they be *indeliberated*, as in children who want the uſe of reaſon, are not preſently free action. *Bramhall.*—The love of God better can conſiſt with the *indeliberate* commiſſions of many ſins, than with an allowed perſiſtance in any one. *Government of the Tongue.*

INDEL'IBLE, *adj.* [*indelebilis*, Lat. It ſhould be written *indeleble.*] Not to be blotted out or effaced.—Wilful perpetration of unworthy actions brands with *indelible* characters the name and memory. *King Charles.*

Thy heedleſs ſleeve will drink the colour'd oil,
And ſpot *indelible* thy pocket ſoil. *Gay.*

Not to be annulled.—They are endued with *indelible* power from above to feed, to govern this houſehold, and to conſecrate paſtors and ſtewards of it to the world's end. *Spratt.*

INDEL'IBLENESS, *ſ.* The ſtate or quality of being indelible.

INDEL'ICACY, *ſ.* Want of delicacy; want of elegant decency.—Your papers would be chargeable with worſe than *indelicacy*, they would be immoral, did you treat deteſtable uncleanneſs as you rally an impertinent ſelf-love. *Addiſon.*

INDEL'ICATE, *adj.* Wanting decency; void of a quick ſenſe of decency.—Nothing but firſt or ſecond nature could continue cuſtoms ſo apparently *indelicate*. *Clubb.*

INDELOVOY', a town of Hindooſtan, in the country of Dowlatabad: four miles ſouth of Neermul, and fifty north-north-eaſt of Beder.

INDEMNIFICA'TION, *ſ.* [from *indemnify.*] Security againſt loſs or penalty. Reimburſement of loſs or penalty.

*To* INDEM'NIFY, *v. a.* [*in* and *damnify.*] To ſecure againſt loſs or penalty. To maintain unhurt.—Inſolent ſignifies rude and haughty; *indemnify* to keep ſafe. *Watts.*

INDEM'NIFYING, *ſ.* The act of ſecuring from loſs.

INDEM'NITY, *ſ.* [*indemnité*, Fr.] Security from puniſhment; exemption from puniſhment.—I will uſe all means, in the ways of amneſty and *indemnity*, which may moſt fully remove all fears, and bury all jealouſies in forgetfulneſs. *King Charles.*

Indemnity, in law, the ſaving harmleſs; or a writing to ſecure one from all damage and danger that may enſue from any act. Thus, on the appropriation of a church to any college, &c. when the archdeacon loſes for ever his induction-money, the recompence he receives yearly out of the church ſo appropriate, as 12d. or 2s. more or leſs, as a penſion agreed at the time of the appropriating, is called *indemnity*. *MS. in Bibl. Cotton.* p. 84. Acts of indemnity are paſſed every ſeſſion of parliament for the relief of thoſe who have neglected to take the oaths, to qualify them for their reſpective offices.

INDEMON'STRABLE, *adj.* Not capable of being demonſtrated.—We find ſome of the axioms of geometry mentioned by Ariſtotle as axioms and *indemonſtrable* principles of mathematical reaſoning. *Reid.*

INDEMON'STRABLENESS, *ſ.* The ſtate or quality of being indemonſtrable. *Scott.*

IN'DEN, a town of Swiſſerland, in the Valais: eighteen miles eaſt of Sion.

IN'DEN HO'TUN, a town of Chineſe Tartary, the capital of the Manchoo Tartars, where they began to eſtabliſh their empire over China: 420 miles eaſt-north-eaſt of Pekin. Lat. 41. 46. N. lon. 142. 22. E. Ferro.

INDENIZA'TION, *ſ.* The act of making free. *Cole.*

*To* INDEN'IZE, *v. a.* [from *in* and *denizen.*] To make free. *Cole.*

*To* INDEN'IZEN, *v. a.* To make free.

*To* INDENT', *v. a.* [*in* and *dens*, Lat. a tooth.] To mark any thing with inequalities like a row of teeth; to cut in and out; to make to wave or undulate.—The margins on each ſide do not terminate in a ſtraight line, but are *indented*. *Woodward.*

About his neck
A green and gilded ſnake had wreath'd itſelf,
Who with her head, nimble in threats, approach'd
The opening of his mouth; but ſuddenly,
Seeing Orlando, it unlink'd itſelf,
And with *indented* glides did ſlip away
Into a buſh. *Shakeſpeare.*

The ſerpent then, not with *indented* wave,
Prone on the ground, as ſince; but on his rear
Circular baſe of riſing folds, that tower'd
Fold above fold, a ſurging maze! *Milton.*

Trent, who, like ſome earth-born giant, ſpreads
His thirty arms along the *indented* meads. *Milton.*

*To* INDENT', *v. n.* [from the method of cutting counterparts of a contract together, that, laid on each other, they may fit, and any want of conformity may diſcover a fraud.] To contract; to bargain; to make a compact.—He deſcends to the ſolemnity of a pact and covenant, and has *indented* with us. *Decay of Piety.*

Shall we buy treaſon, and *indent* with fears,
When they have loſt and forfeited themſelves? *Shakeſp.*

INDENT', *ſ.* Inequality; inciſure; indentation. This is little uſed:

Trent ſhall not wind with ſuch a deep *indent*,
To rob me of ſo rich a bottom here. *Shakeſpeare.*

INDENTA'TION, *ſ.* An indenture; waving in any figure.—The margins do not terminate in a ſtraight line, but are indented; each *indentation* being continued in a ſmall ridge, to the *indentation* that anſwers it on the oppoſite margin. *Woodward.*

INDEN'TING, *ſ.* The act of cutting with inequalities; of ſtipulating by indenture, for one's ſelf or for another; with printers, the act of placing a word at ſome diſtance from either extremity of the line.

INDEN'TURE, *ſ.* [from *to indent.*] A writing containing ſome contract, agreement, or conveyance, between two or more perſons, being indented in the top anſwerable to another part, which hath the ſame contents. *Co. Lit.* 229. A deed of bargain and ſale of freehold lands, &c. muſt be by indenture, inrolled, &c. 27 *Hen.* VIII. c. 16. Words in indentures, though of one party only, are binding to both parties. *Cro. Eliz.* 202, 657. See the article Apprentice.

INDEPEN'DENCE, or Independency, *ſ.* [*independance*, Fr. from *in* and *dependence.*] Freedom; exemption from reliance or controul; ſtate over which none has power.—Dreams may give us ſome idea of the great excellency of a human ſoul, and ſome intimations of its *independency* on matter. *Addiſon.*—Let fortune do her worſt, whatever ſhe makes us loſe, as long as ſhe never makes us loſe our honeſty and our *independence*. *Pope.*

Give me, I cry'd, enough for me,
My bread and *independency:*
So bought an annual rent or two,
And liv'd juſt as you ſee I do. *Pope.*

INDEPEN'DENCY, *ſ.* The ſtate of a religious ſect which is called *independent.*—This meaning of the word is exemplified in the title of Walker's Hiſtory of *Independency. Maſon's Supplement to Johnſon.*

INDEPEN'DENT, *adj.* Not depending; not ſupported by any other; not relying on another; not controlled. It is uſed with *on, of,* or *from,* before the object; of which *on* ſeems moſt proper, ſince we ſay to *depend on,* and conſequently *dependent on.*—Creation muſt needs infer providence, and God's making the world irrefragably proves that he governs it too; or that a being of dependent nature remains nevertheleſs *independent upon* him in that reſpect. *South.*—Since all princes of *independent* governments are in a ſtate of nature, the world never was without men in that ſtate. *Locke.*—The town of St. Gaul is a Proteſtant republic, *independent of* the abbot, and under the protection of the cantons. *Addiſon.*—Not relating to any thing elſe, as to a ſuperior cauſe of power.—The conſideration of our underſtanding, which is an incorporeal ſubſtance *independent from* matter; and the contemplation of our own bodies, which have all the ſtamps and characters of excellent contrivance; theſe alone do very eaſily guide us to the wiſe Author of all things. *Bentley.*

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